Assembly Bill No. 1739

CHAPTER 347

An act to amend Sections 65352 and 65352.5 of, and to add Section 65350.5 to, the Government Code, and to amend Sections 348, 1120, 1552, 1831, 10721, 10726.4, and 10726.8 of, to add Sections 1529.5 and 10726.9 to, to add Part 5.2 (commencing with Section 5200) to Division 2 of, and to add Chapter 7 (commencing with Section 10729), Chapter 8 (commencing with Section 10730), Chapter 9 (commencing with Section 10732), Chapter 10 (commencing with Section 10733), and Chapter 11 (commencing with Section 10735) to Part 2.74 of Division 6 of, the Water Code, relating to groundwater.

[Approved by Governor September 16, 2014. Filed with Secretary of State September 16, 2014.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1739, Dickinson. Groundwater management.

(1) Existing law authorizes local agencies to adopt and implement a groundwater management plan. Existing law requires a groundwater management plan to contain specified components and requires a local agency seeking state funds administered by the Department of Water Resources for groundwater projects or groundwater quality projects to do certain things, including, but not limited to, preparing and implementing a groundwater management plan that includes basin management objectives for the groundwater basin.

This bill would provide specific authority to a groundwater sustainability agency, as defined in SB 1168 of the 2013–14 Regular Session, to impose certain fees. The bill would authorize the department or a groundwater sustainability agency to provide technical assistance to entities that extract or use groundwater to promote water conservation and protect groundwater resources. This bill would require the department, by January 1, 2017, to publish on its Internet Web site best management practices for the sustainable management of groundwater, and would require the department to prepare and release a report by December 31, 2016, on the department’s best estimate of water available for replenishment of groundwater in the state.

This bill would require a groundwater sustainability agency to submit a groundwater sustainability plan to the department for review upon adoption. This bill would require the department to periodically review groundwater sustainability plans, and by June 1, 2016, would require the department to adopt certain regulations. This bill would authorize a local agency to submit to the department for evaluation and assessment an alternative that the local agency believes satisfies the objectives of these provisions. This bill would require the department to review any of the above-described submissions at least every 5 years after initial submission to the department.

This bill would authorize the board to conduct inspections and would authorize the board to obtain an inspection warrant. Because the willful refusal of an inspection lawfully authorized by an inspection warrant is a misdemeanor, this bill would impose a state-mandated local program by expanding the application of a crime.

This bill would authorize the board to designate a basin as a probationary basin if the board makes a certain determination. This bill would authorize the board to develop an interim plan for a probationary basin if the board, in consultation with the department, determines that a local agency has not remedied a deficiency that resulted in designating the basin as a probationary basin within a certain timeframe. This bill would authorize the board to adopt an interim plan for a probationary basin after notice and a public hearing and would require state entities to comply with an interim plan. This bill would specifically authorize the board to rescind all or a portion of an interim plan if the board determines at the request of specified petitioners that a groundwater sustainability plan or adjudication action is adequate to eliminate the condition of long-term overdraft or condition where groundwater extractions result in significant depletions of interconnected surface waters. This bill would provide that the board has authority to stay its proceedings relating to an interim plan or to rescind or amend an interim plan based on the progress made by a groundwater sustainability agency or in an adjudication action.

(2) Existing law establishes the Water Rights Fund, which consists of various fees and penalties. The moneys in the Water Rights Fund are available, upon appropriation by the Legislature, for, among other things, the administration of the State Water Resource Control Board's water rights program.

This bill would provide that the moneys in the Water Rights Fund are available for expenditure, upon appropriation by the Legislature, for the purpose of state board enforcement of the provisions of this bill. This bill would require the board to adopt a schedule of fees in an amount sufficient to recover all costs incurred and expended from the Water Rights Fund by the board for this bill.

Under existing law, a person who violates a cease and desist order of the board may be liable in an amount not to exceed $1,000 for each day in which the violation occurs. Revenue generated from these penalties is deposited in the Water Rights Fund.

This bill would authorize the board to issue a cease and desist order in response to a violation or threatened violation of any decision or order of the board or any extraction restriction, limitation, order, or regulation adopted or issued under the provisions of this bill.

(3) Existing law, with certain exceptions, requires each person who diverts water after December 31, 1965, to file with the State Water Resources Control Board a prescribed statement of diversion and use. Existing law subjects a person to civil liability if that person fails to file, as required, a diversion and use statement for a diversion or use that occurs after January 1, 2009, tampers with any measuring device, or makes a material misstatement in connection with the filing of a diversion or use statement. Existing law provides that the making of any willful misstatement in connection with these provisions is a misdemeanor punishable as prescribed.

This bill would establish groundwater reporting requirements for a person extracting groundwater in an area within a basin that is not within the management area of a groundwater sustainability agency or a probationary basin. The bill would require the reports to be submitted to the board or, in certain areas, to an entity designated as a local agency by the board, as specified. This bill would require each report to be accompanied by a specified fee. This bill would apply the above-described criminal and civil liability provisions to a report or measuring device required by this reporting requirement. By expanding the definition of a crime, this bill would impose a state-mandated local program.

Existing law authorizes the board or the Department of Water Resources to adopt emergency regulations providing for the filing of reports of water diversion or use that are required to be filed.

This bill would authorize the board or the department to adopt emergency regulations providing for the filing of reports of water extraction.

(4) Existing law requires the legislative body of each county and city to adopt a comprehensive, long-term general plan for the physical development of the county or city with specified elements, including, among others, land use and conservation elements. Existing law requires a city or county, upon the adoption or revision of its general plan, on or after January 1, 1996, to utilize as a source document any urban water management plan submitted to the city or county by a water agency.

This bill would require, prior to the adoption or any substantial amendment of a general plan, the planning agency to review and consider a groundwater sustainability plan, groundwater management plan, groundwater management court order, judgment, or decree, adjudication of water rights, or a certain order or interim plan by the State Water Resources Control Board. This bill would require the planning agency to refer a proposed action to adopt or substantially amend a general plan to any groundwater sustainability agency that has adopted a groundwater sustainability plan or local agency that otherwise manages groundwater and to the State Water Resources Control Board if it has adopted an interim plan that includes territory within the planning area.

Existing law requires a public water system to provide a planning agency with certain information upon receiving notification of a city's or a county's proposed action to adopt or substantially amend a general plan.

This bill would also require a groundwater sustainability agency or an entity that submits an alternative to provide the planning agency with certain information as is appropriate and relevant, including a report on the anticipated effect of the proposed action on implementation of a groundwater sustainability plan.

By imposing new duties on a city or county, this bill would impose a state-mandated local program.

(5) Senate Bill 1168 of the 2013–14 Regular Session, if enacted, would enact the Sustainable Groundwater Management Act, and would define “undesirable result” for purposes of those provisions. The act would grant specified authority to a groundwater sustainability agency relating to controlling groundwater extractions, and would specify that various provisions do not supersede the land use authority of cities and counties, as specified.

This bill would revise the definition of “undesirable result,” and would specify that certain authority granted to a groundwater sustainability agency to control groundwater extractions shall be consistent with applicable elements of a city or county general plan, except as specified. The bill would provide that the provisions against superseding the land use authority of cities and counties apply to that authority within the overlying basin, including the city or county general plan, and would require a groundwater sustainability plan to take into account the most recent planning assumptions stated in local general plans overlying the basin.

(6) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that with regard to certain mandates no reimbursement is required by this act for a specified reason.

With regard to any other mandates, this bill would provide that, if the Commission on State Mandates determines that the bill contains costs so mandated by the state, reimbursement for those costs shall be made pursuant to the statutory provisions noted above.

(7) Existing constitutional provisions require that a statute that limits the right of access to the meetings of public bodies or the writings of public officials and agencies be adopted with findings demonstrating the interest protected by the limitation and the need for protecting that interest.

This bill would make legislative findings to that effect.

(8) This bill would make its operation contingent on the enactment of SB 1168 of the 2013–14 Regular Session.

DIGEST KEY

Vote: MAJORITY   Appropriation: NO   Fiscal Committee: YES   Local Program: YES

BILL TEXT

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1.

(a) The Legislature finds and declares as follows:

(1) The people of the state have a primary interest in the protection, management, and reasonable beneficial use of the water resources of the state, both surface and underground, and that the integrated management of the state’s water resources is essential to meeting its water management goals.

(2) Groundwater provides a significant portion of California’s water supply. Groundwater accounts for more than one-third of the water used by Californians in an average year and more than one-half of the water used by Californians in a drought year when other sources are unavailable.

(3) Excessive groundwater extraction can cause overdraft, failed wells, deteriorated water quality, environmental damage, and irreversible land subsidence that damages infrastructure and diminishes the capacity of aquifers to store water for the future.

(4) When properly managed, groundwater resources will help protect communities, farms, and the environment against prolonged dry periods and climate change, preserving water supplies for existing and potential beneficial use.

(5) Failure to manage groundwater to prevent long-term overdraft infringes on groundwater rights.

(6) Groundwater resources are most effectively managed at the local or regional level.

(7) Groundwater management will not be effective unless local actions to sustainably manage groundwater basins and subbasins are taken.

(8) Local and regional agencies need to have the necessary support and authority to manage groundwater sustainably.

(9) In those circumstances where a local groundwater management agency is not managing its groundwater sustainably, the state needs to protect the resource until it is determined that a local groundwater management agency can sustainably manage the groundwater basin or subbasin.

(10) Information on the amount of groundwater extraction, natural and artificial recharge, and groundwater evaluations are critical for effective management of groundwater.

(11) Sustainable groundwater management in California depends upon creating more opportunities for robust conjunctive management of surface water and groundwater resources. Climate change will intensify the need to recalibrate and reconcile surface water and groundwater management strategies.

(12) Sustainability groundwater management is part of implementation of the California Water Action Plan.

(b) It is, therefore, the intent of the Legislature to do all of the following:

(1) To provide local and regional agencies the authority to sustainably manage groundwater.

(2) To provide that if no local groundwater agency or agencies provide sustainable groundwater management for a groundwater basin or subbasin, the state has the authority to develop and implement an interim plan until the time the local groundwater sustainability agency or agencies can assume management of the basin or subbasin.

(3) To require the development and reporting of those data necessary to support sustainable groundwater management, including those data that help describe the basin's geology, the short- and long-term trends of the basin's water balance, and other measures of sustainability, and those data necessary to resolve disputes regarding sustainable yield, beneficial uses, and water rights.

(4) To respect overlying and other proprietary rights to groundwater, consistent with Section 1200 of the Water Code.

(5) To recognize and preserve the authority of cities and counties to manage groundwater pursuant to their police powers.

SEC. 2.

Section 65350.5 is added to the Government Code, to read:

65350.5.

Before the adoption or any substantial amendment of a city's or county's general plan, the planning agency shall review and consider all of the following:

(a) An adoption of, or update to, a groundwater sustainability plan or groundwater management plan pursuant to Part 2.74 (commencing with Section 10720) or Part 2.75 (commencing with Section 10750) of Division 6 of the Water Code or groundwater management court order, judgment, or decree.

(b) An adjudication of water rights.

(c) An order or interim plan by the State Water Resources Control Board pursuant to Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6 of the Water Code.

SEC. 3.

Section 65352 of the Government Code is amended to read:

65352.

(a) Before a legislative body takes action to adopt or substantially amend a general plan, the planning agency shall refer the proposed action to all of the following entities:

(1) A city or county, within or abutting the area covered by the proposal, and any special district that may be significantly affected by the proposed action, as determined by the planning agency.

(2) An elementary, high school, or unified school district within the area covered by the proposed action.

(3) The local agency formation commission.

(4) An areawide planning agency whose operations may be significantly affected by the proposed action, as determined by the planning agency.

(5) A federal agency, if its operations or lands within its jurisdiction may be significantly affected by the proposed action, as determined by the planning agency.

(6) (A) The branches of the United States Armed Forces that have provided the Office of Planning and Research with a California mailing address pursuant to subdivision (d) of Section 65944, if the proposed action is within 1,000 feet of a military installation, or lies within special use airspace, or beneath a low-level flight path, as defined in Section 21098 of the Public Resources Code, and if the United States Department of Defense provides electronic maps of low-level flight paths, special use airspace, and military installations at a scale and in an electronic format that is acceptable to the Office of Planning and Research.

(B) Within 30 days of a determination by the Office of Planning and Research that the information provided by the Department of Defense is sufficient and in an acceptable scale and format, the office shall notify cities, counties, and cities and counties of the availability of the information on the Internet. Cities, counties, and cities and counties shall comply with subparagraph (A) within 30 days of receiving this notice from the office.

(7) A public water system, as defined in Section 116275 of the Health and Safety Code, with 3,000 or more service connections, that serves water to customers within the area covered by the proposal. The public water system shall have at least 45 days to comment on the proposed plan, in accordance with subdivision (b), and to provide the planning agency with the information set forth in Section 65352.5.

(8) Any groundwater sustainability agency that has adopted a groundwater sustainability plan pursuant to Part 2.74 (commencing with Section 10720) of Division 6 of the Water Code or local agency that otherwise manages groundwater pursuant to other provisions of law or a court order, judgment, or decree within the planning area of the proposed general plan.

(9) The State Water Resources Control Board, if it has adopted an interim plan pursuant to Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6 of the Water Code that includes territory within the planning area of the proposed general plan.

(10) The Bay Area Air Quality Management District for a proposed action within the boundaries of the district.

(11) A California Native American tribe that is on the contact list maintained by the Native American Heritage Commission and that has traditional lands located within the city's or county's jurisdiction.

(12) The Central Valley Flood Protection Board for a proposed action within the boundaries of the Sacramento and San Joaquin Drainage District, as set forth in Section 8501 of the Water Code.

(b) An entity receiving a proposed general plan or amendment of a general plan pursuant to this section shall have 45 days from the date the referring agency mails it or delivers it to comment unless a longer period is specified by the planning agency.

(c) (1) This section is directory, not mandatory, and the failure to refer a proposed action to the entities specified in this section does not affect the validity of the action, if adopted.

(2) To the extent that the requirements of this section conflict with the requirements of Chapter 4.4 (commencing with Section 65919), the requirements of Chapter 4.4 shall prevail.

SEC. 4.

Section 65352.5 of the Government Code is amended to read:

65352.5.

(a) The Legislature finds and declares that it is vital that there be close coordination and consultation between California's water supply or management agencies and California's land use approval agencies to ensure that proper water supply and management planning occurs to accommodate projects that will result in increased demands on water supplies or impact water resource management.

(b) It is, therefore, the intent of the Legislature to provide a standardized process for determining the adequacy of existing and planned future water supplies to meet existing and planned future demands on these water supplies and the impact of land use decisions on the management of California's water supply resources.

(c) Upon receiving, pursuant to Section 65352, notification of a city's or a county's proposed action to adopt or substantially amend a general plan, a public water system, as defined in Section 116275 of the Health and Safety Code, with 3,000 or more service connections, shall provide the planning agency with the following information, as is appropriate and relevant:

(1) The current version of its urban water management plan, adopted pursuant to Part 2.6 (commencing with Section 10610) of Division 6 of the Water Code.

(2) The current version of its capital improvement program or plan, as reported pursuant to Section 31144.73 of the Water Code.

(3) A description of the source or sources of the total water supply currently available to the water supplier by water right or contract, taking into account historical data concerning wet, normal, and dry runoff years.

(4) A description of the quantity of surface water that was purveyed by the water supplier in each of the previous five years.

(5) A description of the quantity of groundwater that was purveyed by the water supplier in each of the previous five years.

(6) A description of all proposed additional sources of water supplies for the water supplier, including the estimated dates by which these additional sources should be available and the quantities of additional water supplies that are being proposed.

(7) A description of the total number of customers currently served by the water supplier, as identified by the following categories and by the amount of water served to each category:

(A) Agricultural users.

(B) Commercial users.

(C) Industrial users.

(D) Residential users.

(8) Quantification of the expected reduction in total water demand, identified by each customer category set forth in paragraph (7), associated with future implementation of water use reduction measures identified in the water supplier’s urban water management plan.

(9) Any additional information that is relevant to determining the adequacy of existing and planned future water supplies to meet existing and planned future demands on these water supplies.

(d) Upon receiving, pursuant to Section 65352, notification of a city’s or a county’s proposed action to adopt or substantially amend a general plan, a groundwater sustainability agency, as defined in Section 10721 of the Water Code, or an entity that submits an alternative under Section 10733.6 shall provide the planning agency with the following information, as is appropriate and relevant:

(1) The current version of its groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720) of Division 6 of the Water Code.

(2) If the groundwater sustainability agency manages groundwater pursuant to a court order, judgment, decree, or agreement among affected water rights holders, or if the State Water Resources Control Board has adopted an interim plan pursuant to Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6 of the Water Code, the groundwater sustainability agency shall provide the planning agency with maps of recharge basins and percolation ponds, extraction limitations, and other relevant information, or the court order, judgment, or decree.

(3) A report on the anticipated effect of proposed action to adopt or substantially amend a general plan on implementation of a groundwater sustainability plan pursuant to Part 2.74 (commencing with Section 10720) of Division 6 of the Water Code.

SEC. 5.

Section 348 of the Water Code is amended to read:

348.

(a) The department or the board may adopt emergency regulations providing for the electronic filing of reports of water extraction or water diversion or use required to be filed with the department or board under this code, including, but not limited to, any report required to be filed under Part 5.1 (commencing with Section 5100) or Part 5.2 (commencing with Section 5200) of Division 2 and any report required to be filed by a water right permittee or licensee.

(b) Emergency regulations adopted pursuant to this section, or any amendments thereto, shall be adopted by the department or the board in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The adoption of these regulations is an emergency and shall be considered by the Office of Administrative Law as necessary for the immediate preservation of the public peace, health, safety, and general welfare. Notwithstanding Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code, any emergency regulations or amendments to those regulations adopted under this section shall remain in effect until revised by the department or the board that adopted the regulations or amendments.

SEC. 6.

Section 1120 of the Water Code is amended to read:

1120.

This chapter applies to any decision or order issued under this part or Section 275, Part 2 (commencing with Section 1200), Part 2 (commencing with Section 10500) of Division 6, Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6, Article 7 (commencing with Section 13550) of Chapter 7 of Division 7, or the public trust doctrine.

SEC. 7.

Section 1529.5 is added to the Water Code, to read:

1529.5.

(a) The board shall adopt a schedule of fees pursuant to Section 1530 to recover costs incurred in administering Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6. Recoverable costs include, but are not limited to, costs incurred in connection with investigations, facilitation, monitoring, hearings, enforcement, and administrative costs in carrying out these actions.

(b) The fee schedule adopted under this section may include, but is not limited to, the following:

(1) A fee for participation as a petitioner or party to an adjudicative proceeding.

(2) A fee for the filing of a report pursuant to Part 5.2 (commencing with Section 5200) of Division 2.

(c) Consistent with Section 3 of Article XIII A of the California Constitution, the board shall set the fees under this section in an amount sufficient to cover all costs incurred and expended from the Water Rights Fund for the purposes of Part 5.2 (commencing with Section 5200) and Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6. In setting these fees, the board is not required to fully recover these costs in the year or the year immediately after the costs are incurred, but the board may provide for recovery of these costs over a period of years.

SEC. 8.

Section 1552 of the Water Code is amended to read:

1552.

The money in the Water Rights Fund is available for expenditure, upon appropriation by the Legislature, for the following purposes:

(a) For expenditure by the State Board of Equalization in the administration of this chapter and the Fee Collection Procedures Law (Part 30 (commencing with Section 55001) of Division 2 of the Revenue and Taxation Code) in connection with any fee or expense subject to this chapter.

(b) For the payment of refunds, pursuant to Part 30 (commencing with Section 55001) of Division 2 of the Revenue and Taxation Code, of fees or expenses collected pursuant to this chapter.

(c) For expenditure by the board for the purposes of carrying out this division, Division 1 (commencing with Section 100), Part 2 (commencing with Section 10500) and Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6, and Article 7 (commencing with Section 13550) of Chapter 7 of Division 7.

(d) For expenditures by the board for the purposes of carrying out Sections 13160 and 13160.1 in connection with activities involving hydroelectric power projects subject to licensing by the Federal Energy Regulatory Commission.

(e) For expenditures by the board for the purposes of carrying out Sections 13140 and 13170 in connection with plans and policies that address the diversion or use of water.

SEC. 9.

Section 1831 of the Water Code is amended to read:

1831.

(a) When the board determines that any person is violating, or threatening to violate, any requirement described in subdivision (d), the board may issue an order to that person to cease and desist from that violation.

(b) The cease and desist order shall require that person to comply forthwith or in accordance with a time schedule set by the board.

(c) The board may issue a cease and desist order only after notice and an opportunity for hearing pursuant to Section 1834.

(d) The board may issue a cease and desist order in response to a violation or threatened violation of any of the following:

(1) The prohibition set forth in Section 1052 against the unauthorized diversion or use of water subject to this division.

(2) Any term or condition of a permit, license, certification, or registration issued under this division.

(3) Any decision or order of the board issued under this part, Section 275, Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6, or Article 7 (commencing with Section 13550) of Chapter 7 of Division 7, in which decision or order the person to whom the cease and desist order will be issued, or a predecessor in interest to that person, was named as a party directly affected by the decision or order.

(4) A regulation adopted under Section 1058.5.

(5) Any extraction restriction, limitation, order, or regulation adopted or issued under Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6.

(e) This article does not authorize the board to regulate in any manner, the diversion or use of water not otherwise subject to regulation of the board under this part.

SEC. 10.

Part 5.2 (commencing with Section 5200) is added to Division 2 of the Water Code, to read:

PART 5.2. Groundwater Extraction Reporting for Probationary Basins and Basins Without a Groundwater Sustainability Agency

5200.

The Legislature finds and declares that this part establishes groundwater reporting requirements for the purposes of subdivision (b) of Section 10724 and Chapter 11 (commencing with Section 10735) of Part 2.74 of Division 6.

5201.

As used in this part:

(a) “Basin” has the same meaning as defined in Section 10721.

(b) “Board-designated local area” has the same meaning as defined in Section 5009.

(c) “De minimis extractor” has the same meaning as defined in Section 10721.

(d) “Groundwater” has the same meaning as defined in Section 10721.

(e) “Groundwater extraction facility” has the same meaning as defined in Section 10721.

(f) “Groundwater sustainability agency” has the same meaning as defined in Section 10721.

(g) “Person” has the same meaning as defined in Section 10735.

(h) “Personal information” has the same meaning as defined in Section 1798.3 of the Civil Code.

(i) “Probationary basin” has the same meaning as defined in Section 10735.

(j) “Water year” has the same meaning as defined in Section 10721.

5202.

(a) This section applies to a person who does either of the following:

(1) Extracts groundwater from a probationary basin 90 days or more after the board designates the basin as a probationary basin pursuant to Section 10735.2.

(2) Extracts groundwater on or after July 1, 2017, in an area within a basin that is not within the management area of a groundwater sustainability agency and where the county does not assume responsibility to be the groundwater sustainability agency, as provided in subdivision (b) of Section 10724.

(b) Except as provided in subdivision (c), a person subject to this section shall file a report of groundwater extraction by December 15 of each year for extractions made in the preceding water year.

(c) Unless reporting is required pursuant to paragraph (2) of subdivision (c) of Section 10735.2, this section does not apply to any of the following:

(1) An extraction by a de minimis extractor.

(2) An extraction excluded from reporting pursuant to paragraph (1) of subdivision (c) of Section 10735.2.

(3) An extraction reported pursuant to Part 5 (commencing with Section 4999).

(4) An extraction that is included in annual reports filed with a court or the board by a watermaster appointed by a court or pursuant to statute to administer a final judgment determining rights to water. The reports shall identify the persons who have extracted water and give the general place of use and the quantity of water that has been extracted from each source.

(d) Except as provided in Section 5209, the report shall be filed with the board.

(e) The report may be filed by the person extracting water or on that person’s behalf by an agency that person designates and that maintains a record of the water extracted.

(f) Each report shall be accompanied by the fee imposed pursuant to Section 1529.5.

5203.

Each report shall be prepared on a form provided by the board. The report shall include all of the following information:

(a) The name and address of the person who extracted groundwater and of the person filing the report.

(b) The name of the basin from which groundwater was extracted.

(c) The place of groundwater extraction. The location of the groundwater extraction facilities shall be depicted on a specific United States Geological Survey topographic map or shall be identified using the California Coordinate System or a latitude and longitude measurement. If assigned, the public land description to the nearest 40-acre subdivision and the assessor’s parcel number shall be provided.

(d) The capacity of the groundwater extraction facilities.

(e) Monthly records of groundwater extractions. The measurements of the extractions shall be made by a methodology, water-measuring device, or combination thereof satisfactory to the board.

(f) The purpose of use.

(g) A general description of the area in which the water was used. The location of the place of use shall be depicted on a specific United States Geological Survey topographic map or on any other maps with identifiable landmarks. If assigned, the public land description to the nearest 40-acre subdivision and the assessor’s parcel number shall also be provided.

(h) As near as is known, the year in which the groundwater extraction was commenced.

(i) Any information required pursuant to paragraph (3) of subdivision (c) of Section 10735.2.

(j) Any other information that the board may require by regulation and that is reasonably necessary for purposes of this division or Part 2.74 (commencing with Section 10720) of Division 6.

5204.

(a) If a person fails to file a report as required by this part, the board may, at the expense of that person, investigate and determine the information required to be reported pursuant to this part.

(b) The board shall give a person described in subdivision (a) notice of its intention to investigate and determine the information required to be reported pursuant to this part and 60 days in which to file a required report without penalty.

5205.

A report submitted under this part or a determination of facts by the board pursuant to Section 5104 shall not establish or constitute evidence of a right to divert or use water.

5206.

Personal information included in a report of groundwater extraction shall have the same protection from disclosure as is provided for information concerning utility customers of local agencies pursuant to Section 6254.16 of the Government Code.

5207.

A right to extract groundwater that may otherwise occur shall not arise or accrue to, and a statute of limitations shall not operate in favor of, a person required to file a report pursuant to this part until the person files the report.

5208.

Section 5107 applies to a report or measuring device required pursuant to this part. For purposes of Section 5107, a report of groundwater extraction, measuring device, or misstatement required, used, or made pursuant to this part shall be considered the equivalent of a statement, measuring device, or misstatement required, used, or made pursuant to Part 5.1 (commencing with Section 5100).

5209.

For groundwater extractions in a board-designated local area, reports required pursuant to this part shall be submitted to the entity designated pursuant to subdivision (e) of Section 5009 if both of the following occur:

(a) The board determines that the requirements of subdivision (e) of Section 5009 have been satisfied with respect to extractions subject to reporting pursuant to this part, in addition to any groundwater extractions subject to Part 5 (commencing with Section 4999).

(b) The designated entity has made satisfactory arrangements to collect and transmit to the board any fees imposed pursuant to paragraph (2) of subdivision (b) of Section 1529.5.

SEC. 11.

Section 10721 of the Water Code, as added by Senate Bill 1168 of the 2013–14 Regular Session, is amended to read:

10721.

Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) “Adjudication action” means an action filed in the superior or federal district court to determine the rights to extract groundwater from a basin or store water within a basin, including, but not limited to, actions to quiet title respecting rights to extract or store groundwater or an action brought to impose a physical solution on a basin.

(b) “Basin” means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Chapter 3 (commencing with Section 10722).

(c) “Bulletin 118” means the department’s report entitled “California’s Groundwater: Bulletin 118” updated in 2003, as it may be subsequently updated or revised in accordance with Section 12924.

(d) “Coordination agreement” means a legal agreement adopted between two or more groundwater sustainability agencies that provides the basis for coordinating multiple agencies or groundwater sustainability plans within a basin pursuant to this part.

(e) “De minimis extractor” means a person who extracts, for domestic purposes, two acre-feet or less per year.

(f) “Governing body” means the legislative body of a groundwater sustainability agency.

(g) “Groundwater” means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels.

(h) “Groundwater extraction facility” means a device or method for extracting groundwater from within a basin.

(i) “Groundwater recharge” means the augmentation of groundwater, by natural or artificial means.

(j) “Groundwater sustainability agency” means one or more local agencies that implement the provisions of this part. For purposes of imposing fees pursuant to Chapter 8 (commencing with Section 10730) or taking action to enforce a groundwater sustainability plan, “groundwater sustainability agency” also means each local agency comprising the groundwater sustainability agency if the plan authorizes separate agency action.

(k) “Groundwater sustainability plan” or “plan” means a plan of a groundwater sustainability agency proposed or adopted pursuant to this part.

(l) “Groundwater sustainability program” means a coordinated and ongoing activity undertaken to benefit a basin, pursuant to a groundwater sustainability plan.

(m) “Local agency” means a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin.

(n) “Operator” means a person operating a groundwater extraction facility. The owner of a groundwater extraction facility shall be conclusively presumed to be the operator unless a satisfactory showing is made to the governing body of the groundwater sustainability agency that the groundwater extraction facility actually is operated by some other person.

(o) “Owner” means a person owning a groundwater extraction facility or an interest in a groundwater extraction facility other than a lien to secure the payment of a debt or other obligation.

(p) “Personal information” has the same meaning as defined in Section 1798.3 of the Civil Code.

(q) “Planning and implementation horizon” means a 50-year time period over which a groundwater sustainability agency determines that plans and measures will be implemented in a basin to ensure that the basin is operated within its sustainable yield.

(r) “Public water system” has the same meaning as defined in Section 116275 of the Health and Safety Code.

(s) “Recharge area” means the area that supplies water to an aquifer in a groundwater basin.

(t) “Sustainability goal” means the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield.

(u) “Sustainable groundwater management” means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.

(v) “Sustainable yield” means the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result.

(w) “Undesirable result” means one or more of the following effects caused by groundwater conditions occurring throughout the basin:

(1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

(2) Significant and unreasonable reduction of groundwater storage.

(3) Significant and unreasonable seawater intrusion.

(4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

(5) Significant and unreasonable land subsidence that substantially interferes with surface land uses.

(6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

(x) “Water budget” means an accounting of the total groundwater and surface water entering and leaving a basin including the changes in the amount of water stored.

(y) “Watermaster” means a watermaster appointed by a court or pursuant to other law.

(z) “Water year” means the period from October 1 through the following September 30, inclusive.

(aa) “Wellhead protection area” means the surface and subsurface area surrounding a water well or well field that supplies a public water system through which contaminants are reasonably likely to migrate toward the water well or well field.

SEC. 12.

Section 10726.4 of the Water Code, as added by Senate Bill 1168 of the 2013–14 Regular Session, is amended to read:

10726.4.

(a) A groundwater sustainability agency shall have the following additional authority and may regulate groundwater extraction using that authority:

(1) To impose spacing requirements on new groundwater well construction to minimize well interference and impose reasonable operating regulations on existing groundwater wells to minimize well interference, including requiring extractors to operate on a rotation basis.

(2) To control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, construction of new groundwater wells, enlargement of existing groundwater wells, or reactivation of abandoned groundwater wells, or otherwise establishing groundwater extraction allocations. Those actions shall be consistent with the applicable elements of the city or county general plan, unless there is insufficient sustainable yield in the basin to serve a land use designated in the city or county general plan. A limitation on extractions by a groundwater sustainability agency shall not be construed to be a final determination of rights to extract groundwater from the basin or any portion of the basin.

(3) To authorize temporary and permanent transfers of groundwater extraction allocations within the agency’s boundaries, if the total quantity of groundwater extracted in any water year is consistent with the provisions of the groundwater sustainability plan. The transfer is subject to applicable city and county ordinances.

(4) To establish accounting rules to allow unused groundwater extraction allocations issued by the agency to be carried over from one year to another and voluntarily transferred, if the total quantity of groundwater extracted in any five-year period is consistent with the provisions of the groundwater sustainability plan.

(b) This section does not authorize a groundwater sustainability agency to issue permits for the construction, modification, or abandonment of groundwater wells, except as authorized by a county with authority to issue those permits. A groundwater sustainability agency may request of the county, and the county shall consider, that the county forward permit requests for the construction of new groundwater wells, the enlarging of existing groundwater wells, and the reactivation of abandoned groundwater wells to the groundwater sustainability agency before permit approval.

SEC. 13.

Section 10726.8 of the Water Code, as added by Senate Bill 1168 of the 2013–14 Regular Session, is amended to read:

10726.8.

(a) This part is in addition to, and not a limitation on, the authority granted to a local agency under any other law. The local agency may use the local agency’s authority under any other law to apply and enforce any requirements of this part, including, but not limited to, the collection of fees.

(b) Nothing in this part shall be construed as authorizing a local agency to make a binding determination of the water rights of any person or entity.

(c) Nothing in this part is a limitation on the authority of the board, the department, or the State Department of Public Health.

(d) Notwithstanding Section 6103 of the Government Code, a state or local agency that extracts groundwater shall be subject to a fee imposed under this part to the same extent as any nongovernmental entity.

(e) Except as provided in subdivision (d), this part does not authorize a local agency to impose any requirement on the state or any agency, department, or officer of the state. State agencies and departments shall work cooperatively with a local agency on a voluntary basis.

(f) Nothing in this chapter or a groundwater sustainability plan shall be interpreted as superseding the land use authority of cities and counties, including the city or county general plan, within the overlying basin.

SEC. 14.

Section 10726.9 is added to the Water Code, to read:

10726.9.

A groundwater sustainability plan shall take into account the most recent planning assumptions stated in local general plans of jurisdictions overlying the basin.

SEC. 15.

Chapter 7 (commencing with Section 10729) is added to Part 2.74 of Division 6 of the Water Code, to read:

CHAPTER 7. Technical Assistance

10729.

(a) The department or a groundwater sustainability agency may provide technical assistance to entities that extract or use groundwater to promote water conservation and protect groundwater resources.

(b) The department may provide technical assistance to any groundwater sustainability agency in response to that agency's request for assistance in the development and implementation of a groundwater sustainability plan. The department shall use its best efforts to provide the requested assistance.

(c) The department shall prepare and publish a report by December 31, 2016, on its Internet Web site that presents the department's best estimate, based on available information, of water available for replenishment of groundwater in the state.

(d) (1) By January 1, 2017, the department shall publish on its Internet Web site best management practices for the sustainable management of groundwater.

(2) The department shall develop the best management practices through a public process involving one public meeting conducted at a location in northern California, one public meeting conducted at a location in the San Joaquin Valley, one public meeting conducted at a location in southern California, and one public meeting of the California Water Commission.

SEC. 16.

Chapter 8 (commencing with Section 10730) is added to Part 2.74 of Division 6 of the Water Code, to read:

CHAPTER 8. Financial Authority

10730.

(a) A groundwater sustainability agency may impose fees, including, but not limited to, permit fees and fees on groundwater extraction or other regulated activity, to fund the costs of a groundwater sustainability program, including, but not limited to, preparation, adoption, and amendment of a groundwater sustainability plan, and investigations, inspections, compliance assistance, enforcement, and program administration, including a prudent reserve. A groundwater sustainability agency shall not impose a fee pursuant to this subdivision on a de minimis extractor unless the agency has regulated the users pursuant to this part.

(b) (1) Prior to imposing or increasing a fee, a groundwater sustainability agency shall hold at least one public meeting, at which oral or written presentations may be made as part of the meeting.

(2) Notice of the time and place of the meeting shall include a general explanation of the matter to be considered and a statement that the data required by this section is available. The notice shall be provided by publication pursuant to Section 6066 of the Government Code, by posting notice on the Internet Web site of the groundwater sustainability agency, and by mail to any interested party who files a written request with the agency for mailed notice of the meeting on new or increased fees. A written request for mailed notices shall be valid for one year from the date that the request is made and may be renewed by making a written request on or before April 1 of each year.

(3) At least 10 days prior to the meeting, the groundwater sustainability agency shall make available to the public data upon which the proposed fee is based.

(c) Any action by a groundwater sustainability agency to impose or increase a fee shall be taken only by ordinance or resolution.

(d) (1) As an alternative method for the collection of fees imposed pursuant to this section, a groundwater sustainability agency may adopt a resolution requesting collection of the fees in the same manner as ordinary municipal ad valorem taxes.

(2) A resolution described in paragraph (1) shall be adopted and furnished to the county auditor-controller and board of supervisors on or before August 1 of each year that the alternative collection of the fees is being requested. The resolution shall include a list of parcels and the amount to be collected for each parcel.

(e) The power granted by this section is in addition to any powers a groundwater sustainability agency has under any other law.

10730.2.

(a) A groundwater sustainability agency that adopts a groundwater sustainability plan pursuant to this part may impose fees on the extraction of groundwater from the basin to fund costs of groundwater management, including, but not limited to, the costs of the following:

(1) Administration, operation, and maintenance, including a prudent reserve.

(2) Acquisition of lands or other property, facilities, and services.

(3) Supply, production, treatment, or distribution of water.

(4) Other activities necessary or convenient to implement the plan.

(b) Until a groundwater sustainability plan is adopted pursuant to this part, a local agency may impose fees in accordance with the procedures provided in this section for the purposes of Part 2.75 (commencing with Section 10750) as long as a groundwater management plan adopted before January 1, 2015, is in effect for the basin.

(c) Fees imposed pursuant to this section shall be adopted in accordance with subdivisions (a) and (b) of Section 6 of Article XIII D of the California Constitution.

(d) Fees imposed pursuant to this section may include fixed fees and fees charged on a volumetric basis, including, but not limited to, fees that increase based on the quantity of groundwater produced annually, the year in which the production of groundwater commenced from a groundwater extraction facility, and impacts to the basin.

(e) The power granted by this section is in addition to any powers a groundwater sustainability agency has under any other law.

10730.4.

A groundwater sustainability agency may fund activities pursuant to Part 2.75 (commencing with Section 10750) and may impose fees pursuant to Section 10730.2 to fund activities undertaken by the agency pursuant to Part 2.75 (commencing with Section 10750).

10730.6.

(a) A groundwater fee levied pursuant to this chapter shall be due and payable to the groundwater sustainability agency by each owner or operator on a day established by the groundwater sustainability agency.

(b) If an owner or operator knowingly fails to pay a groundwater fee within 30 days of it becoming due, the owner or operator shall be liable to the groundwater sustainability agency for interest at the rate of 1 percent per month on the delinquent amount of the groundwater fee and a 10-percent penalty.

(c) The groundwater sustainability agency may bring a suit in the court having jurisdiction against any owner or operator of a groundwater extraction facility within the area covered by the plan for the collection of any delinquent groundwater fees, interest, or penalties imposed under this chapter. If the groundwater sustainability agency seeks an attachment against the property of any named defendant in the suit, the groundwater sustainability agency shall not be required to furnish a bond or other undertaking as provided in Title 6.5 (commencing with Section 481.010) of Part 2 of the Code of Civil Procedure.

(d) In the alternative to bringing a suit pursuant to subdivision (c), a groundwater sustainability agency may collect any delinquent groundwater charge and any civil penalties and interest on the delinquent groundwater charge pursuant to the laws applicable to the local agency or, if a joint powers authority, to the entity designated pursuant to Section 6509 of the Government Code. The collection shall be in the same manner as it would be applicable to the collection of delinquent assessments, water charges, or tolls.

(e) As an additional remedy, a groundwater sustainability agency, after a public hearing, may order an owner or operator to cease extraction of groundwater until all delinquent fees are paid. The groundwater sustainability agency shall give notice to the owner or operator by certified mail not less than 15 days in advance of the public hearing.

(f) The remedies specified in this section for collecting and enforcing fees are cumulative and may be pursued alternatively or may be used consecutively as determined by the governing body.

10730.8.

(a) Nothing in this chapter shall affect or interfere with the authority of a groundwater sustainability agency to levy and collect taxes, assessments, charges, and tolls as otherwise provided by law.

(b) Personal information included in a report or record pursuant to this chapter has the same protection from disclosure as is provided for information concerning utility customers of local agencies pursuant to Section 6254.16 of the Government Code.

10731.

(a) Following an investigation pursuant to Section 10725.4, the governing body may make a determination fixing the amount of groundwater production from the groundwater extraction facility at an amount not to exceed the maximum production capacity of the facility for purposes of levying a groundwater charge. If a water-measuring device is permanently attached to the groundwater extraction facility, the record of production as disclosed by the water-measuring device shall be presumed to be accurate unless the contrary is established by the groundwater sustainability agency after investigation.

(b) After the governing body makes a determination fixing the amount of groundwater production pursuant to subdivision (a), a written notice of the determination shall be mailed to the owner or operator of the groundwater extraction facility at the address as shown by the groundwater sustainability agency's records. A determination made by the governing body shall be conclusive on the owner or operator and the groundwater charges, based on the determination together with any interest and penalties, shall be payable immediately unless within 20 days after the mailing of the notice the owner or operator files with the governing body a written protest setting forth the ground for protesting the amount of production or the groundwater charges, interest, and penalties. If a protest is filed pursuant to this subdivision, the governing body shall hold a hearing to determine the total amount of the groundwater production and the groundwater charges, interest, and penalties. Notice of the hearing shall be mailed to each protestant at least 20 days before the date fixed for the hearing. Notice of the determination of the governing body hearing shall be mailed to each protestant. The owner or operator shall have 20 days from the date of mailing of the determination to pay the groundwater charges, interest, and penalties determined by the governing body.

SEC. 17.

Chapter 9 (commencing with Section 10732) is added to Part 2.74 of Division 6 of the Water Code, to read:

CHAPTER 9. Groundwater Sustainability Agency Enforcement Powers

10732.

(a) (1) A person who extracts groundwater in excess of the amount that person is authorized to extract under a rule, regulation, ordinance, or resolution adopted pursuant to Section 10725.2, shall be subject to a civil penalty not to exceed five hundred dollars ($500) per acre-foot extracted in excess of the amount that person is authorized to extract. Liability under this subdivision is in addition to any liability imposed under paragraph (2) and any fee imposed for the extraction.

(2) A person who violates any rule, regulation, ordinance, or resolution adopted pursuant to Section 10725.2 shall be liable for a civil penalty not to exceed one thousand dollars ($1,000) plus one hundred dollars ($100) for each additional day on which the violation continues if the person fails to comply within 30 days after the local agency has notified the person of the violation.

(b) (1) A groundwater sustainability agency may bring an action in the superior court to determine whether a violation occurred and to impose a civil penalty described in subdivision (a).

(2) A groundwater sustainability agency may administratively impose a civil penalty described in subdivision (a) after providing notice and an opportunity for a hearing.

(3) In determining the amount of the penalty, the superior court or the groundwater sustainability agency shall take into consideration all relevant circumstances, including, but not limited to, the nature and persistence of the violation, the extent of the harm caused by the violation, the length of time over which the violation occurs, and any corrective action taken by the violator.

(c) A penalty imposed pursuant to this section shall be paid to the groundwater sustainability agency and shall be expended solely for purposes of this part.

(d) Penalties imposed pursuant to this section are in addition to any civil penalty or criminal fine under any other law.

SEC. 18.

Chapter 10 (commencing with Section 10733) is added to Part 2.74 of Division 6 of the Water Code, to read:

CHAPTER 10. State Evaluation and Assessment

10733.

(a) The department shall periodically review the groundwater sustainability plans developed by groundwater sustainability agencies pursuant to this part to evaluate whether a plan conforms with Sections 10727.2 and 10727.4 and is likely to achieve the sustainability goal for the basin covered by the groundwater sustainability plan.

(b) If a groundwater sustainability agency develops multiple groundwater sustainability plans for a basin, the department shall evaluate whether the plans conform with Sections 10727.2, 10727.4, and 10727.6 and are together likely to achieve the sustainability goal for the basin covered by the groundwater sustainability plans.

(c) The department shall evaluate whether a groundwater sustainability plan adversely affects the ability of an adjacent basin to implement their groundwater sustainability plan or impedes achievement of sustainability goals in an adjacent basin.

10733.2.

(a) (1) By June 1, 2016, the department shall adopt regulations for evaluating groundwater sustainability plans, the implementation of groundwater sustainability plans, and coordination agreements pursuant to this chapter.

(2) The regulations shall identify the necessary plan components specified in Sections 10727.2, 10727.4, and 10727.6 and other information that will assist local agencies in developing and implementing groundwater sustainability plans and coordination agreements.

(b) (1) The department may update the regulations, including to incorporate the best management practices identified pursuant to Section 10729.

(2) The regulations adopted pursuant to paragraph (1) of subdivision (a) shall identify appropriate methodologies and assumptions for baseline conditions concerning hydrology, water demand, regulatory restrictions that affect the availability of surface water, and unreliability of, or reductions in, surface water deliveries to the agency or water users in the basin, and the impact of those conditions on achieving sustainability. The baseline for measuring unreliability and reductions shall include the historic average reliability and deliveries of surface water to the agency or water users in the basin.

(c) By June 1, 2016, the department shall adopt regulations for evaluating alternatives submitted pursuant to Section 10733.6.

(d) The department shall adopt the regulations, including any amendments thereto, authorized by this section as emergency regulations in accordance with the Administrative Procedure Act (Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code). The adoption of these regulations is an emergency and shall be considered by the Office of Administrative Law as necessary for the immediate preservation of the public peace, health and safety, or general welfare. Notwithstanding the Administrative Procedure Act, emergency regulations adopted by the department pursuant to this section shall not be subject to review by the Office of Administrative Law and shall remain in effect until revised by the department.

(e) Before adopting and finalizing the regulations, the department shall conduct three public meetings to consider public comments. The department shall publish the draft regulations on its Internet Web site at least 30 days before the public meetings. One meeting shall be conducted at a location in northern California, one meeting shall be conducted at a location in the central valley of California, and one meeting shall be conducted at a location in southern California.

10733.3.

The department shall post all notices it receives pursuant to Section 10723 or 10723.8 on its Internet Web site within 15 days of receipt.

10733.4.

(a) Upon adoption of a groundwater sustainability plan, a groundwater sustainability agency shall submit the groundwater sustainability plan to the department for review pursuant to this chapter.

(b) If groundwater sustainability agencies develop multiple groundwater sustainability plans for a basin, the submission required by subdivision (a) shall not occur until the entire basin is covered by groundwater sustainability plans. When the entire basin is covered by groundwater sustainability plans, the groundwater sustainability agencies shall jointly submit to the department all of the following:

(1) The groundwater sustainability plans.

(2) An explanation of how the groundwater sustainability plans implemented together satisfy Sections 10727.2, 10727.4, and 10727.6 for the entire basin.

(3) A copy of the coordination agreement between the groundwater sustainability agencies to ensure the coordinated implementation of the groundwater sustainability plans for the entire basin.

(c) Upon receipt of a groundwater sustainability plan, the department shall post the plan on the department’s Internet Web site and provide 60 days for persons to submit comments to the department about the plan.

(d) The department shall evaluate the groundwater sustainability plan within two years of its submission by a groundwater sustainability agency and issue an assessment of the plan. The assessment may include recommended corrective actions to address any deficiencies identified by the department.

10733.6.
(a) If a local agency believes that an alternative described in subdivision (b) satisfies the objectives of this part, the local agency may submit the alternative to the department for evaluation and assessment of whether the alternative satisfies the objectives of this part for the basin.

(b) An alternative is any of the following:

(1) A plan developed pursuant to Part 2.75 (commencing with Section 10750) or other law authorizing groundwater management.

(2) Management pursuant to an adjudication action.

(3) An analysis of basin conditions that demonstrates that the basin has operated within its sustainable yield over a period of at least 10 years. The submission of an alternative described by this paragraph shall include a report prepared by a registered professional engineer or geologist who is licensed by the state and submitted under that engineer's or geologist's seal.

(c) A local agency shall submit an alternative pursuant to this section no later than January 1, 2017, and every five years thereafter.

(d) The assessment required by subdivision (a) shall include an assessment of whether the alternative is within a basin that is in compliance with Part 2.11 (commencing with Section 10920). If the alternative is within a basin that is not in compliance with Part 2.11 (commencing with Section 10920), the department shall find the alternative does not satisfy the objectives of this part.

10733.8.
At least every five years after initial submission of a plan pursuant to Section 10733.4, the department shall review any available groundwater sustainability plan or alternative submitted in accordance with Section 10733.6, and the implementation of the corresponding groundwater sustainability program for consistency with this part, including achieving the sustainability goal. The department shall issue an assessment for each basin for which a plan or alternative has been submitted in accordance with this chapter, with an emphasis on assessing progress in achieving the sustainability goal within the basin. The assessment may include recommended corrective actions to address any deficiencies identified by the department.

SEC. 19.
Chapter 11 (commencing with Section 10735) is added to Part 2.74 of Division 6 of the Water Code, to read:

CHAPTER 11. State Intervention
10735.
As used in this chapter, the following terms have the following meanings:

(a) "Condition of long-term overdraft" means the condition of a groundwater basin where the average annual amount of water extracted for a long-term period, generally 10 years or more, exceeds the long-term average annual supply of water to the basin, plus any temporary surplus. Overdraft during a period of drought is not sufficient to establish a condition of long-term overdraft if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

(b) "Person" means any person, firm, association, organization, partnership, business, trust, corporation, limited liability company, or public agency, including any city, county, city and county, district, joint powers authority, state, or any agency or department of those entities. "Person" includes, to the extent authorized by federal or tribal law and subject to the limitations described in subdivisions (c) and (d) of Section 10720.3, the United States, a department, agency or instrumentality of the federal government, an Indian tribe, an authorized Indian tribal organization, or interstate body.

(c) "Probationary basin" means a basin for which the board has issued a determination under Section 10735.2.

(d) "Significant depletions of interconnected surface waters" means reductions in flow or levels of surface water that is hydrologically connected to the basin such that the reduced surface water flow or levels have a significant and unreasonable adverse impact on beneficial uses of the surface water.

10735.2.
(a) The board, after notice and a public hearing, may designate a basin as a probationary basin, if the board finds one or more of the following applies to the basin:

(1) After June 30, 2017, none of the following have occurred:

(A) A local agency has elected to be a groundwater sustainability agency that intends to develop a groundwater sustainability plan for the entire basin.

(B) A collection of local agencies has formed a groundwater sustainability agency or prepared agreements to develop one or more groundwater sustainability plans that will collectively serve as a groundwater sustainability plan for the entire basin.

(C) A local agency has submitted an alternative that has been approved or is pending approval pursuant to Section 10733.6. If the department disapproves an alternative pursuant to Section 10733.6, the board shall not act under this paragraph until at least 180 days after the department disapproved the alternative.

(2) The basin is subject to paragraph (1) of subdivision (a) of Section 10720.7, and after January 31, 2020, none of the following have occurred:

(A) A groundwater sustainability agency has adopted a groundwater sustainability plan for the entire basin.

(B) A collection of local agencies has adopted groundwater sustainability plans that collectively serve as a groundwater sustainability plan for the entire basin.

(C) The department has approved an alternative pursuant to Section 10733.6.

(3) After January 31, 2020, the department, in consultation with the board, determines that a groundwater sustainability plan is inadequate or that the groundwater sustainability program is not being implemented in a manner that will likely achieve the sustainability goal.

(4) The basin is subject to paragraph (2) of subdivision (a) of Section 10720.7, and after January 31, 2022, none of the following have occurred:

(A) A groundwater sustainability agency has adopted a groundwater sustainability plan for the entire basin.

(B) A collection of local agencies has adopted groundwater sustainability plans that collectively serve as a groundwater sustainability plan for the entire basin.

(C) The department has approved an alternative pursuant to Section 10733.6.

(5) The basin is subject to paragraph (2) of subdivision (a) of Section 10720.7, and after January 31, 2022, both of the following have occurred:

(A) The department, in consultation with the board, determines that a groundwater sustainability plan is inadequate or that the groundwater sustainability plan is not being implemented in a manner that will likely achieve the sustainability goal.

(B) The board determines that the basin is in a condition of long-term overdraft or in a condition where groundwater extractions result in significant depletions of interconnected surface waters.

(b) In making the findings associated with paragraph (3) or (5) of subdivision (a), the department and board may rely on periodic assessments the department has prepared pursuant to Chapter 10 (commencing with Section 10733). The board may request that the department conduct additional assessments utilizing the regulations developed pursuant to Chapter 10 (commencing with Section 10733) and make determinations pursuant to this section. The board shall post on its Internet Web site and provide at least 30 days for the public to comment on any determinations provided by the department pursuant to this subdivision.

(c) (1) The determination may exclude a class or category of extractions from the requirement for reporting pursuant to Part 5.2 (commencing with Section 5200) of Division 2 if those extractions are subject to a local plan or program that adequately manages groundwater within the portion of the basin to which that plan or program applies, or if those extractions are likely to have a minimal impact on basin withdrawals.

(2) The determination may require reporting of a class or category of extractions that would otherwise be exempt from reporting pursuant to paragraph (1) of subdivision (c) of Section 5202 if those extractions are likely to have a substantial impact on basin withdrawals or requiring reporting of those extractions is reasonably necessary to obtain information for purposes of this chapter.

(3) The determination may establish requirements for information required to be included in reports of groundwater extraction, for installation of measuring devices, or for use of a methodology, measuring device, or both, pursuant to Part 5.2 (commencing with Section 5200) of Division 2.

(4) The determination may modify the water year or reporting date for a report of groundwater extraction pursuant to Section 5202.

(d) If the board finds that litigation challenging the formation of a groundwater sustainability agency prevented its formation before July 1, 2017, pursuant to paragraph (1) of subdivision (a) or prevented a groundwater sustainability program from being implemented in a manner likely to achieve the sustainability goal pursuant to paragraph (3) of subdivision (a), the board shall not designate a basin as a probationary basin for a period of time equal to the delay caused by the litigation.

10735.4.

(a) If the board designates a basin as a probationary basin pursuant to paragraph (1) or (2) of subdivision (a) of Section 10735.2, a local agency or groundwater sustainability agency shall have 180 days to remedy the deficiency. The board may appoint a mediator or other facilitator, after consultation with affected local agencies, to assist in resolving disputes, and identifying and implementing actions that will remedy the deficiency.

(b) After the 180-day period provided by subdivision (a), the board may provide additional time to remedy the deficiency if it finds that a local agency is making substantial progress toward remedying the deficiency.

(c) The board may develop an interim plan pursuant to Section 10735.8 for the probationary basin at the end of the period provided by subdivision (a) or any extension provided pursuant to subdivision (b), if the board, in consultation with the department, determines that a local agency has not remedied the deficiency that resulted in designating the basin as a probationary basin.

10735.6.

(a) If the board designates a basin as a probationary basin pursuant to paragraph (3) of subdivision (a) of Section 10735.2, the board shall identify the specific deficiencies and identify potential actions to address the deficiencies. The board may request the department to provide local agencies, within 90 days of the designation of a probationary basin, with technical recommendations to remedy the deficiencies.

(b) The board may develop an interim plan pursuant to Section 10735.8 for the probationary basin one year after the designation of the basin pursuant to paragraph (3) of subdivision (a) of Section 10735.2, if the board, in consultation with the department, determines that a local agency has not remedied the deficiency that resulted in designating the basin a probationary basin.

10735.8.

(a) The board, after notice and a public hearing, may adopt an interim plan for a probationary basin.

(b) The interim plan shall include all of the following:

(1) Identification of the actions that are necessary to correct a condition of long-term overdraft or a condition where groundwater extractions result in significant depletions of interconnected surface waters, including recommendations for appropriate action by any person.

(2) A time schedule for the actions to be taken.

(3) A description of the monitoring to be undertaken to determine effectiveness of the plan.

(c) The interim plan may include the following:

(1) Restrictions on groundwater extraction.

(2) A physical solution.

(3) Principles and guidelines for the administration of rights to surface waters that are connected to the basin.

(d) Except as provided in subdivision (e), the interim plan shall be consistent with water right priorities, subject to Section 2 of Article X of the California Constitution.

(e) Where, in the judgment of the board, a groundwater sustainability plan, groundwater sustainability program, or an adjudication action can be relied on as part of the interim plan, either throughout the basin or in an area within the basin, the board may rely on, or incorporate elements of, that plan, program, or adjudication into the interim plan adopted by the board or allow local agencies to continue implementing those parts of a plan or program that the board determines are adequate.

(f) In carrying out activities that may affect the probationary basin, state entities shall comply with an interim plan adopted by the board pursuant to this section unless otherwise directed or authorized by statute and the state entity shall indicate to the board in writing the authority for not complying with the interim plan.

(g) (1) After the board adopts an interim plan under this section, the board shall determine if a groundwater sustainability plan or an adjudication action is adequate to eliminate the condition of long-term overdraft or condition where groundwater extractions result in significant depletions of interconnected surface waters, upon petition of either of the following:

(A) A groundwater sustainability agency that has adopted a groundwater sustainability plan for the probationary basin or a portion thereof.

(B) A person authorized to file the petition by a judicial order or decree entered in an adjudication action in the probationary basin.

(2) The board shall act on a petition filed pursuant to paragraph (1) within 90 days after the petition is complete. If the board, in consultation with the department, determines that the groundwater sustainability plan or adjudication action is adequate, the board shall rescind the interim plan adopted by the board for the probationary basin, except as provided in paragraphs (3) and (4).

(3) Upon request of the petitioner, the board may amend an interim plan adopted under this section to eliminate portions of the interim plan, while allowing other portions of the interim plan to continue in effect.

(4) The board may decline to rescind an interim plan adopted pursuant to this section if the board determines that the petitioner has not provided adequate assurances that the groundwater sustainability plan or judicial order or decree will be implemented.

(5) This subdivision is not a limitation on the authority of the board to stay its proceedings under this section or to rescind or amend an interim plan adopted pursuant to this section based on the progress made by a groundwater sustainability agency or in an adjudication action, even if the board cannot make a determination of adequacy in accordance with paragraph (1).

(h) The board’s authority to adopt an interim plan under this section does not alter the law establishing water rights priorities or any other authority of the board.

10736.

(a) The board shall adopt or amend a determination or interim plan under Section 10735.2 or 10735.8 in accordance with procedures for quasi-legislative action.

(b) The board shall provide notice of a hearing described in subdivision (a) of Section 10735.2 or subdivision (a) of Section 10735.8 as follows:

(1) At least 90 days before the hearing, the board shall publish notice of the hearing on its Internet Web site.

(2) At least 90 days before the hearing, the board shall notify the department and each city, county, or city and county in which any part of the basin is situated.

(3) (A) For the purposes of this paragraph, the terms “board-designated local area” and “local agency” have the same meaning as defined in Section 5009.

(B) At least 60 days before the hearing, the board shall mail or send by electronic mail notice to all persons known to the board who extract or who propose to extract water from the basin, or who have made written or electronic mail requests to the board for special notice of hearing pursuant to this part. If any portion of the basin is within a board-designated local area, the records made available to the board by the local agency in accordance with paragraph (4) of subdivision (d) of Section 5009 shall include the names and addresses of persons and entities known to the local agency who extract water from the basin, and the board shall mail or send by electronic mail notice to those persons.

(c) The board shall provide notice of proceedings to amend or repeal a determination or plan under Section 10735.2 or 10735.8 as appropriate to the proceedings, taking into account the nature of the proposed revision and the person likely to be affected.

(d) (1) Except as provided in paragraphs (2) and (3), Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 2 of Title 2 of the Government Code does not apply to any action authorized pursuant to Section 10735.2 or 10735.8.

(2) The board may adopt a regulation in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 2 of Title 2 of the Government Code setting procedures for adopting a determination or plan.

(3) The board may adopt a regulation applying or interpreting this part pursuant to Section 1530 if the board determines that the emergency regulation is reasonably necessary for the allocation, administration, or collection of fees authorized pursuant to Section 1529.5.

10736.2.

Division 13 (commencing with Section 21000) of the Public Resources Code does not apply to any action or failure to act by the board under this chapter, other than the adoption or amendment of an interim plan pursuant to Section 10735.8.

10736.4.

The extraction or use of water extracted in violation of an interim plan under this part shall not be relied upon as a basis for establishing the extraction or use of water to support a claim in an action or proceeding for determination of water rights.

10736.6.

(a) The board may order a person that extracts or uses water from a basin that is subject to an investigation or proceeding under this chapter to prepare and submit to the board any technical or monitoring program reports related to that person's or entity's extraction or use of water as the board may specify. The costs incurred by the person in the preparation of those reports shall bear a reasonable relationship to the need for the report and the benefit to be obtained from the report. If the preparation of individual reports would result in a duplication of effort, or if the reports are necessary to evaluate the cumulative effect of several diversions or uses of water, the board may order any person subject to this subdivision to pay a reasonable share of the cost of preparing reports.

(b) (1) An order issued pursuant to this section shall be served by personal service or registered mail on the party to submit technical or monitoring program reports or to pay a share of the costs of preparing reports. Unless the board issues the order after a hearing, the order shall inform the party of the right to request a hearing within 30 days after the party has been served. If the party does not request a hearing within that 30-day period, the order shall take effect as issued. If the party requests a hearing within that 30-day period, the board may adopt a decision and order after conducting a hearing.

(2) In lieu of adopting an order directed at named persons in accordance with the procedures specified in paragraph (1), the board may adopt a regulation applicable to a category or class of persons in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 2 of Title 2 of the Government Code.

(c) Upon application of a person or upon its own motion, the board may review and revise an order issued or regulation adopted pursuant to this section in accordance with the procedures set forth in subdivision (b).

(d) In conducting an investigation or proceeding pursuant to this part, the board may inspect the property or facilities of a person to ascertain whether the purposes of this part are being met and to ascertain compliance with this part. The board may obtain an inspection warrant pursuant to the procedures set forth in Title 13 (commencing with Section 1822.50) of Part 3 of the Code of Civil Procedure for the purposes of an inspection pursuant to this subdivision.

SEC. 20.

The provisions of this act are severable. If any provision of this act or its application is held invalid, that invalidity shall not affect other provisions or applications that can be given effect without the invalid provision or application.

SEC. 21.

No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution for certain costs that may be incurred by a local agency or school district because, in that regard, this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

However, if the Commission on State Mandates determines that this act contains other costs mandated by the state, reimbursement to local agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code.

SEC. 22.

The Legislature finds and declares that Section 10 of this act, which adds Section 5206 to the Water Code and Section 16 of this act, which adds Section 10730.8 to the Water Code, impose a limitation on the public's right of access to the meetings of public bodies or the writings of public officials and agencies within the meaning of Section 3 of Article I of the California Constitution. Pursuant to that constitutional provision, the Legislature makes the following findings to demonstrate the interest protected by this limitation and the need for protecting that interest:

In order to allow this act to fully accomplish its goals, it is necessary to protect proprietary information submitted pursuant to this act as confidential. Therefore, it is in the state’s interest to limit public access to this information.

SEC. 23.

This act shall only become operative if Senate Bill 1168 of the 2013–14 Regular Session is enacted and becomes effective.

1992 Assembly Bill 3030 (AB3030)

With AB 3030 in 1992, sections 10750-10756 of the California Water Code (AB 3030) provided a systematic procedure for an existing local agency to develop a groundwater management plan. This section of the code provides such an agency with the powers of a water replenishment district to raise revenue to pay for facilities to manage the basin (extraction, recharge, conveyance, quality).

Groundwater Management entrance in CA Water Code

AB 3030 (California Water Code Section 10750 et seq.) allowed certain defined existing local agencies to develop a groundwater management plan in groundwater basins defined in DWR Bulletin 118. No new level of government is formed. Action is voluntary not mandatory.

The plan can be developed only after a public hearing and adoption of a resolution of intention to adopt a groundwater management plan. If there is no majority opposition of assessed land value (no improvements), the plan can be adopted within 35 days. If the majority is opposed the plan cannot be adopted and no new plan may be attempted for 1 year. Once the plan is adopted, rules and regulations must be adopted to implement the program called for in the plan.

Given the involvement and jurisdiction of the courts, AB 3030 plans cannot be adopted in adjudicated basins or in basins where groundwater is managed under other sections of the Water Code without the permission of the court or the other agency.

AB 3030 also introduced twelve technical components that may be included in the groundwater management plan. It is highly encouraged by DWR to include as many of the twelve components as necessary for the successful management of the basin groundwater resources. The following is the list of the twelve voluntary components:

1. The control of saline water intrusion.
2. Identification and management of wellhead protection areas and recharge areas.
3. Regulation of the migration of contaminated groundwater.
4. The administration of a well abandonment and well destruction program.
5. Mitigation of conditions of overdraft.
6. Replenishment of groundwater extracted by water producers.
7. Monitoring of groundwater levels and storage.
8. Facilitating conjunctive use operations.
9. Identification of well construction policies.
10. The construction and operation by the local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.
11. The development of relationships with state and federal regulatory agencies.
12. The review of land use plans and coordination with land use planning agencies to assess activities which create a reasonable risk of groundwater contamination.

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1 May 2011

Ms. Pamela Creedon, Executive Officer
Mr. Ken Landau, Assistant Executive Officer
Ms. Diana Messina, Supervising WRCE
Mr. Josh Palmer, WRCE
Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6144

VIA: Electronic Submission
Hardcopy if Requested

RE: Order Amending Waste Discharge Requirements Order R5-2008-0173 (NPDES Permit No. CA0078662) for El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant, Eldorado County

Dear Mesdames Creedon, Messina and Messrs. Landau, Palmer,

The California Sportfishing Protection Alliance (CSPA) has reviewed the proposed Amended Waste Discharge Requirements (NPDES No. CA0078662) for the Deer Creek Wastewater Treatment Plant (Permit) and submits the following comments.

CSPA requests status as a designated party for this proceeding. CSPA is a 501(c)(3) public benefit conservation and research organization established in 1983 for the purpose of conserving, restoring, and enhancing the state's water quality and fishery resources and their aquatic ecosystems and associated riparian habitats. CSPA has actively promoted the protection of water quality and fisheries throughout California before state and federal agencies, the State Legislature and Congress and regularly participates in administrative and judicial proceedings on behalf of its members to protect, enhance, and restore California's degraded water quality and fisheries. CSPA members reside, boat, fish and recreate in and along waterways throughout the Central Valley, including El Dorado County.

1. **The proposed Permit establishes Effluent Limitations for metals based on the hardness of the effluent as opposed to the ambient instream receiving water hardness and fails to use the mandated equations as required by Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)).**

Hardness
The Court's Ruling

The California Toxics Rule (CTR) Federal Regulation 40 CFR 131.38(c)(4) states that: "For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/l or less as calcium carbonate, <u>the actual ambient hardness of the surface water shall be used</u> in those equations." (Emphasis added).

As is stated in the proposed Permit, the permit is being amended based on a ruling of the Superior Court of California (Case number 34-2009-80000309) (County of Sacramento, Judge Timothy M. Frawley, 26 January 2011). With regard to the development of effluent limitations for hardness dependant metals and an objection by the Regional Board the court found that:

> *"Ruling. Respondent Board's objection is denied. The Court finds no ambiguity in the footnote. If the Board calculates the fresh aquatic life criteria for hardness-dependent metals based on the hardness value of the downstream receiving water, it must use the actual ambient hardness of the surface water after the effluent and receiving water have fully mixed It cannot use the hardness values of the receiving water "at or immediately downstream of the discharge outfall," since this is (for all intents and purposes) the same as <u>using the hardness values of the effluent, which is prohibited</u>."*

With regard to hardness dependant metals the Court ruling, in part, also contains the following:

> *On balance, the Court is persuaded that the term "ambient," as applied in the CTR, refers to the surface water surrounding the aquatic life. In light of the purpose of the CTR, it would be unreasonable to interpret the regulation as requiring States to ignore the effect of the effluent on the hardness (and consequent toxicity) of the downstream receiving water. The most reasonable interpretation of the regulation, therefore, is that the metal criteria should be calculated based on the actual ambient hardness of the surface water after the effluent and receiving water mix.[7] Stated differently, the criteria should be based on the upstream receiving water hardness, adjusted, as necessary, for the effects of the effluent. (Footnote No. 7 on page 14 of the final court order states that: "This means after the effluent and receiving water fully mix")*
>
> *For the determination of the CTR hardness-dependent metals criteria, the Board has the discretion to use either the upstream receiving water hardness values or the hardness values of the downstream mixture of the effluent and the receiving water, whichever is most protective.*

The final court ruling is quite clear that when developing effluent limitations for hardness dependant metals that:

(1) The hardness of the surface water must be used;

(2) Use of the effluent hardness is prohibited; and
(3) The term ambient means that the hardness must be taken from outside the area where the effluent mixes with the receiving stream.
(4) Either the upstream surface water hardness or the downstream surface water hardness (following complete mixing with the effluent) may be used to develop effluent limitations for hardness dependant metals, whichever is most protective.

The Effluent Hardness Was Used in the Revised Permit

The proposed Permit, page F-23, states that:

> *"For both copper and zinc, using the "fully mixed" hardness value results in criteria that are higher (less stringent) than using the effluent-dominated (100% effluent) condition in the receiving water. Effluent limitations based on the less stringent criteria would allow the effluent to cause receiving water toxicity during low-flow conditions. Even assuming that would be a correct interpretation of the CTR and SIP or the EID Court Order, a more stringent effluent limitation would required to comply with the Basin Plan's narrative toxicity objective unless the Board approves a mixing zone.14 Accordingly, this Order sets effluent limitations for copper and zinc based on low-flow conditions as shown in the above tables."* (Emphasis added)

The "above tables" referred to in the permit are Tables F-4 and F-5 on pages F-21 and F-22. The "low flow conditions" described in the text can be observed in Tables F-4 and F-5 in the far left hand lower column of the tables. The "low flow condition" in the tables represents "100% effluent" with a recorded effluent hardness value of 42 mg/l.

Throughout the text in the proposed Permit, pages F-16 through F-26, discussing the development of effluent limitations for hardness dependant metals, the discussion is limited to the effluent and upstream ambient hardness. The downstream surface water ambient hardness, as defined by the court; following complete mixing is not discussed or numerically cited. While the Regional Board attempts to calculate this value, we can only conclude based on the total absence of downstream surface water ambient hardness values that it has not been sampled by the Discharger.

On page F-20 of the proposed Permit, the discussion, equation 3 and the following Table F-4 are all based on the lowest observed effluent hardness of 42 mg/l. Again, based on the total absence of discussion of any downstream surface water sampling for hardness, the Regional Board's decision process is based on the effluent hardness, which was confirmed by the Superior Court is prohibited.

The proposed Permit discussion beginning on page F-23 again focuses on the effluent hardness. This can be observed by evaluation of equation 4 (page F-23) where the input value H_e represents the lowest observed effluent value. The data in Table F-5 are based on equation 4 and is therefore also based on the effluent hardness.

The development of effluent limitations for hardness dependant metals in the proposed Permit is based on the effluent hardness or a combination of the effluent and upstream hardnesses. The use of the effluent hardness rather than the CTR prescribed "actual ambient hardness of the surface water" is contrary to the requirements of the CTR and directly violates the mandate of the Superior Court's Order. As cited above the Superior Court clearly stated that use of the effluent hardness is prohibited.

The Wrong Equations Were Used

The California Toxics Rule (CTR) Federal Regulation 40 CFR 131.38(c)(4) states that: "For purposes of calculating freshwater aquatic life criteria for metals from <u>the equations in paragraph (b)(2) of this section</u>, for waters with a hardness of 400 mg/l or less as calcium carbonate, the actual ambient hardness of the surface water shall be used <u>in those equations</u>." (Emphasis added).

The CTR requires the use of the equations presented in paragraph (b)(2) of 40 CFR 131.38 for the development of effluent limitations for hardness dependant metals. The required CTR equation is:

CTR Criterion = WER x (exp(m[ln(H)]+b)

where: H = hardness (mg/L as $CaCO3$), WER = water-effect ratio (with a default value of 1) and m, b = metal and criterion specific constants.

The CTR equation is cited as "equation 1" in the proposed Permit (page F-18). The proposed Permit cites a 2006 technical paper prepared by Robert Emerick (see footnote 7 on page F-18) as the source of the equations used by the Regional Board in developing the Permit effluent limitations for some hardness dependant metals (see Table F-6 footnote 2). Dr. Emerick's equation 4 is presented on page F-23 of the proposed Permit. Equation 4 is not the same as equation 1 which is prescribed by the CTR.

The use of equations other than those prescribed by the CTR for development of effluent limitations for hardness dependant metals is contrary to the requirements of the CTR.

The "ambient" hardness was not used

Federal Regulation 40 CFR 131.38(c)(4) states that: "For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/l or less as calcium carbonate, <u>the actual ambient hardness</u> of the surface water shall be used in those equations." (Emphasis added).

The common dictionary definition of *ambient* is "in the surrounding area", "encompassing on all sides".

In petitioning the Deer Creek permit, CSPA argued that the common definition of ambient of surrounding would eliminate any areas that included the wastewater effluent in consideration of the hardness used in determining criteria for hardness dependant metals. It is reasonable to assume, after considering the definition of ambient, that EPA is referring to the hardness of the receiving stream before it is potentially impacted by an effluent discharge. It is also reasonable to make this assumption based on past interpretations and since EPA, in permit writers' guidance and other reference documents, generally assumes receiving streams have dilution, which would ultimately "encompass" the discharge. Ambient conditions are in-stream conditions unimpacted by the discharge. Confirming this definition, the SIP Sections 1.4.3.1 *Ambient Background Concentration as an Observed Maximum* and 1.4.3.2 state in part that: "If possible, preference should be given to <u>ambient water column concentrations measured immediately upstream or near the discharge, but not within an allowed mixing zone for the discharge</u>. The RWQCB shall have discretion to consider if any samples are invalid for use as applicable data due to evidence that the sample has been erroneously reported or the sample is not representative of the ambient receiving water column that will mix with the discharge."

CSPA's view regarding the term ambient is also supported by a biological opinion issued by the US Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS) on March 24th 2000. On March 24, 2000 the US Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS) issued a biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act). The biological opinion was issued to the U.S. Environmental Protection Agency, Region 9, with regard to the "Final Rule for the Promulgation of Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (CTR)". The document represented the Services' final biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act). The biological opinion contains the following discussion, beginning on page 205, regarding the use of hardness in developing limitations for toxic metals:

> "The CTR should more clearly identify what is actually to be measured in a site water to determine a site-specific hardness value. Is the measure of hardness referred to in the CTR equations a measure of the water hardness due to calcium and magnesium ions only? If hardness computations were specified to be derived from data obtained in site water calcium and magnesium determinations alone, confusion could be avoided and more accurate results obtained (APHA 1985). Site hardness values would thus not include contributions from other multivalent cations (e.g., iron, aluminum, manganese), would not rise above calcium + magnesium hardness values, or result in greater-than-intended site criteria when used in formulas. In this Biological opinion, what the Services refer to as hardness is the water hardness due to calcium + magnesium ions only.

> The CTR should clearly state that to obtain a site hardness value, samples should be collected upstream of the effluent source(s). Clearly stating this requirement in the CTR would avoid the computation of greater-than-intended site criteria in cases where samples were collected downstream of effluents that raise ambient hardness, but not other important water qualities that affect metal toxicity (e.g., pH, alkalinity, dissolved organic carbon, calcium, sodium, chloride, etc.). Clearly, it is inappropriate to use downstream site water quality variables for input into criteria formulas because they may be greatly altered by the effluent under regulation. Alterations in receiving water chemistry by a discharger (e.g., abrupt elevation of hardness, changes in pH, exhaustion of alkalinity, abrupt increases in organic matter etc.) should not result, through application of hardness in criteria formulas, in increased allowable discharges of toxic metals. If the use of downstream site water quality variables were allowed, discharges that alter the existing, naturally-occurring water composition would be encouraged rather than discouraged. Discharges should not change water chemistry even if the alterations do not result in toxicity, because the aquatic communities present in a water body may prefer the unaltered environment over the discharge-affected environment. Biological criteria may be necessary to detect adverse ecological effects downstream of discharges, whether or not toxicity is expressed."

The Regional Board has argued however that they had discretion to redefine "ambient" and were not constrained by common dictionary definitions. The Regional Board's definition of "ambient" included the wastewater effluent.

The Superior Court (Superior Court of California (Case number 34-2009-80000309) (County of Sacramento, Judge Timothy M. Frawley, 26 January 2011) ruled that the common dictionary definition of ambient was applicable, but that "ambient" also included the downstream waters after complete mix with the wastewater effluent had occurred.

The proposed Permit continues to utilize the wastewater effluent hardness when establishing criteria for hardness dependant metals. This can best be observed by review of Tables F-4, F-5 and F-6 in which the "Fully Mixed Downstream Ambient Conditions" are based on the "Effluent Fraction" which ranges from 1% to 100%. This is also confirmed in the text regarding hardness in the Fact Sheet and by "equation 4" on page F-23 which is partly based on the "lowest observed effluent hardness".

The Regional Board in the proposed Permit continues to use the effluent as "ambient" in their calculation of criteria for hardness dependant metals contrary to common definition, the language in the SIP, guidance from the US Fish and Wildlife Service and the National Marine Fisheries Service and a ruling by the Superior Court.

Use of the "Surface Water Hardness"

Federal Regulation 40 CFR 131.38(c)(4) states that: "For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/l or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations." (Emphasis added).

As is stated above, the proposed Permit continues to utilize the wastewater effluent hardness when establishing criteria for hardness dependant metals. This can best be observed by review of Tables F-4, F-5 and F-6 in which the "Fully Mixed Downstream Ambient Conditions" are based on the "Effluent Fraction" which ranges from 1% to 100%. This is also confirmed in the text regarding hardness in the Fact Sheet and by "equation 4" on page F-23 which is partly based on the "lowest observed effluent hardness".

The wastewater effluent is not "surface water". The Regional Board has not argued this point but has steadfastly refused to acknowledge or discuss the CTR requirement that the hardness of the surface water be used in calculating the criteria for hardness dependant metals. The proposed Permit is again based on the hardness of the effluent, not surface water, for hardness dependant metals.

The "Emerick" Paper cannot be used

The proposed Permit relies on the "Emerick" paper in developing effluent limitations for hardness dependant metals. The "Emerick" paper is inappropriate for use based on the following:

- The "Emerick" paper does not utilize the hardness of the surface water but also heavily relies on the effluent hardness. Recall that 40 CFR 131.38 requires use of the actual ambient hardness of the surface water.
- The "Emerick" paper does not solely use the equations specified in 40 CFR 131.38(c)(4).
- The "Emerick" paper does not utilize the ambient hardness also heavily relies on the effluent hardness.
- The "Emerick" paper ignores the other important water qualities that affect metal toxicity (e.g., pH, alkalinity, dissolved organic carbon, calcium, sodium, chloride, etc.) and focuses solely on hardness. As can be seen the U.S. EPA's latest ambient criteria for copper (*Aquatic Life Ambient Freshwater Quality Criteria—Copper 2007 Revision*), the latest science utilizes these other quality that affect metal toxicity. Since EPA published the hardness-based recommendation for copper criteria in 1984, new data have become available on copper toxicity and its effects on aquatic life. The Biotic Ligand Model (BLM) – a metal bioavailability model that uses receiving water body characteristics to develop site-specific water quality criteria – utilizes the best available science and serves as the basis for the new national recommended criteria. The BLM requires ten input parameters to calculate a freshwater copper criterion (a saltwater BLM is not yet available): temperature, pH, dissolved organic carbon (DOC), calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity. The BLM is used to derive the criteria rather than as a post-derivation adjustment as was the case with the hardness-

based criteria. This allows the BLM-based criteria to be customized to the particular water under consideration. The Regional Board failed to utilize the latest science in developing the proposed Permit.

Establishing a protective limitation

For the great majority of wastewater discharges to surface waters the hardness of the effluent is much greater than the hardness or the upstream surface water. In such cases, use of the higher hardness of the effluent to calculate discharge limitations for hardness dependant metals results in significantly less stringent discharge limitations. The "Emerick" method uses the higher effluent hardness to determine criteria as the effluent mixes with surface water. The Regional Board has used the "Emerick" method to generate these less stringent limitations stating that the methodology only eliminates what would have otherwise been overly protective limitations[1]. Adherence to the required CTR methodology using the lower surface water hardness would, under these circumstances, produce more stringent criteria. In reviewing the Central Valley Regional Board's NPDES permits it can be seen that use of the "Emerick" method is used by default, ignoring the mandated CTR method of calculating criteria for hardness dependant metals. It has been questioned whether the Regional Board's default use of the "Emerick" method constitutes an underground regulation. "Regulation" means <u>every</u> rule, regulation, order, or standard of general application or the amendment, supplement, or revision of <u>any</u> rule, regulation, order or standard adopted by <u>any</u> state agency to implement, interpret, or make specific the law enforced or administered by it, or to govern its procedure." (Government Code section 11342.600).

The Regional Board cannot produce a technical defense that use of the CTR prescribed methods is overly protective. To the contrary, the US Fish and Wildlife Service and the National Marine Fisheries Service in their biological opinion and U.S. EPA in developing new ambient criteria for copper, all state that the use of hardness alone, ignoring temperature, pH, dissolved organic carbon (DOC), calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity, may not be protective of water quality. The agencies, in their biological opinion, state that only the lower upstream hardness should be used to account for the inaccuracies of using hardness alone. The Regional Board does not present any technical information to rebut the technical fisheries and water quality standards development experts at US Fish and Wildlife Service, the National Marine Fisheries Service or U.S. EPA. The Regional Board has refused to discuss the technical merits of the opinions given by the US Fish and Wildlife Service, the National Marine Fisheries Service and U.S. EPA, stating only that the opinions address the CTR and are not applicable to individual permitting actions.

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[1] See permits for Sacramento Regional (http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/sacramento/r5-2010-0114_npdes.pdf, at pages F-22 and 23), The City of Auburn (http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/placer/r5-2010-0090-01.pdf, page F-23 "An ECA based on a lower hardness (e.g., lowest upstream receiving water hardness) would also be protective, but would result in unreasonably stringent effluent limits considering the known conditions."), Placer County SMD-1 (http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/placer/r5-2010-0092.pdf, page F-26, "Use of a lower ECA (e.g., calculated based solely on the lowest upstream receiving water hardness) is also protective, but would lead to unreasonably stringent effluent limits considering the known conditions.")

There are a few unique circumstances when a wastewater discharge occurs at the headwaters of a stream or where the natural upstream surface water hardness is higher than the effluent hardness. Under the first circumstance there is no upstream surface water hardness. Under the circumstance where the upstream hardness is higher than the effluent hardness; use of the upstream surface water hardness will produce criteria that are not sufficiently protective of water quality. This is the condition observed at Deer Creek. The unique circumstances do not nullify the regulatory requirements to use the ambient surface water hardness or to use the CTR prescribed equations when calculating criteria for hardness dependant metals. There is however a legal and technically correct way to properly address these situations. The methodology to protect water quality in these rare events is prescribed in the federal regulations: the CTR method must be followed to show that the developed criteria are not protective of water quality; 40 CFR 122.44 (d)(1) should be cited as requiring the development of limitations more stringent than the promulgated effluent limitations, and; use of the CTR prescribed method using the lower hardness used to develop the more protective limitations. The Regional Board's consistent use of the "Emerick" method, and the Regional Board's assessment that use of the CTR prescribed methodology using the lowest observed hardness is overly protective, are without technical or legal merit.

2. The Proposed Permit Fails to Include an Effluent Limitation for Aluminum that is Protective of the Aquatic Life Beneficial Use of the Receiving Stream With Regard to Chronic Toxicity. The Proposed Permit Cites the Development of a Site Specific Water Quality Standard for Aluminum But Fails to Comply with all Regulatory Requirements for Development of such a Standard.

The Superior Court of California (Case number 34-2009-80000309) (County of Sacramento, Judge Timothy M. Frawley, 26 January 2011) ruled that:

> "The Court finds that this matter should be remanded to the Board to reconsider its effluent limitation for aluminum. In developing an effluent limitation for aluminum, the Board shall (a) either use the EPA chronic criterion for aluminum, or develop a site-specific standard for aluminum sufficient to protect freshwater aquatic life; and (b) conduct a pollutant variability analysis in determining the MEC for aluminum."

The proposed Permit, page 2 Finding No. 5, states that:

> "The Court required the Central Valley Water Board to either use the USEPA chronic criterion for aluminum or develop a site-specific standard for aluminum to protect freshwater aquatic life. A site-specific objective was developed by using site-specific data and studies, including the establishment of the arid West Technical Report as an applicable study for use at Deer Creek. Based on the site-specific data the narrative toxicity objective is not exceeded but a conservative limit of 200 μg/L per year was added because the pollutant variability analysis estimated the MEC to be greater than 200 μg/L."

The maximum measured wastewater effluent aluminum concentration at the Deer Creek wastewater treatment plant was 150 ug/l. The statistically projected maximum effluent concentration was 705 ug/l. (Permit F-37 and F-38)

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." The Basin Plan contains a narrative water quality objective for toxicity that states in part that "[a]*ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter. U.S. EPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum to prevent toxicity to freshwater aquatic life. The recommended ambient criteria four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 μg/*l* and 750 μg/*l*, respectively.

US EPA's 87 ug/l chronic criterion was developed using low pH and hardness testing. California Central Valley waters, the Sacramento River, at the Valley floor, have been sampled to have hardnesses as low as 39 mg/l $CaCO_3$ by the USGS in February 1996 for the *National Water Quality Assessment Program.* Contributory streams, especially foothill streams, have also been sampled and shown to contain even lower hardness levels. US EPA recognized in their ambient criteria development document, (Ambient Water Quality Criteria for Aluminum, EPA 440/5-86-008) that the pH was in the range 6.5 to 6.6 and that the hardness was below 20 mg/l. Typical values for pH and hardness in the Central Valley alone warrant use of the chronic ambient criteria for aluminum. <u>Despite the hardness and pH values used in the development of the criteria; U.S. EPA's conclusions in their *Ambient Criteria for the Protection of Freshwater Aquatic Life* recommends that application of the ambient criteria as necessary to be protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria.</u>

The Regional Board and their proposed Permit cites US EPA's *Ambient Criteria for the Protection of Freshwater Aquatic Life for Aluminum* (criteria) as not being representative or necessary because the chronic criteria were based on a low hardness and low pH. The Regional Board cites one section of the criteria development document but ignores the final recommendation to use the recommended criteria absent a site-specific objective for aluminum. The Regional Board's citation of the criteria development document is incomplete its review, for example the *criteria* development document (EPA 440/5-86-008) also cites that:

> 169 ug/l of aluminum caused a 24% reduction in the growth of young brook trout.
> 174 ug/l of aluminum killed 58% of the exposed striped bass.

> Bioaccumulation factors ranged from 50 to 231 for young brook trout exposed to aluminum for 15 days.
> Aluminum at 169 ug/l caused a 24% reduction in the weight of young brook trout.

These citations are particularly important as the Regional Board ignores the chronic toxicity impacts from the criteria document. The chronic toxicity endpoints are not only those that produce mortality but impact growth and reproduction in aquatic life where aquatic life is not limited to fish but also includes invertebrates and aquatic plants. The cited numbers from EPA's criteria document are particularly relevant in Deer Creek as trout have been documented to be present.

US EPA recommends that understanding the *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* is necessary in order to understand the text, tables and calculations of a criteria document. The Regional Board's assessment of the use of low hardness and low pH clearly shows they did not heed EPA's advice in reviewing the criteria development procedures for water quality criteria or the final recommendations. The Regional Board occasionally cites individual aluminum toxicity testing at various locations; again individual testing is not a valid replacement for developing fully protective criteria. A prime example of a state utilizing good water quality standards development techniques for developing a site specific standard for aluminum is the state of Indiana where a final chronic criterion of 174 ug/l was established in 1997. In 2003, Canada adopted pH dependant freshwater aquatic life criteria for aluminum that ranges from 84 ug/l to 252 ug/l. Ignoring the final recommendation of the criteria misses the protective intermediate measures to protect against mortality and reductions to growth and reproduction.

The Regional Board claims to have developed a site specific objective for aluminum. EPA's criteria document states that they did a complete literature search and evaluated all of the available scientifically valid information. As one can see from the Regional Board's inclusion of very limited aluminum data in their analysis, they only included the data that agrees with their desired outcome; the Arid West Report and limited toxicity tests under local wastewater discharger control. The Regional Board excluded all of the above cited data that indicate that lower levels of aluminum cause chronic toxicity.

Limitation time frames

Federal Regulation 40 CFR 122.45 (d)(2) requires that permit for POTWs establish Effluent Limitations as average weekly and average monthly unless impracticable. The proposed Permit, page 11, establishes Effluent Limitations for aluminum as an annual average contrary to the cited Federal Regulation. Establishing the Effluent Limitation for aluminum in accordance with the Federal Regulation is not impracticable. Proof of impracticability is properly a steep slope and the Regional Board has not presented any evidence that properly and legally limiting aluminum is impracticable. Impracticable – incapable of being put into practice with the available means; incapable of being performed or accomplished by the means employed or at hand.

Legal Requirements for Site specific Limitations

The proposed Permit, page 2 Finding 5, states that a site specific objective for aluminum was developed and is the basis for the limitations in the Permit. Federal and State laws and regulations specify the minimum requirements for developing site-specific standards and objectives. The Regional Board failed to cite or comply with any legal requirement in their development of the cited site specific objective for aluminum.

Federal Regulations 40 CFR 122.44

> (vi) Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits using one or more of the following options:
>
> > (A) Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. Such a criterion may be derived using a proposed State criterion, or an explicit State policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information which may include: EPA's Water Quality Standards Handbook, October 1983, risk assessment data, exposure data, information about the pollutant from the Food and Drug Administration, and current EPA criteria documents; or
> >
> > (B) Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under section 304(a) of the CWA, supplemented where necessary by other relevant information; or
> >
> > (C) Establish effluent limitations on an indicator parameter for the pollutant of concern, provided:
> >
> > > (*1*) The permit identifies which pollutants are intended to be controlled by the use of the effluent limitation;
> > >
> > > (*2*) The fact sheet required by §124.56 sets forth the basis for the limit, including a finding that compliance with the effluent limit on the indicator parameter will result in controls on the pollutant of concern which are sufficient to attain and maintain applicable water quality standards;
> > >
> > > (*3*) The permit requires all effluent and ambient monitoring necessary to show that during the term of the permit the limit on the indicator parameter continues to attain and maintain applicable water quality standards; and

(*4*) The permit contains a reopener clause allowing the permitting authority to modify or revoke and reissue the permit if the limits on the indicator parameter no longer attain and maintain applicable water quality standards.

Federal Regulations 40 CFR 131

§ 131.1 Scope.

This part describes the requirements and procedures for developing, reviewing, revising, and approving water quality standards by the States as authorized by section 303(c) of the Clean Water Act.

§ 131.5 EPA authority.

(a) Under section 303(c) of the Act, EPA is to review and to approve or disapprove State-adopted water quality standards. The review involves a determination of:

(1) Whether the State has adopted water uses which are consistent with the requirements of the Clean Water Act;

(2) Whether the State has adopted criteria that protect the designated water uses;

(3) Whether the State has followed its legal procedures for revising or adopting standards;

(4) Whether the State standards which do not include the uses specified in section 101(a)(2) of the Act are based upon appropriate technical and scientific data and analyses, and

(5) Whether the State submission meets the requirements included in §131.6 of this part and, for Great Lakes States or Great Lakes Tribes (as defined in 40 CFR 132.2) to conform to section 118 of the Act, the requirements of 40 CFR part 132.

(b) If EPA determines that the State's or Tribe's water quality standards are consistent with the factors listed in paragraphs (a)(1) through (a)(5) of this section, EPA approves the standards. EPA must disapprove the State's or Tribe's water quality standards and promulgate Federal standards under section 303(c)(4), and for Great Lakes States or Great Lakes Tribes under section 118(c)(2)(C) of the Act, if State or Tribal adopted standards are not consistent with the factors listed in paragraphs (a)(1) through (a)(5) of this section. EPA may also promulgate a new or revised standard when necessary to meet the requirements of the Act.

(c) Section 401 of the Clean Water Act authorizes EPA to issue certifications pursuant to the requirements of section 401 in any case where a State or interstate agency has no authority for issuing such certifications.

§ 131.6 Minimum requirements for water quality standards submission.

The following elements must be included in each State's water quality standards submitted to EPA for review:

(a) Use designations consistent with the provisions of sections 101(a)(2) and 303(c)(2) of the Act.

(b) Methods used and analyses conducted to support water quality standards revisions.

(c) Water quality criteria sufficient to protect the designated uses.

(d) An antidegradation policy consistent with §131.12.

(e) Certification by the State Attorney General or other appropriate legal authority within the State that the water quality standards were duly adopted pursuant to State law.

(f) General information which will aid the Agency in determining the adequacy of the scientific basis of the standards which do not include the uses specified in section 101(a)(2) of the Act as well as information on general policies applicable to State standards which may affect their application and implementation.

State Law
California Water Code, § 13241. Water quality objectives

Each regional board shall establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:

(a) Past, present, and probable future beneficial uses of water.
(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
(d) Economic considerations.
(e) The need for developing housing within the region.
(f) The need to develop and use recycled water.

Federal regulation 40 CFR 131.11(b)(1)

(a) *Inclusion of pollutants:* (1) States must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.

(b) Form of criteria: In establishing criteria, States should: (1) Establish numerical values based on: (i) 304(a) Guidance; or (ii) 304(a) Guidance modified to reflect site-specific conditions; or (iii) Other scientifically defensible methods; (2) Establish narrative criteria or criteria based upon biomonitoring methods where numerical criteria cannot be established or to supplement numerical criteria.

Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, 2005, (SIP)

5.2 Site-Specific Objectives:

If a priority pollutant criterion or objective is inappropriate for a particular water body (i.e., it does not protect the beneficial uses or, based on site-specific conditions, a less stringent standard may be warranted), a water quality objective that differs from the applicable criterion or objective may be developed for the site.

Development of Site-Specific Objectives

Water quality objectives shall be developed in a manner consistent with State and federal law and regulations. In accordance with the State's Porter-Cologne Water Quality Control Act (Division 7 of the Water Code), objectives must provide for the reasonable protection of beneficial uses based on consideration of the factors listed in Water Code Section 13241. In accordance with federal law (CWA) and regulations (40 CFR 131.11, revised as of July 1, 1997), the objectives must be based on sound scientific rationale and protect the designated beneficial uses of the receiving water.

The RWQCB shall use scientifically defensible methods appropriate to the situation to derive the objectives. Such methods may include U.S. EPA-approved methods (e.g., Water Effects Ratio [WER] procedure, recalculation procedure, a combination of recalculation and WER procedures, Resident Species Procedure), and/or other methods specified in the workplan.

A site-specific objective adopted by the RWQCB may include a compliance schedule. However, if attainment of the potential objective(s) developed under the study is anticipated to be infeasible (as defined in 40 CFR 131.10(g), revised as of July 1, 1997), or if the RWQCB otherwise determines it is appropriate, a *use attainability analysis (UAA) may be conducted.

The RWQCB shall conduct, with the participation of interested persons, as appropriate, the UAA in accordance with 40 CFR 131.10(j) (revised as of July 1, 1997). If the UAA shows that attainment of the designated beneficial use(s) is not feasible (pursuant to 40 CFR 131.10(g) (revised as of July 1, 1997), the RWQCB shall designate an alternative beneficial use or subcategory of use, and develop appropriate water quality objectives to protect the new use(s). Both the use(s) and the objective(s) established to protect it would be reevaluated during the triennial reviews of the State's water quality standards.

Use of the Arid West Report

The Arid West Report is not applicable to this discharge.

1. The Arid West Report clearly states this is the case by presenting the map on page 3-1. The map clearly shows that the central valley is excluded from the report.

2. Page 3-2 of the Arid West Report characterizes the applicable water bodies for which the report is developed.

"The hydrology of arid west streams can affect the application of water quality standards, especially for ephemeral and effluent-dependent waters. For example:

> *Flashy nature of flow in ephemeral streams means that they are dry for significant lengths of time and then temporarily filled with water. Accordingly, the exposure duration assumptions inherent in federally recommended criteria may not be appropriate, and as such could be modified.* Deer Creek flows year round. The Deer Creek Wastewater treatment plant is mandated by the State Board, division of water rights to discharge a minimum flow year round.
>
> *Effluent-dependent streams are artificially created habitats where the ecological community present is, by definition, adapted to the flow regime, i.e., the existing aquatic life use is dependent on the nature of the waterbody created. The extent to which aquatic life becomes established in an effluent-dependent stream will be influenced by the duration and frequency of the effluent discharge. For example, some wastewater facilities are designed primarily to provide reclaimed water for reuse. However, occasionally these facilities may have to discharge to an ephemeral waterbody for a few days or weeks. The expectations for the aquatic community that develops downstream of these intermittently discharging facilities systems will be quite different from the community that develops in a waterbody that receives effluent all of the time.* The Deer Creek Wastewater treatment plant is mandated by the State Board, division of water rights to discharge a minimum flow year round.

The Arid West report states on page 3-4 that: *"Effluent-dependent streams support valuable riparian communities with high biodiversity of terrestrial plants and animals. In arid west waters, the differences between terrestrial vegetation upstream and downstream of a discharge can be striking, especially where the water is effluent-dependent*." The permit contains no information, and there is no information in the record showing that there is any difference between the upstream and downstream vegetation. To the contrary, CSPA representatives[2] have

[2] Richard McHenry as a Civil Engineer, worked for the Central Valley Regional Board from 1987 through 2006, for much of that time he was assigned direct responsibility as a senior engineer for the regulation of EID's Deer Creek

visited the Deer Creek wastewater treatment plant site on numerous occasions and found both the upstream and downstream vegetation along the Deer Creek riparian corridor to be lush and fully developed.

The Regional Board states in the proposed Permit, page F-31, that Deer Creek has the same characteristics as Arid West waters. Arid west waters are typified as dry stream beds where vegetation only exists downstream based on the wastewater being discharged; dry desert streambeds (see figure 3.2 on page 3.2 of the Arid West Report). Deer Creek is located east of Sacramento as the central valley rises into the Sierra Foothills south of the community of Cameron Park. There is nothing in the Deer Creek watershed that is similar to the waters described in the Arid West Report. An aerial map of the Deer Creek wastewater treatment plant, showing the surrounding vegetation can be seen at http://wikimapia.org/#lat=38.6274321&lon=-120.9842777&z=15&l=0&m=b&v=8&ifr=1.

The Arid West Report states on page 4-13 that: *"Although AWQC are designed to protect most species nationwide, criteria are derived from toxicity tests primarily with surrogate laboratory organisms. These surrogates are usually those species encountered in perennial streams in mesic environments, e.g., the eastern U.S., the Pacific Northwest, and the intermountain Rocky Mountains, such as rainbow trout. A much smaller body of toxicological knowledge exists for stream biota characteristic of the arid parts of the West. The responses of species adapted to effluent-dependent waters to discharged pollutants are even less well understood. EPA regulations and guidance documents provide a procedure to recalculate site-specific water quality criteria that reflect local, unique conditions, or exposed populations*." Deer Creek support a population of rainbow trout[3] unlike the waterbodies described in the Arid West Report.

The Regional Board has cited *Evaluation of the EPA Recalculation Procedure in the Arid West Technical Report* (May 2006). The title of the document infers recalculation of water quality criteria with the intent of developing site specific water quality criteria. This is confirmed in the *Forward* of the report presented on page ii (AR014031) which states that:

> "The purpose of this fifth report, *Evaluation of EPA Recalculation Procedure in Arid West Effluent Dependent Waters*, ("Recalculation Procedure Study") was to evaluate use of the Recalculation Procedure on selected water quality criteria with different modes of toxicity in specific arid West waters. In addition, based on the findings from this evaluation, a *User's Guide for Development of Site-Specific Water Quality Standards in*

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wastewater treatment plant. Mr. McHenry was present and participated in numerous compliance inspections at the Deer Creek wastewater treatment plant.

[3] Direct observation by Mr. Richard McHenry and as cited from the Deer Creek permit R5-2002-0210, page 4 (e): "e. Preservation and Enhancement of Fish, Wildlife and Other Aquatic Resources. Deer Creek flows to the Cosumnes River. The California Department of Fish and Game (DFG) has verified that the fish species present in Deer Creek and downstream waters are consistent with both cold and warm water fisheries, that there is a potential for anadromous fish migration necessitating a cold water designation and that trout, a cold water species, have been found both upstream and downstream of the wastewater treatment plant. The Basin Plan (Table II-1) designates the Cosumnes River as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Deer Creek. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/l."

> *Arid West Effluent-dependent Streams Using USEPA's Recalculation Procedure* was also prepared as a practical guide for water quality standards practitioners regarding use of the Recalculation Procedure for developing site-specific water quality standards."

The Regional Board has not however recalculated the criteria and begun the legally required process of modifying the water quality criteria. The Regional Board has circumvented the legal water quality standards development process and applied the recommended water quality levels for Arid West waterbodies in NPDES permits. This is not only contrary to the stated intent of the report but conflicts with federal and state requirements for developing water quality standards, including site-specific standards. The Regional Board has failed to follow the legally required procedures for developing water quality standards, 40 CFR Part 131. The Regional Board has also failed to comply with the California Water Code, Porter Cologne Section 13241.

The proposed Permit, page F-31, states that: "*The Technical Report found that* "*speciation and/or complexation of aluminum is highly dependent on ambient water quality characteristics and ultimately determines the mechanism of toxicity. [Increased] Concentrations of calcium in the water was shown to decrease toxic effects to fish."* Yet, any analysis of calcium concentrations in Deer Creek is not presented. The proposed Permit then states in the next paragraph that: "*There is no evidence that aluminum behaves differently in Deer Creek than in the Arid West Project water bodies, and no basis to expect that it would behave differently."* Clearly, if the Regional Board wishes to develop a site-specific objective for aluminum, the burden of proof is for them to prove that the proposed objective is fully protective of the beneficial uses of Deer Creek. None of the citations of the Arid west report appear to be applicable to Deer Creek.

Arid West Fish

The proposed Permit spends a lot of space discussing fish populations in Arid West waters and compares them to Deer Creek fish. Since the proposed permit fails to show that any other non-Arid West stream has different fish, the point is lost. The proposed Permit finally get to their point on page F-34 by stating that: "*Also, note that neither brook trout nor striped bass reside in Deer Creek, which are the two species USEPA developed the chronic criterion at 87 μg/L to protect. Additionally, Deer Creek does not support a resident, self-sustaining population of rainbow trout, which exhibits similar sensitivities as brook trout."* The operable word in the previous sentence is apparently "self sustaining" since the following documentation confirms the presence of trout in Deer Creek.

Waste Discharge Requirements, Order No. R5-2002-0210 states that:

> "*Preservation and Enhancement of Fish, Wildlife and Other Aquatic Resources. Deer Creek flows to the Cosumnes River. The California Department of Fish and Game (DFG) has verified that the fish species present in Deer Creek and downstream waters are consistent with both cold and warm water fisheries, that there is a potential for anadromous fish migration necessitating a cold water designation and that <u>trout, a cold water species, have been found both upstream and downstream of the wastewater</u>*

> *treatment plant.* *The Basin Plan (Table II-1) designates the Cosumnes River as being both a cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Deer Creek. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/l.*" The Permit Finding was apparently based on a letter from the Department of Fish and Game dated 2 June 1999, which states in part that: *"... the fish species present in Deer Creek are consistent with both cold and warm water fisheries, that the potential for anadromous migration in Deer Creek necessitates a cold water designation and that trout, a cold water species, have been found both upstream and downstream of the wastewater treatment plant*."

The presence of trout on Deer Creek is also confirmed by El Dorado Irrigation District's consultants:

> *The three benthic macroinvertebrate surveys (CDFG 1995, 1998; SWRI 1996) and 5 fish surveys (JSA 1993; CDFG 1994; SWRI 1996; CDFG 1997; Nature Conservancy 1999) that have been conducted in Deer Creek between 1993 and 1999 (collectively from north of Hwy 50 to the confluence with the Cosumnes River – see Figure 1) documented that Deer Creek supports warm water ecosystems upstream and downstream of the Deer Creek Wastewater Treatment Plant (DCWWTP). Three rainbow trout were observed in the 1994 survey conducted by CDFG, but rainbow trout were not observed in any of the other 4 fish surveys that were conducted between 1993 and 1999. Hence, Deer Creek does not support a viable, self-sustaining population of rainbow trout, either upstream or downstream of the DCWWTP (Staff Report, Volume II, section 7.4.2 and Appendices G and H; SWRI 1996 for detailed biological and water temperature data for Deer Creek).*

The above cited CDFG fish survey identifies that the study area was upstream and downstream of the wastewater treatment plant. The locations of the other fish surveys were not clearly identified. However, areas identified as north of highway 50 or at the confluence with the Cosumnes River would not be located near the wastewater treatment plant.

The information in the record is contrary to the proposed Permit conclusion that the fish used by U.S. EPA in evaluating the toxicity of aluminum are absent in Deer Creek. Clearly, trout are present in Deer Creek and U.S. EPA's ambient criteria for aluminum are applicable.

The effects of pH and hardness

The proposed permit cites an Arid West based projected chronic toxicity limitation at the City of Auburn for aluminum of 287 ug/l, but discounts an association since the pH and hardness at Deer Creek are higher. Although not stated by the Regional Board their statement allowing that hardness and pH at higher values will render aluminum less toxic is from the footnote to U.S. EPA's ambient criteria for aluminum 1999 update. We must remind the Regional Board of their oft cited revised ambient criteria footnote for aluminum which also states in part that: "but the effects of pH and hardness are not well quantified at this time". The Regional Board uses the fact that Auburn and Deer Creek are located in the foothills at approximately the same elevation to conclude that they support the same aquatic life.

Arid West Calculations

Finally, in evaluating the Arid West Studies and developing their "site-specific" objective, permit page F-37, the Regional Board uses the mean hardness rather than the most protective lowest hardness in their calculations. The mean hardness would not represent the worst case, most protective, limitation for chronic toxicity. It would be comical if it were not so potentially lethal, that the Regional Board has gone to such extreme measures to use the effluent hardness in developing limitations for toxic metals, yet uses the even more relaxed mean downstream hardness when developing their "objective" for aluminum.

3. The proposed Permit fails to require that analysis of water quality be performed by a certified laboratory, contrary to the California Water Code Section 13176.

The Superior Court Order

CalSPA's contented that the Board abused its discretion by failing to require that monitoring for pH and temperature be conducted by a properly certified laboratory, as mandated by California Water Code section 13176.The Court concludes that this issue should be decided in the first instance by the Board, not by the Court. Accordingly, the Court shall issue a writ remanding this matter to the Board to consider whether it is legally and factually possible for the District to comply with the requirements of Water Code section 13176 in the manner suggested by CalSPA.

Legal Requirements

The law states that:

> **CWC § 13176. Certified laboratories** (a) The analysis of any material required by this division shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code. (b) No person or public entity of the state shall contract with a laboratory for environmental analyses for which the State Department of Health Services requires accreditation or certification pursuant to this chapter, unless the laboratory holds a valid certification or accreditation.
>
> CWC **§ 13383. Monitoring requirements** (a) The state board or a regional board may establish monitoring, inspection, entry, reporting, and recordkeeping requirements, as authorized by Sections 13160, 13376, or 13377 or by subdivisions (b) and (c) of this

section, for any person who discharges, or proposes to discharge, to navigable waters, any person who introduces pollutants into a publicly owned treatment works, any person who owns or operates, or proposes to own or operate, a publicly owned treatment works or other treatment works treating domestic sewage, or any person who uses or disposes, or proposes to use or dispose, of sewage sludge.

(b) The state board or the regional boards may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required.

(c) The state board or a regional board may inspect the facilities of any person subject to this section pursuant to the procedure set forth in subdivision (c) of Section 13267.

California Health and Safety Code (HSC) section 100825 (b) Laboratories that perform analyses on any combination of environmental samples, …for regulatory purposes shall obtain a certificate of accreditation pursuant to this article.

HSC section 100825 (c) (3) "Certificate" means a document issued to a laboratory that has received certification or accreditation pursuant to this article.

HSC 100825 (c) (16) "Regulatory purposes" means a statutory or regulatory requirement of a state board, office, or department, or of a division or program that requires a laboratory certified under this article or of any other state or federal agency that requires a laboratory to be accredited.

The laws included in both the California Water Code and the Health and Safety Code is clear in the requirement that laboratories doing environmental analyses be certified. The Regional Board failed to require certification in the NPDES permit issued to El Dorado Irrigation District's Deer Creek Wastewater Treatment Plant for pH and temperature. Both pH and temperature are regulated under the permit and therefore subject to the cited laws. The original permit, which was the subject of CSPA's petition and eventual legal action, exempted El Dorado Irrigation District from conduction pH and temperature analyses at a certified laboratory without explanation. In response to the Superior Court's order; the permit has been modified to state that a $20,000 annual cost to conduct the analyses at a certified laboratory is overly expensive. The Regional Board does not cite any legal authority to exempt any Discharger from the legal requirements for laboratory certification.

A matter of routine

Since there was originally no explanation of exempting a Discharger from using certified laboratories to conduct required monitoring; recently adopted permits for other Dischargers were reviewed for similar exemptions.

Sacramento Regional County Sanitation District, Order No. R5-2010-0114, page E-2 No. C exempts the Discharger from lab certification for pH, turbidity, temperature and chlorine residual.
(http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/sacramento/r5-2010-0114_npdes.pdf)

City of Auburn, Wastewater Treatment Plant, Order No. R5-2010-0090-01, page E-1 No. C: "In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory."
(http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/placer/r5-2010-0090-01.pdf)

Based on a review of the above regional Board permits, it appears that the Regional Board routinely exempts wastewater Dischargers from the legal responsibility of conducting compliance monitoring at a certified laboratory, in the case of Auburn for apparently all parameters. An explanation of the technical or legal authority for such exemption could not be located in the permits.

The Regional Board's explanation

The following is an excerpt from the Deer Creek revised permit responding to the Court's Order:

> *"The Court required the Central Valley Water Board to "consider whether it is legally and factually possible for the District to comply with the requirements of Water Code section 13176 either (i) by having its on-site laboratory re-certified or (ii) by having certified laboratory personnel travel to the District's facility and conduct the testing on site." California Water Code section 13176 requires that the analysis of water qualify be performed by a laboratory that has accreditation or certification under the Health and Safety Code (Cal Water Code § 13176). To comply, Central Valley Water Board staff communicated separately with the District, with California Department of Public Health and State Water Board staff, and with three private laboratories within the vicinity of the Deer Creek Facility, and the findings are summarized below.*
>
> *Last year the El Dorado Irrigation District leased its on-site laboratory at its El Dorado Hills Wastewater Treatment Plant to a certified private contract lab in an effort to save costs, and therefore, it is factually impossible for the District to recertify their on-site lab at the El Dorado Hills Wastewater Treatment Plant until the lease agreement expires.*
>
> *There are four private certified labs with mobile units located within the vicinity of the District's facilities, which includes the private contract lab now located on-site. However, none of the labs' mobile units are currently certified nor provide this service. Based on conversations with three of the four private labs, it would be possible to acquire certification, and the monitoring fees are approximately $100 per hour, which includes travel time to and from the monitoring locations. Thus, the cost to the District ranges from $51,000 to $81,000 per year for each Facility.*

> *The District provided information that the on-site private lab at the El Dorado Hills Wastewater Treatment Plant can conduct the in-situ monitoring for an approximate annual cost of $20,000 per facility; however, the District's current budget is $19.661 million per year after recent local sewer fee increases, and the 2012 budget is projected at $20.362 million per year (www.eid.org/2011- 2012_OpBudget.pdf). The District states that they have reduced staff since 2008 by 34.8%, and increased sewerage fees up to 15%. Therefore, The Central Valley Water Board finds that the additional monitoring expense makes it economically impossible for the District to comply with the requirements of Water Code section 13176 without a further increase in local sewer fees".*

Closing their laboratory

The following is copied from *EID News*, 22 March 2010 (http://www.eid.org/doc_lib/03_news/2010/20100322_eidnews.pdf):

> *"We also laid off the four-person staff at our state-certified laboratory, where we test for water quality and perform other functions required by regulations," Abercrombie said. "We are contracting with a private firm that will rent our lab facilities, perform our testing, and seek other business in the area. The district achieves overall savings of $536,000 the first year and $322,000 per year thereafter through the reduced personnel costs at the lab and the rental income."*

Wastewater Chemistry and Operations
An easy fix for certification

In addition to compliance monitoring, wastewater treatment plant processes are monitored frequently by staff to assure the plant is operating properly. The following are excerpts from *Operation of Wastewater Treatment Plants (A field Study Training Program, Fourth edition, Volume II)* which is training guide for wastewater treatment plant operators:

> *"The pH test indicates whether a treatment process may continue to function properly at the pH measured. Each process in the plant has its own favorable range of pH which must be checked routinely." (Page 555)*

> *"Temperature is one of the most important factors affecting biological growth. Temperature measurements can be helpful in detecting changes in raw wastewater quality. For example, an influent temperature drop may indicate large volumes of cold water from infiltration. An increase in temperature may indicate that hot water by industry are reaching your plant*

> *Temperature is one of the most frequently taken tests. One of the many uses is to calculate the prevent saturation of dissolved oxygen in the DO test."*

Wastewater Treatment plants maintain a laboratory for operations control. Temperature and pH are typically measured using hand held devices; a thermometer and a pH meter. Even if EID did not maintain an operations laboratory, hand held devices would not require a dedicated area and could be certified independently.

An option for EID's Deer Creek wastewater treatment plant is to have the operations lab certified for pH and temperature.

Laboratory costs for pH and temperature sampling

The proposed Permit states that: "*the District's current budget is $19.661 million per year after recent local sewer fee increases, and the 2012 budget is projected at $20.362 million per year.*" The proposed Permit also indicates that the cost for an outside lab to conduct certified sampling and analysis is $20,000 per year. $20,000 is a small percentage of the total operating cost of $20,362,000.

Wastewater treatment plants have ever-changing conditions and maintenance requirements. One never knows when a pump or a sewer line may break. It is also not uncommon that engineering services are required for system analysis or to prepare a technical report. For these reasons, wastewater treatment plants generally keep a reserve fund to cover unexpected costs. It would be highly unusual for a utility with an annual budget of over $20 million not to have a reserve fund well in excess of $20,000, a tenth of a percent of the total budget. The Regional Board's assessment that a $20,000 expense at a facility with a budget over $20 million would necessitate a rate increase would appear at best to be without merit.

The proposed Permit cites that the average dry weather flow at the Deer Creek wastewater treatment plant is 3.6 million gallons per day. Without any significant industrial discharges, at an approximate discharge level of 100 gallons per person per day, the plant would serve approximately 36,000 people. Assuming a household is 2.5 people, $20,000 per year divided equally between the local households would not be significantly over a dollar per year.

Ready means of compliance

The Regional Board's explanation for failing to requiring analyses at certified labs only comes down to the cost to the district, no other defense, technical or legal, is presented. In any of the cases, whether the District can certify their operations laboratory for pH and temperature or certify only their handheld pH and temperature devices or utilize reserve funds to cover the costs from outside laboratory analysis. There are options other than raising sewer rates to achieve certification for pH and temperature analyses. While no one is in favor of higher serer rates; the Regional Board has not presented any technical or legal reason why an increased sewer rate excuses a wastewater Discharger from the requirement to conduct environmental analyses at a certified laboratory. The Regional Board has also not cited, if they believe this case is based on an economical hardship, why are other new permits being written with the same exemption (see above Sacramento Regional and City of Auburn citations).

Thank you for considering these comments. If you have questions or require clarification, please don't hesitate to contact us.

Sincerely,

Bill Jennings, Executive Director
California Sportfishing Protection Alliance

Attachment 1: Emerick, Developing Protective Hardness-Based Metal Effluent Limitations
Attachment 2: Canadian Water Quality Guidelines for the Protection of Aquatic Life, Factsheet April 03
Attachment 3: Memorandum, Indiana Department of Environmental Management, Recalculation of Water Quality Criteria for Iron and Aluminum
Attachment 4: EID News, 22 March 2010
Attachment 5: EID 2011-2012 Operating Budget
Attachment 6: Memorandum From Mark Bradley Enforcement Manager, State Water Resources Control Board, titled Must Any Sample Used for Regulatory Purposes be Analyzed By A Certified Laboratory?

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California's groundwater problems and prospects

Posted on January 30, 2013 by UC Davis Center for Watershed Sciences

Under the rocks and stones, there is water underground – Talking Heads

By Jay R. Lund and Thomas Harter

Groundwater is one of California's most ubiquitous, widely used resources that is unseen and misunderstood. Aquifers gather and store water and contaminants from large areas over decades to eons to support many human and ecosystem functions. We must manage groundwater wisely.

Groundwater is important to California in many ways. Roughly 30 percent of water deliveries in California come directly from groundwater, with much more in drought years, particularly long droughts (CDWR 2005, Megdal et al. 2009). Smaller urban and rural areas depend entirely on groundwater, as do many sizable cities, including Fresno. In all, 85 percent of Californians depend on groundwater for at least part of their drinking water. (SWRCB, 2012). The state's groundwater storage capacity is more than 10 times that of all its surface reservoirs. Groundwater removes some, but not all, forms of drinking water contaminants. Groundwater also accumulates contaminants with time, particularly salts and nitrate. Groundwater pumping energy is about 2% of California's electricity use (5,800 GwH/yr of total 280,000 GwH/yr). And many native species depend on streamflows and wetlands fed by springs and supported by high groundwater tables. California's multifaceted dependence on groundwater leads to diverse controversies and myths.

Where does groundwater come from? Groundwater comes from surface water, natural landscape recharge and irrigation return water. When pumping exceeds recharge, it depletes aquifer storage. Recharge from streams occurs when the groundwater table is lower than the stream. Natural landscape and irrigation water recharge occurs when unused water percolates to below the root zone of plants and crops. Percolation is vital to crops and ecosystems. Without some percolation, the root zone accumulates salinity that kills plant life. In some areas, recharge basins, injection wells and irrigation management are used to intentionally recharge and bank groundwater during wet years or winters when ample water is available, for long-term storage and use in dry years or summer. In much of California, groundwater pumping has significantly lowered groundwater levels, which often increases recharge from streams. Increased losses from streams to groundwater can reduce downstream flows and affect ecosystems, if not regulated by upstream dams. Ultimately, almost all groundwater used for irrigation and drinking water would have become streamflow were it not pumped. (The largest exception is chronically overdrafted aquifers, less than 10% of California's groundwater use.) .

Irrigation "inefficiency" is a major source of groundwater recharge. In the Central Valley and other agricultural regions of California, irrigation inefficiency is a major source of aquifer recharge (Ruud et al. 2004). In many areas, drought-year groundwater supplies depend substantially on irrigation inefficiency in wetter years, when surface water is available and used by farmers. Ironically, local inefficiency often improves regional water use efficiency and sustainability. However, excessive groundwater pumping causes long-term continual decline in groundwater levels ("overdraft") and irrigation inefficiency increases salt and nitrate loads to groundwater. There are few perfect solutions in water.

Groundwater problems in California vary greatly and are locally quite important.

- **Overdraft** in California today occurs in parts of the Central Valley, especially the Tulare Lake Basin, but also in some coastal and southern California basins with limited surface water supplies and intensive agriculture. During wet periods with more surface water deliveries, some overdraft reverses temporarily. Still, statewide overdraft is estimated diversely to average between 500,000 acre-feet a year to more than 1.5 million acre-feet a year, which amounts to 10-20 percent of all water use in the Tulare Lake Basin (Faunt et al 2009). Other Central Valley areas with groundwater overdraft are along the eastern margin of the San Joaquin Valley, including east of the Delta. Overdraft in much of the Sacramento Valley has been limited due to increased infiltration from streams induced by lower groundwater tables (Harou and Lund 2008; Faunt, et al. 2009). Overdraft in most of Southern California has largely ended by regulation from local groundwater adjudications and water imports (Blomquist 1998). In Southern California, the Tulare Lake Basin and elsewhere, drawdown of aquifers has created empty groundwater storage capacity used to store water from wet years for droughts (Vaux 1986; Jenkins 1998; Hanak et al. 2012). The Tulare Lake Basin's long dependence on the Delta and overdraft for about 60 percent of its water supplies is a major regional and statewide challenge. The Tulare Lake Basin uses more water than any other region of California – about 8 million acre-feet a year. Delta imports and San Joaquin River diversion supply about 3 million acre-feet; local streams, 3.2 million acre-feet; local groundwater inflows from precipitation, 1.1 million acre-feet; and 0.7-1.5 million acre-feet from groundwater overdraft (Hanak et al. 2011; CDWR 2009). The high value of Tulare Lake Basin agriculture, its dependence on water imports and overdraft, and the accumulation of salts and nitrate in this closed basin raise substantial long-term economic and social challenges for this region and the state (Chou 2012).

- **Nitrate contamination** is one of the most widespread groundwater problems worldwide and in California, affecting drinking water supplies in many agricultural or historically agricultural areas. While even large cities such as Fresno are affected, nitrate contamination is most expensive for small rural water supplies that lack economies of scale. Nitrate contamination affects many groundwater-dependent systems in California, including more than 200,000 people in small and household wells in the Tulare and Salinas basins (Harter et al. 2012). Most nitrate contamination is from agricultural fertilizers, although other sources, notably septic tanks and dairies, can be important locally. Most agricultural areas can expect nitrate contamination of drinking water supplies. Source control of nitrate discharge is only a partial long-term solution because of the large extent of contamination and its decades of travel in groundwater. Providing drinking water solutions and compensation for affected communities now and into the foreseeable future is an unavoidable and urgently needed response (Harter et al 2012). Nitrate problems for drinking water are often compounded by naturally occurring arsenic, chromium, uranium, and other groundwater contaminants (SWRCB 2012).

- **Salinity accumulation** is another long-term groundwater quality challenge. Salt accumulation is particularly problematic on the Westside of the Tulare Lake and San Joaquin basins, which lack much ability to export salt from imported water or local soils – affecting about 500,000 acres of farmland (SJVDP 1990). In many other parts of California, such as the cities of Davis and Woodland, the accumulation of salts in groundwater is threatening the viability of urban groundwater water use, because of wastewater regulations regarding the consequently higher salinity in urban wastewater discharges. Statewide, major sources of salt are local soils and aquifers, irrigation water, animal farming, and municipal and industrial wastes – including salts from water softeners. Salts in irrigation water and wastewater applied to crops or urban landscapes are concentrated by evapotranspiration from plants, leaving salts behind. Salinity accumulation has a history of ending agriculture in arid regions (Hillel 2000).

- **Land subsidence** resulting from groundwater use has been considerable in some areas, particularly in the Tulare Lake and San Joaquin basins. In the mid-20th century, land subsidence in the San Joaquin Valley and Tulare Lake basins has ranged from a few feet to over 30 feet (Poland et al 1975; Faunt et al. 2009). Due to decreasing groundwater levels, land subsidence is recurring and remains a threat in these regions (Corbett et al. 2011). While physically remarkable, there has been insufficient analysis of the occurrence and implications of subsidence and little accounting of the long-term economic costs. However, regional subsidence can incur potentially large costs from flooding and insufficient slopes on canal and drainage systems.

- **Decreased streamflows** have occurred on many California streams, as groundwater levels were lowered from pre-development levels. Lowered groundwater levels drain water from rivers, stressing ecosystems during low-flow times (Harou and Lund 2008; Faunt et al. 2009). Ironically, streams with an upstream dam now often have higher summer streamflows than they would have with natural runoff, despite surrounding groundwater levels being lowered. Reservoir operations delivering summer streamflow significantly contribute to groundwater recharge. But in unmanaged rivers, pumping drains water from riparian ecosystems (Fleckenstein et al. 2004; Harter and Hines 2008; Howard and Merrifield 2010) and more generally undermines surface supplies for junior surface water right holders (who sometimes respond by increasing their own groundwater pumping).

Should the State do anything?

- **The sky is not falling, in most places.** California has widespread groundwater problems, and probably always will. California is a dry place, after all. Many groundwater problems are severe, growing and local. Some groundwater problems could benefit from state action, but California's groundwater problems must be solved mostly at local and regional levels, perhaps with some state legal, financial, and technical help. The state can provide better institutional and information frameworks to help locals solve local and regional groundwater problems.

- **Many local groundwater problems are being handled well locally.** California has had a remarkable record of effective local groundwater management (Nelson 2011, 2012; ACWA 2011; Blomquist 1992). Historical overdraft in some areas of California has been eliminated or limited by build-out of surface water projects, and more recently by effective local conjunctive use in much of the Central Valley or groundwater adjudication in Southern California. In other areas, problems of groundwater depletion remain. Groundwater quality management has been much more difficult, with accumulations of salt and nitrate having so far defied local solutions. Groundwater quality and groundwater overdraft management are closely linked, as are groundwater and surface water. Creative regional solutions that consider these broader scales and interconnections are needed. Support for successful development of stakeholder supported local-regional management is also critical.

Some state reforms would be useful.

1. **Official information is important.** State agencies should declare areas at risk of nitrate and salinity contamination. Many domestic well users will not know of contamination without such official declarations. And local governments and

interests are likely to lack capacity or incentive to address long-term groundwater contamination issues without the attention of state agencies.

2. **Effective compensation is needed more than source control.** Source control for large-scale groundwater problems, such as nitrate and salt contamination, often take decades to be effective, but people drink from and use these aquifers every day. Declarations of at-risk areas should trigger compensation mechanisms for affected water users, while long-term source control policies are developed and implemented. Long-term source control poses a dilemma for the state, as even the best source control may not provide clean recharge and large-scale groundwater degradation often requires decades of response time. Because degradation in some aquifers is long-term and perhaps permanent for nitrate and salinity, providing mechanisms for information and compensation are key state roles.
3. **Better data and science.** Much data is available on groundwater in California, but too much of it is poorly organized, not in electronic format or hidden by secrecy rules. Consequently, little synthetic work is done to develop insights from these data. A serious technical program is needed, at arm's length from stakeholders, to develop the perspective and insights needed for informed public policy and management discussions and actions. State efforts to account for and model groundwater have been missing and hindered by data problems, but advanced substantially for the Central Valley with the recent California Department of Water Resources C2VSIM model and the U.S. Geological Survey model, CVHM. While both substantially improve answers to major groundwater questions, they still have great potential for further improvement.
4. **Security of groundwater rights and integrated regional water management.** Except in adjudicated groundwater basins, where courts have divided and allocated groundwater rights and established watermasters and enforcement mechanisms, most groundwater use in California is largely unregulated. Environmental limits on some surface water supplies for agriculture and urban users have stressed groundwater to levels not seen since the 1950s and '60s. In addition, large-scale groundwater quality management, driven by the state's nutrient and salt management policy, is becoming intimately intertwined with water quantity management. The state needs to find a way to more expeditiously establish groundwater use rights in ways compatible with separately regulated water quality and with physically connected, but legally separated surface water rights. Groundwater recharge management, integrated with

groundwater quality management, in both urban areas and agricultural areas must become part of state and local groundwater protection strategies.

5. **The major overdraft areas of California create substantial economic value.** In the Tulare Lake Basin and numerous smaller basins, groundwater is mined, as one would deplete gold, oil and other mineral deposits. Are there areas of California where depletion of water should be viewed and accepted economically? In many areas, new solutions should be sought to increase groundwater banking and conjunctive use that allow water users to work within a long-term water budget, particularly in agricultural regions. This approach would provide a sustainable future for groundwater reservoirs (Scanlon et al., 2012; Hanak et al. 2012).

California will always have groundwater problems, and its dependence on groundwater is likely to increase with changes in demands, climate and environmental regulations. Success will be in how effectively groundwater is managed, especially in managing groundwater together with other water supplies and demands. Effective management will require state and regional frameworks of information, organization and authorities that help local water managers work effectively and transparently. Effective management of overdraft, salinization and contamination also will require a long-term perspective and serious technical efforts – through the end of the 21st century and beyond. This requires an important, if limited, role for the state.

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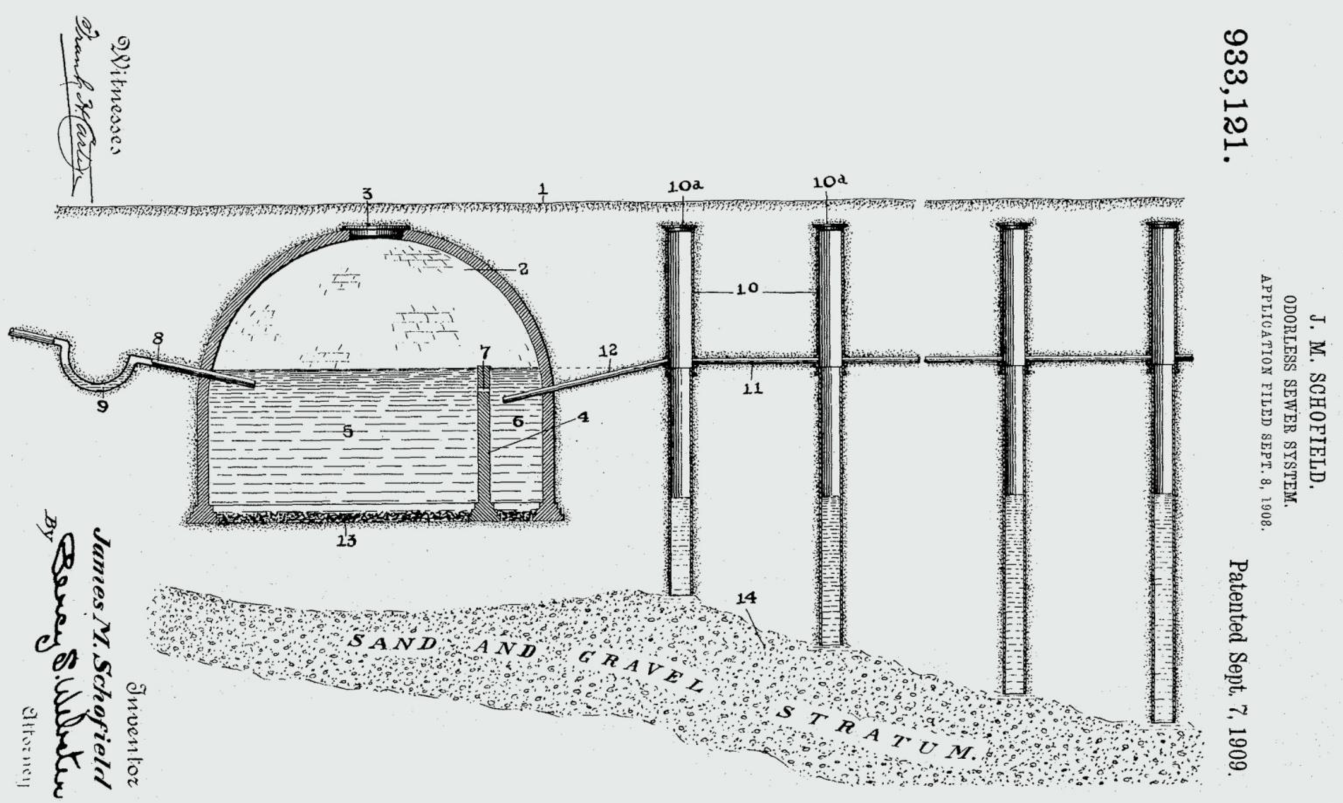

FINAL DRAFT

Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems

March 20, 2012

CALIFORNIA
Water Boards

STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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Final Draft

Preamble – Purpose and Scope – Structure of the Policy

3/20/2012

Preamble

Onsite wastewater treatment systems (OWTS) are useful and necessary structures that allow habitation at locations that are removed from centralized wastewater treatment systems. When properly sited, designed, operated, and maintained, OWTS treat domestic wastewater to reduce its polluting impact on the environment and most importantly protect public health. Estimates for the number of installations of OWTS in California at the time of this Policy are that more than 1.2 million systems are installed and operating. The vast majority of these are functioning in a satisfactory manner and meeting their intended purpose.

However there have been occasions in California where OWTS for a varied list of reasons have not satisfactorily protected either water quality or public health. Some instances of these failures are related to the OWTS not being able to adequately treat and dispose of waste as a result of poor design or improper site conditions. Others have occurred where the systems are operating as designed but their densities are such that the combined effluent resulting from multiple systems is more than can be assimilated into the environment. From these failures we must learn how to improve our usage of OWTS and prevent such failures from happening again.

As California’s population continues to grow, and we see both increased rural housing densities and the building of residences and other structures in more varied terrain than we ever have before, we increase the risks of causing environmental damage and creating public health risks from the use of OWTS. What may have been effective in the past may not continue to be as conditions and circumstances surrounding particular locations change. So necessarily more scrutiny of our installation of OWTS is demanded of all those involved, while maintaining an appropriate balance of only the necessary requirements so that the use of OWTS remains viable.

Purpose and Scope of the Policy

The purpose of this Policy is to allow the continued use of OWTS, while protecting water quality and public health. This Policy recognizes that responsible local agencies can provide the most effective means to manage OWTS on a routine basis. Therefore as an important element, it is the intent of this policy to efficiently utilize and improve upon where necessary existing local programs through coordination between the State and local agencies. To accomplish this purpose, this Policy establishes a statewide, risk-based, tiered approach for the regulation and management of OWTS installations and replacements and sets the level of performance and protection expected from OWTS. In particular, the Policy requires actions for identified areas where OWTS contribute to water quality degradation that adversely affect beneficial uses.

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Preamble – Purpose and Scope – Structure of the Policy

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This Policy only authorizes subsurface disposal of domestic strength, and in limited instances high strength, wastewater and establishes minimum requirements for the permitting, monitoring, and operation of OWTS for protecting beneficial uses of waters of the State and preventing or correcting conditions of pollution and nuisance. And finally, this Policy also conditionally waives the requirement for owners of OWTS to apply for and receive Waste Discharge Requirements in order to operate their systems when they meet the conditions set forth in the Policy. Nothing in this Policy supersedes or requires modification of Total Maximum Daily Loads or Basin Plan prohibitions of discharges from OWTS.

This Policy applies to OWTS on federal, state, and Tribal lands to the extent authorized by law or agreement.

Structure of the Policy

This Policy is structured into ten major parts:

Definitions
Definitions for all the major terms used in this Policy are provided within this part and wherever used in the Policy the definition given here overrides any other possible definition.
[Section 1]

Responsibilities and Duties
Implementation of this Policy involves individual OWTS owners; local agencies, be they counties, cities, or any other subdivision of state government with permitting powers over OWTS; Regional Water Quality Control Boards; and the State Water Resources Control Board.
[Sections 2, 3, 4, and 5]

Tier 0 – Existing OWTS
Existing OWTS that are properly functioning, and do not meet the conditions of failing systems or otherwise require corrective action (for example, to prevent groundwater impairment) as specifically described in Tier 4, and are not determined to be contributing to an impairment of surface water as specifically described in Tier 3, are automatically included in Tier 0.
[Section 6]

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Tier 1 – Low-Risk New or Replacement OWTS
New or replacement OWTS that meet low risk siting and design requirements as specified in Tier 1, where there is not an approved Local Agency Management Program per Tier 2.
[Sections 7 and 8]

Tier 2 – Local Agency Management Program for New or Replacement OWTS
California is well known for its extreme range of geological and climatic conditions. As such, the establishment of a single set of criteria for OWTS would either be too restrictive so as to protect for the most sensitive case, or would have broad allowances that would not be protective enough under some circumstances. To accommodate this extreme variance, local agencies may submit management programs ("Local Agency Management Programs") for approval, and upon approval then manage the installation of new and replacement OWTS under that program.

Local Agency Management Programs approved under Tier 2 provide an alternate method from Tier 1 programs to achieve the same policy purpose, which is to protect water quality and public health. In order to address local conditions, Local Agency Management Programs may include standards that differ from the Tier 1 requirements for new and replacement OWTS contained in Sections 7 and 8. As examples, a Local Agency Management Program may authorize different soil characteristics, usage of seepage pits, and different densities for new developments. Once the Local Agency Management Program is approved, new and replacement OWTS that are included within the Local Agency Management Program may be approved by the Local Agency. A Local Agency, at its discretion, may include Tier 1 standards within its Tier 2 Local Agency Management Program for some or all of its jurisdiction. However, once a Local Agency Management Program is approved, it shall supersede Tier 1 and all future OWTS decisions will be governed by the Tier 2 Local Agency Management Program until it is modified, withdrawn, or revoked.
[Section 9]

Tier 3 – Impaired Areas
OWTS that are near impaired water bodes may be addressed by a TMDL and its implementation program, or special provisions contained in a Local Agency Management Program. If there is no TMDL or special provisions, new or replacement OWTS within 600 feet of impaired water bodies listed in Attachment 2 must meet the specific requirements of Tier 3.
[Section 10]

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Preamble – Purpose and Scope – Structure of the Policy

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Tier 4 – OWTS Requiring Corrective Action
OWTS that require corrective action or are either presently failing or fail at any time while this Policy is in effect are automatically included in Tier 4 and must follow the requirements as specified.
[Section 11]

Conditional Waiver of Waste Discharge Requirements
The requirement to submit a report of waste discharge for discharges from OWTS that are in conformance with this policy is waived.
[Section 12]

Effective Date
When this Policy becomes effective.
[Section 13]

Financial Assistance
Procedures for local agencies to apply for funds to establish low interest loan programs for the assistance of OWTS owners in meeting the requirements of this Policy.
[Section 14]

Attachment 1
AB 885 Regulatory Program Timelines.

Attachment 2

Tables 4 and 5 specifically identify those impaired water bodies that have Tier 3 requirements and must have a completed TMDL by the date specified.

Attachment 3

Table 6 shows where one Regional Water Board has been designated to review and, if appropriate, approve new Local Agency Management Plans for a local agency that is within multiple Regional Water Boards' jurisdiction.

What Tier Applies to my OWTS?

Existing OWTS that conform to the requirements for Tier 0 will remain in Tier 0 as long as they continue to meet those requirements. An existing OWTS will temporarily move from Tier 0 to Tier 4 if it is determined that corrective action is needed. The existing OWTS will return to Tier 0 once the corrective action is completed. Any major repairs conducted as corrective action must comply with Tier 1 requirements or Tier 2 requirements, whichever are in effect for that local area. An existing OWTS will move from Tier 0 to Tier 3 if it is adjacent to an impaired water body listed on Attachment 2, or is covered by a TMDL implementation plan.

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In areas with no approved Local Agency Management Plan, new and replacement OWTS that conform to the requirements of Tier 1 will remain in Tier 1 as long as they continue to meet those requirements. A new or replacement OWTS will temporarily move from Tier 1 to Tier 4 if it is determined that corrective action is needed. The new or replacement OWTS will return to Tier 1 once the corrective action is completed. A new or replacement OWTS will move from Tier 1 to Tier 3 if it is adjacent to an impaired water body, or is covered by a TMDL implementation plan.

In areas with an approved Local Agency Management Plan, new and replacement OWTS that conform to the requirements of the Tier 2 Local Agency Management Plan will remain in Tier 2 as long as they continue to meet those requirements. A new or replacement OWTS will temporarily move from Tier 2 to Tier 4 if it is determined that corrective action is needed. The new or replacement OWTS will return to Tier 2 once the corrective action is completed. A new or replacement OWTS will move from Tier 2 to Tier 3 if it is adjacent to an impaired water body, or is covered by a TMDL implementation plan, or is covered by special provisions for impaired water bodies contained in a Local Agency Management Program.

Existing, new, and replacement OWTS in specified areas adjacent to water bodies that are identified by the State Water Board as impaired for pathogens or nitrogen and listed in Attachment 2 are in Tier 3. Existing, new, and replacement OWTS covered by a TMDL implementation plan, or covered by special provisions for impaired water bodies contained in a Local Agency Management Program are also in Tier 3. These OWTS will temporarily move from Tier 3 to Tier 4 if it is determined that corrective action is needed. The new or replacement OWTS will return to Tier 3 once the corrective action is completed.

Existing, new, and replacement OWTS that do not conform with the requirements to receive coverage under any of the Tiers (e.g., existing OWTS with a projected flow of more than 10,000 gpd) do not qualify for this Policy’s conditional waiver of waste discharge requirements, and will be regulated separately by the applicable Regional Water Board.

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Definitions

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1.0 Definitions. The following definitions apply to this Policy:

"303 (d) list" means the same as "**Impaired Water Bodies.**"

"At-grade system" means an OWTS dispersal system with a discharge point located at the preconstruction grade (ground surface elevation). The discharge from an at-grade system is always subsurface.

"Basin Plan" means the same as "water quality control plan" as defined in Division 7 (commencing with Section 13000) of the Water Code. Basin Plans are adopted by each Regional Water Board, approved by the State Water Board and the Office of Administrative Law, and identify surface water and groundwater bodies within each Region's boundaries and establish, for each, its respective beneficial uses and water quality objectives. Copies are available from the Regional Water Boards, electronically at each Regional Water Boards website, or at the State Water Board's *Plans and Policies* web page (http://www.waterboards.ca.gov/plans_policies/).

"Bedrock" means the rock, usually solid, that underlies soil or other unconsolidated, surficial material.

"CEDEN" means California Environmental Data Exchange Network and information about it is available at the State Water Boards website or http://www.ceden.org/index.shtml.

"Cesspool" means an excavation in the ground receiving domestic wastewater, designed to retain the organic matter and solids, while allowing the liquids to seep into the soil. Cesspools differ from seepage pits because cesspool systems do not have septic tanks and are not authorized under this Policy. The term cesspool does not include pit-privies and out-houses which are not regulated under this Policy.

"Clay" means a soil particle; the term also refers to a type of soil texture. As a soil particle, clay consists of individual rock or mineral particles in soils having diameters <0.002 mm. As a soil texture, clay is the soil material that is comprised of 40 percent or more clay particles, not more than 45 percent sand and not more than 40 percent silt particles using the USDA soil classification system.

"Cobbles" means rock fragments 76 mm or larger using the USDA soil classification systems.

"Dispersal system" means a leachfield, seepage pit, mound, at-grade, subsurface drip field, evapotranspiration and infiltration bed, or other type of system for final wastewater treatment and subsurface discharge.

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"Domestic wastewater" means wastewater with a measured strength less then high-strength wastewater and is the type of wastewater normally discharged from, or similar to, that discharged from plumbing fixtures, appliances and other household devices including, but not limited to toilets, bathtubs, showers, laundry facilities, dishwashing facilities, and garbage disposals. Domestic wastewater may include wastewater from commercial buildings such as office buildings, retail stores, and some restaurants, or from industrial facilities where the domestic wastewater is segregated from the industrial wastewater. Domestic wastewater does not include wastewater from industrial processes or RV dump stations.

"Dump Station" means a facility intended to receive the discharge of wastewater from a holding tank installed on a recreational vehicle. A dump station does not include a full hook-up sewer connection similar to those used at a recreational vehicle park.

"Domestic well" means a groundwater well that provides water for human consumption and is not regulated by the California Department of Public Health.

"Earthen material" means a substance composed of the earth's crust (i.e. soil and rock).

"EDF" see "electronic deliverable format."

"Effluent" means sewage, water, or other liquid, partially or completely treated or in its natural state, flowing out of a septic tank, aerobic treatment unit, dispersal system, or other OWTS component.

"Electronic deliverable format" or **"EDF"** means the data standard adopted by the State Water Board for submittal of groundwater quality monitoring data to the State Water Board's internet-accessible database system Geotracker (http://geotracker.waterboards.ca.gov/).

"Escherichia coli" means a group of bacteria predominantly inhabiting the intestines of humans or other warm-blooded animals, but also occasionally found elsewhere. Used as an indicator of human fecal contamination.

"Existing OWTS" means an OWTS that was constructed and operating prior to the effective date of this Policy, and OWTS for which a construction permit has been issued prior to the effective date of the Policy.

"Gravel-less chamber" system means a buried structure used to create an aggregate-free absorption area for infiltration and treatment of wastewater.

"Grease interceptor" means a passive interceptor that has a rate of flow exceeding 50 gallons-per-minute and that is located outside a building. Grease interceptors are used for separating and collecting grease from wastewater.

"Groundwater" means water below the land surface that is at or above atmospheric pressure.

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"High-strength wastewater" means wastewater having a 30-day average concentration of biochemical oxygen demand (BOD) greater than 300 milligrams-per-liter (mg/L) or of total suspended solids (TSS) greater than 330 mg/L or a fats, oil, and grease (FOG) concentration greater than 100 mg/L prior to the septic tank or other OWTS treatment component.

"IAPMO" means the International Association of Plumbing and Mechanical Officials.

"Impaired Water Bodies" means those surface water bodies or segments thereof that are identified on a list approved first by the State Water Board and then approved by US EPA pursuant to Section 303(d) of the federal Clean Water Act.

"Local agency" means any subdivision of state government that has responsibility for permitting the installation of and regulating OWTS within its jurisdictional boundaries; typically a county, city, or special district.

"Major repair" means either: (1) for a dispersal system, repairs required for an OWTS dispersal system due to surfacing wastewater effluent from the dispersal field and/or wastewater backed up into plumbing fixtures because the dispersal system is not able to percolate the design flow of wastewater associated with the structure served, or (2) for a septic tank, repairs required to the tank for a compartment baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating.

"Mottling" means a soil condition that results from oxidizing or reducing minerals due to soil moisture changes from saturated to unsaturated over time. Mottling is characterized by spots or blotches of different colors or shades of color (grays and reds) interspersed within the dominant color as described by the USDA soil classification system. This soil condition can be indicative of historic seasonal high groundwater level, but the lack of this condition may not demonstrate the absence of groundwater.

"Mound system" means an aboveground dispersal system (covered sand bed with effluent leachfield elevated above original ground surface inside) used to enhance soil treatment, dispersal, and absorption of effluent discharged from an OWTS treatment unit such as a septic tank. Mound systems have a subsurface discharge.

"New OWTS" means an OWTS permitted after the effective date of this Policy.

"NSF" means NSF International (a.k.a. National Sanitation Foundation), a not for profit, non-governmental organization that develops health and safety standards and performs product certification.

"Onsite wastewater treatment system(s)" (**OWTS**) means individual disposal systems, community collection and disposal systems, and alternative collection and disposal systems that use subsurface disposal. The short form of the term may be singular or plural. OWTS do not include "graywater" systems pursuant to Health and Safety Code Section 17922.12.

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"Percolation test" means a method of testing water absorption of the soil. The test is conducted with clean water and test results can be used to establish the dispersal system design.

"Permit" means a document issued by a local agency that allows the installation and use of an OWTS, or waste discharge requirements or a waiver of waste discharge requirements that authorizes discharges from an OWTS.

"Person" means any individual, firm, association, organization, partnership, business trust, corporation, company, State agency or department, or unit of local government who is, or that is, subject to this Policy.

"Pit-privy" (a.k.a. outhouse, pit-toilet) means self-contained waterless toilet used for disposal of non-water carried human waste; consists of a shelter built above a pit in the ground into which human waste falls.

"Policy" means this Policy for Siting, Design, Operation and Management of OWTS.

"Pollutant" means any substance that alters water quality of the waters of the State to a degree that it may potentially affect the beneficial uses of water, as listed in a Basin Plan.

"Projected flows" means wastewater flows into the OWTS determined in accordance with any of the applicable methods for determining average daily flow in the *USEPA Onsite Wastewater Treatment System Manual, 2002,* or for Tier 2 in accordance with an approved Local Agency Management Program.

"Public Water System" is a water system regulated by the California Department of Public Health or a Local Primacy Agency pursuant to Chapter 12, Part 4, California Safe Drinking Water Act, Section 116275 (h) of the California Health and Safety Code.

"Public Water Well" is a ground water well serving a public water system. A spring which is not subject to the California Surface Water Treatment Rule (SWTR), CCR, Title 22, sections 64650 through 64666 is a public well.

"Qualified professional" means an individual licensed or certified by a State of California agency to design OWTS and practice as professionals for other associated reports, as allowed under their license or registration. Depending on the work to be performed and various licensing and registration requirements, this may include an individual who possesses a registered environmental health specialist certificate or is currently licensed as a professional engineer or professional geologist. For the purposes of performing site evaluations, Soil Scientists certified by the Soil Science Society of America are considered qualified professionals. A local agency may modify this definition as part of its Local Agency Management Program.

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“Regional Water Board” is any of the Regional Water Quality Control Boards designated by Water Code Section 13200. Any reference to an action of the Regional Water Board in this Policy also refers to an action of its Executive Officer, including the conducting of public hearings, pursuant to any general or specific delegation under Water Code Section 13223.

“Replaced OWTS” means an OWTS that has its treatment capacity expanded, or its dispersal system replaced or added onto, after the effective date of this Policy.

“Sand” means a soil particle; this term also refers to a type of soil texture. As a soil particle, sand consists of individual rock or mineral particles in soils having diameters ranging from 0.05 to 2.0 millimeters. As a soil texture, sand is soil that is comprised of 85 percent or more sand particles, with the percentage of silt plus 1.5 times the percentage of clay particles comprising less than 15 percent.

“Seepage pit” means a drilled or dug excavation, three to six feet in diameter, either lined or gravel filled, that receives the effluent discharge from a septic tank or other OWTS treatment unit for dispersal.

“Septic tank” means a watertight, covered receptacle designed for primary treatment of wastewater and constructed to:

1. Receive wastewater discharged from a building;
2. Separate settleable and floating solids from the liquid;
3. Digest organic matter by anaerobic bacterial action;
4. Store digested solids; and
5. Clarify wastewater for further treatment with final subsurface discharge.

“Service provider” means a person capable of operating, monitoring, and maintaining an OWTS in accordance to this Policy.

“Silt” means a soil particle; this term also refers to a type of soil texture. As a soil particle, silt consists of individual rock or mineral particles in soils having diameters ranging from between 0.05 and 0.002 mm. As a soil texture, silt is soil that is comprised as approximately 80 percent or more silt particles and not more than 12 percent clay particles using the USDA soil classification system.

“Site” means the location of the OWTS and, where applicable, a reserve dispersal area capable of disposing 100 percent of the design flow from all sources the OWTS is intended to serve.

“Site Evaluation” means an assessment of the characteristics of the site sufficient to determine its suitability for an OWTS to meet the requirements of this Policy.

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"Soil" means the naturally occurring body of porous mineral and organic materials on the land surface, which is composed of unconsolidated materials, including sand-sized, silt-sized, and clay-sized particles mixed with varying amounts of larger fragments and organic material. The various combinations of particles differentiate specific soil textures identified in the soil textural triangle developed by the United States Department of Agriculture (USDA) as found in Soil Survey Staff, USDA; *Soil Survey Manual, Handbook 18,* U.S. Government Printing Office, Washington, DC, 1993, p. 138. For the purposes of this Policy, soil shall contain earthen material of particles smaller than 0.08 inches (2 mm) in size.

"Soil Structure" means the arrangement of primary soil particles into compound particles, peds, or clusters that are separated by natural planes of weakness from adjoining aggregates.

"Soil texture" means the soil class that describes the relative amount of sand, clay, silt and combinations thereof as defined by the classes of the soil textural triangle developed by the USDA (referenced above).

"State Water Board" is the State Water Resources Control Board

"Supplemental treatment" means any OWTS or component of an OWTS, except a septic tank or dosing tank, that performs additional wastewater treatment so that the effluent meets the performance requirements prior to discharge of effluent into the dispersal field.

"SWAMP" means Surface Water Ambient Monitoring Program and more information is available at: http://www.waterboards.ca.gov/water_issues/programs/swamp/

"Telemetric" means the ability to automatically measure and transmit OWTS data by wire, radio, or other means.

"TMDL" is the acronym for "total maximum daily load." Section 303(d)(1) of the Clean Water Act requires each State to establish a TMDL for each impaired water body to address the pollutant(s) causing the impairment. In California, TMDLs are usually adopted as Basin Plan amendments and contain implementation plans detailing how water quality standards will be attained.

"Total coliform" means a group of bacteria consisting of several *genera* belonging to the family *Enterobacteriaceae*, which includes Escherichia coli bacteria.

"USDA" means the U.S. Department of Agriculture.

"Waste discharge requirement" or **"WDR"** means an operation and discharge permit issued for the discharge of waste pursuant to Section 13260 of the California Water Code.

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Responsibilities and Duties

3/20/2012

Responsibilities and Duties

2.0 OWTS Owners Responsibilities and Duties

2.1 All new, replaced, or existing OWTS within an area that is subject to a Basin Plan prohibition of discharges from OWTS, must comply with the prohibition. If the prohibition authorizes discharges under specified conditions, the discharge must comply with those conditions and the applicable provisions of this Policy.

2.2 Owners of OWTS shall adhere to the requirements prescribed in local codes and ordinances. Owners of new and replaced OWTS shall also meet the minimum standards contained in Tier 1, or an alternate standard provided by a Local Agency Management Program per Tier 2, or shall comply with the requirements of Tier 3 if near an impaired water body and subject to Tier 3, or shall provide corrective action for their OWTS if their system meets conditions that place it in Tier 4.

2.3 Owners of OWTS shall comply with any and all permitting conditions imposed by a local agency implementing its approved Local Agency Management Program per Section 9 of this Policy, including if those conditions are more stringent than required by this Policy.

2.4 To receive coverage under this Policy and the included waiver of waste discharges, OWTS shall only accept and treat flows of domestic wastewater. In addition, OWTS that accept high-strength wastewater from commercial food service buildings are covered under this Policy and the waiver of waste discharge requirements if the wastewater does not exceed 900 mg/L BOD and there is a properly sized and functioning oil/grease interceptor (a.k.a grease trap).

2.5 Owners of OWTS shall maintain their OWTS in good working condition including inspections and pumping of solids as necessary, or as required by local ordinances, to maintain proper function and assure adequate treatment.

2.6 The following owners of OWTS shall notify the Regional Water Board by submitting a Report of Waste Discharge for the following:

2.6.1 a new or replaced OWTS that does not meet the conditions and requirements set forth in this Policy;

2.6.2 a new or replacement OWTS with the projected flow of over 3,500 gallons-per-day where the local permitting authority does not have an approved Local Agency Management Program that includes regulations of flows greater than or equal to the projected flow of the OWTS;

2.6.3 an existing OWTS, not currently under individual waste discharge requirements or a waiver of individual waste discharge requirements issued by a Regional Water Board, with the projected flow of over 10,000 gallons-per-day;

2.6.4 an existing OWTS that will be receiving or has received after the effective date of this Policy a change in the nature of the waste stream from domestic wastewater to high-strength wastewater, unless the waste stream is from a commercial food service building;

2.6.5 a new or replaced OWTS that receives high-strength wastewater, unless the wastewater is from a commercial food service building;

2.6.6 a new, replacement, or existing OWTS that will be or already is receiving high-strength wastewater with: (1) a BOD higher than 900 mg/L from a commercial food service building, or (2) does not have a properly sized and functioning oil/grease interceptor, after the effective date of this Policy.

2.7 All Reports of Waste Discharge shall be accompanied by the required application fee pursuant to California Code of Regulations, title 23, section 2200.

3.0 Local Agency Requirements and Responsibilities

3.1 Local agencies, in addition to implementing their own local codes and ordinances, shall determine whether the requirements within their local jurisdiction will be limited to the water quality protection afforded by the statewide minimum standards in Tier 0, Tier 1, Tier 3, and Tier 4, which this Policy authorizes them to implement, or whether the local agency will implement a Local Agency Management Program in accordance with Tier 2 that provides protection to water quality and public health using standards differing from Tier 1. Except for Tier 3, local agencies may continue to implement their existing OWTS permitting programs in compliance with the Basin Plan in place at the effective date of the Policy and Tier 3 until 60 months after the effective date of this Policy, or approval of a Local Agency Management Program, whichever comes first, and may make minor adjustments as necessary that are in compliance with the applicable Basin Plan and this Policy. Tier 3 requirements take effect on the effective date of this Policy. In the absence of a Tier 2 Local Agency Management Program, to the extent that there is a direct conflict between the applicable minimum standards and the local codes or ordinances (such that it is impossible to comply with both the applicable minimum standards and the local ordinances or codes), the more restrictive standards shall govern.

3.2 If preferred, the local agency may at any time provide the State Water Board and all affected Regional Water Board(s) written notice of its intent to regulate OWTS using a Local Agency Management Program with alternative standards as authorized in Tier 2 of this Policy. A proposed Local Agency Management Program that conforms to the requirements of that Section shall be included with the notice. A local agency shall not implement a program different than the minimum standards contained in Tier 1 and 3 of this Policy after 60 months from the effective date of this Policy until approval of the proposed Local Agency Management Program is granted by either the Regional Water Board or State Water Board. All initial program submittals desiring approval prior to the 60 month limit shall be received no later than 36 months from the effective date of this Policy. Once approved, the local agency shall adhere to the Local Agency Management Program, including all requirements, monitoring, and reporting. If at any time a local agency wishes to modify its Local Agency Management Program, it shall provide the State Water Board and all affected Regional Water Board(s) written notice of its intended modifications and will continue to implement its existing Local Agency Management Program until the modifications are approved.

3.3 All local agencies permitting OWTS shall report annually to the Regional Water Board(s). If a local agency's jurisdictional area is within the boundary of multiple Regional Water Boards, the local agency shall send a copy of the annual report to each Regional Water Board. The annual report shall include the following information (organized in a tabular spreadsheet format) and summarize whether any further actions are warranted to protect water quality or public health:

3.3.1 number and location of complaints pertaining to OWTS operation and maintenance, and identification of those which were investigated and how they were resolved;

3.3.2 shall provide the applications and registrations issued as part of the local septic tank cleaning registration program pursuant to Section 117400 et seq. of the California Health and Safety Code;

3.3.3 number, location, and description of permits issued for new and repaired OWTS and which Tier the permit is issued.

3.4 All local agencies permitting OWTS shall retain permanent records of their permitting actions and will make those records available within 10 working days upon written request for review by a Regional Water Board. The records for each permit shall reference the Tier under which the permit was issued.

3.5 A local agency shall notify the owner of a public well or water intake and the California Department of Public Health as soon as practicable, but not later than 72 hours, upon its discovery of a failing OWTS as described in sections 11.1 and 11.2 within the setbacks described in sections 7.5.6 through 7.5.10.

3.6 A local agency may implement this Policy, or a portion thereof, using its local authority to enforce the policy, as authorized by an approval from the State Water Board or by the appropriate Regional Water Board.

3.7 Nothing in the Policy shall preclude a local agency from adopting or retaining standards for OWTS in an approved Local Agency Management Program that are more protective of the public health or the environment than are contained in this Policy.

3.8 If at any time a local agency wishes to withdraw its previously submitted and approved Tier 2 Local Agency Management Program, it may do so upon 60 days written notice. The notice of withdrawal shall specify the reason for withdrawing its Tier 2 program, the effective date for cessation of the program and resumption of permitting of OWTS only under Tiers 1, 3, and 4.

4.0 Regional Water Board Functions and Duties

4.1 The Regional Water Boards have the principal responsibility for overseeing the implementation of this Policy.

4.2 Regional Water Boards shall incorporate the requirements established in this Policy by amending their Basin Plans within 12 months of the effective date of this Policy, pursuant to Water Code Section 13291(e). The Regional Water Boards may also consider whether it is necessary and appropriate to retain or adopt any more protective standards. To the extent that a Regional Water Board determines that it is necessary and appropriate to retain or adopt any more protective standards, it shall reconcile those region-specific standards with this Policy to the extent feasible, and shall provide a detailed basis for its determination that each of the more protective standards is necessary and appropriate.

4.2.1 Notwithstanding 4.2 above, the North Coast Regional Water Board will continue to implement its existing Basin Plan requirements pertaining to OWTS within the Russian River watershed until it adopts the Russian River TMDL, at which time it will comply with section 4.2 for the Russian River watershed.

4.3 The Regional Water Board designated in Attachment 3 shall review, and if appropriate, approve a Local Agency Management Program submitted by the local agency pursuant to Tier 2 in this Policy. Upon receipt of a proposed Local Agency Management Program, the Regional Water Board designated in Attachment 3 shall have 90 days to notify the local agency whether the submittal contains all the elements of a Tier 2 program, but may request additional information based on review of the proposed program. Approval must follow a noticed hearing with opportunity for public comment. If a Local Agency Management Program is disapproved, the Regional Water Board designated in Attachment 3 shall provide a written explanation of the reasons for the disapproval. A Regional Water Board may approve a Local Agency Management Program while disapproving any proposed special provisions for impaired water bodies contained in the Local Agency Management Program. If no action is taken by the respective Regional Water Board within 12 months of the submission date of a complete Local Agency Management Program, the program shall be forwarded to the State Water Board for review and approval pursuant to Section 5 of this Policy.

4.3.1 Where the local agency's jurisdiction lies within more than one Regional Water Board, staff from the affected Regional Water Boards shall work cooperatively to assure that water quality protection in each region is adequately protected. If the Regional Water Board designated in Attachment 3 approves the Local Agency Management Program over the written objection of an affected Regional Water Board, that Regional Water Board may submit the dispute to the State Water Board under Section 5.3.

4.3.2 Within 30 days of receipt of a proposed Local Agency Management Program, a Regional Water Board will forward a copy to and solicit comments from the California Department of Public Health regarding a Local Agency Management Programs' proposed procedures for notifying local water purveyors prior to OWTS permitting.

4.4 Once a Local Agency Management Program has been approved, any affected Regional Water Board may require modifications or revoke authorization of a local agency to implement a Tier 2 program, in accordance with the following:

4.4.1 The Regional Water Board shall consult with any other Regional Water Board(s) having jurisdiction over the local agency before providing the notice described in section 4.4.2.

4.4.2 Written notice shall be provided to the local agency detailing the Regional Water Board's action, the cause for such action, remedies to prevent the action from continuing to completion, and appeal process and rights. The local agency shall have 90 days from the date of the written notice to respond with a corrective action plan to address the areas of non-compliance, or to request the Regional Water Board to reconsider its findings.

4.4.3 The Regional Water Board shall approve, approve conditionally, or deny a corrective action plan within 90 days of receipt. The local agency will have 90 days to begin implementation of a corrective action plan from the date of approval or 60 days to request reconsideration from the date of denial. If the local agency fails to submit an acceptable corrective action plan, fails to implement an approved corrective action plan, or request reconsideration, the Regional Water Board may require modifications to the Local Agency Management Program, or may revoke the local agency's authorization to implement a Tier 2 program.

4.4.4 Requests for reconsideration by the local agency shall be decided by the Regional Water Board within 90 days and the previously approved Local Agency Management Program shall remain in effect while the reconsideration is pending.

4.4.5 If the request for reconsideration is denied, the local agency may appeal to the State Water Board and the previously approved Local Agency Management Program shall remain in effect while the appeal is under consideration. The State Water Board shall decide the appeal within 90 days. All decisions of the State Water Board are final.

4.5 The appropriate Regional Water Board shall accept and consider any requests for modification or revocation of a Local Agency Management Program submitted by any person. The Regional Water Board will notify the person making the request and the local agency implementing the Local Agency Management Program at issue by letter within 90 days whether it intends to proceed with the modification or revocation process per Section 4.4 above, or is dismissing the request. The Regional Water Board will post the request and its response letter on its website.

4.6 A Regional Water Board may issue or deny waste discharge requirements or waivers of waste discharge requirements for any new or replaced OWTS within a jurisdiction of a local agency without an approved Local Agency Management Program if that OWTS does not meet the minimum standards contained in Tier 1.

4.7 The Regional Water Boards will implement any notifications and enforcement requirements for OWTS determined to be in Tier 3 of this Policy.

4.8 Regional Water Boards may adopt waste discharge requirements, or conditional waivers of waste discharge requirements, that exempt individual OWTS from requirements contained in this Policy.

5.0 State Water Board Functions and Duties

5.1 As the state agency charged with the development and adoption of this Policy, the State Water Board shall periodically review, amend and/or update this Policy as required.

5.2 The State Water Board may take any action assigned to the Regional Water Boards in this Policy.

5.3 The State Water Board shall resolve disputes between Regional Water Boards and local agencies as needed within 12 months of receiving such a request by a Regional Water Board or local agency, and may take action on its own motion in furtherance of this Policy. As part of this function, the State Water Board shall review and, if appropriate, approve Local Agency Management Programs in cases where the respective Regional Water Board has failed to consider for approval a Local Agency Management Program. The State Water Board shall approve Local Agency Management Programs at a regularly noticed board hearing and shall provide for public participation, including notice and opportunity for public comment. Once taken up by the State Water Board, Local Agency Management Programs shall be approved or denied within 180 days.

5.4 A member of the public may request the State Water Board to resolve any dispute regarding the Regional Water Board's approval of a Local Agency Management Program if the member of the public timely raised the disputed issue before the Regional Water Board. Such requests shall be submitted within 30 days after the Regional Water Board's approval of the Local Agency Management Program. The State Water Board shall notify the member of the public, the local agency, and the Regional Water Board within 90 days whether it intends to proceed with dispute resolution.

5.5 The State Water Board shall accept and consider any requests for modification or revocation of a Local Agency Management Program submitted by any person, where that person has previously submitted said request to the Regional Water Board and has received notice from the Regional Water Board of its dismissal of the request. The State Water Board will notify the person making the request and the local agency implementing the Local Agency Management Program at issue by letter within 90 days whether it intends to proceed with the modification or revocation process per Section 4.4 above, or is dismissing the request. The State Water Board will post the request and its response letter on its website.

5.6 The State Water Board, at the time of approving any Impaired Water Bodies [303 (d)] List, and for the purpose of implementing Tier 3 of this Policy, shall identify in Attachment 2 those water bodies where: (1) it is likely that operating OWTS will subsequently be determined to be a contributing source of pathogens or nitrogen and therefore it is anticipated that OWTS would receive a loading reduction, and (2) it is likely that new OWTS installations discharging within 600 feet of the water body would contribute to the impairment. This identification shall be based on information available at the time of 303 (d) listing and may be updated based on new information.

5.7 The State Water Board will make available to local agencies funds from its Clean Water State Revolving Fund loan program for mini-loan programs to be operated by the local agencies for the making of low interest loans to assist private property owners with complying with this Policy.

Tier 0 – Existing OWTS

Existing OWTS that are properly functioning and do not meet the conditions of failing systems or otherwise require corrective action (for example, to prevent groundwater impairment) as specifically described in Tier 4, and are not determined to be contributing to an impairment of surface water as specifically described in Tier 3, are automatically included in Tier 0.

6.0 Coverage for Properly Operating Existing OWTS

6.1 Existing OWTS are automatically covered by Tier 0 and the herein included waiver of waste discharge requirements if they meet the following requirements:

6.1.1 have a projected flow of 10,000 gallons-per-day or less;

6.1.2 receive only domestic wastewater from residential or commercial buildings, or high-strength wastewater from commercial food service buildings that does not exceed 900 mg/L BOD and has a properly sized and functioning oil/grease interceptor (a.k.a. grease trap);

6.1.3 do not require supplemental treatment under Tier 3;

6.1.4 do not require corrective action under Tier 4; and

6.1.5 do not consist of a cesspool as a means of wastewater disposal.

6.2 A Regional Water Board or local agency may deny coverage under this Policy to any OWTS that is:

6.2.1 Not in compliance with Section 6.1;

6.2.2 In the opinion of the Regional Water Board not able to adequately protect the water quality of the waters of the State and should therefore submit a report of waste discharge to receive Region specific waste discharge requirements or waiver of waste discharge requirements so as to be protective.

6.3 Existing OWTS currently under waste discharge requirements or individual waiver of waste discharge requirements will remain under those orders until notified in writing by the appropriate Regional Water Board that they are covered under this Policy.

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Tier 1 – Low Risk New or Replacement OWTS

3/20/2012

Tier 1 – Low Risk New or Replacement OWTS

New or replacement OWTS meet low risk siting and design requirements as specified in Tier 1, where there is not an approved Local Agency Management Program per Tier 2.

7.0 Minimum Site Evaluation and Siting Standards

7.1 A qualified professional shall perform all necessary soil and site evaluations for all new OWTS and for existing OWTS where the treatment or dispersal system will be replaced or expanded.

7.2 A site evaluation shall determine that adequate soil depth is present in the dispersal area. Soil depth is measured vertically to the point where bedrock, hardpan, impermeable soils, or saturated soils are encountered or an adequate depth has been determined. Soil depth shall be determined through the use of soil profile(s) in the dispersal area and the designated dispersal system replacement area, as viewed in excavations exposing the soil profiles in representative areas, unless the local agency has determined through historical or regional information that a specific site soil profile evaluation is unwarranted.

7.3 A site evaluation shall determine the anticipated highest level of groundwater within the dispersal field and its required minimum dispersal zone by estimation using one or a combination of the following methods:

7.3.1 Direct observation of the highest extent of soil mottling observed in the examination of soil profiles, recognizing that soil mottling is not always an indicator of the uppermost extent of high groundwater; or

7.3.2 Direct observation of groundwater levels during the anticipated period of high groundwater. Methods for groundwater monitoring and determinations shall be decided by the local agency; or

7.3.3 Other methods, such as historical records, acceptable to the local agency.

7.3.4 Where a conflict in the above methods of examination exists, the direct observation method indicating the highest level shall govern.

7.4 Percolation test results in the effluent disposal area shall not be faster than one minute per inch (1 MPI) or slower than ninety minutes per inch (90 MPI). Other percolation rates may be used under a Tier 2 Local Agency Management Program. All percolation rates shall be based on actual or simulated wet weather conditions by performing the test during the wet weather period as determined by the local agency or by presoaking of percolation test holes and shall be a stabilized rate.

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7.5 Minimum horizontal setbacks shall be as follows:

7.5.1 5 feet from parcel property lines;

7.5.2 100 feet from water wells and monitoring wells, unless regulatory or legitimate data requirements necessitate that monitoring wells be located closer;

7.5.3 100 feet from any unstable land mass or any areas subject to earth slides identified by a registered engineer or registered geologist; other setback distance are allowed, if recommended by a geotechnical report prepared by a qualified professional.

7.5.4 100 feet from springs and flowing surface water bodies where the edge of that water body is the natural or levied bank for creeks and rivers, or may be less where site conditions prevent migration of wastewater to the water body;

7.5.5 200 feet from vernal pools, wetlands, lakes, ponds, or other surface water bodies where the edge of that water body is the high water mark for lakes and reservoirs, and the mean high tide line for tidally influenced water bodies;

7.5.6 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet;

7.5.7 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth;

7.5.8 Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth and the separation from the bottom of the system and ground water is less than five feet, the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated. A qualified professional shall conduct this evaluation. However in no case shall the setback be less than 200 feet.

7.5.9 Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake and within the catchment of the drainage, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.

7.5.10 Where the effluent dispersal system is located more than 1,200 but less than 2,500 feet from a public water systems' surface water intake and within the catchment of the drainage, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

7.6 Prior to issuing a permit to install an OWTS the permitting agency shall determine if the OWTS is within 1,200 feet of an intake for a surface water treatment plant for drinking water and is in the drainage catchment in which the intake is located. If the OWTS is within 1,200 feet of an intake for a surface water treatment plant for drinking water and is in the drainage catchment in which the intake is located:

7.6.1 The permitting agency shall provide a copy of the permit application to the owner of the water system of their proposal to install an OWTS within 1,200 of an intake for a surface water treatment. If the owner of the water system cannot be identified, then the permitting agency will notify California Department of Public Health Drinking Water Program.

7.6.2 The permit application shall include a topographical plot plan for the parcel showing the OWTS components, the property boundaries, proposed structures, physical address, and name of property owner.

7.6.3 The permitting agency shall provide the estimated wastewater flows, intended use of proposed structure generating the wastewater, soil data, and estimated depth to seasonally saturated soils.

7.6.4 The public water system owner shall have 5 days from receipt of the permit application to provide recommendations and comments to the permitting agency.

7.7 Natural ground slope in all areas used for effluent disposal shall not be greater than 25 percent.

7.8 The average density for any subdivision of property occurring after the effective date of this Policy and implemented under Tier 1 shall not exceed one single-family dwelling unit, or its equivalent, per 2.5 acres for those units that rely on OWTS.

8.0 Minimum OWTS Design and Construction Standards

8.1 OWTS Design Requirements

8.1.1 A qualified professional shall design all new OWTS and modifications to existing OWTS where the treatment or dispersal system will be replaced or expanded. A qualified professional employed by a local agency, while acting in that capacity may design or review and approve a design for a proposed OWTS.

8.1.2 OWTS shall be located, designed, and constructed in a manner to ensure that effluent does not surface at any time, and that percolation of effluent will not adversely affect beneficial uses of waters of the State.

8.1.3 The design of new and replaced OWTS shall be based on the expected influent wastewater quality with a projected flow not to exceed 3,500 gallons per day, the peak wastewater quantity for purposes of hydraulic sizing, the characteristics of the site, and the required level of treatment for protection of water quality and public health.

8.1.4 All dispersal systems shall have at least twelve (12) inches of soil cover.

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8.1.5 The minimum depth to the anticipated highest level of groundwater below the bottom of the leaching trench, and the native soil depth immediately below the leaching trench, shall not be less than prescribed in Table 1.

Table 1: Tier 1 Minimum Depths to Groundwater and Minimum Soil Depth from the Bottom of the Dispersal System

Percolation Rate	Depth to groundwater
Percolation Rate ≤1 MPI	Only as authorized in a Tier 2 Local Agency Management Program
1 MPI< Percolation Rate ≤ 5 MPI	Twenty (20) feet
5 MPI< Percolation Rate ≤ 30 MPI	Eight (8) feet
30 MPI< Percolation Rate ≤ 90 MPI	Five (5) feet
Percolation Rate > 90 MPI	Only as authorized in a Tier 2 Local Agency Management Program

MPI = minutes per inch

8.1.6 Dispersal systems shall be a leachfield, designed using not more than 4 square-feet of infiltrative area per linear foot of trench as the infiltrative surface, and with trench width no wider than 3 feet. Seepage pits and other dispersal systems may only be authorized for repairs where siting limitations require a variance. Maximum application rates shall be determined from stabilized percolation rate as provided in Table 2, or from soil texture and structure determination as provided in Table 3.

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Table 2: Application rates as determined from stabilized percolation rate

Percolation Rate	Application Rate		Percolation Rate	Application Rate		Percolation Rate	Application Rate
(minutes per Inch)	(gallons per day per square foot)		(minutes per Inch)	(gallons per day per square foot)		(minutes per Inch)	(gallons per day per square foot)
<1	Requires Local Manage-ment Program		31	0.522		61	0.197
1	0.8		32	0.511		62	0.194
2	0.8		33	0.5		63	0.19
3	0.8		34	0.489		64	0.187
4	0.8		35	0.478		65	0.184
5	0.8		36	0.467		66	0.18
6	0.8		37	0.456		67	0.177
7	0.8		38	0.445		68	0.174
8	0.8		39	0.434		69	0.17
9	0.8		40	0.422		70	0.167
10	0.8		41	0.411		71	0.164
11	0.786		42	0.4		72	0.16
12	0.771		43	0.389		73	0.157
13	0.757		44	0.378		74	0.154
14	0.743		45	0.367		75	0.15
15	0.729		46	0.356		76	0.147
16	0.714		47	0.345		77	0.144
17	0.7		48	0.334		78	0.14
18	0.686		49	0.323		79	0.137
19	0.671		50	0.311		80	0.133
20	0.657		51	0.3		81	0.13
21	0.643		52	0.289		82	0.127
22	0.629		53	0.278		83	0.123
23	0.614		54	0.267		84	0.12
24	0.6		55	0.256		85	0.117
25	0.589		56	0.245		86	0.113
26	0.578		57	0.234		87	0.11
27	0.567		58	0.223		88	0.107
28	0.556		59	0.212		89	0.103
29	0.545		60	0.2		90	0.1
30	0.533					>90	Requires Local Agency Management Program

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Table 3: Design Soil Application Rates

(Source: USEPA Onsite Wastewater Treatment Systems Manual, February 2002)

Soil Texture (per the USDA soil classification system)	**Soil Structure Shape**	**Grade**	**Maximum Soil Application Rate(gallons per day per square foot)** [1]
Coarse Sand, Sand, Loamy Coarse Sand, Loamy Sand	Single grain	Structureless	0.8
Fine Sand, Very Fine Sand, Loamy Fine Sand, Loamy Very Fine Sand	Single grain	Structureless	0.4
Coarse Sandy Loam, Sandy Loam	Massive	Structureless	0.2
	Platy	Weak	0.2
		Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.4
		Moderate, Strong	0.6
Fine Sandy Loam, very fine Sandy Loam	Massive	Structureless	0.2
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.2
		Moderate, Strong	0.4
Loam	Massive	Structureless	0.2
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.4
		Moderate, Strong	0.6
Silt Loam	Massive	Structureless	Prohibited
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.4
		Moderate, Strong	0.6
Sandy Clay Loam, Clay Loam, Silty Clay Loam	Massive	Structureless	Prohibited
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.2
		Moderate, Strong	0.4
Sandy Clay, Clay, or Silty Clay	Massive	Structureless	Prohibited
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	Prohibited
		Moderate, Strong	0.2

[1] Soils listed as prohibited may be allowed under the authority of the Regional Water Board ,or as allowed under an approved Local Agency Management Program per Tier 2.

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8.1.7 Dispersal systems shall not exceed a maximum depth of 10 feet as measured from the ground surface to the bottom of the trench.

8.1.8 All new dispersal systems shall have 100 percent replacement area that is equivalent and separate, and available for future use.

8.1.9 No dispersal systems or replacement areas shall be covered by an impermeable surface, such as paving, building foundation slabs, plastic sheeting, or any other material that prevents oxygen transfer to the soil.

8.1.10 Rock fragment content of native soil surrounding the dispersal system shall not exceed 50 percent by volume for rock fragments sized as cobbles or larger and shall be estimated using either the point-count or line-intercept methods.

8.1.11 Increased allowance for gravel-less chamber systems is only allowed under a Tier 2 Local Agency Management Program.

8.2 Septic Tank Construction and Installation

8.2.1 All new or replaced septic tanks and new or replaced grease interceptor tanks shall comply with the standards contained in Sections K5(b), K5(c), K5(d), K5(e), K5(k), K5(m)(1), and K5(m)(3)(ii) of Appendix K, of Part 5, Title 24 of the 2007 California Code of Regulations.

8.2.2 All new septic tanks shall comply with the following requirements:

8.2.2.1 Access openings shall have watertight risers, the tops of which shall be set within 6 inches of finished grade; and

8.2.2.2 Access openings shall be secured to prevent unauthorized access.

8.2.3 New and replaced OWTS septic tanks shall be limited to those approved by the International Association of Plumbing and Mechanical Officials (IAPMO) or stamped and certified by a California registered civil engineer as meeting the industry standards, and their installation shall be according to the manufacturer's instructions.

8.2.4 New and replaced OWTS septic tanks shall be designed to prevent solids in excess of three-sixteenths (3/16) of an inch in diameter from passing to the dispersal system. Septic tanks that use a National Sanitation Foundation/American National Standard Institute (NSF/ANSI) Standard 46 certified septic tank filter at the final point of effluent discharge from the OWTS and prior to the dispersal system shall be deemed in compliance with this requirement.

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8.2.5 A Licensed General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Specialty Class C-36) shall install all new OWTS and replaced OWTS in accordance with California Business and Professions Code Sections 7056, 7057, and 7058 and Article 3, Division 8, Title 16 of the California Code of Regulations. A property owner may also install his/her own OWTS if the as-built diagram and the installation are inspected and approved by the Regional Water Board or local agency at a time when the OWTS is in an open condition (not covered by soil and exposed for inspection).

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Tier 2 – Local Agency OWTS Management Program

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Tier 2 – Local Agency OWTS Management Program

Local agencies may submit management programs for approval, and upon approval then manage the installation of new and replacement OWTS under that program. Local Agency Management Programs approved under Tier 2 provide an alternate method from Tier 1 programs to achieve the same policy purpose, which is to protect water quality and public health. In order to address local conditions, Local Agency Management Programs may include standards that differ from the Tier 1 requirements for new and replacement OWTS contained in Sections 7 and 8. As examples, a Local Agency Management Program may authorize different soil characteristics, usage of seepage pits, and different densities for new developments. Once the Local Agency Management Program is approved, new and replacement OWTS that are included within the Local Agency Management Program may be approved by the Local Agency. A Local Agency, at its discretion, may include Tier 1 standards within its Tier 2 Local Agency Management Program for some or all of its jurisdiction. However, once a Local Agency Management Program is approved, it shall supersede Tier 1 and all future OWTS decisions will be governed by the Tier 2 Local Agency Management Program until it is modified, withdrawn, or revoked.

9.0 Local Agency Management Program for Minimum OWTS Standards

The Local Agency Management Program for minimum OWTS Standards is a management program where local agencies can establish minimum standards that are differing requirements from those specified in Tier 1 (Section 7 and Section 8), including the areas that cannot meet those minimum standards and still achieve this Policy's purpose, which is to protect water quality and public health. Local Agency Management Programs may include any one or combination of the following to achieve this purpose:

- Differing system design requirements;
- Differing siting controls such as system density and setback requirements;
- Requirements for owners to enter monitoring and maintenance agreements; and/or
- Creation of an onsite management district.

9.1 Where different and/or additional requirements are needed to protect water quality the local agency may consider any of the following, as well as any other conditions deemed appropriate, when developing Local Agency Management Program requirements:

9.1.1 Degree of vulnerability to pollution from OWTS due to hydrogeological conditions.

9.1.2 High Quality waters or other environmental conditions requiring enhanced protection from the effects of OWTS.

9.1.3 Shallow soils requiring a dispersal system installation that is closer to ground surface than is standard.

9.1.4 OWTS is located in area with high domestic well usage.

9.1.5 Dispersal system is located in an area with fractured bedrock.

9.1.6 Dispersal system is located in an area with poorly drained soils.

9.1.7 Surface water is vulnerable to pollution from OWTS.

9.1.8 Surface water within the watershed is listed as impaired for nitrogen or pathogens.

9.1.9 OWTS is located within an area of high OWTS density.

9.2 The Local Agency Management Program shall detail the scope of its coverage, such as the maximum authorized projected flows for OWTS, as well as a clear delineation of those types of OWTS included within and to be permitted by the program, and provide the local site evaluation, siting, design, and construction requirements, and in addition each of the following:

9.2.1 Any local agency requirements for onsite wastewater system inspection, monitoring, maintenance, and repairs, including procedures to ensure that replacements or repairs to failing systems are done under permit from the local governing jurisdiction.

9.2.2 Any special provisions applicable to OWTS within specified geographic area near specific impaired water bodies listed for pathogens or nitrogen. The special provisions may be substantive and/or procedural, and may include, as examples: consultation with the Regional Water Board prior to issuing permits, supplemental treatment, development of a management district, special siting requirements, additional inspection and monitoring.

9.2.3 Local Agency Management Program variances, for new installations and repairs in substantial conformance, to the greatest extent practicable. Variances are not allowed for the requirements stated in sections 9.4.1 through 9.4.9.

9.2.4 Any educational, training, certification, and/or licensing requirements that will be required of OWTS service providers, site evaluators, designers, installers, pumpers, maintenance contractors, and any other person relating to OWTS activities.

9.2.5 Education and/or outreach program including informational materials to inform OWTS owners about how to locate, operate, and maintain their OWTS as well as any Water Board order (e.g., Basin Plan prohibitions) regarding OWTS restrictions within its jurisdiction. The education and/or outreach program shall also include procedures to ensure that alternative onsite system owners are provided an informational maintenance or replacement document by the system designer or installer. This document shall cite homeowner procedures to ensure maintenance, repair, or replacement of critical items within 48 hours following failure.

9.2.6 An analysis of existing and proposed disposal locations for septage, the volume of septage anticipated, and whether adequate capacity is available.

9.2.7 Any consideration given to onsite maintenance districts.

9.2.8 Any consideration given to the development and implementation of, or coordination with, Regional Salt and Nutrient Management Plans.

9.2.9 Any consideration given to coordination with watershed management groups.

9.2.10 Procedures for evaluating the proximity of sewer systems to new or replacement OWTS installations.

9.2.11 Procedures for notifying the owner of a public water system prior to issuing an installation or repair permit for an OWTS, if the OWTS is within 1,200 feet of an intake for a surface water treatment plant for drinking water and is in the drainage area catchment in which the intake is located, or if the OWTS is within a horizontal sanitary setback from a public well.

9.2.12 Policies and procedures that will be followed when a proposed OWTS dispersal area is within the horizontal sanitary setback of a public well or a surface water intake. These policies and procedures shall either indicate that supplemental treatment as specified in 10.9 and 10.10 of this policy are required for OWTS that are within a horizontal sanitary setback of a public well or surface water intake, or will establish alternate siting and operational criteria for the proposed OWTS that would similarly mitigate the potential adverse impact to the public water source.

9.3 The minimum responsibilities of the local agency for management of the Local Agency Management Program include:

9.3.1 Maintain records of the number, location, and description of permits issued for OWTS where a variance is granted.

9.3.2 Maintain a water quality assessment program to evaluate the impact of OWTS discharges and assess the extent to which groundwater and local surface water quality may be adversely impacted. The focus of the assessment should be areas with characteristics listed under section 9.1. The assessment program will include monitoring and analysis of water quality data, review of complaints, variances, failures, and any information resulting from inspections. The assessment may use existing water quality data from other monitoring programs and/or establish the terms, conditions, and timing for monitoring done by the local agency. At a minimum this assessment will include monitoring data for nitrates and pathogens, and may include data for other constituents which are needed to adequately characterize the impacts of OWTS on water quality. Other monitoring programs for which data may be used include but are not limited to any of the following:

9.3.2.1. Random well samples from a domestic well sampling program.

9.3.2.2. Routine real estate transfer samples if those are performed and reported.

9.3.2.3. Review of public system sampling reports done by the local agency or another municipality responsible for the public system.

9.3.2.4. Water quality testing reports done at the time of new well development if those are reported.

9.3.2.5. Beach water quality testing data performed as part of Health and Safety Code Section 115885.

9.3.2.6. Receiving water sampling performed as a part of a NPDES permit.

9.3.2.7. Data contained in the California Water Quality Assessment Database.

9.3.2.8. Groundwater sampling performed as part of Waste Discharge Requirements.

9.3.2.9. Groundwater data collected as part of the Groundwater Ambient Monitoring and Assessment Program and available in the Geotracker Database.

9.3.3 Submit an annual report by February 1 to the applicable Regional Water Board summarizing the status of items 9.3.1 through 9.3.2 above. Every fifth year, submit an evaluation of the monitoring program and an assessment of whether water quality is being impacted by OWTS, identifying any changes in the Local Agency Management Program that will be undertaken to address impacts from OWTS. The first report will commence one year after approval of the local agency’s Local Agency Management Program. In addition to summarizing monitoring data collected per 9.3.8 above, all groundwater monitoring data generated by the local agency shall be submitted in EDF format for inclusion into Geotracker, and surface water monitoring shall be submitted to CEDEN in a SWAMP comparable format.

9.4 The following are not allowed to be included in a Local Agency Management Program:

9.4.1 Cesspools of any kind or size.

9.4.2 OWTS receiving a projected flow over 10,000 gallons per day.

9.4.3 OWTS that utilize any form of effluent disposal that discharges on or above the post installation ground surface such as sprinklers, exposed drip lines, free-surface wetlands, or a pond.

9.4.4 Slopes greater than 30 percent without a slope stability report approved by a registered professional.

9.4.5 Decreased leaching area for IAPMO-approved dispersal systems using a multiplier less than 0.70.

9.4.6 Supplemental OWTS without requirements for periodic monitoring or inspections.

9.4.7 OWTS dedicated to receiving wastes from RV dumps.

9.4.8 Separation of the bottom of dispersal system to groundwater less than two (2) feet.

9.4.9 Installation of OWTS where public sewer is available. The public sewer may be considered as not available when such public sewer or any building or exterior drainage facility connected thereto is located more than 200 feet from any proposed building or exterior drainage facility on any lot or premises that abuts and is served by such public sewer.

9.4.10 Except as provided for in sections 9.4.11 and 9.4.12, new or repaired onsite systems with minimum horizontal setbacks less than any of the following:

9.4.10.1 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth.

9.4.10.2 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth.

9.4.10.3 Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth and the separation from the bottom of the system and ground water is less than five feet the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated. A qualified professional shall conduct this evaluation. However in no case shall the setback be less than 200 feet.

9.4.10.4 Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake and within the catchment of the drainage, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.

9.4.10.5 Where the effluent dispersal system is located more than 1,200 but less than 2,500 feet from a public water systems' surface water intake and within the catchment area of the drainage, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

9.4.11 For replacement OWTS that do not meet the above horizontal separation requirements, the replacement OWTS shall meet the horizontal separation to the greatest extent practicable. In such case, the replacement OWTS shall utilize supplemental treatment and other mitigation measures, unless the permitting authority finds that there is no indication that the existing system is adversely affecting the public water source, and there is limited potential that the system could impact the water source based on topography, soil depth, soil texture, and groundwater separation.

9.4.12 For new OWTS, installed on parcels of record existing at the time of the effective date of this Policy, that cannot meet the above horizontal separation requirements, the OWTS shall meet the horizontal separation to the greatest extent practicable and shall utilize supplemental treatment for pathogens as specified in section 10.8 and any other mitigation measures prescribed by the permitting authority.

9.5 A Local Agency Management Program for OWTS must include adequate technical detail to support how all the criteria in their program work together to protect water quality and public health.

9.6 A Regional Water Board reviewing a Local Agency Management Program shall consider, among other things, the past performance of the local program to adequately protect water quality, and where this has been achieved with criteria differing from Tier 1, shall not unnecessarily require modifications to the program for purposes of uniformity, as long as the Local Agency Management Program meets the requirements of Tier 2.

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Tier 3 – Impaired Areas

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Tier 3 – Impaired Areas

OWTS that are near impaired water bodes may be addressed by a TMDL and its implementation program, or special provisions contained in a Local Agency Management Program. If there is no TMDL or special provisions, new or replacement OWTS within 600 feet of impaired water bodies listed in Attachment 2 must meet the specific requirements of Tier 3.

10.0 Advanced Protection Management Program

The Advanced Protection Management Program is the minimum required management program for all local agencies where an OWTS is located near a water body that has been listed as an impaired water body due to nitrogen or pathogen indicators pursuant to Section 303(d) of the Clean Water Act. This Tier 3 contains the OWTS requirements within the Advanced Protection Management Program. Local agencies are authorized to implement Advanced Protection Management Programs in conjunction with an approved Local Agency Management Program or, if there is no approved Local Agency Management Program, Tier 1. Local agencies are encouraged to collaborate with the Regional Water Boards by sharing any information pertaining to the impairment, provide advice on potential remedies, and regulate OWTS to the extent that their authority allows for the improvement of the impairment.

10.1 The geographic area for each water body's Advanced Protection Management Program is defined by the applicable TMDL, if one has been approved. If there is not an approved TMDL, it is defined by an approved Local Agency Management Program, if it contains special provisions for that water body. If it is not defined in an approved TMDL or Local Agency Management Program, it shall be 600 linear feet [in the horizontal (map) direction] of a water body listed in Attachment 2 where the edge of that water body is the natural or levied bank for creeks and rivers, the high water mark for lakes and reservoirs, and the mean high tide line for tidally influenced water bodies, as appropriate. OWTS near impaired water bodies that are not listed on Attachment 2, and do not have a TMDL and are not covered by a Local Agency Management Program with special provisions, are not addressed by Tier 3.

10.2 The requirements of an Advanced Protection Management Program for all OWTS will be in accordance with an adopted TMDL, and its implementation program, if one has been adopted to address the impairment. An adopted TMDL supersedes all requirements in Tier 3, except that, for TMDL implementation plans adopted after the effective date of this Policy, all required OWTS implementation actions shall commence within 5 years after the TMDL's effective date. The TMDL may use some or all of the Tier 3 requirements and shall establish the applicable area of implementation for OWTS requirements within the watershed. For those impaired water bodies that do have an adopted TMDL addressing the impairment, but the TMDL does not assign a load allocation to OWTS, no further action is required unless the TMDL is modified at some point in the future to include actions for OWTS.

10.3 If no TMDL has been adopted, the requirements of an Advanced Protection Management Program for all OWTS will be in accordance with the Local Agency Management Program, if any special provisions for the water body have been approved.

10.4 The Regional Water Boards shall adopt TMDLs for impaired water bodies identified in Attachment 2, in accordance with the specified dates.

10.4.1 If a Regional Water Board does not complete a TMDL within two years of the time period specified in Attachment 2, coverage under this Policy's waiver of waste discharge requirements shall expire for any OWTS that has any part of its dispersal system discharging within the geographic area of an Advanced Protection Management Program. The Regional Water Board shall issue waste discharge requirements, general waste discharge requirements, waivers of waste discharge requirements, or require corrective action for such OWTS. The Regional Water Board will consider the following when establishing the waste discharge requirements, general waste discharge requirements, waivers of waste discharge requirements, or requirement for corrective action:

10.4.1.1 Whether supplemental treatment should be required.

10.4.1.2 Whether routine inspection of the OWTS should be required.

10.4.1.3 Whether monitoring of surface and groundwater should be performed.

10.4.1.4 The collection of a fee for those OWTS covered by the order.

10.4.1.5 Whether owners of previously-constructed OWTS should file a report by a qualified professional in accordance with section 10.5.

10.4.1.6 Whether owners of new or replaced OWTS should file a report of waste discharge with additional supporting technical information as required by the Regional Water Board.

10.5 If the Regional Water Board requires owners of OWTS to submit a qualified professional's report, the report may include a determination of whether the OWTS is functioning properly and as designed or requires corrective actions per Tier 4, and regardless of its state of function, whether it is contributing to impairment of the water body.

10.5.1 The qualified professional's report may also include, but is not limited to:

10.5.1.1 A general description of system components, their physical layout, and horizontal setback distances from property lines, buildings, wells, and surface waters.

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Tier 3 – Impaired Areas

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10.5.1.2 A description of the type of wastewater discharged to the OWTS such as domestic, commercial, or industrial and classification of it as domestic wastewater or high-strength waste.

10.5.1.3 A determination of the systems design flow and the volume of wastewater discharged daily derived from water use, either estimated or actual if metered.

10.5.1.4 A description of the septic tank, including age, size, material of construction, internal and external condition, water level, scum layer thickness, depth of solids, and the results of a one-hour hydrostatic test.

10.5.1.5 A description of the distribution box, dosing siphon, or distribution pump, and if flow is being equally distributed throughout the dispersal system, as well as any evidence of solids carryover, clear water infiltration, or evidence of system backup.

10.5.1.6 A description of the dispersal system including signs of hydraulic failure, condition of surface vegetation over the dispersal system, level of ponding above the infiltrative surface within the dispersal system, other possible sources of hydraulic loading to the dispersal area, and depth of the seasonally high groundwater level.

10.5.1.7 A determination of whether the OWTS is discharging to the ground's surface.

10.5.1.8 For a water body listed as an impaired water body for pathogens, a determination of the OWTS dispersal system's separation from its deepest most infiltrative surface to the highest seasonal groundwater level or fractured bedrock.

10.5.1.9 For a water body listed as an impaired water body for nitrogen, a determination of whether the groundwater under the dispersal field is reaching the water body, and a description of the method used to make the determination.

10.6 For new, replaced, and existing OWTS in an Advanced Protection Management Program, the following are not covered by this Policy's waiver but may be authorized by a separate Regional Water Board order:

10.6.1 Cesspools of any kind or size.

10.6.2 OWTS receiving a projected flow over 10,000 gallons per day.

10.6.3 OWTS that utilize any form of effluent disposal on or above the ground surface.

10.6.4 Slopes greater than 30 percent without a slope stability report approved by a registered professional.

10.6.5 Decreased leaching area for IAPMO-approved dispersal systems using a multiplier less than 0.70.

10.6.6 OWTS utilizing supplemental treatment without requirements for periodic monitoring.

10.6.7 OWTS dedicated to receiving wastes from RV dumps.

10.6.8 Separation of the bottom of dispersal system to groundwater less than two (2) feet.

10.6.9 Minimum horizontal setbacks less than any of the following:

10.6.9.1 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth;

10.6.9.2 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth:

10.6.9.3 Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth and the separation from the bottom of the system and ground water is less than five feet the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated. A qualified professional shall conduct this evaluation. However in no case shall the setback be less than 200 feet.

10.6.9.4 Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake and within the catchment of the drainage, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.

10.6.9.5 Where the effluent dispersal system is located more than 1,200 but less than 2,500 feet from a public water systems' surface water intake and within the catchment of the drainage, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

10.6.9.6 For replacement OWTS that do not meet the above horizontal separation requirements, the replacement OWTS shall meet the horizontal separation to the greatest extent practicable. In such case, the replacement OWTS shall utilize supplemental treatment and other mitigation measures.

10.6.9.7 For new OWTS, installed on parcels of record existing at the time of the effective date of this Policy, that cannot meet the above horizontal separation requirements, the OWTS shall meet the horizontal separation to the greatest extent practicable and shall utilize supplemental treatment for pathogens as specified in section

10.8 and any other mitigation measures as prescribed by the permitting authority.

10.7 The requirements contained in Section 10 shall not apply to owners of OWTS that are constructed and operating, or permitted, on or prior to the date that the nearby water body is added to Attachment 2 who commit by way of a legally binding document to connect to a centralized wastewater collection and treatment system regulated through WDRs as specified within the following timeframes:

10.7.1 The owner must sign the document within forty-eight months of the date that the nearby water body is initially listed on Attachment 2.

10.7.2 The specified date for the connection to the centralized community wastewater collection and treatment system shall not extend beyond nine years following the date that the nearby water body is added to Attachment 2.

10.8 In the absence of an adopted TMDL or Local Agency Management Program containing special provisions for the water body, all new or replaced OWTS permitted after the date that the water body is initially listed in Attachment 2 that have any discharge within the geographic area of an Advanced Protection Management Program shall meet the following requirements:

10.8.1 Utilize supplemental treatment and meet performance requirements in 10.9 if impaired for nitrogen and 10.10 if impaired for pathogens,

10.8.2 Comply with the setback requirements of Section 7.5.1 to 7.5.5, and

10.8.3 Comply with any applicable Local Agency Management Program requirements.

10.9 Supplemental treatment requirements for nitrogen

10.9.1 Effluent from the supplemental treatment components designed to reduce nitrogen shall be certified by NSF, or other approved third party tester, to meet a 50 percent reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent.

10.9.2 Where a drip-line dispersal system is used to enhance vegetative nitrogen uptake, the dispersal system shall have at least six (6) inches of soil cover.

10.10 Supplemental treatment requirements for pathogens

10.10.1 Supplemental treatment components designed to perform disinfection shall provide sufficient pretreatment of the wastewater so that effluent from the supplemental treatment components does not exceed a 30-day average TSS of 30 mg/L and shall further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters.

10.10.2 The minimum soil depth and the minimum depth to the anticipated highest level of groundwater below the bottom of the dispersal system shall not be less than three (3) feet. All dispersal systems shall have at least twelve (12) inches of soil cover.

10.11 OWTS in an Advanced Protection Management Program with supplemental treatment shall be designed to meet the applicable performance requirements above and shall be stamped or approved by a Qualified Professional.

10.12 Prior to the installation of any proprietary treatment OWTS in an Advanced Protection Management Program, all such treatment components shall be tested by an independent third party testing laboratory.

10.13 The ongoing monitoring of OWTS in an Advanced Protection Management Program with supplemental treatment components designed to meet the performance requirements in Sections 10.9 and 10.10 shall be monitored in accordance with the operation and maintenance manual for the OWTS or more frequently as required by the local agency or Regional Water Board.

10.14 OWTS in an Advanced Protection Management Program with supplemental treatment components shall be equipped with a visual or audible alarm as well as a telemetric alarm that alerts the owner and service provider in the event of system malfunction. OWTS using supplemental treatment shall, at a minimum, provide for 24-hour wastewater storage based on design flow as a means to minimize pollution from overflow discharge after a system malfunction or power outage. Where telemetry is not possible, the owner shall inspect the system at least monthly as directed and instructed by a service provider and notify the service provider not less than quarterly of the observed operating parameters of the OWTS.

10.15 OWTS in an Advanced Protection Management Program designed to meet the disinfection requirements in Section 10.10 shall be inspected for proper operation quarterly by a service provider unless a telemetric monitoring system is capable of continuously assessing the operation of the disinfection system. Testing of the wastewater flowing from supplemental treatment components that perform disinfection shall be sampled at a point in the system after the treatment components and prior to the dispersal system and shall be conducted quarterly based on analysis of total coliform with a minimum detection limit of 2.2 MPN. All effluent samples must include the geographic coordinates of the sample's location. Effluent samples shall be taken by a service provider and analyzed by a California Department of Public Health certified laboratory.

10.16 The minimum responsibilities of the local agency administering an Advanced Protection Management Program include those prescribed for the Local Agency Management Programs in Section 9.3 of this policy, as well as monitoring owner compliance with Sections 10.13, 10.14,and 10.15.

Tier 4 – OWTS Requiring Corrective Action

OWTS that require corrective action or are either presently failing or fail at any time while this Policy is in effect are automatically included in Tier 4 and must follow the requirements as specified. OWTS included in Tier 4 must continue to meet applicable requirements of Tier 0, 1, 2 or 3 pending completion of corrective action.

11.0 Corrective Action for OWTS

11.1 Any OWTS that has pooling effluent, discharges wastewater to the surface, or has wastewater backed up into plumbing fixtures, because its dispersal system is no longer adequately percolating the wastewater is deemed to be failing, no longer meeting its primary purpose to protect public health, and requires major repair, and as such the dispersal system must be replaced, repaired, or modified so as to return to proper function and comply with Tier 1, 2, or 3 as appropriate.

11.2 Any OWTS septic tank failure, such as a baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating is deemed to be failing, no longer meeting its primary purpose to protect public health, and requires major repair, and as such shall require the septic tank to be brought into compliance with the requirements of Section 8 in Tier 1 or a Local Agency Management Program per Tier 2.

11.3 Any OWTS that has a failure of one of its components other than those covered by 11.1 and 11.2 above, such as a distribution box or broken piping connection, shall have that component repaired so as to return the OWTS to a proper functioning condition and return to Tier 0, 1, 2, or 3.

11.4 Any OWTS that has affected, or will affect, groundwater or surface water to a degree that makes it unfit for drinking or other uses, or is causing a human health or other public nuisance condition shall be modified or upgraded so as to abate its impact.

11.5 If the owner of the OWTS is not able to comply with corrective action requirements of this section, the Regional Water Board may authorize repairs that are in substantial conformance, to the greatest extent practicable, with Tiers 1 or 3, or may require the owner of the OWTS to submit a report of waste discharge for evaluation on a case-by-case basis. Regional Water Board response to such reports of waste discharge may include, but is not limited to, enrollment in general waste discharge requirements, issuance of individual waste discharge requirements, or issuance of waiver of waste discharge requirements. A local agency may authorize repairs that are in substantial conformance, to the greatest extent practicable, with Tier 2 in accordance with section 9.2.3 if there is an approved Local Agency Management Program, or with an existing program if a Local Agency

Management Program has not been approved and it is less than 5 years from the effective date of the Policy.

11.6 Owners of OWTS will address any corrective action requirement of Tier 4 as soon as is reasonably possible, and must comply with the time schedule of any corrective action notice received from a local agency or Regional Water Board, to retain coverage under this Policy. In no case shall the time schedule be allowed to extend beyond three months for a corrective action, with the exception of seasonal high groundwater or snow conditions.

11.7 Failure to meet the requirements of Tier 4 constitute a failure to meet the conditions of the waiver of waste discharge requirements contained in this Policy, and is subject to further enforcement action.

Final Draft

Waiver – Effective Date – Financial Assistance

3/20/2012

Conditional Waiver of Waste Discharge Requirements

12.0 In accordance with Water Code section 13269, the State Water Board hereby waives the requirements to submit a report of waste discharge, obtain waste discharge requirements, and pay fees for discharges from OWTS covered by this Policy. Owners of OWTS covered by this Policy shall comply with the following conditions:

12.0.1 The OWTS shall function as designed with no surfacing effluent.

12.0.2 The OWTS shall not utilize a dispersal system that is in soil saturated with groundwater.

12.0.3 The OWTS shall not be operated while inundated by a storm or flood event.

12.0.4 The OWTS shall not cause or contribute to a nuisance or pollution.

12.0.5 The OWTS shall comply with all applicable local agency codes, ordinances, and requirements.

12.0.6 The OWTS shall comply with and meet any applicable TMDL implementation requirements, special provisions for impaired water bodies, or supplemental treatment requirements imposed by Tier 3.

12.0.7 The OWTS shall comply with any corrective action requirements of Tier 4.

12.1 This waiver may be revoked by the State Water Board or the applicable Regional Water Board for any discharge from an OWTS, or from a category of OWTS.

Effective Date

13.0 This Policy becomes effective six months after its approval by the Office of Administrative Law, and all deadlines and compliance dates stated herein start at such time.

Final Draft

Waiver – Effective Date – Financial Assistance

3/20/2012

Financial Assistance

14.0 Local Agencies may apply to the State Water Board for funds from the Clean Water State Revolving Fund for use in mini-loan programs that provide low interest loan assistance to private property owners with costs associated with complying with this Policy.

14.1 Loan interest rates for loans to local agencies will be set by the State Water Board using its policies, procedures, and strategies for implementing the Clean Water State Revolving Fund program, but will typically be one-half of the States most recent General Obligation bond sale. Historically interest rates have ranged between 2.0 and 3.0 percent.

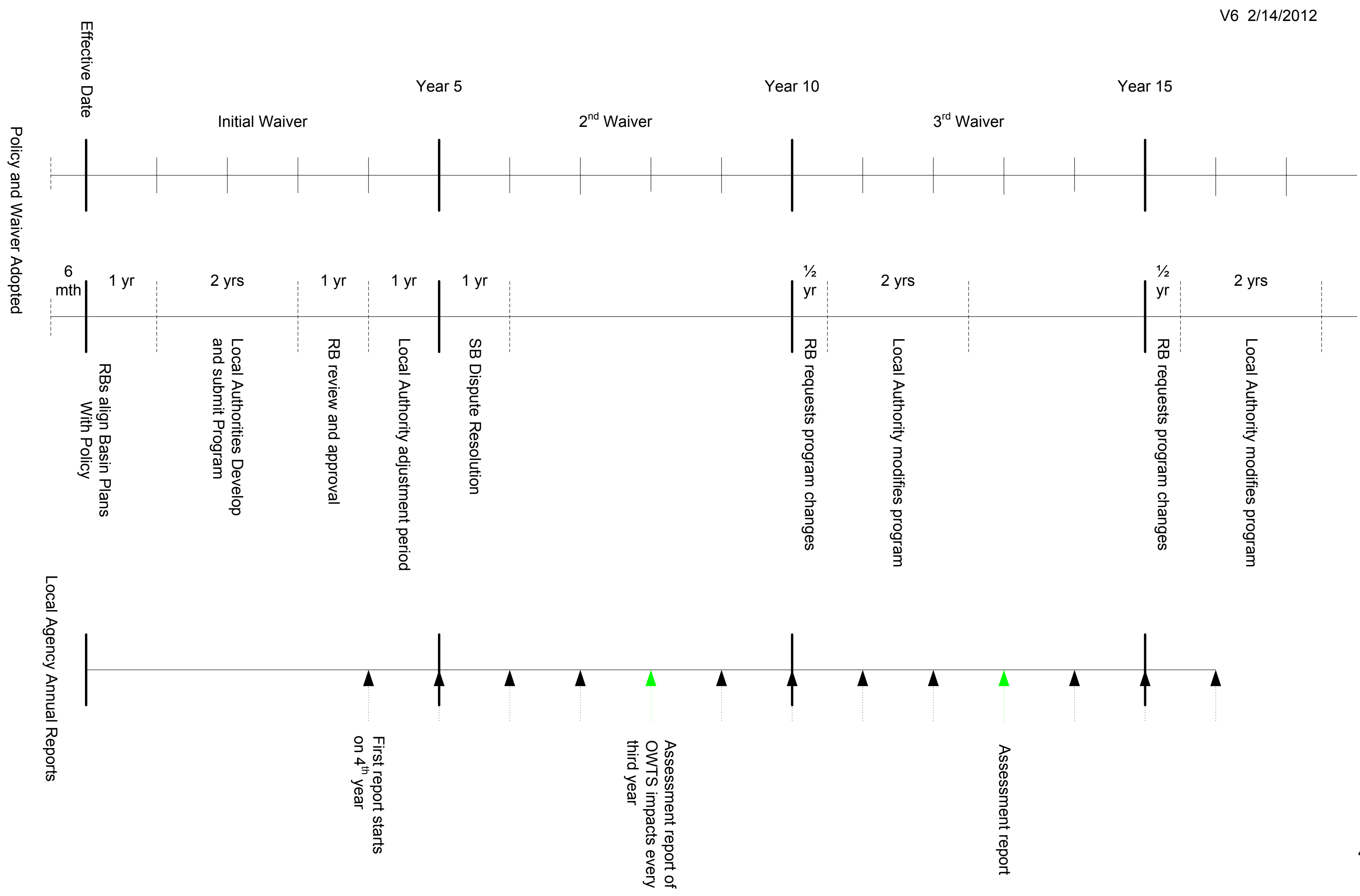
14.2 Local agencies may add additional interest points to their loans made to private entities to cover their costs of administering the mini-loan program.

14.3 Local agencies may submit their suggested loan eligibility criteria for the min-loan program they wish to establish to the State Water Board for approval, but should consider the legislative intent stated in Water Code Section 13291.5 is that assistance is encouraged for private property owners whose cost of complying with the requirements of this policy exceeds one-half of one percent of the current assessed value of the property on which the OWTS is located.

Attachment 1 – Final Draft

3/20/2012

AB 885 Regulatory Program Time Lines



Attachment 2 – Final Draft

3/20/2012

The tables below specifically identify those impaired water bodies where: (1) it is likely that operating OWTS will subsequently be determined to be a contributing source of pathogens or nitrogen and therefore it is anticipated that OWTS would receive a loading reduction, and (2) it is likely that new OWTS installations discharging within 600 feet of the water body would contribute to the impairment. Per this Policy (Tier 3, Section 10) the Regional Water Boards must adopt a TMDL by the date specified in the table. The State Water Board, at the time of approving future 303 (d) Lists, will specifically identify those impaired water bodies that are to be added or removed from the tables below.

Table 4. Water Bodies impaired for pathogens that are subject to Tier 3 as of 2012.

REGION NO.	REGION NAME	WATERBODY NAME	COUNTIES	TMDL Completion Date
1	North Coast	Clam Beach	Humboldt	2020
1	North Coast	Luffenholtz Beach	Humboldt	2020
1	North Coast	Moonstone County Park	Humboldt	2020
1	North Coast	Russian River HU, Lower Russian River HA, Guerneville HSA, mainstem Russian River from Fife Creek to Dutch Bill Creek	Sonoma	2016
1	North Coast	Russian River HU, Lower Russian River HA, Guerneville HSA, Green Valley Creek watershed	Sonoma	2016
1	North Coast	Russian River HU, Middle Russian River HA, Geyserville HSA, mainstem Russian River at Healdsburg Memorial Beach and unnamed tributary at Fitch Mountain	Sonoma	2016
1	North Coast	Russian River HU, Middle Russian River HA, mainstem Laguna de Santa Rosa	Sonoma	2016
1	North Coast	Russian River HU, Middle Russian River HA, mainstem Santa Rosa Creek	Sonoma	2016
1	North Coast	Trinidad State Beach	Humboldt	2020
2	San Francisco Bay	China Camp Beach	Marin	2014
2	San Francisco Bay	Lawsons Landing	Marin	2015
2	San Francisco Bay	Pacific Ocean at Bolinas Beach	Marin	2014

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REGION NO.	REGION NAME	WATERBODY NAME	COUNTIES	TMDL Completion Date
2	San Francisco Bay	Pacific Ocean at Fitzgerald Marine Reserve	San Mateo	2016
2	San Francisco Bay	Pacific Ocean at Muir Beach	Marin	2015
2	San Francisco Bay	Pacific Ocean at Pillar Point Beach	San Mateo	2016
2	San Francisco Bay	Petaluma River	Marin, Sonoma	2017
2	San Francisco Bay	Petaluma River (tidal portion)	Marin, Sonoma	2017
2	San Francisco Bay	San Gregorio Creek	San Mateo	2019
3	Central Coast	Pacific Ocean at Point Rincon (mouth of Rincon Cr, Santa Barbara County)	Santa Barbara	2015
3	Central Coast	Rincon Creek	Santa Barbara, Ventura	2015
4	Los Angeles	Canada Larga (Ventura River Watershed)	Ventura	2017
4	Los Angeles	Coyote Creek	Los Angeles, Orange	2015
4	Los Angeles	Rincon Beach	Ventura	2017
4	Los Angeles	San Antonio Creek (Tributary to Ventura River Reach 4)	Ventura	2017
4	Los Angeles	San Gabriel River Reach 1 (Estuary to Firestone)	Los Angeles	2015
4	Los Angeles	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Los Angeles	2015
4	Los Angeles	San Gabriel River Reach 3 (Whittier Narrows to Ramona)	Los Angeles	2015
4	Los Angeles	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Los Angeles	2015
4	Los Angeles	San Jose Creek Reach 2 (Temple to I-10 at White Ave.)	Los Angeles	2015
4	Los Angeles	Sawpit Creek	Los Angeles	2015
4	Los Angeles	Ventura River Reach 3 (Weldon Canyon to Confl. w/ Coyote Cr)	Ventura	2017
4	Los Angeles	Walnut Creek Wash (Drains from Puddingstone Res)	Los Angeles	2015
5	Central Valley	Wolf Creek (Nevada County)	Nevada, Placer	2020
5	Central Valley	Woods Creek (Tuolumne County)	Tuolumne	2020

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REGION NO.	REGION NAME	WATERBODY NAME	COUNTIES	TMDL Completion Date
7	Colorado River	Alamo River	Imperial	2017
7	Colorado River	Palo Verde Outfall Drain and Lagoon	Imperial, Riverside	2017
8	Santa Ana	Canyon Lake (Railroad Canyon Reservoir)	Riverside	2019
8	Santa Ana	Fulmor, Lake	Riverside	2019
8	Santa Ana	Goldenstar Creek	Riverside	2019
8	Santa Ana	Los Trancos Creek (Crystal Cove Creek)	Orange	2017
8	Santa Ana	Lytle Creek	San Bernardino	2019
8	Santa Ana	Mill Creek Reach 1	San Bernardino	2015
8	Santa Ana	Mill Creek Reach 2	San Bernardino	2015
8	Santa Ana	Morning Canyon Creek	Orange	2017
8	Santa Ana	Mountain Home Creek	San Bernardino	2019
8	Santa Ana	Mountain Home Creek, East Fork	San Bernardino	2019
8	Santa Ana	Silverado Creek	Orange	2017
8	Santa Ana	Peters Canyon Channel	Orange	2017
8	Santa Ana	Santa Ana River, Reach 2	Orange, Riverside	2019
8	Santa Ana	Temescal Creek, Reach 6 (Elsinore Groundwater sub basin boundary to Lake Elsinore Outlet)	Riverside	2019
8	Santa Ana	Seal Beach	Orange	2017
8	Santa Ana	Serrano Creek	Orange	2017
8	Santa Ana	Huntington Harbour	Orange	2017

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3/20/2012

Table 5. Water Bodies impaired for nitrogen that are subject to Tier 3.

REGION NO.	REGION NAME	WATERBODY NAME	COUNTIES	TMDL Completion Date
1	North Coast	Russian River HU, Middle Russian River HA, mainstem Laguna de Santa Rosa	Sonoma	2015
2	San Francisco Bay	Lagunitas Creek	Marin	2016
2	San Francisco Bay	Napa River	Napa, Solano	2014
2	San Francisco Bay	Petaluma River	Marin, Sonoma	2017
2	San Francisco Bay	Petaluma River (tidal portion)	Marin, Sonoma	2017
2	San Francisco Bay	Sonoma Creek	Sonoma	2014
2	San Francisco Bay	Tomales Bay	Marin	2019
2	San Francisco Bay	Walker Creek	Marin	2016
4	Los Angeles	Lake Calabasas	Los Angeles	2012
4	Los Angeles	Legg Lake	Los Angeles	2012
4	Los Angeles	San Antonio Creek (Tributary to Ventura River Reach 4)	Ventura	2013
8	Santa Ana	East Garden Grove Wintersburg Channel	Orange	2017
8	Santa Ana	Grout Creek	San Bernardino	2015
8	Santa Ana	Rathbone (Rathbun) Creek	San Bernardino	2015
8	Santa Ana	Summit Creek	San Bernardino	2015
8	Santa Ana	Serrano Creek	Orange	2017

Attachment 3 – Final Draft

3/20/2012

Regional Water Boards, upon mutual agreement, may designate one Regional Water Board to regulate a person or entity that is under the jurisdiction of both (Water Code Section 13228). The following table identifies the designated Regional Water Board for all counties within the State for purposes of reviewing and, if appropriate, approving new Local Agency Management Plans.

Table 6. Regional Water Board designations by County.

County	Regions with Jurisdiction	Designated Region
Alameda	2,5	2
Alpine	5,6	6
Amador	5	5
Butte	5	5
Calaveras	5	5
Colusa	5	5
Contra Costa	2,5	2
Del Norte	1	1
El Dorado	5,6	5
Fresno	5	5
Glenn	5,1	5
Humboldt	1	1
Imperial	7	7
Inyo	6	6
Kern	5,6	5
Kings	5	5
Lake	5,1	5
Lassen	5,6	6
Los Angeles	4,6	4
Madera	5	5
Marin	2,1	2
Mariposa	5	5
Mendocino	1	1
Merced	5	5
Modoc	1,5,6	5
Mono	6	6
Monterey	3	3
Napa	2,5	2
Nevada	5,6	5
Orange	8,9	8

County	Regions with Jurisdiction	Designated Region
Placer	5,6	5
Plumas	5	5
Riverside	7,8,9	7
Sacramento	5	5
San Benito	3,5	3
San Bernardino	6,7,8	6
San Diego	9,7	9
San Francisco	2	2
San Joaquin	5	5
San Luis Obispo	3,5	3
San Mateo	2,3	2
Santa Barbara	3	3
Santa Clara	2,3	2
Santa Cruz	3	3
Shasta	5	5
Sierra	5,6	5
Siskiyou	1,5	1
Solano	2,5	5
Sonoma	1,2	1
Stanislaus	5	5
Sutter	5	5
Tehama	5	5
Trinity	1	1
Tulare	5	5
Tuolumne	5	5
Ventura	4,3	4
Yolo	5	5
Yuba	5	5

291112 Part 2

2010-11

El Dorado County

Economic & Demographic Profile

El Dorado County 2010-11

Economic and Demographic Profile

Center for Economic Development
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Introduction

Welcome to the 2010-11 El Dorado County Economic & Demographic Profile. This document contains important information about El Dorado County's residents and communities. The data have been compiled to represent trends over the past ten to twenty years, where comparable data are available, and in some cases include projections for the next 20 years. The information can be used for many purposes, including workforce and small business development, market analysis, and grant writing. By exploring the structure of El Dorado County in various aspects, the Center for Economic Development (CED) and its partners hope to facilitate development and planning for both business, communities, and residents of the county.

As a community outreach organization of the CSU, Chico Research Foundation, CED receives funding from several sources, including the Economic Development Administration of the U.S. Department of Commerce, the U.S. Small Business Administration, the California Public Utilities Commission, and many non-profit and local government organizations throughout California.

Based on client surveys and requests, as well as new research, CED updated this series to include more accurate and up-to-date information, revised narratives, and improvements in data display.

CED continues to welcome any comments and/or suggestions for improvement. In addition, we have access to community research and analysis professionals both in-house and within the communities we serve, and upon request will gladly facilitate to our fullest capacity additional community data research not included in this profile. For additional data on this county, please call (530) 898-4598.

CED cordially thanks El Dorado County and the El Dorado County Economic Development Department for sponsoring the 2010-11 El Dorado County Economic and Demographic Profile.

This document was compiled by the Center for Economic Development (CED) at California State University, Chico, this profile is distributed without charge by CED through the sponsor. For information about sponsoring other county profiles, please contact us at 530-898-4598.

El Dorado County

Location and Demographics

El Dorado County is thirty miles east of Sacramento, and offers many nice suburbs for those who commute to Sacramento during the workweek. As the site of James Marshall's first gold finding in 1848, El Dorado County became the epicenter for the gold rush madness that seized California in the nineteenth century. The gold rush brought visitors from Europe and Mexico, as well as other U.S. states. Their diverse cultural influence is still seen today in El Dorado County. El Dorado County encompasses 1,711 square miles and is home to approximately 182,000 people.

Recreation

For anyone who enjoys nature or outdoor sports and recreation, El Dorado Coutny is one of the most diverse, exciting, and beautiful areas in Northern California. When not enjoying world-class skiing at Lake Tahoe, visitors can enjoy river rafting and kayaking on the South Fork of the American River. For history buffs, the Marshall Gold Discovery State Park Historic Museum celebrates the origins of the gold rush and offers a unique perspective on the past. Several nineteenth century houses in El Dorado County have been converted into bed and breakfast inns, providing visitors with quaint, affordable lodging.

Economy

The Lake Tahoe area and the ski resorts within are excellent sources of revenue for El Dorado County. Skiers from all over the world visit during the winter months. El Dorado County has a largely agricultural economic base during the rest of the year. Apple orchards grow throughout the eastern parts of the county, and apple exports are a reliable source of seasonal income when the hustle and bustle of ski season ceases. The Sierra Nevada range is also in El Dorado County, where logging industries provide additional economic stimulus. Gold is still found in El Dorado County, lending a feeling of excitement to the area's economic environment.

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10. Education

11. Crime

1. Demographics

Demographic indicators describe the characteristics of human populations and population segments, and are especially helpful in determining consumer spending patterns. Knowledge about the age, ethnic, and cultural aspects of the population provides more specific information regarding consumer preferences. This approach, known as market segmentation, is particularly useful for businesses needing to determine the extent of the market for a particular good or service. This information is also useful in evaluating education, housing, and employment opportunities and needs. In addition, demographic information is useful to grant writers and local governments during the process of determining the need and acquiring funding for specific public services in the area.

Demographic trends are typically the foundation upon which other community indicators are built. While this section focuses mostly on population counts and breakdowns of population (by age, race/ethnicity, etc.), most other sections focus on the characteristics of the population (such as Community Health) or of portions of the population (such as Labor Market).

When analyzing population data, it is important to understand the difference between an estimate and a projection. An estimate is based on other related data or change in this data, during the year for which the estimate is made. A projection is based on data trends, calculated over a number of years, and is used to forecast or project future levels, assuming past trends are unchanged. For example, total population in past years is an estimate because it is based on housing growth (among other factors) during the year in which total population is estimated and future total population is a projection.

Population by age is a projection because there is no data after the 2000 Census that can be used to accurately estimate how many people there are in each age group. The projection is based on 2000 Census data and past trends, including those for in migration and death rates by age group. The resulting forecast is only reliable if those trends continue for the years between the census data and the year for which the projection is made.

In this section:

1.1 Total population

Overview

Total population is the number of people who consider the area their primary residence. It does not include persons residing here less than half the year, or persons who are here temporarily, only for work (unless they consider this area their primary residence). The data is estimated annually by the California Department of Finance and reflects population estimates on January 1 of that year. The data is released annually on or around May 1.

The three-year average change is the compound annual change over the past three years.

Population represents a general overview of the size of the consumer market, labor availability, and the potential impact of human habitation on the environment. The data is often required for grant applications and business and community development plans.

El Dorado County

El Dorado County is currently home to 182,019 people, with a projected population of over 225,439 by 2020. This projection is supported by the fact that population increase has been steady for the last ten years, with an average annual increase of almost 2 percent. Between 2000 and 2010, the total population increased 17 percent in the county. This steady increase is due to a greater number of births than deaths in the area and a steady growth in employment opportunities (see section 1.3, Components of Population Change).

NOTE: An estimate is based on other related data or change in this data during the year for which the estimate is made. A projection is based on the same data measured in previous years, calculated out to what it would be in the year for which the projection is made if past trends remained constant.

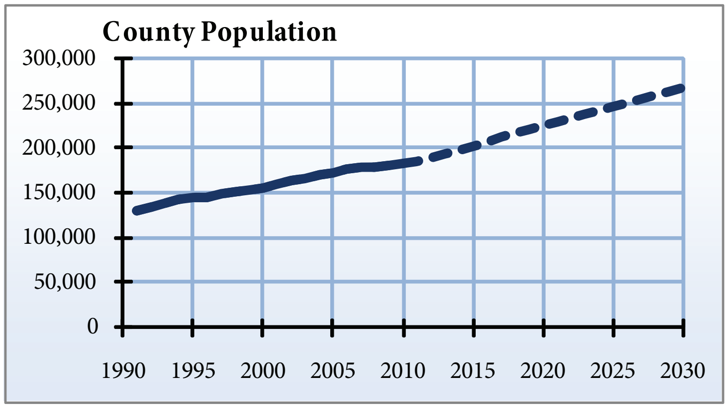
County Population

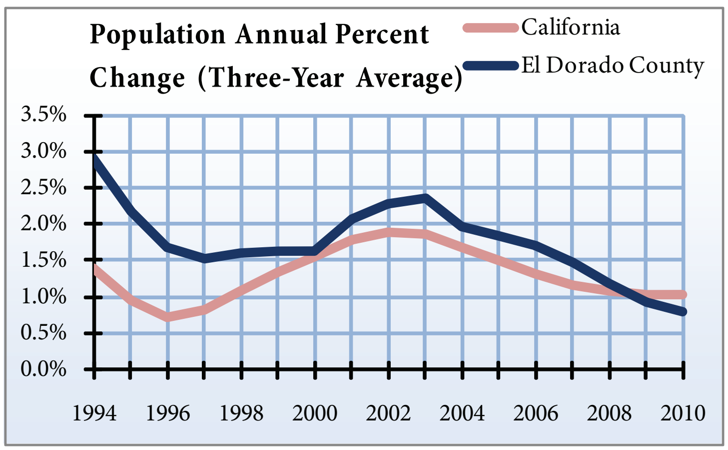
Year	Population	1-year change	CA 1-year change
1991	130,181	n/a	n/a
1992	134,898	3.6 %	1.9 %
1993	138,788	2.9 %	1.4 %
1994	141,843	2.2 %	0.9 %
1995	143,863	1.4 %	0.6 %
1996	145,949	1.4 %	0.7 %
1997	148,373	1.7 %	1.2 %
1998	150,857	1.7 %	1.4 %
1999	153,232	1.6 %	1.5 %
2000	155,702	1.6 %	1.8 %
2001	160,448	3.0 %	2.1 %
2002	163,938	2.2 %	1.8 %
2003	167,010	1.9 %	1.7 %
2004	170,058	1.8 %	1.5 %
2005	173,153	1.8 %	1.3 %
2006	175,768	1.5 %	1.1 %
2007	177,712	1.1 %	1.0 %
2008	179,373	0.9 %	1.1 %
2009	180,713	0.7 %	1.0 %
2010	182,019	0.7 %	1.0 %
2020(p)	*225,439*	*2.2 %*	*1.3 %*
2030(p)	*267,535*	*1.7 %*	*1.1 %*

Source: California Department of Finance, Demographic Research Unit

Projections (p): Woods & Poole Economics

Created by: Center for Economic Development, California State University, Chico.


County Population
300,000
250,000
200,000
150,000
100,000
50,000
0
1990
1995
2000
2005
2010
2015
2020
2025
2030


Population Annual Percent Change (Three-Year Average)
California
El Dorado County
3.5%
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
1994
1996
1998
2000
2002
2004
2006
2008
2010

1.2 Population by City

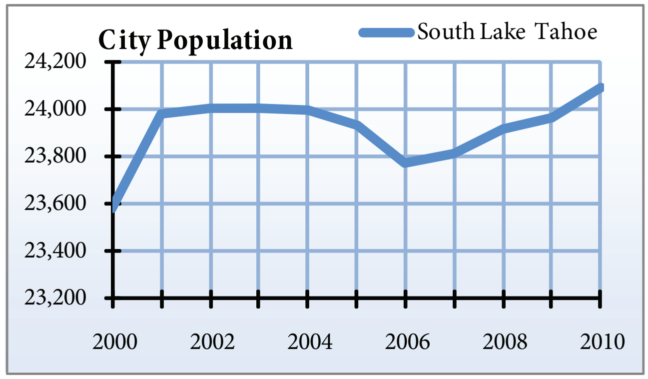
Overview

The California Department of Finance estimates the number of people living within each incorporated place in California as of January 1 of each year. An incorporated place is one with its own governmental body, including a city or town council. Not all places are incorporated.

El Dorado County

Of the two incorporated cities in El Dorado County, the city of South Lake Tahoe was the most populous, with 24,087 people in 2010. However, the city of Placerville was the fastest growing incorporated city in the county, with an annual average population increase of 1 percent between 2000 and 2010.

The following figures present population data by city from 2000 to 2010.

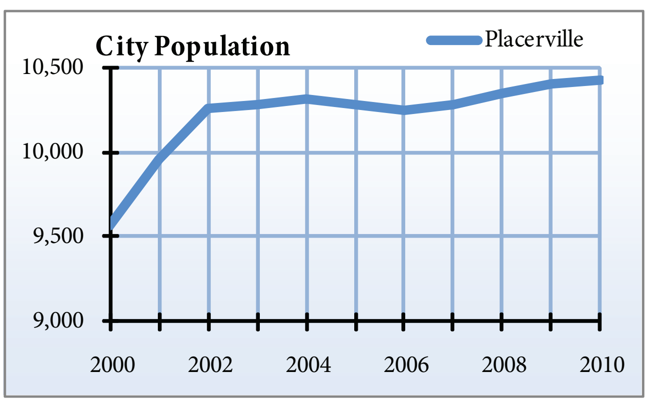


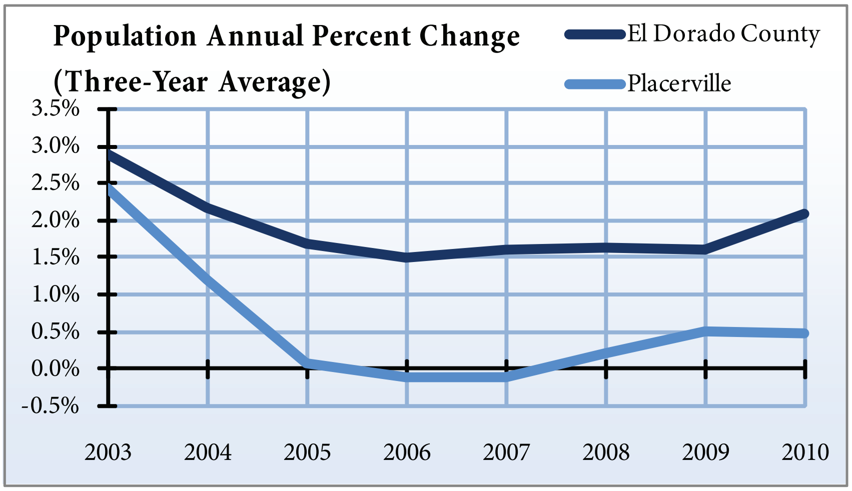
City Population

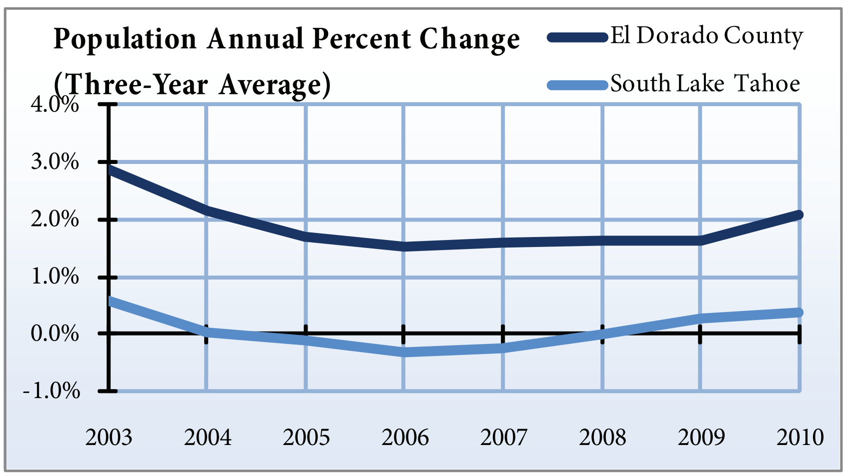
Year	Placerville	South Lake Tahoe
2000	9,570	23,578
2001	9,956	23,976
2002	10,260	24,003
2003	10,283	24,003
2004	10,318	23,997
2005	10,287	23,928
2006	10,246	23,773
2007	10,281	23,814
2008	10,349	23,919
2009	10,402	23,966
2010	10,429	24,087

Source: California Department of Finance, Demographic Research Unit

Created by: Center for Economic Development, California State University, Chico




Population Annual Percent Change
(Three-Year Average)
El Dorado County
Placerville
3.5%
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
-0.5%
2003
2004
2005
2006
2007
2008
2009
2010


Population Annual Percent Change
(Three-Year Average)
El Dorado County
South Lake Tahoe
4.0%
3.0%
2.0%
1.0%
0.0%
-1.0%
2003
2004
2005
2006
2007
2008
2009
2010

1.3 Components of Population Change

Overview

The California Department of Finance does annual estimates on how births, deaths, and net migration influence annual population change at the county level. The number of births and deaths is on record from the California Department of Public Health. Births minus deaths equals the natural rate of change. The remaining change in population is due to net migration. Net migration is in-migration minus out-migration. In- and out-migration are not independently estimated by the Department of Finance.

If growth is primarily due to natural increase, then the community may be a place where families are growing. If natural rate of change is negative (more deaths than births), then generally age distribution is weighted towards the elderly. Migration can occur for several reasons. People may migrate either in or out due to employment opportunities, housing prices, quality of life, etc.

NOTE: Birth and Death estimates in this section do not precisely match those in the health section because the sections show different cutoff dates. This section is July 1 through June 30, while birth and death data in section 8 is for the calendar year.

Components of Population Change

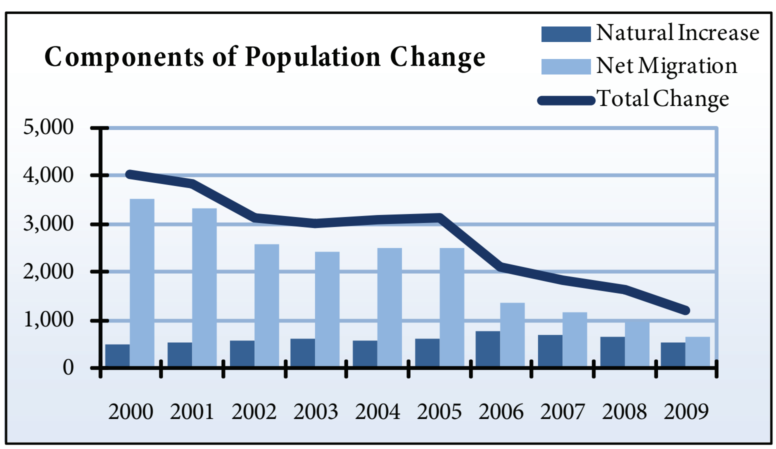
Year	Births	Deaths	Net Foreign Migration	Net Domestic Migration	Total Change
2000	1,575	1,096	256	3,283	4,018
2001	1,679	1,142	336	2,975	3,848
2002	1,737	1,180	273	2,296	3,126
2003	1,781	1,174	257	2,153	3,017
2004	1,834	1,258	209	2,295	3,080
2005	1,871	1,256	287	2,209	3,111
2006	2,022	1,269	279	1,082	2,114
2007	1,937	1,243	365	792	1,851
2008	1,902	1,235	401	576	1,644
2009	1,754	1,227	272	398	1,197

Source: California Department of Finance, Demographic Research Unit

Created by: Center for Economic Development, California State University, Chico

El Dorado County

In 2009, there was a net migration of 670 people to El Dorado County. There were 1,754 births and 1,227 deaths in the county in the same year, resulting in a natural increase of 527 people. The figures below present the components of population change in El Dorado County since 2000.



1.4 Age Distribution

Overview

Population breakdowns by age are projected by the California Department of Finance (DOF) as of July 1st of each year. The projections use the 2000 Census as a base. These models are based on total net migration and fertility rates by ethnicity. There is little data available, other than what is collected for the census, that would produce more accurate projections of population by age.

Age distribution information is valuable to companies that target specific age groups. It is used for revenue projections, business plans, and for marketing purposes. The age distribution in a given area affects the area's school system, public services, and overall economy. It is also an important measure of diversity within a community. A large older teen and young adult demographic has a greater need for higher education and vocational training facilities, while a large middle-aged group creates more focus on employment opportunities. An area with a large mature or retired population typically has fewer employment concerns, but a greater need for medical services. A county with a large number of young children is attractive to day care centers, and other family related services. Age distribution information is also used in conjunction with components of population change in order to project population growth in the future.

El Dorado County

The largest age group in El Dorado County in 2010 is the 50-59 year-old range which represents 17.6 percent of the total county population. This group is followed by those ages 40-49 with 16 percent. Since 2000, the number of people ages 50-59 increased over 55 percent, while those ages 30-39 decreased nearly 27 percent, causing a 5 percent decrease among children in the 0-9 year-old range. Simultaneously, residents 60-69 make up a higher percentage of the population in El Dorado County than the state average.

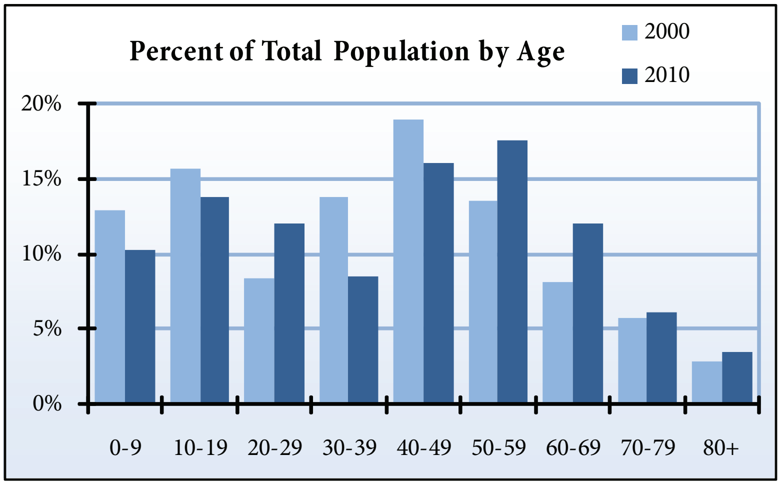
See the chart for more details on age distribution in El Dorado County since 2000.

Age Distribution

Year	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
2000	20,471	24,817	13,312	21,933	30,080	21,472	12,847	9,210	4,479
2001	20,012	26,175	12,986	21,722	31,017	23,018	13,452	9,362	4,819
2002	19,538	27,065	13,243	21,091	31,697	24,441	14,132	9,540	5,107
2003	19,234	27,551	13,846	20,408	32,045	25,808	15,013	9,753	5,370
2004	18,973	27,936	14,717	19,667	32,324	27,269	15,838	9,976	5,620
2005	18,866	28,153	15,671	19,158	32,418	28,717	16,667	10,155	5,814
2006	18,640	27,990	16,949	18,303	32,058	29,875	17,494	10,353	5,985
2007	18,649	27,739	18,291	17,829	31,630	30,716	18,922	10,588	6,147
2008	18,758	27,361	19,740	17,330	31,099	31,709	20,158	10,967	6,277
2009	19,035	26,904	21,195	16,742	30,725	32,577	21,430	11,314	6,414
2010	19,458	26,245	22,714	16,113	30,351	33,377	22,790	11,692	6,568

Source: California Department of Finance, Demographic Research Unit

Created by: Center for Economic Development, California State University, Chico


Percent of Total Population by Age
2000
2010
20%
15%
10%
5%
0%
0-9
10-19
20-29
30-39
40-49
50-59
60-69
70-79
80+

1.5 Population by Race/Ethnicity

Overview

While sometimes difficult to classify, race and ethnicity of a population is self-determined, meaning that individuals identify their own race or ethnicity in the census. There are five race categories: American Indian, Asian, Black, White, and other. Alternative names for these classifications are also used to address matters of social sensitivity, although the people classified in each of these categories remains the same. The CED uses these classifications only because these are the names used by the U.S. Census Bureau.

The 1990 Census asked people to choose their primary racial category. The question changed for the 2000 Census, which allowed respondents to choose as many race categories as they deemed appropriate, leading to a change in the data categories for 2000.

Hispanic is an ethnic classification. Some people who consider themselves Hispanic do not consider themselves to be members of one of the four specific race categories, and therefore classify themselves as "other." The California Department of Finance responded by adding Hispanic origin as a separate category in its projections of population by race. In the data table, Hispanic includes all persons who consider themselves to be of Hispanic origin, while all other categories exclude this group. Therefore, the sum of all categories is equal to the projected population in each year.

As with age distribution, population by race/ethnicity is a projection based on data from the 2000 Census. All projections are for July 1 of the given year.

Population by race statistics are used by advertisers to market products to a particular ethnic group and

Population by Race/Ethnicity

Year	Total	White	Hispanic	Asian	Black	American Indian	Other
2000	158,621	135,355	14,787	3,340	776	1,306	3,057
2001	162,563	138,547	15,453	3,362	779	1,309	3,113
2002	165,854	141,112	16,085	3,388	784	1,309	3,176
2003	169,028	143,599	16,722	3,418	786	1,308	3,195
2004	172,320	146,181	17,374	3,443	792	1,307	3,223
2005	175,619	148,678	18,068	3,484	796	1,315	3,278
2006	177,647	150,142	18,636	3,532	804	1,323	3,210
2007	180,511	152,303	19,238	3,581	812	1,331	3,246
2008	183,399	154,480	19,848	3,628	820	1,339	3,284
2009	186,336	156,683	20,478	3,674	828	1,347	3,326
2010	189,308	158,918	21,116	3,717	836	1,355	3,366
2020(p)	225,439	174,965	33,483	11,133	3,378	2,480	n/a
2030(p)	267,535	197,336	47,742	15,119	4,324	3,014	n/a

Source: California Department of Finance, Demographic Research Unit (p): Woods & Poole Economics

Created by: Center for Economic Development, California State University, Chico

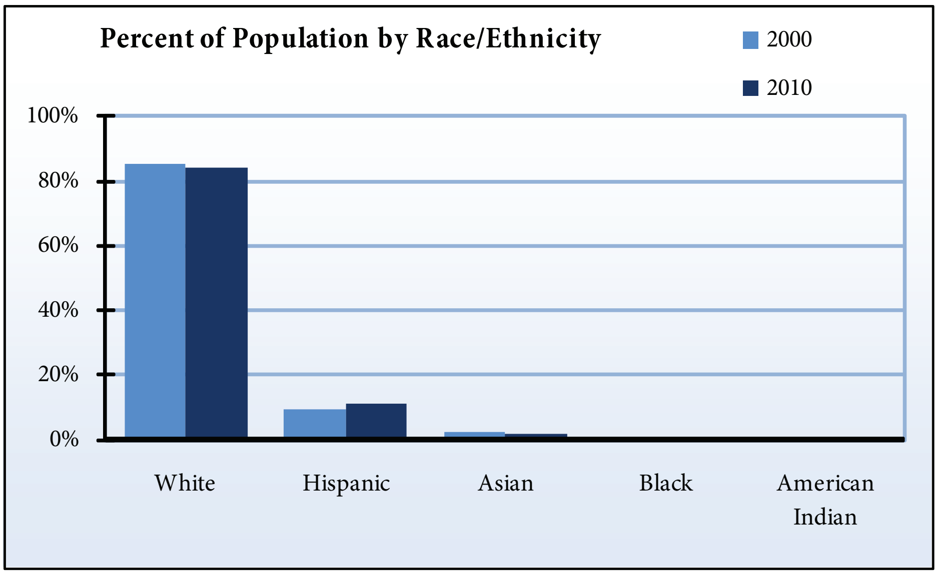
to determine whether investments in businesses with race specific target markets are likely to be lucrative. For example, investing in a start-up Spanish radio station may be a better investment in a predominantly Hispanic area. Advertising companies use race/ethnicity data in order to make their advertisements appealing to the dominant ethnic groups in a given area.

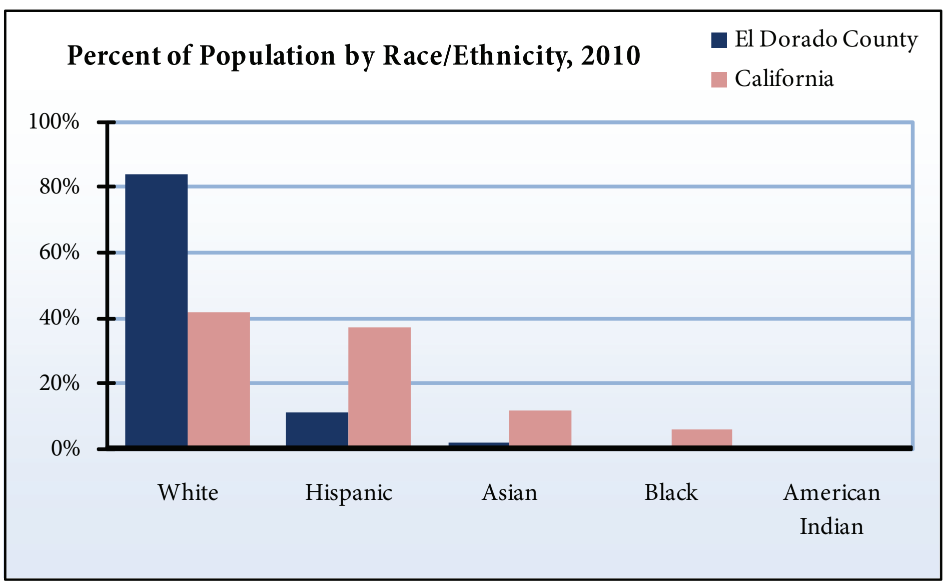
Grant writers use race/ethnicity data to create arguments to acquire funding for programs targeted toward specific groups, or to show population disparities that are favorable in grant priority scoring. Government officials and political candidates also use race/ethnicity data in order to tailor their campaigns to distinct ethnic groups in certain locations.

El Dorado County

Approximately 84 percent of residents in El Dorado County classify themselves as white in 2010, while statewide the white population is 42 percent. Hispanics represented the next largest group, with 11 percent of the population, compared to 37 percent in California. Asians and American Indians are the next largest groups, with 2 percent and 0.7 percent, respectively. Blacks are the smallest census-classified group, with 0.4 percent.

NOTE: The multi-race data is reported on July 1 of each year. This creates a discrepancy between the total population data (section 1.1) and the total population by race/ethnicity data because total population data is collected on January 1 of each year.





1.6 Population by Educational Attainment

Overview

Educational attainment is requested by the U.S. Census Bureau during the decennial census. The data represents the number of people 18 years and over who have achieved a specified level of education.

Educational attainment has a direct influence on family income. Often gains in annual income for men and women result from more education. Conversely, a family's income affects their ability to pay the high costs of pursuing a two-year, four-year, or graduate degree. High educational attainment by the local population exhibits a degree of permanence and can be a factor in attracting new businesses to an area, particularly those requiring skilled workers. Increased income, whether linked to higher educational attainment or other factors, increases tax revenues generated in a particular county through increased taxable retail sales.

Educational attainment information is also used by businesses for market research, primarily by those wishing to target customers of a particular educational level.

El Dorado County

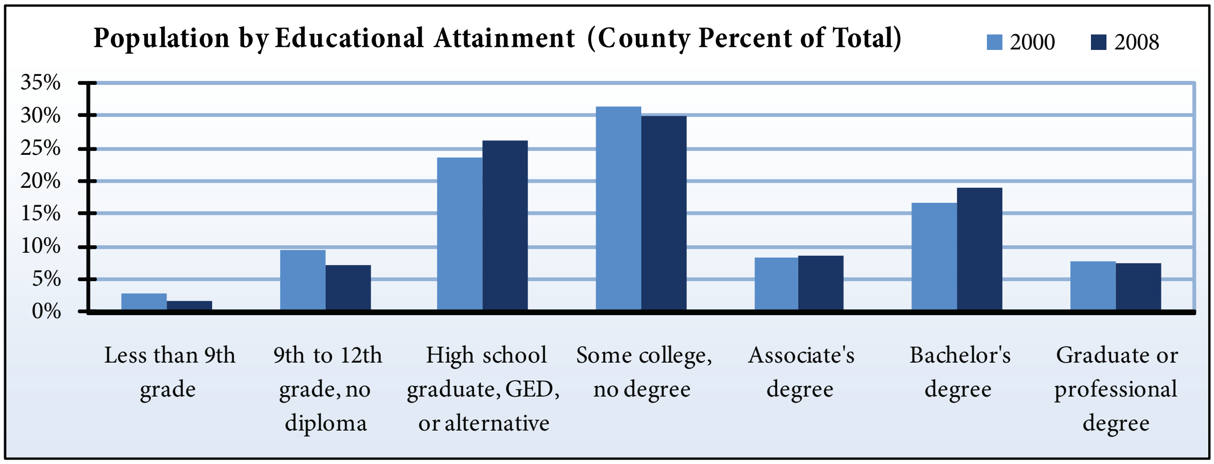
In 2008, 30 percent of El Dorado County residents had some college education with no degree, making them the largest educational group in the area. This rate is higher than the rest of the state, in which 25 percent of all residents had some college education as their highest level of education. High school graduates and residents holding bachelor's degrees were the next most common educational groups in El Dorado County, at 26 and 19 percent, respectively. In 2008, El Dorado County was above the statewide average for residents having an associate's degrees, as their highest level of education.

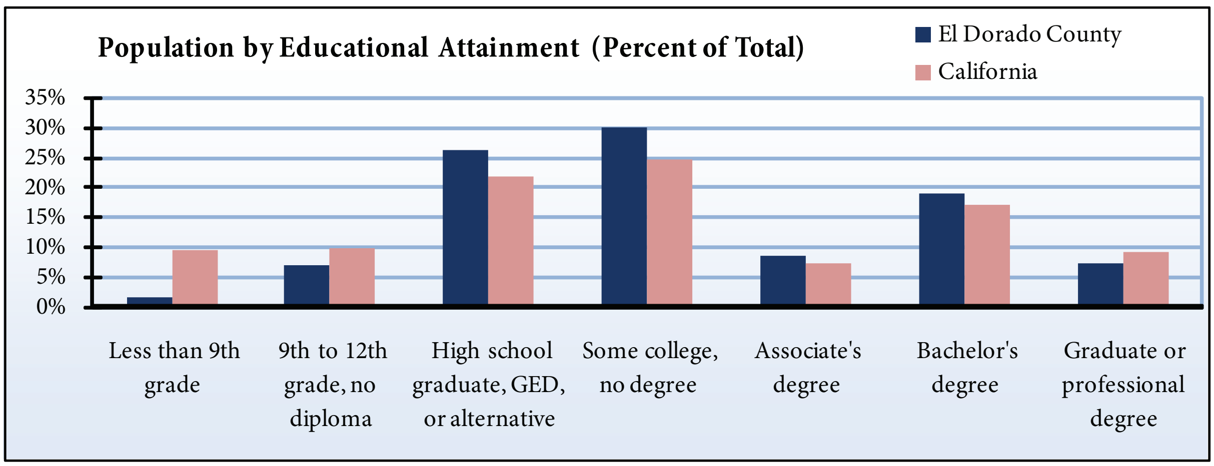
Population by Educational Attainment, Population 18 and Over

Educational Attainment	2000	2008
Less than 9th grade	3,162	2,329
9th to 12th grade, no diploma	10,993	9,756
High school graduate, GED, or alternative	27,199	36,163
Some college, no degree	36,430	41,389
Associate's degree	9,633	12,032
Bachelor's degree	19,318	26,190
Graduate or professional degree	8,876	10,321
Total	115,611	138,180

Source: U.S. Department of Commerce, Bureau of the Census

Created by: Center for Economic Development, California State University, Chico


Population by Educational Attainment (County Percent of Total)
2000
2008
35%
30%
25%
20%
15%
10%
5%
0%
Less than 9th grade
9th to 12th grade, no diploma
High school graduate, GED, or alternative
Some college, no degree
Associate's degree
Bachelor's degree
Graduate or professional degree


Population by Educational Attainment (Percent of Total)
El Dorado County
California
35%
30%
25%
20%
15%
10%
5%
0%
Less than 9th grade
9th to 12th grade, no diploma
High school graduate, GED, or alternative
Some college, no degree
Associate's degree
Bachelor's degree
Graduate or professional degree

1.7 Net Migration

Overview

This indicator includes information concerning migration patterns between El Dorado and other nearby counties with the highest levels of migration interaction. It includes the top five counties in terms of out-migration, the top five in terms of in-migration, and their respective median income levels. Collected from the Internal Revenue Service (IRS) database, these numbers are based on taxes paid by all citizens.

In-migration is the number of people moving into El Dorado County from some other area in the world and out-migration is the number moving from El Dorado County to other areas. Net migration is in-migration minus out-migration.

This indicator provides information on likely changes in the economic, political, and social structure of an area based on the characteristics of the area from which the migrants originate. For example, migrants coming from large cities bring with them a particular set of characteristics and values that may affect the local political climate. They also bring their patterns of consumer spending that create opportunities for businesses to provide the kinds of products and services these individuals are accustomed to receiving at their urban place of origin.

Neighboring counties, as well as those with higher population totals, generally show the most migration activity. However, if a non-neighboring county, even one with a smaller total population, is present among the top five counties in terms of migration, there may be a unique interaction that is worth further evaluation.

That portion of population growth driven by in migration is the product of some economic factor or amenity attracting new residents. The attraction could be an increase in employment opportunities, the recognition of the environmental advantages of the area, or expanding business opportunities. In general, new residents do not move to an area without good reason, and when they do, they fuel economic expansion.

El Dorado County

Two of the top five counties for in migration lie within close proximity of El Dorado County, while two Bay Area counties are also among them. Interestingly, El Dorado County had a Southern California county among its top five for in migration.

Top 5 Out-Migration by County 2007-08

County	Number
Sacramento, CA	4,154
Placer, CA	1,098
Douglas, NV	768
Santa Clara, CA	422
Washoe, NV	382

Source: Internal Revenue Service, 2009

Created by: Center for Economic Development, California State University, Chico

Top 5 In-Migration by County 2007-08

County	Number
Sacramento, CA	5,022
Placer, CA	952
Santa Clara, CA	686
Los Angeles, CA	640
Contra Costa, CA	460

Source: Internal Revenue Service, 2009

Created by: Center for Economic Development, California State University, Chico

1.8 Voter Registration

Overview

Voter information includes voter registration and political party affiliation. The choice of a party generally reflects certain attitudes towards government including relative tolerance for higher taxes, land preservation, and allocation of local government funds. The information made available from voter registration data may provide general guidance to local government in terms of its role in public policy and fiscal matters.

A registered voter may or may not choose a political party. The data presented shows the number of registered voters for each party, and party members as a percentage of the total number of registered voters. The accuracy of this data depends on the ability of the county clerk to update their voter rolls and remove those who no longer live at the address where they registered.

NOTE: In the following table, those persons registered to vote are shown as a percent of the total eligible.

Voter Registration as of May 24, 2010

Political affiliation	Number of people	Percent of total eligbles
Eligible	128,827	n/a
Registered	105,163	81.6 %
Democratic	32,173	30.6 %
Republican	47,249	44.9 %
American Independent	3,373	3.2 %
Green	895	0.9 %
Libertarian	768	0.7 %
Peace and Freedom	262	0.2 %
Miscellaneous	772	0.7 %
Decline to affiliate	19,671	18.7 %

Source: California Secretary of State, Elections Divisions
Created by: Center for Economic Development, California State University, Chico

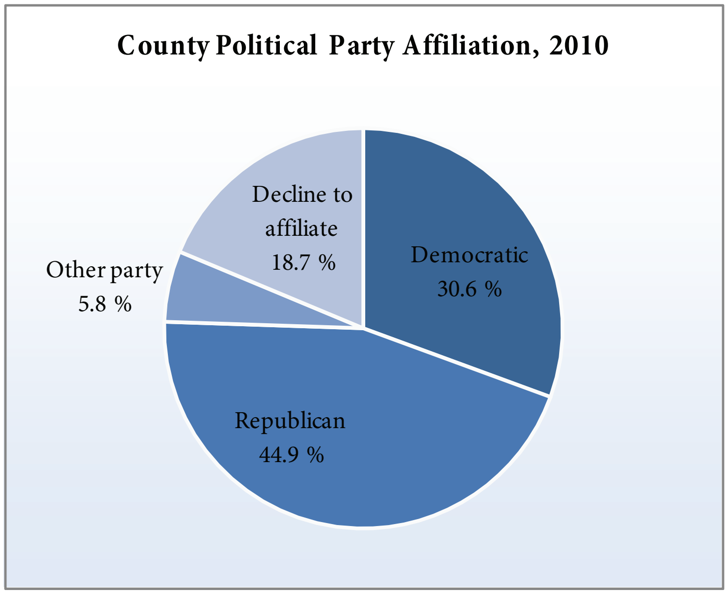
People typically choose a political party representing social and economic values close to their own. Therefore, political party membership may allow a business or organization to evaluate whether the community may or may not support particular proposals for development or regulation.

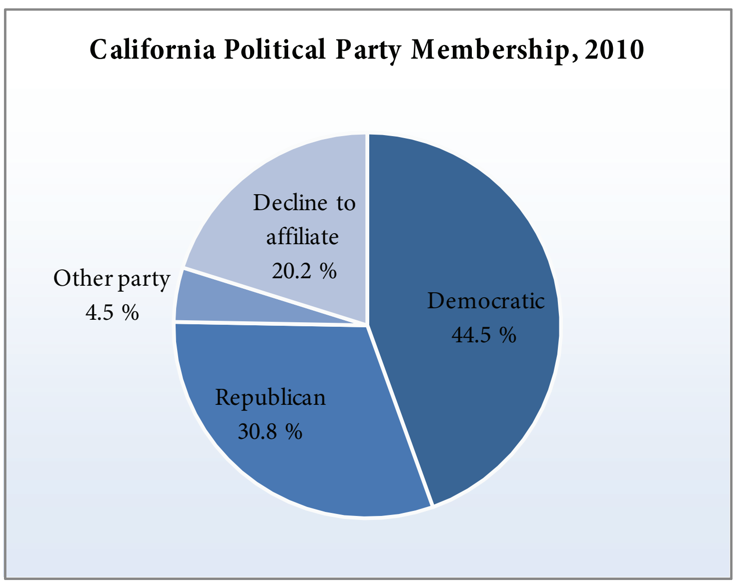
Registrants as a percentage of those estimated to be eligible to vote may indicate the level of civic participation and political involvement within the community. Communities with high levels of voter participation ordinarily have a strong sense of community and that may be a characteristic attractive to potential new residents and also to new businesses and potential employers.

El Dorado County

As of May 2010, of the nearly 129,000 El Dorado County residents eligible to vote, 81.6 percent were registered. In comparison, 72.4 percent of eligibles in California, were registered.

In the county, 30.6 percent of registered voters were registered Democrat and 44.9 percent were registered Republican. In California, 44.5 percent of eligible voters were registered Democrat and 30.8 percent were registered Republican. For a complete listing of registered voters by political affiliation, please see the chart to the left.


County Political Party Affiliation, 2010
Decline to affiliate 18.7 %
Democratic 30.6 %
Other party 5.8 %
Republican 44.9 %


California Political Party Membership, 2010
Decline to affiliate 20.2 %
Other party 4.5 %
Democratic 44.5 %
Republican 30.8 %

2. Environmental Factors

Environmental factors can influence a county's agriculture, economic standing, recreation, and the quality of life of its residents. Climate is a key factor in determining what types of limitations or opportunities exist for agricultural production or recreational activities. This section provides information useful for making decisions concerning residential and business location.

Many state parks in El Dorado County offer a variety of recreational opportunities. Due to the mountainous geography and extreme seasonal weather changes, the recreational opportunities are ever-changing.

In this section:

2.1 Land Area & Population Density

Overview

Population density is determined by dividing the total population of the area by its size in land area. This section shows population density in persons per square mile of land area, a commonly used measure.

Land Area and Population Density

Year	Land area (sq. miles)	Total population	Population density (per sq. mile)
1991	1,711	130,181	76
1992	1,711	134,898	79
1993	1,711	138,788	81
1994	1,711	141,843	83
1995	1,711	143,863	84
1996	1,711	145,949	85
1997	1,711	148,373	87
1998	1,711	150,857	88
1999	1,711	153,232	90
2000	1,711	155,702	91
2001	1,711	160,419	94
2002	1,711	163,871	96
2003	1,711	166,908	98
2004	1,711	169,926	99
2005	1,711	172,987	101
2006	1,711	175,530	103
2007	1,711	177,379	104
2008	1,711	178,860	105
2009	1,711	180,185	105
2010	1,711	182,019	106
2020(p)	1,711	225,439	132
2030(p)	1,711	267,535	156

Source: California Department of Finance
Created by: Center for Economic Development, California State University, Chico

The concept of "urban" versus "rural" is a relative one. For example, people living in Sacramento might consider the city of Placerville to be rural, while residents of Pollock Pines may consider Placerville to be "the city." Population density provides a quantitative measure of the degree of an area's urbanization.

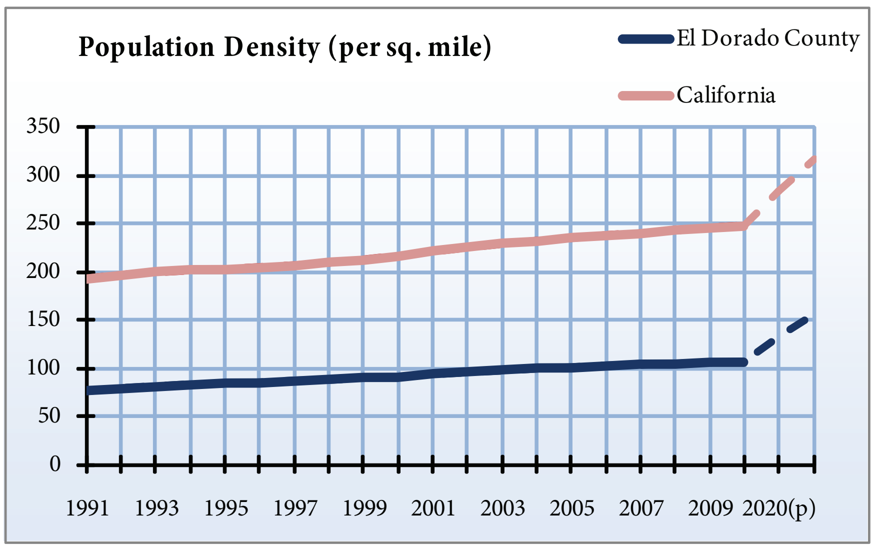
This measure can be an important quality of life indicator for an area. Economic use for land includes the production of raw materials, factories and other production facilities, office space, housing, food production, recreation, and transportation of goods and people. As population density rises, certain activities become more expensive to maintain. Farming can be crowded out by more profitable industrial or residential development. This structural change is likely to be associated with increasing area economic activity, but can also lead to adverse impacts on the quality of life. Vehicle use also rises and as more vehicle miles are traveled in a confined location, traffic slows down causing more congestion. This not only increases commute time, but also increases air pollution emissions per square mile. As a result, in addition to the positive impacts of the associated economic growth, an increase in population density can have negative impacts on the mental health (stress) and physical well-being (increased exposure to toxins) of a community.

Persons per acre, rather than persons per square mile, is a measure more commonly found in large dense cities, or by local government planning departments when evaluating community density or the density of a proposed development. To convert persons per square mile to persons per acre, divide persons per square mile by 640.

Population density can be used in grant writing and when comparing the degree of urbanization of different counties or areas.

El Dorado County

El Dorado County's total land area is 1,710.8 square miles. Because population has increased while land area has remained constant, El Dorado County's population density has steadily risen over time. As of 2010, the population density in the county was 106 residents per square mile, putting it well below the statewide average population density of 248 people per square mile. It is projected that by 2020 the population density in El Dorado County will reach 132 people per square mile.



2.2 Urban Land Consumption

Overview

Every two years, the California Department of Conservation conducts aerial land surveys in agricultural areas to determine the extent to which farmland may or may not be replaced by other uses over time. Generally, the most common use into which agricultural land is converted is developed urban land.

Reductions in agricultural land permanently reduce agriculture as an industry in the county, which may be a critically important base industry in some counties. Many planners consider development that does not consume agricultural land as being more beneficial to the community.

El Dorado County

Since 1984, urban land has consumed not only farmland, but grazing land as well. Urban land has increased by over 12,000 acres, an increase of 63 percent, while farmland has decreased by nearly 13,000 acres, or 16 percent. There has also been a decrease in grazing land of 6,000 acres and an increase in other land of 6,000 acres.

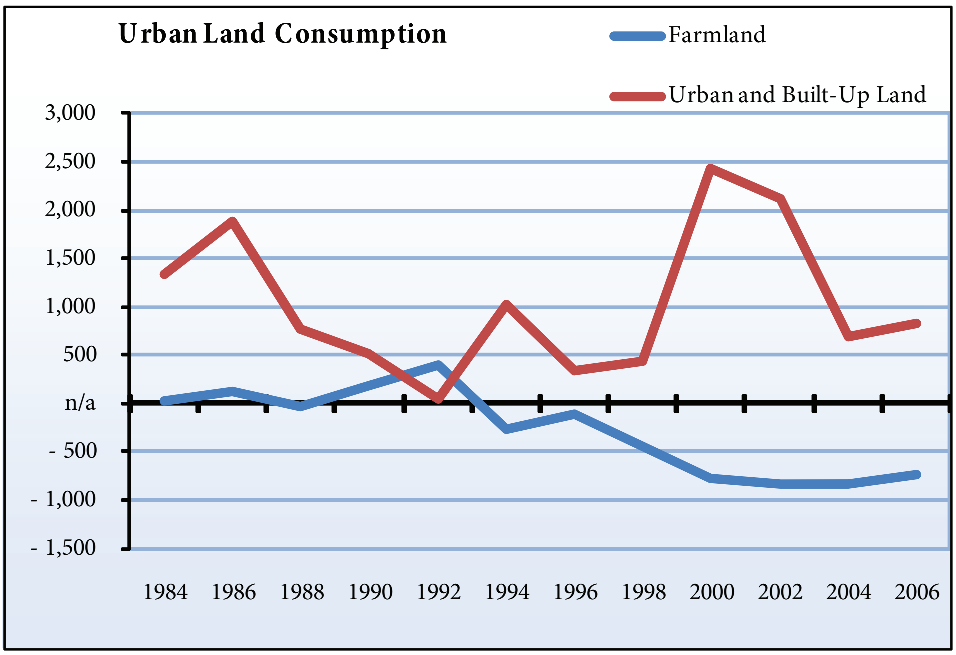
Urban Land Consumption (acres)

Year	Farmland	Grazing Land	Urban and Built-Up Land	Water Area	Other Land
1984	77,949	200,664	19,803	6,937	231,051
1986	77,970	199,623	21,131	6,924	230,756
1988	78,094	197,964	23,008	6,924	230,413
1990	78,064	195,365	23,779	6,924	232,272
1992	88,125	186,196	24,295	6,924	230,863
1994	88,531	186,126	24,339	6,893	230,515
1996	88,254	185,418	25,360	6,893	230,479
1998	88,146	185,283	25,690	6,880	230,404
2000	68,292	203,798	26,132	6,819	231,361
2002	67,508	201,738	28,557	6,819	231,780
2004	66,681	196,900	30,670	6,820	235,332
2006	65,844	195,958	31,359	6,819	236,426
2008	65,105	194,779	32,195	6,819	237,508

Source: California Department of Conservation

n/a: Data not reported by source

Created by: Center for Economic Development, California State University, Chico



2.3 Climate

Overview

This indicator shows climate readings from selected weather stations in El Dorado County. Climate data is collected on an ongoing basis and is reported by the Western Regional Climate Center in December of each year unless otherwise noted. The data expresses an annual average calculated over the time indicated below.

It is important to know what types of weather a certain area may experience because of extremes of heat and cold, and severe storms may reduce the desirability of an area for tourists or retirees. These conditions may occur in a particular season and limit the attractiveness of an area at certain times of the year. This information can be useful for determining which particular businesses might be viable in a specific area.

El Dorado County

Weather in El Dorado County is wildly variable. The County spans from the Central Valley to Lake Taho so it is difficult to identify a weather station that represents the El Dorado County climate. The following figure shows the average temperatures and precipitation rates in winter and summer for each weather station in the county.

NOTE: The data here reflects an average of monthly readings taken between the following years for each site:

Georgetown:	1/1/1893 to 11/30/1967
Placerville:	1/1/1900 to present
Squaw Valley Lodge:	10/13/1955 to 10/31/1975
Tahoe:	9/13/1903 to 9/30/2010

Climate Station Readings as of July 2010

	Georgetown	Placerville	Squaw Valley Lodge	Tahoe
Average July maximum temp. (deg.)	89.4	92.7	80.1	77.9
Average January maximum temp. (deg.)	51.2	53.4	39.5	38.5
Average July minimum temp. (deg.)	59.5	51.9	42.1	44.4
Average January minimum temp. (deg.)	35.2	32.6	14.6	19.0
Average July precipitation (in.)	0.0	0.1	0.7	0.3
Average January precipitation (in.)	10.6	6.9	9.7	6.0
Average annual precipitation (in.)	53.0	38.1	51.0	31.4
Average January snowfall (in.)	9.2	1.2	54.9	45.9
Average annual snowfall (in.)	31.8	2.5	246.6	190.7

Source: Western Regional Climate Center

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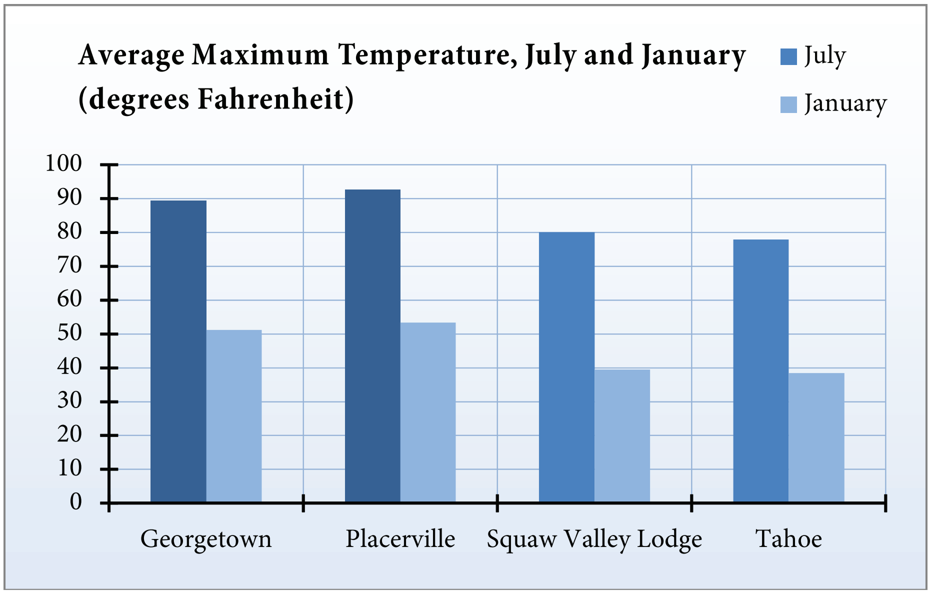
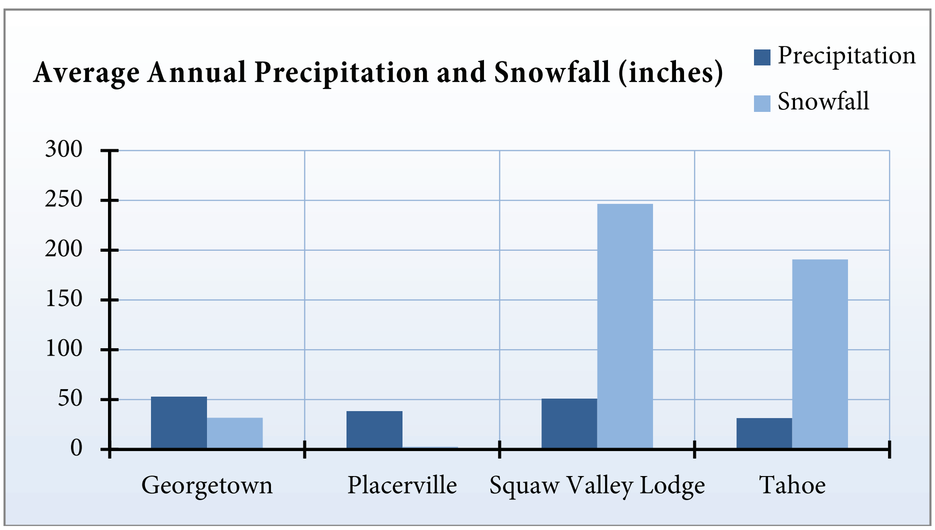

Average Maximum Temperature, July and January (degrees Fahrenheit)
July
January
100
90
80
70
60
50
40
30
20
10
0
Georgetown
Placerville
Squaw Valley Lodge
Tahoe


Average Annual Precipitation and Snowfall (inches)
Precipitation
Snowfall
300
250
200
150
100
50
0
Georgetown
Placerville
Squaw Valley Lodge
Tahoe

2.4 Air Quality

Overview

Air quality is the general term used to describe various aspects of the air that plants and human populations are exposed to in their daily lives. There are four main contaminants that decrease air quality: particulates (PM 10 and PM 2.5), tropospheric ozone (O3), carbon monoxide (CO), and oxides of nitrogen (NOX). Air pollutants are emitted by both stationary and mobile sources. Stationary sources include factories, power plants, and agricultural burning (forest fires and field burning). Mobile sources of pollution include automobiles, motorcycles, trucks, buses, and various types of recreational vehicles. Mobile sources are primarily responsible for the decrease in air quality in Northern California.

Air quality standards are set at both state and federal levels. The allowable levels for a particular pollutant are established in affect to protect human health, avoid damage to sensitive vegetation, and preserve aesthetic values. If a region is in violation of one or more standards for allowable levels of the above four pollutants, the state may limit the type of new industrial facilities that can be built in the area and place more restrictions on existing operations in the future.

PM2.5 and Ozone are shown in this report because the California Air Resources Board includes metrics indicating long-term (8-hr) exposure to these pollutants. Long-term exposure is far more detrimental to human health than short-term (1-hr.) exposure. State standards are reported because they are higher than federal standards.

As industry, agricultural production, and traffic continues to increase across California, air quality becomes an important issue. Air quality affects all populations, especially the young, the elderly, and those with heart or lung problems. Ultimately, a county with high levels of pollutants will also see an increased need for health services. Air quality can be an important factor in determining where people are willing or able to live.

PM2.5 - Particulate matter over 2.5 microns in diameter composed of very small bits of ash, wood tars, soot and other substances created by combustion. Examples of sources include cars and trucks (especially diesels), woodstoves, and open burning. PM2.5 particles are so small that they can evade the body's natural defense mechanisms and penetrate deep into lung tissue. They can damage lung tissue, which can lead to serious respiratory problems.

O3 - Ozone. Concentrations are measured in parts per million. Sources include cars and trucks (especially diesels), industrial sources like chrome platers, neighborhood businesses, such as dry cleaners and service stations, and building materials and products. Overexposure to O3 can cause breathing difficulties and lung damage. Ozone is an invisible pollutant formed by chemical reactions involving nitrogen oxides, reactive hydrocarbons, and sunlight. It is a powerful respiratory irritant that can cause coughing, shortness of breath, headaches, fatigue and lung damage, especially among children, the elderly, the ill, and people who exercise outdoors. Ozone also damages plants, including agricultural crops, and degrades manufactured materials such as rubber and paint.

El Dorado County

In 2009, the county air quality did not exceed state or federal standards, however, the county did spend 40 days over the state 8 hour ozone average in the same year. See the table on the next page.

Air Quality

Year	Number of Days Above State 8 hour Ozone Average	Number of Days Above State PM2.5 Average
1999	94	0
2000	77	0
2001	88	0
2002	102	0
2003	85	0
2004	66	0
2005	60	0
2006	80	0
2007	51	0
2008	55	0
2009	40	0

Source: California Air Resource Board
Created by: Center for Economic Development, California State University, Chico

2.5 Water Depth Table

Overview

Periodically, the California Department of Water Resources tests groundwater wells for pollution or contaminants. One of the outputs of this testing includes depth to groundwater. The CED used wells in the county with consistent measurement between 1999 and 2010, and corrected for wells not measured in any particular year.

Water is scarce in most parts of California, creating tremendous pressure to redistribute the state's water resources and to find new sources and ways to store and deliver water more efficiently. In addition, water is only plentiful parts of the year. Typically, whenever water shortages occur, groundwater is used to supplement surface water storage and delivery. Therefore, groundwater levels are the best measure to determine the sustainability of water availability, whether or not significant amounts of groundwater are used.

El Dorado County

Overall, El Dorado County has experienced little groundwater change over the past ten years. Depths have fluctuated between 22 and 30 feet deep, with an increasing long-term trend. Between 1999 and 2010 water table depths increased an average of 3.2 percent per year with a net change of approximately 8 feet.

County Water Table Depth

Year	Average Depth to groundwater (ft)
1999	26.29
2000	29.40
2001	33.71
2002	32.48
2003	31.36
2004	31.80
2005	30.58
2006	28.25
2007	30.89
2008	32.30
2009	31.20

Source: California Department of Water Resources

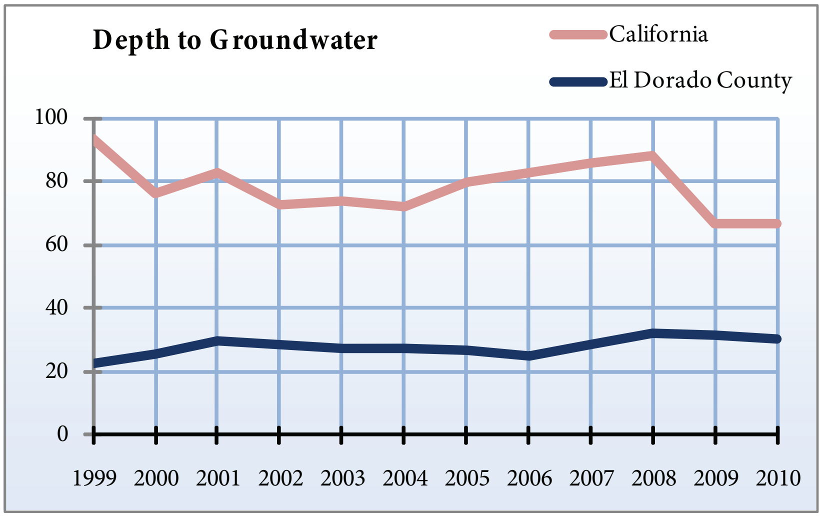
Created by: Center for Economic Development, California State University, Chico

California Water Table Depth

Year	Average Depth to groundwater (ft)
1999	94.44
2000	76.88
2001	83.69
2002	73.36
2003	75.11
2004	73.37
2005	80.74
2006	83.50
2007	87.22
2008	89.68
2009	68.24

Source: California Department of Water Resources

Created by: Center for Economic Development, California State University, Chico


Depth to Groundwater
California
El Dorado County
100
80
60
40
20
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010

2.6 Generation Capacity

Overview

The California Department of Energy is responsible for licensing and monitoring of all electrical power plants in California with a capacity greater than 1/10 of a megawatt. Actual electricity production is not collected and reported by the state. Although the federal government requires production reporting for power plants with greater than 100 megawatts of capacity, this represents a small fraction of generation in most areas.

Electricity production provides economic value of environmental features to the local community. Depending upon the type of generation, it indicates the degree to which renewable or green electricity if produced in and benefits the local community.

El Dorado County

All of El Dorado County's generation capacity comes in the form of hydroelectric power, generating a total of 739.5 megawatts of power.

Generation Capacity

Facility	Megawatts
Coal	0.0
Geothermal	0.0
Hydroelectric	739.5
Nuclear	0.0
Oil/Gas	0.0
Solar	0.0
Wind	0.0
WTE	0.0

Source: The California Energy Commission

Created by: Center for Economic Development, California State University, Chico

3. Labor Market

Labor market conditions are an important indicator of an area's economic well-being. Of particular importance is the relationship among all of these factors: labor force, employment, unemployment, and monthly employment. While alone, one of these factors might project an incomplete image of the economy's performance, taken together, they provide a comprehensive assessment of the health of the labor market and the associated well-being of affected residents.

Labor market information can be used to draw conclusions about the availability of jobs, the social climate, and the standard of living in the area.

The following is a brief summary of the statistical relationship between each of the indicators discussed in this section:

Labor force is equal to employment plus unemployment.

Employment refers to people working at least one hour per week.

Unemployment refers to people working less than one hour per week, but is actively seeking work.

Unemployment rate is equal to unemployment divided by labor force.

The U.S. Department of Labor, Bureau of Labor Statistics uses the twelfth of each month to determine a person's employment status. This date was originally chosen because at one time, there were no holidays in the week that included the twelfth. Although that may not be true now, mid-month time periods are less volatile to changes in the overall business climate.

The average unemployment rate in El Dorado County from 1999 to 2009 was 5.6 percent. Tracking monthly unemployment trends during that time revealed seasonal changes in the level of employment with January seeing the lowest average employment and September and August having the highest employment.

In this section:

3.1 Labor Force

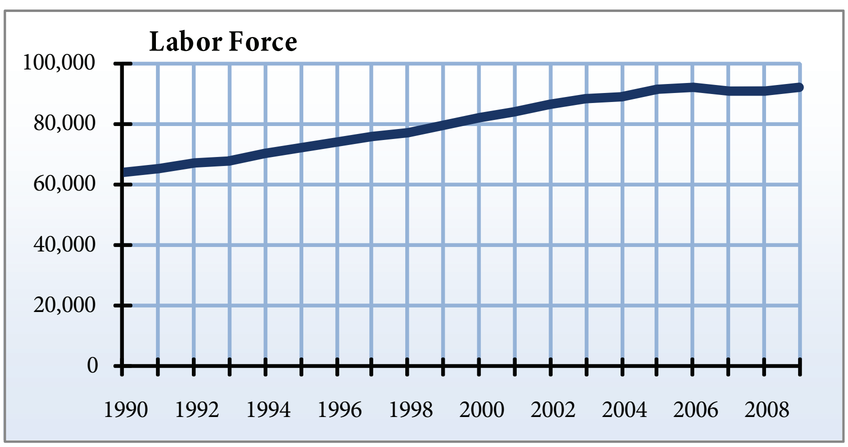
Overview

The labor force is the number of people living in the specified area who are willing and able to work. It is the sum of employment (persons currently working) and unemployment (persons actively seeking work). Therefore, changes in both employment and unemployment affect the labor force. The labor force is estimated monthly by the California Employment Development Department. Annual data is the average of the twelve months of the year.

An increasing labor force indicates a growing economy only if it is the result of increasing employment. If the labor force is growing due primarily to increasing unemployment, then population growth may be occurring in excess of the ability of the economy to provide jobs for new workforce entrants.

El Dorado County

In 2009, 91,800 residents, or 51 percent of El Dorado County's population, were members of the labor force, compared to 48 percent in California. The labor force has increased steadily over the last twenty years, with a 1 percent growth in 2009. This steady increase indicates a perpetual increase in available employment and business growth.

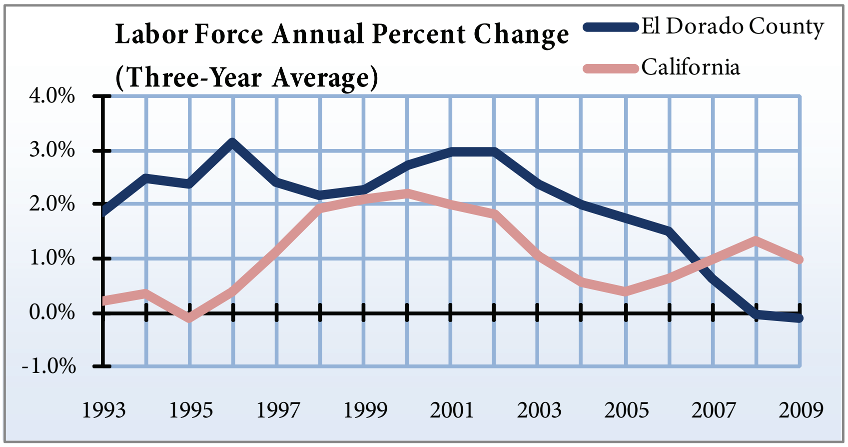


Total Labor Force

Year	Labor Force	1-year change
1990	63,900	n/a
1991	65,500	2.5 %
1992	67,300	2.7 %
1993	67,500	0.3 %
1994	70,500	4.4 %
1995	72,200	2.4 %
1996	74,100	2.6 %
1997	75,700	2.2 %
1998	77,000	1.7 %
1999	79,300	3.0 %
2000	82,100	3.5 %
2001	84,100	2.4 %
2002	86,600	3.0 %
2003	88,100	1.7 %
2004	89,200	1.2 %
2005	91,200	2.2 %
2006	92,100	1.0 %
2007	90,900	- 1.3 %
2008	91,100	0.2 %
2009	91,800	0.8 %

Source: California Employment Development Department, Labor Market Information Division

Created by: Center for Economic Development, California State University, Chico



Labor Force By City

Year	Placerville	South Lake Tahoe
2000	4,700	13,500
2001	4,900	13,800
2002	5,000	14,300
2003	5,100	14,600
2004	5,200	14,700
2005	5,300	15,100
2006	5,300	15,200
2007	5,300	15,100
2008	5,300	15,200
2009	5,500	15,600

Source: California Employment Development Department, Labor Market Information Division

Created by: Center for Economic Development, California State University, Chico

3.2 Total Employment

Overview

The California Employment Development Department (EDD) defines employment as the number of residents who are employed, regardless of whether they work in the county or city of residence: "Civilian employment includes all individuals who worked at least one hour for a wage or salary, were self employed, or were working at least fifteen unpaid hours in a family business or on a family farm during the week including the twelfth of the month. Those who were on vacation, other kinds of leave, or involved in a labor dispute, were also counted as employed."

Increasing employment indicates an increase in economic activity within the area, either by increasing local jobs or increasing the number of workers in residence. Workers spend a large portion of their income at their place of residence (the percentage of which typically depends on the availability and relative price of retail goods in the community). Employment by place of residence is an economic indicator that is typically evaluated alongside the count of jobs by place of work.

El Dorado County

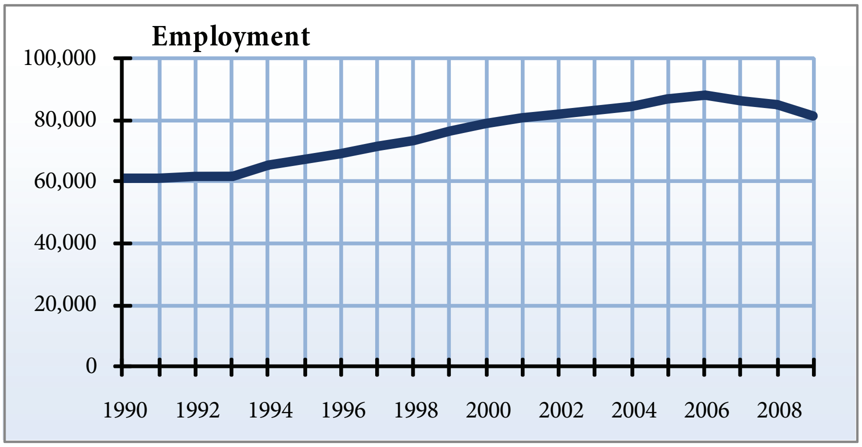
As of 2009, 81,500 members, or 89 percent of El Dorado County's labor force, were employed, a 4 percent decrease from the preceding year. 89 percent of California's total labor force was also employed in the same year. Total employment had been experiencing steady growth since 1990 but experienced its first declines in 2007, 2008, and 2009.

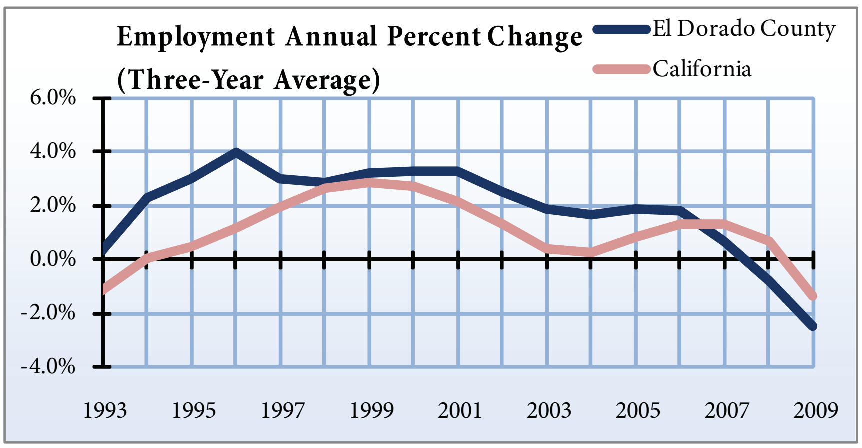
Total Employment

Year	Empl.	1-year change
1990	61,000	n/a
1991	61,100	0.2 %
1992	61,500	0.7 %
1993	61,600	0.2 %
1994	65,400	6.2 %
1995	67,200	2.8 %
1996	69,300	3.1 %
1997	71,500	3.2 %
1998	73,100	2.2 %
1999	76,200	4.2 %
2000	78,700	3.3 %
2001	80,500	2.3 %
2002	82,100	2.0 %
2003	83,200	1.3 %
2004	84,500	1.6 %
2005	86,800	2.7 %
2006	87,800	1.2 %
2007	86,200	- 1.8 %
2008	84,800	- 1.6 %
2009	81,500	- 3.9 %

Source: California Employment Development Department, Labor Market Information Division

Created by: Center for Economic Development, California State University, Chico





Employment By City

Year	Placerville	South Lake Tahoe
2000	4,400	12,700
2001	4,500	13,000
2002	4,600	13,300
2003	4,700	13,500
2004	4,800	13,700
2005	4,900	14,100
2006	4,800	13,700
2007	4,900	14,000
2008	4,800	13,700
2009	4,600	13,200

Source: California Employment Development Department, Labor Market Information Division

Created by: Center for Economic Development, California State University, Chico

3.3 Unemployment

Overview

Unemployment is the estimated number of people who are actively seeking work and are not working at least one hour per week for pay and who are not self-employed. As with employment, it is estimated at the place of residence. Annual average unemployment is the average of twelve monthly unemployment estimates developed by the California Employment Development Department (EDD).

Unemployment is not a simple count of people who are receiving unemployment insurance payments, although the EDD uses unemployment insurance recipients to help produce its estimates. Not everyone who the EDD considers to be unemployed, including those whose employment is terminated due to poor performance, is eligible for these benefits. Unemployment includes workers who have been laid off and are waiting to be called back to work, though it does not include people who are in prisons, mental hospitals, nursing homes, or those under the age of sixteen, regardless of whether they are seeking work or not.

The unemployment rate is the percent of the labor force that is unemployed. It is often used as a primary measure of economic health, although by itself, changes in the unemployment rate may misrepresent economic performance. For example, take the case of rising employment with a simultaneous rise in unemployment (a common situation in Northern California in the early 2000s). This situation typically produces an increase in the unemployment rate, even when the employment situation is improving. Therefore, employment growth or labor force growth combined with employment growth, are better measures of economic performance.

Still, the unemployment rate is a valuable community indicator. Sustained high unemployment rates typically indicate the presence of societal issues within the community, although what is considered "high" may vary from one community to the next. For communities with a high unemployment rate, social issues may vary as well. See the social indicators sections, nine through twelve, to find connections between the unemployment rate and social issues.

Total Unemployment

Year	Unempl.	Unempl. Rate	1-year change
1990	2,900	4.5 %	n/a
1991	4,400	6.7 %	51.7 %
1992	5,800	8.6 %	31.8 %
1993	5,900	8.7 %	1.7 %
1994	5,100	7.2 %	- 13.6 %
1995	5,000	6.9 %	- 2.0 %
1996	4,700	6.4 %	- 6.0 %
1997	4,200	5.5 %	- 10.6 %
1998	3,800	5.0 %	- 9.5 %
1999	3,100	3.9 %	- 18.4 %
2000	3,400	4.1 %	9.7 %
2001	3,600	4.3 %	5.9 %
2002	4,500	5.2 %	25.0 %
2003	4,900	5.6 %	8.9 %
2004	4,700	5.3 %	- 4.1 %
2005	4,400	4.8 %	- 6.4 %
2006	4,200	4.6 %	- 4.5 %
2007	4,700	5.1 %	11.9 %
2008	6,300	6.9 %	34.0 %
2009	10,300	11.3 %	63.5 %

Source: California Employment Development Department, Labor Market Information Division

Created by: Center for Economic Development, California State University, Chico

Another important issue exposed by unemployment statistics is the number of potentially qualified workers available in the community. As unemployment falls, employers start having a difficult time attracting qualified employees at their offered rates of pay. High-skill workers are typically affected first, such as those in management, technical, and professional occupations, with moderate-skill workers being affected as the unemployment rate continues to fall. Results typically include higher average pay, in combination with out migration of some firms in search of the employees they can no longer find locally.

The lowest unemployment rate calculated over the past ten years, or the lowest unemployment number, can be used to estimate the level at which employers have difficulty finding qualified employees. At the national level the lowest sustainable unemployment rate is called the full-employment unemployment rate, and at that rate, the remaining unemployment is not due to a lack of jobs, but rather structural, frictional, and seasonal factors.

El Dorado County

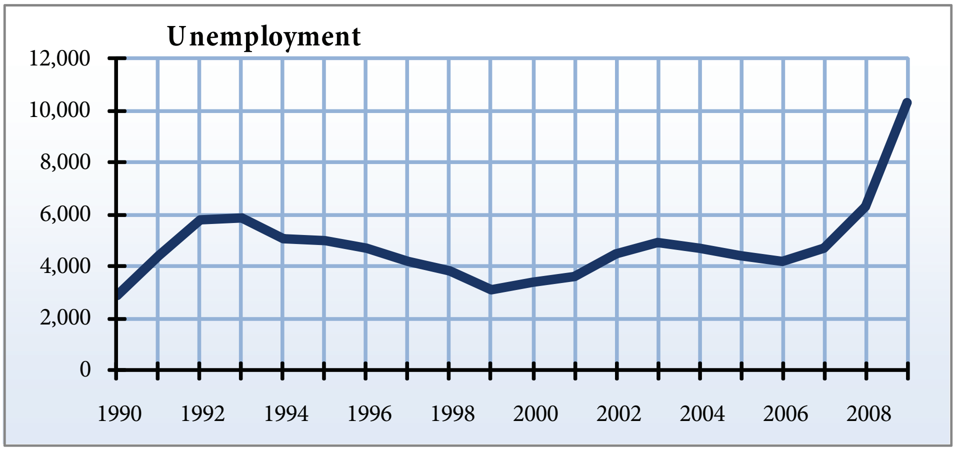
In 2009, 10,300 members of El Dorado County's labor force were unemployed, making up 11 percent of the labor force. El Dorado County's unemployment rate has been consistently lower than the California average since 1990. For example, when statewide unemployment swelled to 9.5 percent in 1993, El Dorado County's unemployment rate was at 8.7 percent.

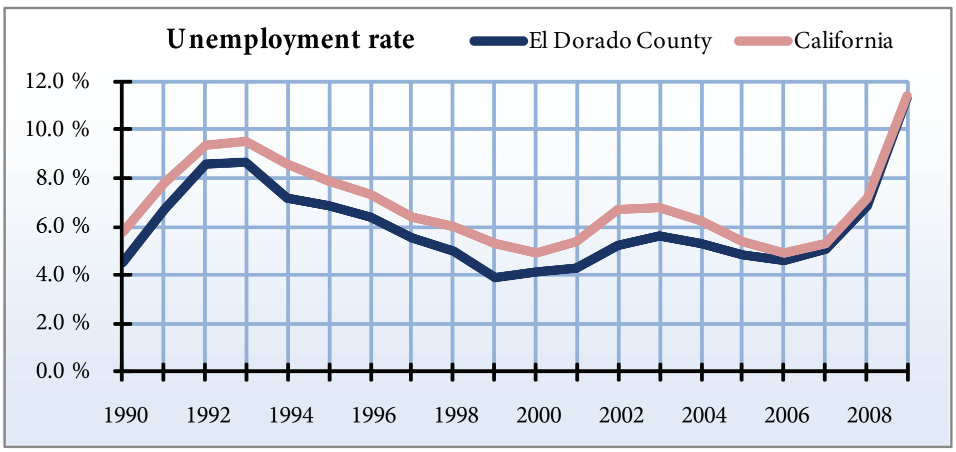
Unemployment rate by City

Year	Placerville	South Lake Tahoe
2000	6.3 %	5.7 %
2001	6.6 %	5.9 %
2002	7.9 %	7.2 %
2003	8.4 %	7.7 %
2004	8.0 %	7.3 %
2005	7.3 %	6.7 %
2006	10.4 %	9.6 %
2007	7.8 %	7.2 %
2008	10.4 %	9.6 %
2009	16.6 %	15.3 %

Source: California Employment Development Department, Labor Market Information Division

Created by: Center for Economic Development, California State University, Chico


Unemployment
12,000
10,000
8,000
6,000
4,000
2,000
0
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008


Unemployment rate
El Dorado County
California
12.0 %
10.0 %
8.0 %
6.0 %
4.0 %
2.0 %
0.0 %
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008

3.4 Average Monthly Labor Statistics

Overview

The California Employment Development Department estimates labor market data (labor force, employment, unemployment, and the unemployment rate) for each month. The department uses the week including the twelfth of each month to determine a person's employment status. Mid-month time periods are less sensitive to changes in the overall business climate and are more representative of average conditions. For specific definitions of each measure, please see the previous three indicators in this section.

Average monthly labor statistics are used to evaluate seasonal trends in employment. Areas dependent on agriculture, forestry, or seasonal recreation tend to experience fluctuations in employment over the course of the year that cannot be observed when using the annual average as a measure. The difference in employment in the low and high months can be used to evaluate the degree to which an economy is dependent upon seasonal employment. Many seasonal employees locate temporarily (at winter ski resorts or some types of farms) and leave during the off-season, but some remain year-round and are unemployed during the months of lower employment.

El Dorado County

Between 1990 and 2009, unemployment was lowest in August through October. The highest unemployment rates occurred in January through March, peaking in January at 6.7 percent and decreasing throughout the year.

In all cases, the average monthly unemployment rate for El Dorado County was lower than the statewide average from 1990-2009.

California Average Monthly Labor Statistics, 1990-2009

Month	Labor Force	Empl.	Unempl.	Unempl. Rate
Jan	16,085,287	14,881,780	1,203,523	7.5 %
Feb	16,137,333	14,945,307	1,192,027	7.4 %
Mar	16,149,107	14,973,807	1,175,313	7.3 %
Apr	16,099,450	15,002,853	1,096,597	6.9 %
May	16,126,343	15,051,397	1,074,967	6.7 %
Jun	16,233,207	15,091,097	1,142,110	7.1 %
Jul	16,356,390	15,145,223	1,211,160	7.4 %
Aug	16,321,913	15,179,517	1,142,407	7.0 %
Sep	16,233,370	15,122,543	1,110,840	6.9 %
Oct	16,283,997	15,173,163	1,110,840	6.8 %
Nov	16,261,833	15,132,967	1,128,863	7.0 %
Dec	16,248,480	15,138,770	1,109,727	6.9 %

Source: California Employment Development Department, Labor Market Information Division

Created by: Center for Economic Development, California State University, Chico

El Dorado County Average Monthly Labor Statistics, 1990-2009

Month	Labor Force	Empl.	Unempl.	Unempl. Rate
Jan	79,825	74,535	5,270	6.7 %
Feb	79,880	74,685	5,190	6.6 %
Mar	80,010	74,835	5,185	6.5 %
Apr	79,500	74,735	4,770	6.1 %
May	79,530	74,745	4,790	6.1 %
Jun	79,875	75,125	4,750	6.0 %
Jul	80,375	75,670	4,700	5.9 %
Aug	80,285	75,865	4,425	5.5 %
Sep	79,655	75,300	4,355	5.5 %
Oct	80,055	75,575	4,490	5.7 %
Nov	80,410	75,620	4,790	6.0 %
Dec	80,665	75,825	4,855	6.1 %

Source: California Employment Development Department, Labor Market Information Division

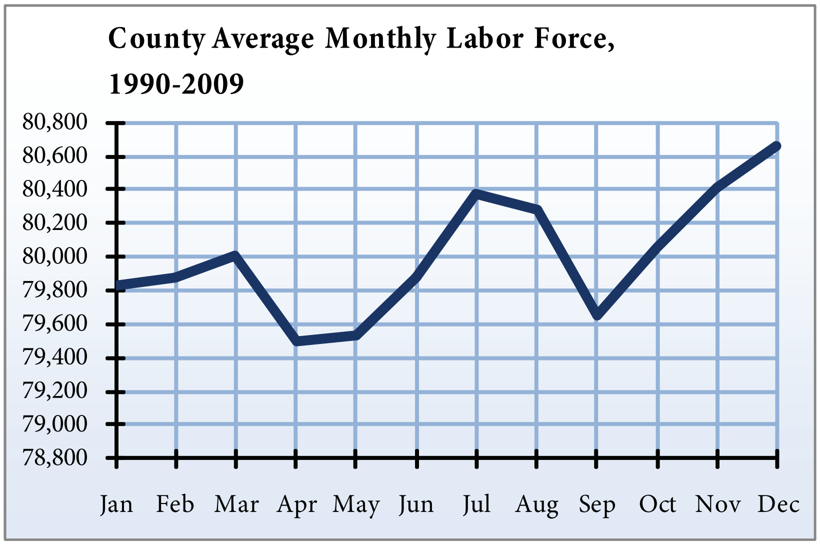
Created by: Center for Economic Development, California State University, Chico

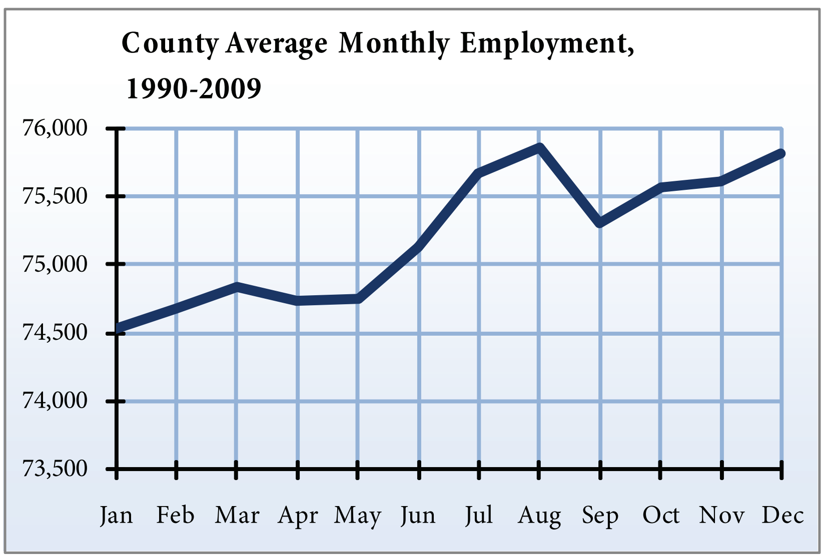
El Dorado County Average Monthly Labor Statistics, 2009

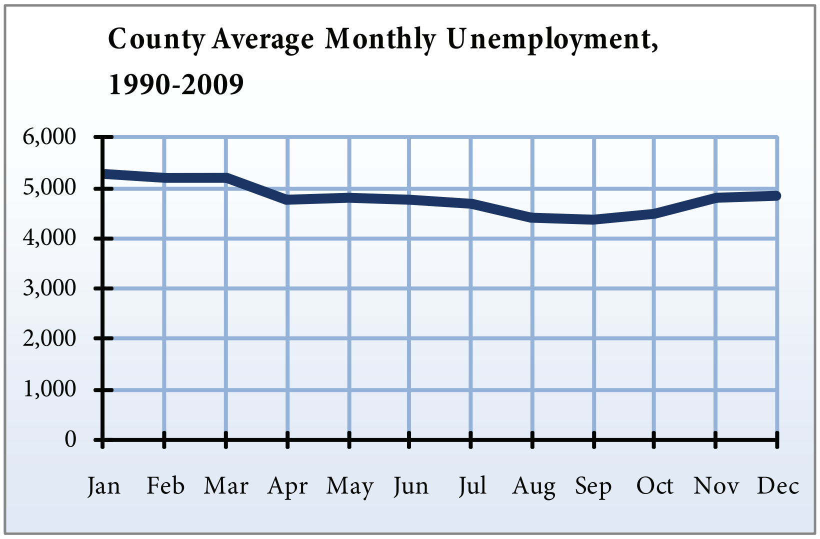
Month	Labor Force	Empl.	Unempl.	Unempl. Rate
Jan	92,400	82,900	9,500	10.2 %
Feb	92,400	82,700	9,700	10.5 %
Mar	92,500	82,300	10,200	11.1 %
Apr	91,800	82,400	9,400	10.3 %
May	91,700	81,700	10,000	10.9 %
Jun	92,200	81,500	10,700	11.6 %
Jul	92,800	82,100	10,700	11.5 %
Aug	92,300	81,800	10,500	11.3 %
Sep	91,200	80,800	10,400	11.4 %
Oct	91,100	80,300	10,800	11.9 %
Nov	91,000	80,200	10,800	11.9 %
Dec	90,700	79,400	11,300	12.5 %

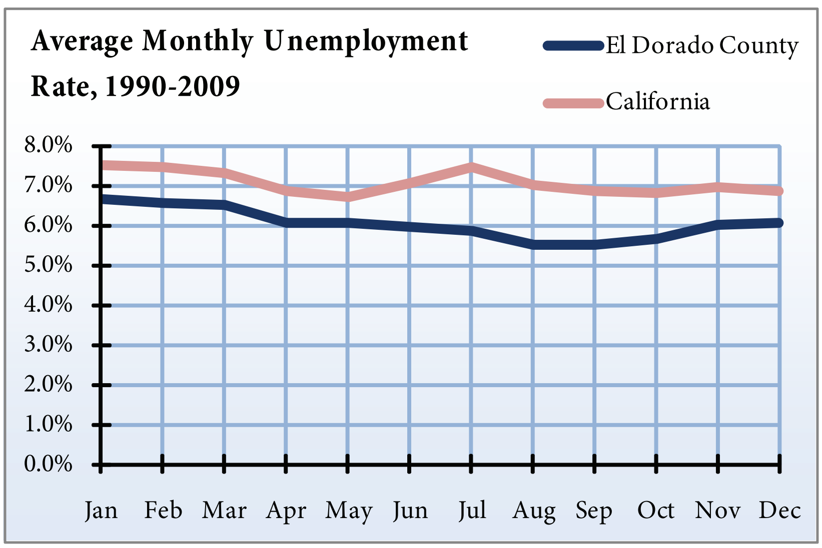
Source: California Employment Development Department, Labor Market Information Division

Created by: Center for Economic Development, California State University, Chico


County Average Monthly Labor Force, 1990-2009
80,800
80,600
80,400
80,200
80,000
79,800
79,600
79,400
79,200
79,000
78,800
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


County Average Monthly Employment, 1990-2009
76,000
75,500
75,000
74,500
74,000
73,500
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


County Average Monthly Unemployment, 1990-2009
6,000
5,000
4,000
3,000
2,000
1,000
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


Average Monthly Unemployment Rate, 1990-2009
El Dorado County
California
8.0%
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

3.5 Jobs by Industry

Overview

Published by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA), this measure of jobs is by place of work; that is, where the job is being performed regardless of where its worker lives. The BEA uses business tax returns from the Internal Revenue Service to calculate jobs by industry. Therefore, each person who worked for a company for pay or profit over the course of a year is counted. That means if a person changed jobs once over the course of a year, they are counted twice—once for each company at which they worked. The same holds true for part-time and seasonal employees who hold more than one job over the course of a year. Self-employed proprietors and members of business partnerships are counted as well. A person with a full-time job who owns or co-owns a business on the side is counted for each job. Unpaid family workers and volunteers, however, are not included.

Some industries may be so small that publishing data could disclose confidential information about an individual business. The BEA will withhold data if there are fewer than four businesses or if one business is responsible for more than 80 percent of the industry's sales. If a withholding occurs, the BEA must withhold data in another category to preserve confidentiality.

Before 2000, jobs by industry was published according to the Standard Industrial Classification. In 2001, that changed to the new North American Industrial Classification (NAICS). The NAICS system of industrial classification was an improvement over the old system because it allowed the separation of important industry groups, such as recreation. Therefore, recreation is its own category starting in 2001. Before 2001, jobs in recreation were classified mostly under retail trade and services.

Job growth by industry sector is a measure of the economic diversity and stability of the local economy. A healthy economy will have a balance between industries. If too many jobs are concentrated in one sector, a downturn in that sector could easily and rapidly weaken the economy.

Job growth is an important indicator for business and government planning, allowing for a better understanding of which sectors are the major generators of jobs in the area and which sectors are continuing to grow. This can provide insight into which industries have the greatest potential for growth in the near future.

El Dorado County

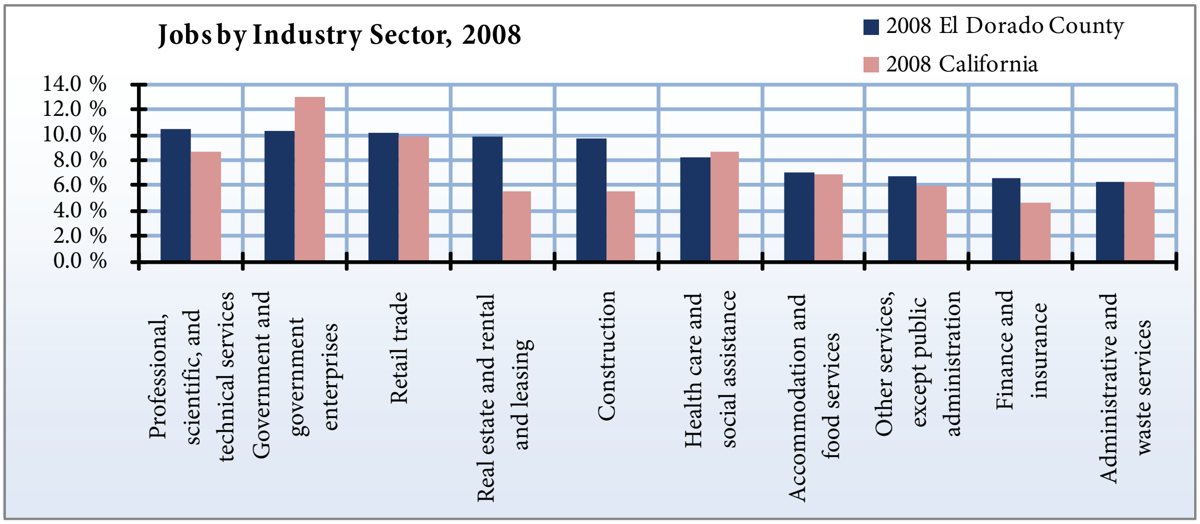
According to the available data, the mining sector had the largest growth in employment between 2007 and 2008 in El Dorado County with a 19 percent increase. Real estate, rental, and leasing employment had the next highest with a 10 percent growth in the county. In El Dorado County, management of companies and enterprises employment decreased 53 percent, and information employment decreased 9 percent in the same year.

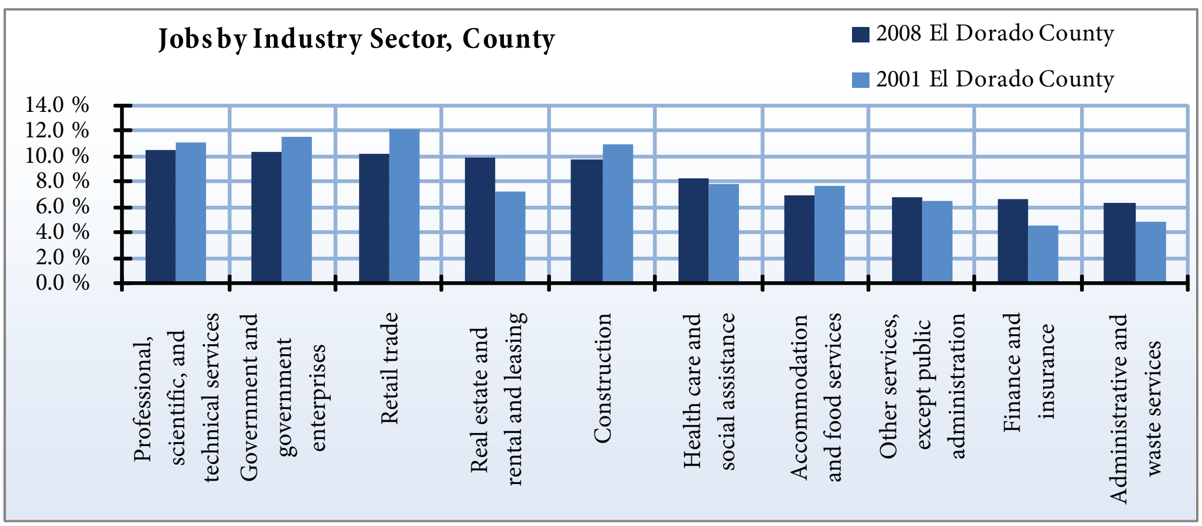
Jobs by Industry

Year	2001	2002	2003	2004	2005	2006	2007	2008
Farm jobs	1,388	1,436	1,392	1,368	1,315	1,287	1,373	1,344
Forestry, fishing, related activities, and other	548	605	490	505	508	488	523	548
Mining	168	147	162	175	175	169	217	259
Utilities	167	147	139	137	131	128	140	145
Construction	8,723	8,348	8,649	9,659	10,436	10,322	10,269	9,499
Manufacturing	2,365	2,117	2,124	2,090	2,132	2,377	2,395	2,255
Wholesale trade	1,355	1,508	1,533	1,619	1,668	1,804	1,736	1,737
Retail trade	9,683	9,442	9,593	9,595	9,799	9,804	9,907	9,913
Transportation and warehousing	976	1,052	939	979	1,161	1,187	1,208	1,149
Information	1,047	953	951	1,144	1,183	1,256	1,368	1,245
Finance and insurance	3,605	4,412	5,054	5,210	5,406	5,364	5,905	6,451
Real estate and rental and leasing	5,696	5,681	6,079	6,899	7,827	8,395	8,757	9,641
Professional, scientific, and technical services	8,808	8,724	9,003	9,588	9,654	9,683	10,112	10,230
Management of companies and enterprises	230	196	262	259	265	260	273	128
Administrative and waste services	3,825	3,915	3,863	5,447	5,267	5,868	6,011	6,157
Educational services	863	969	969	995	1,158	1,565	1,597	1,743
Health care and social assistance	6,240	6,406	6,864	7,273	7,367	7,439	7,679	8,066
Arts, entertainment, and recreation	3,366	3,336	3,260	3,582	3,538	3,450	3,222	3,342
Accommodation and food services	6,062	6,236	6,678	7,090	7,137	7,040	7,016	6,801
Other services, except public administration	5,197	5,389	5,674	6,322	6,460	6,349	6,449	6,561
Government and government enterprises	9,201	9,414	9,314	9,261	9,354	9,550	9,677	10,035
*Value of withheld "(D)" employment	0	0	0	0	0	0	0	0
Total Jobs	79,513	80,433	82,992	89,197	91,941	93,785	95,834	97,249

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Created by: Center for Economic Development, California State University, Chico


Jobs by Industry Sector, 2008
2008 El Dorado County
2008 California
14.0 %
12.0 %
10.0 %
8.0 %
6.0 %
4.0 %
2.0 %
0.0 %
Professional, scientific, and technical services
Government and government enterprises
Retail trade
Real estate and rental and leasing
Construction
Health care and social assistance
Accommodation and food services
Other services, except public administration
Finance and insurance
Administrative and waste services

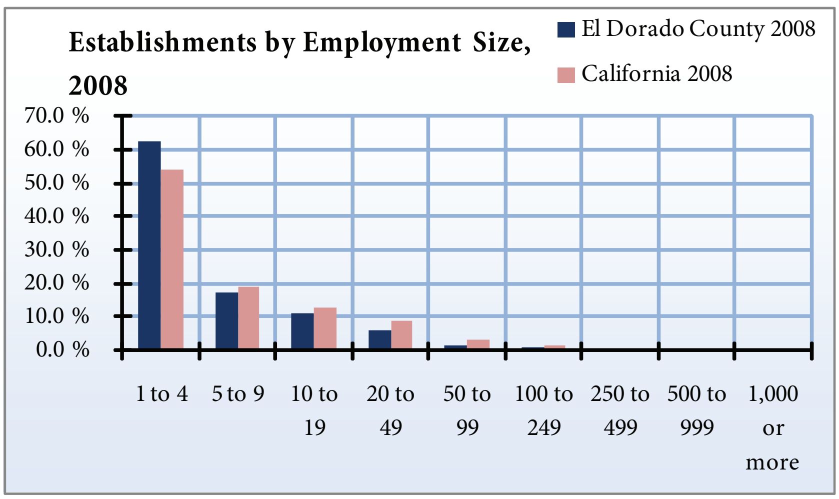

Jobs by Industry Sector, County
2008 El Dorado County
2001 El Dorado County
14.0 %
12.0 %
10.0 %
8.0 %
6.0 %
4.0 %
2.0 %
0.0 %
Professional, scientific, and technical services
Government and government enterprises
Retail trade
Real estate and rental and leasing
Construction
Health care and social assistance
Accommodation and food services
Other services, except public administration
Finance and insurance
Administrative and waste services

3.6 Employers by Employment Size & Industry

Overview

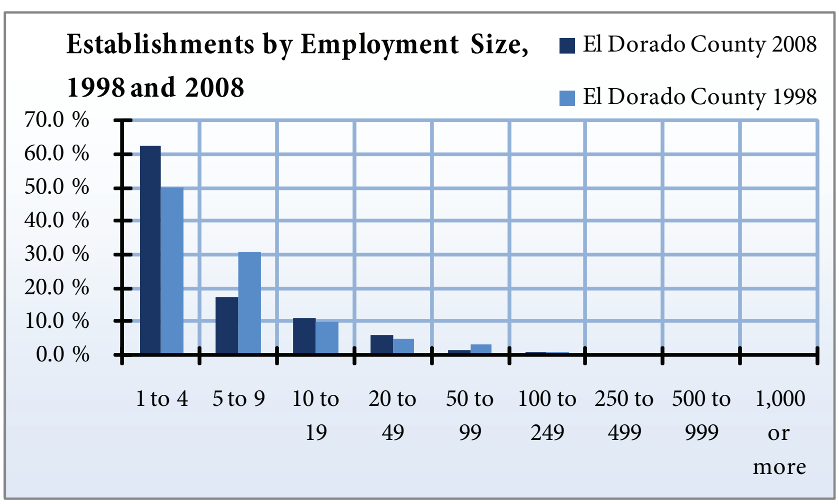
Each year, the U.S. Department of Commerce's Census Bureau tabulates the number of employers with employees on which taxes are paid. As with Jobs by Industry (the previous section), the tabulations are based on tax returns are collected by the Internal Revenue Service. Establishments without payroll are not included. Most businesses are non-employers, although most jobs are employee positions.

The stability of a local economy is dependent upon a diverse mix of businesses, both in terms of size and industry sector. A diverse employer mix allows an economy to weather economic downturns more easily than one that is dependent on a few types of businesses. For example, during the previous recession the Bay Area was heavily dependent upon computer technology employers when the dot-com crisis hit in 2000. The national economy experienced a small recession during a few months in 2001, but the Bay Area suffered from a much deeper economic downturn that lasted several years.



El Dorado County

In 2008, businesses with one to four employees were the most common in El Dorado County, and made up 62 percent of all establishments. Another 17 percent of the businesses in El Dorado County consisted of five to nine employees, suggesting a strong trend of small local businesses in the county. Statewide, businesses with one to four employees were the most common, making up 54 percent of all businesses in the state.



Number of Establishments by Employment Size and Industry, 2008

Industry	1 to 4 Empl.	5 to 9 Empl.	10-19 Empl.	20 to 49 Empl.	50 to 99 Empl.	100 to 249 Empl.	250 to 499 Empl.	500 to 999 Empl.	1,000 or more Empl.
Agriculture, Forestry, Fishing, and Hunting	16	3	2	1	0	0	0	0	0
Mining	4	1	2	0	0	0	0	0	0
Utilities	6	1	1	0	1	0	0	0	0
Construction	637	132	53	29	8	4	0	1	0
Manufacturing	104	37	24	18	8	3	0	0	1
Wholesale Trade	101	28	9	3	1	1	0	0	0
Retail Trade	278	146	70	44	10	13	1	0	0
Transportation and Warehousing	49	7	4	1	2	0	0	0	0
Information	38	9	13	5	4	2	0	0	0
Finance and Insurance	164	55	26	6	3	1	4	0	0
Real Estate and Rental and Leasing	199	30	9	5	1	1	1	0	0
Professional, Scientific, and Technical Services	439	62	41	11	4	2	1	0	0
Management of Companies and Enterprises	11	2	6	0	1	0	0	0	0
Administrative and Waste Services	143	39	20	8	7	7	0	0	0
Educational Services	27	8	10	6	3	0	0	0	0
Health Care and Social Assistance	236	127	55	32	8	4	0	1	1
Arts, Entertainment, and Recreation	50	11	5	6	2	2	0	1	1
Accommodation and Food Services	149	90	104	70	17	0	1	0	0
Other Services (except Public Administration)	202	66	35	17	3	0	0	0	0
Unclassified	7	0	0	0	0	0	0	0	0
Total Establishments	2,860	854	489	262	83	40	8	3	3

Source: U.S. Bureau of the Census, County Business Patterns

Created by: Center for Economic Development, California State University, Chico

Number of Establishments by Employment Size and Industry, 1998

Industry	1 to 4 Empl.	5 to 9 Empl.	10-19 Empl.	20 to 49 Empl.	50 to 99 Empl.	100 to 249 Empl.	250 to 499 Empl.	500 to 999 Empl.	1,000 or more Empl.
Agriculture, Forestry, Fishing, and Hunting	23	5	4	3	0	0	0	0	0
Mining	1	0	2	1	0	0	0	0	0
Utilities	5	2	0	0	0	0	0	0	0
Construction	484	74	41	20	5	3	1	0	0
Manufacturing	86	31	21	16	5	4	0	0	0
Wholesale Trade	58	23	15	7	1	0	0	0	0
Retail Trade	285	128	70	33	11	7	0	0	0
Transportation and Warehousing	38	12	4	5	3	0	0	0	0
Information	27	12	8	4	2	1	0	0	1
Finance and Insurance	88	41	16	7	1	0	0	0	0
Real Estate and Rental and Leasing	132	31	11	5	1	1	0	0	0
Professional, Scientific, and Technical Services	275	50	14	9	1	1	0	1	0
Management of Companies and Enterprises	6	2	0	0	1	0	0	0	0
Administrative and Waste Services	121	32	12	14	2	4	1	0	0
Educational Services	19	7	7	4	0	0	0	0	0
Health Care and Social Assistance	204	118	38	16	3	2	0	2	0
Arts, Entertainment, and Recreation	39	7	9	5	2	1	0	0	1
Accommodation and Food Services	162	81	71	72	13	3	0	2	0
Other Services (except Public Administration)	199	69	28	7	1	0	0	0	0
Unclassified	38	1	0	0	0	0	0	0	0
Total Establishments	2,290	726	371	228	52	27	2	5	2

Source: U.S. Bureau of the Census, County Business Patterns

Created by: Center for Economic Development, California State University, Chico

4. Income

Income affects consumer choice, local retail sales, and is an indicator of current economic conditions. Income influences buying power and income changes allow comparison of local economic performance to that of surrounding areas.

Income is one measure of the benefits to people provided by employment, government, or their own investments. It is the primary connection between employment and the overall benefit jobs provide for residents.

In this section:

4.1 Total Personal Income

Overview

Total personal income is calculated by the U.S. Department of Commerce, Bureau of Economic Analysis. It is the sum of all income collected by individuals, including but not limited to earned income, government payments, and returns on investment. It does not include personal contributions for social insurance (such as payments to Social Security or Medicare).

Total personal income is the basis for several other income indicators in this section. Growing personal income indicates a growing economy, as long as the growth is greater than the annual average inflation rate of 2.3 percent. The growth may be due to increasing incomes, increasing population, or some combination. See the demographics section (section one) and the indicator for per capita personal income later in this section to see which factor is more prominent.

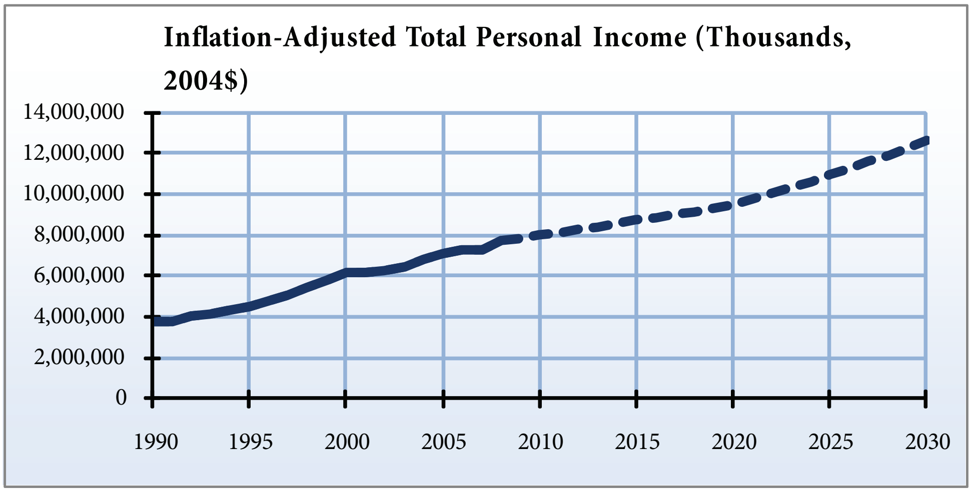
El Dorado County

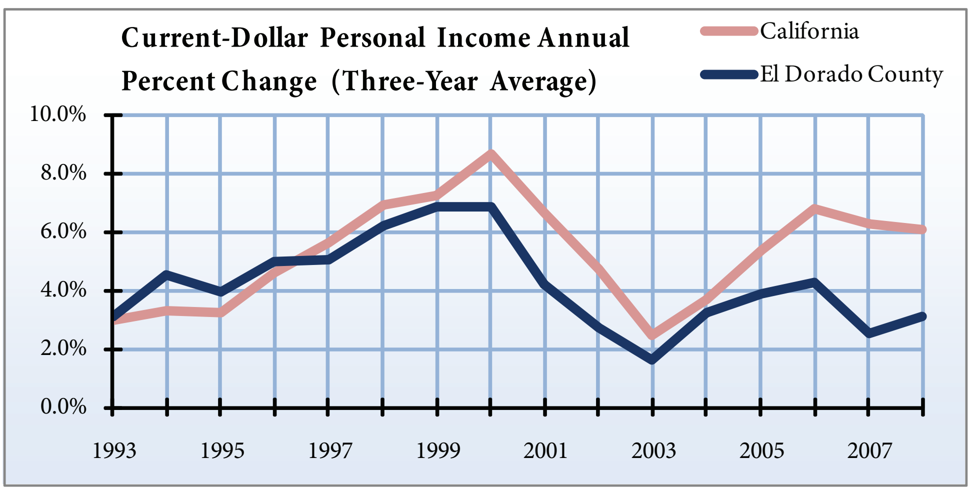
The total personal income in El Dorado County was over $8.8 billion in 2008, a 10 percent increase from the previous year. When income was adjusted for inflation, the increase was 6 percent. Adjusted personal income is expected to increase to over $9.4 billion by 2020. This projection indicates an economy that is steadily growing, with a consumer driven market that will gain spending power going forward. As the following figure shows, total personal income in El Dorado County has followed a similar rate of change to the statewide average since 1991.

Total Personal Income

Year	Current-dollar personal income (thousands)	1-year change	Inflation-adjusted personal income (thousands, 2004$)	1-year change
1990	$ 2,591,889	n/a	$ 3,746,043	n/a
1991	$ 2,741,503	5.8 %	$ 3,802,275	1.5 %
1992	$ 2,996,875	9.3 %	$ 4,034,994	6.1 %
1993	$ 3,142,981	4.9 %	$ 4,108,714	1.8 %
1994	$ 3,404,865	8.3 %	$ 4,339,939	5.6 %
1995	$ 3,655,705	7.4 %	$ 4,531,251	4.4 %
1996	$ 3,947,070	8.0 %	$ 4,752,081	4.9 %
1997	$ 4,277,644	8.4 %	$ 5,034,560	5.9 %
1998	$ 4,684,243	9.5 %	$ 5,428,549	7.8 %
1999	$ 5,117,082	9.2 %	$ 5,802,022	6.9 %
2000	$ 5,595,834	9.4 %	$ 6,138,519	5.8 %
2001	$ 5,762,650	3.0 %	$ 6,146,610	0.1 %
2002	$ 5,993,822	4.0 %	$ 6,293,680	2.4 %
2003	$ 6,280,680	4.8 %	$ 6,447,937	2.5 %
2004	$ 6,766,107	7.7 %	$ 6,766,107	4.9 %
2005	$ 7,299,144	7.9 %	$ 7,059,950	4.3 %
2006	$ 7,797,681	6.8 %	$ 7,306,458	3.5 %
2007	$ 8,011,051	2.7 %	$ 7,298,509	- 0.1 %
2008	$ 8,822,782	10.1 %	$ 7,740,828	6.1 %
2020(p)	*n/a*	*n/a*	*$ 9,476,355*	*n/a*
2030(p)	*n/a*	*n/a*	*$ 12,646,121*	*n/a*

Source: California Department of Finance, Demographic Research Unit;
Projections (p): Woods & Poole Economics
Created by: Center for Economic Development, California State University, Chico


Inflation-Adjusted Total Personal Income (Thousands, 2004$)
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
1990
1995
2000
2005
2010
2015
2020
2025
2030


Current-Dollar Personal Income Annual Percent Change (Three-Year Average)
California
El Dorado County
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
1993
1995
1997
1999
2001
2003
2005
2007

4.2 Components of Total Personal Income

Overview

According to the U.S. Department of Commerce, total personal income can be broken down into the following five major categories shown in this indicator: earnings by place of work; dividends, interest, and rent; personal contributions for social insurance, adjustment by place of residence, and transfer payments.

Understanding how income is earned in the community can shed light on the structure of the local economy. If a greater proportion is in earnings by place of work, then industry performance is driving economic growth. If there is a greater proportion of adjustment by place of residence or of transfer payments, then people living in the community are importing income into the area, which means that the community's economic performance may be driven by factors currently outside the area's influence. A negative adjustment by place of

Components of Total Personal Income (Thousands)

Year	Earnings by workplace	Dividends, interest, and rent	Transfer payments	Contributions for social insurance	Adjustments for residence	Total personal income
1990	$ 1,097,781	$ 522,545	$ 290,145	$ 116,183	$ 797,601	$ 2,591,889
1991	$ 1,121,817	$ 544,219	$ 331,774	$ 123,889	$ 867,582	$ 2,741,503
1992	$ 1,210,149	$ 555,377	$ 385,774	$ 130,985	$ 976,560	$ 2,996,875
1993	$ 1,258,739	$ 555,806	$ 411,166	$ 135,918	$ 1,053,188	$ 3,142,981
1994	$ 1,330,384	$ 611,427	$ 410,403	$ 143,864	$ 1,196,515	$ 3,404,865
1995	$ 1,357,740	$ 657,393	$ 434,816	$ 147,477	$ 1,353,233	$ 3,655,705
1996	$ 1,432,823	$ 709,040	$ 460,993	$ 149,456	$ 1,493,670	$ 3,947,070
1997	$ 1,548,212	$ 789,374	$ 471,663	$ 158,315	$ 1,626,710	$ 4,277,644
1998	$ 1,773,963	$ 840,572	$ 495,310	$ 178,729	$ 1,753,127	$ 4,684,243
1999	$ 2,019,761	$ 869,377	$ 520,235	$ 201,290	$ 1,908,999	$ 5,117,082
2000	$ 2,307,625	$ 975,666	$ 553,338	$ 230,055	$ 1,989,260	$ 5,595,834
2001	$ 2,465,159	$ 1,005,507	$ 617,731	$ 256,482	$ 1,930,735	$ 5,762,650
2002	$ 2,647,527	$ 986,349	$ 671,289	$ 282,413	$ 1,971,070	$ 5,993,822
2003	$ 2,807,444	$ 964,804	$ 714,562	$ 303,715	$ 2,097,585	$ 6,280,680
2004	$ 3,073,217	$ 1,012,483	$ 755,677	$ 340,711	$ 2,265,441	$ 6,766,107
2005	$ 3,317,202	$ 1,093,881	$ 802,666	$ 368,758	$ 2,454,153	$ 7,299,144
2006	$ 3,515,289	$ 1,150,302	$ 873,629	$ 385,303	$ 2,643,764	$ 7,797,681
2007	$ 3,559,576	$ 1,240,952	$ 942,478	$ 394,298	$ 2,662,343	$ 8,011,051
2008	$ 3,789,351	$ 1,538,666	$ 1,020,325	$ 403,791	$ 2,878,231	$ 8,822,782
2020(p)	$ 4,203,056	$ 1,608,237	$ 1,497,516	$ 497,366	$ 2,664,912	$ 9,476,355
2030(p)	$ 2,295,606	$ 2,295,606	$ 2,103,950	$ 662,111	$ 3,382,868	$ 12,646,121

Source: California Department of Finance, Demographic Research Unit; Projections (p): Woods & Poole Economics

Created by: Center for Economic Development, California State University, Chico

residence typically means that the community is not providing enough opportunities to house people working in the community in terms of price, availability, or quality.

El Dorado County

Approximately 43 percent of the income of El Dorado County residents came from earnings by place of work in 2008. Another 17 percent of income in the county came from dividends, interest, and rent, and 12 percent came from transfer payments. There was a 33 percent adjustment for residence in the county in 2008, indicating that a large number of residents commuted outside of El Dorado County for work; therefore, wages earned by those persons were a part of the county's total personal income, but were not earned there.

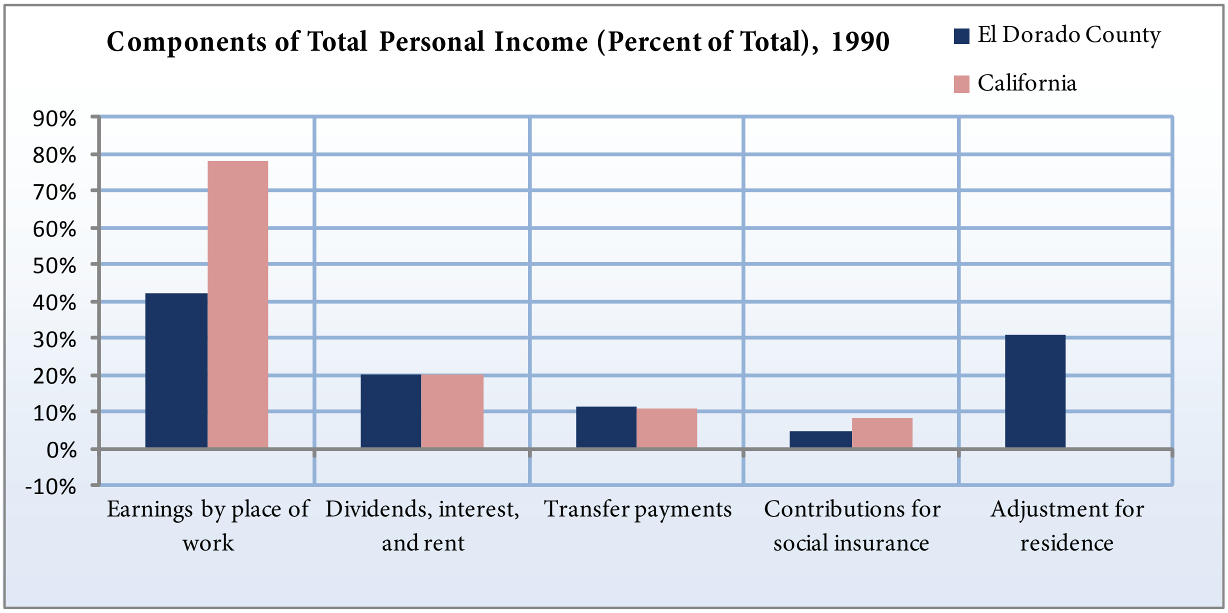
Earnings by place of work is the total income earned from jobs located in a given county. Based on business tax returns, these earnings can be wages, salary disbursements, other labor income, or proprietor (the owner's) income earned within the county regardless of the employee's place of residence.

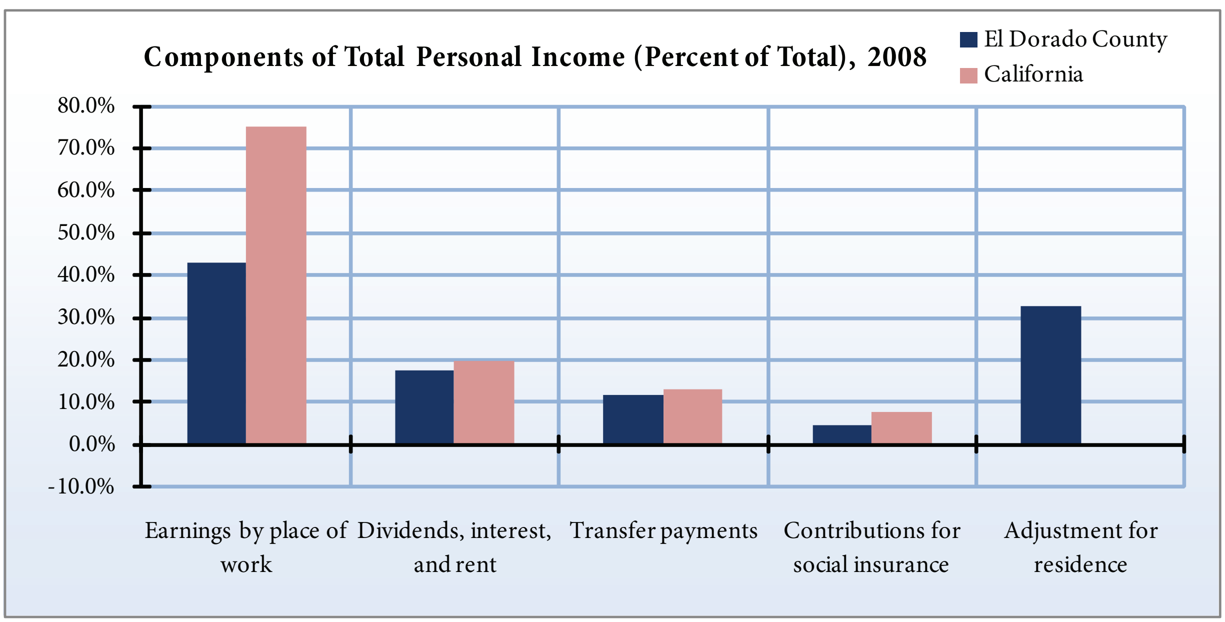
Dividends, interest, and rent are various types of returns on investments. These include payments by corporations, located at home and abroad, to U.S. resident stockholders, as well as monetary and/or imputed interest received by individuals, nonprofit institutions, estates, and trusts. An individual's income from real property rentals and royalties received from patents, copyrights, and rights to natural resources is also included.

Personal contributions for social insurance are a component of earnings, but not a component of income because the income is counted when the social insurance is received as a benefit, such as Social Security payments, rather that when it was earned. In other words, contributions are taken out of a paycheck prior to disbursement. Therefore, as a component of personal income, this measure is always negative. These contributions include payments made by employers, employees, the self-employed, and by other individuals to programs. In addition to Social Security, payments include those to the Federal Deposit Insurance Corporation (FDIC) and Medicare.

Adjustment by place of residence is made so that total personal income is an indicator that reveals income by place of residence instead of by place of work. This is helpful when evaluating the economic well-being of people who live and work within the county, not counting commuters. Positive residence adjustments indicate that more people live in the county and work outside the county. Negative residence adjustments indicate that more people work in the county, but live outside of it.

Transfer payments are compensations for work not immediately performed. They include payments made by government and businesses to individuals and nonprofit institutions. Transfer payments include a wide variety of payments that are described in the following indicator.


Components of Total Personal Income (Percent of Total), 1990
El Dorado County
California
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
-10%
Earnings by place of work
Dividends, interest, and rent
Transfer payments
Contributions for social insurance
Adjustment for residence


Components of Total Personal Income (Percent of Total), 2008
El Dorado County
California
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
-10.0%
Earnings by place of work
Dividends, interest, and rent
Transfer payments
Contributions for social insurance
Adjustment for residence

4.3 Components of Transfer Payments

Overview

Transfer payments are a component of total personal income. They are payments made by the government or a business to an individual or nonprofit institution. The payment cannot be compensation for current work, or else it would be considered earnings. Returns on investments, such as dividends, interest, and rent, are not considered to be transfer payments. Transfer payments can be broken down into the following nine major categories:

Understanding the routes through which transfer payments are being distributed to individuals in the community can further understanding about the structure of the economy. If a greater proportion of payments are from retirement and medical payments, then retirees are a relatively important part of the economy. If the greater proportion is in income maintenance and unemployment insurance payments, then there may be some social issues affecting employment growth within the community.

Components of Transfer Payments (Thousands)

		Government Payments to Individuals							
Year	Ret. & disab. Insurance benefit payments	Medical payments	Income maintenence benefit paymentts	Unemp. Insurance benefit payments	Veterans' benefit payments	Fed. edu. & training assistance payments	Other payments to individuals	Payments to non-profit institutions	Business payments to individuals
1990	$ 146,835	$ 77,345	$ 29,088	$ 8,548	$ 8,465	$ 1,616	$ 967	$ 8,283	$ 8,998
1991	$ 165,420	$ 90,736	$ 32,276	$ 15,623	$ 8,627	$ 1,393	$ 981	$ 9,788	$ 6,930
1992	$ 182,126	$ 114,179	$ 35,351	$ 26,608	$ 8,509	$ 1,482	$ 1,319	$ 10,672	$ 5,528
1993	$ 191,604	$ 127,973	$ 36,912	$ 27,903	$ 8,670	$ 1,407	$ 622	$ 11,910	$ 4,165
1994	$ 186,877	$ 137,181	$ 40,204	$ 17,597	$ 9,194	$ 1,693	$ 631	$ 13,687	$ 3,339
1995	$ 196,112	$ 147,142	$ 42,776	$ 15,594	$ 9,375	$ 2,337	$ 540	$ 14,799	$ 6,141
1996	$ 206,477	$ 159,403	$ 44,480	$ 14,944	$ 10,361	$ 2,108	$ 495	$ 14,479	$ 8,246
1997	$ 216,721	$ 165,559	$ 40,336	$ 13,188	$ 10,427	$ 3,398	$ 490	$ 15,440	$ 6,104
1998	$ 227,910	$ 173,608	$ 40,321	$ 12,472	$ 11,946	$ 2,820	$ 477	$ 16,161	$ 9,595
1999	$ 238,953	$ 182,121	$ 40,544	$ 11,759	$ 12,684	$ 2,947	$ 480	$ 17,854	$ 12,893
2000	$ 256,127	$ 190,831	$ 42,573	$ 11,181	$ 13,611	$ 2,352	$ 759	$ 18,141	$ 17,763
2001	$ 279,149	$ 222,398	$ 42,976	$ 14,169	$ 14,672	$ 2,501	$ 1,297	$ 20,325	$ 20,244
2002	$ 299,984	$ 236,579	$ 46,599	$ 30,152	$ 16,030	$ 2,108	$ 798	$ 23,452	$ 15,587
2003	$ 319,919	$ 253,049	$ 50,273	$ 32,453	$ 17,725	$ 1,747	$ 496	$ 25,192	$ 13,708
2004	$ 343,771	$ 277,411	$ 52,394	$ 25,595	$ 19,752	$ 2,009	$ 465	$ 27,770	$ 6,510
2005	$ 367,080	$ 294,169	$ 55,918	$ 23,599	$ 21,783	$ 2,617	$ 673	$ 30,573	$ 6,254
2006	$ 392,461	$ 336,621	$ 57,527	$ 24,128	$ 22,729	$ 2,850	$ 545	$ 30,739	$ 6,029
2007	$ 419,321	$ 364,968	$ 60,011	$ 28,224	$ 24,216	$ 3,093	$ 787	$ 31,552	$ 10,306

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Created by: Center for Economic Development, California State University, Chico

El Dorado County

In El Dorado County, retirement and disability insurance benefit payments accounted for 44 percent of total transfer payments in 2007, compared to 32 percent in California. Medical payments made up the next largest portion with 39 percent of total transfer payments, and saw the highest increase (472 percent) between 1990 and 2007. A similar trend occurred throughout the state, with medical payments increasing 419 percent. Total government payments to individuals in El Dorado County accounted for 51 percent of all transfer payments in 2007, compared to 64 percent in California.

Retirement and disability insurance benefit payments include the Old Age, Survivors and Disability Insurance (OASDI), commonly known as Social Security, and a variety of other programs, such as federal, state, and local government employee retirement benefits.

Medical payments include Medicare, Medicaid, and the Civilian Health and Medical Plan of the Uniformed Services program (CHAMPUS) payments.

Income maintenance benefit payments include SSI, TANF, CalWORKs, food stamps, and other income supplements.

Unemployment insurance benefit payments include state, federal, veteran, and other unemployment compensation.

Veteran benefit payments include veteran pensions, life insurance, educational assistance, and other payments to veterans and their survivors.

Federal education and training assistance payments include payments to nonveterans in the form of fellowships, loan interest subsidies, educational grants, and Job Corps payments.

Other payments to individuals include Indian affairs payments, compensation to survivors of fallen public safety officers and victims of crime or disaster, compensation for Japanese internment, and other special payments to individuals.

Payments to nonprofit institutions consist of the payments made by the federal government, state governments, local governments, and businesses to nonprofit organizations that serve individuals. These payments exclude federal government payments for work under research and development contracts.

Business payments to individuals include any payments to nonemployees and consist largely of personal injury liability payments to individuals.

4.4 Per Capita Income

Overview

Per capita income is calculated by the Bureau of Economic Analysis using its total personal income and the Census Bureau's population estimates. It is defined as total personal income divided by total population. It is one of the primary measures of economic well-being in a community. Changes in per capita income can indicate trends in a county's standard of living, or the availability of resources to an individual, family, or society. Per capita income tends to follow the business cycle, rising during expansions and falling during contractions.

It is important to evaluate per capita income growth against inflation. Growth in excess of the inflation rate indicates real per capita income growth. If growth is less than the rate of inflation then real per capita income levels are falling.

It is also important to evaluate relative per capita income with cost of living differentials. This comparison is reflected in the inflation-adjusted figures seen here.

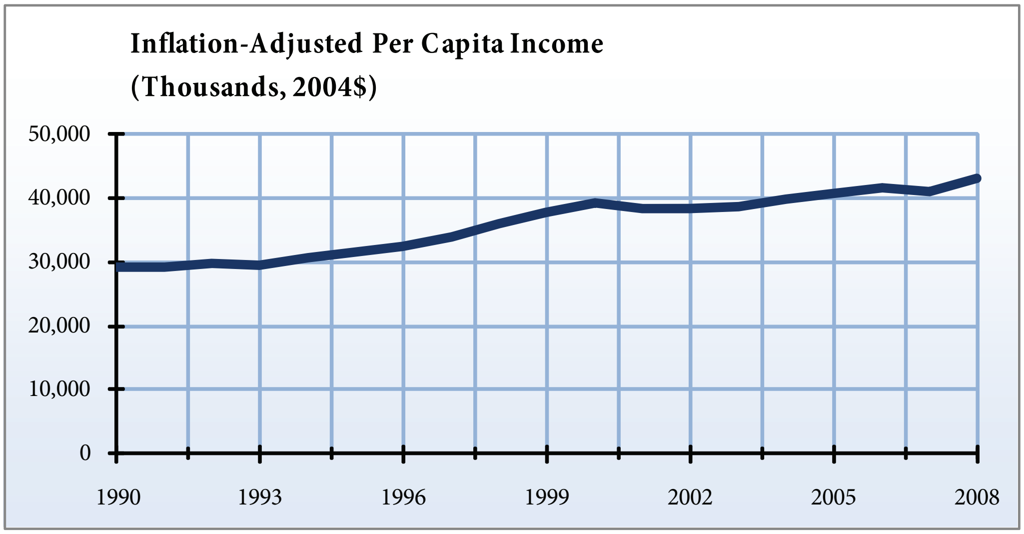
El Dorado County

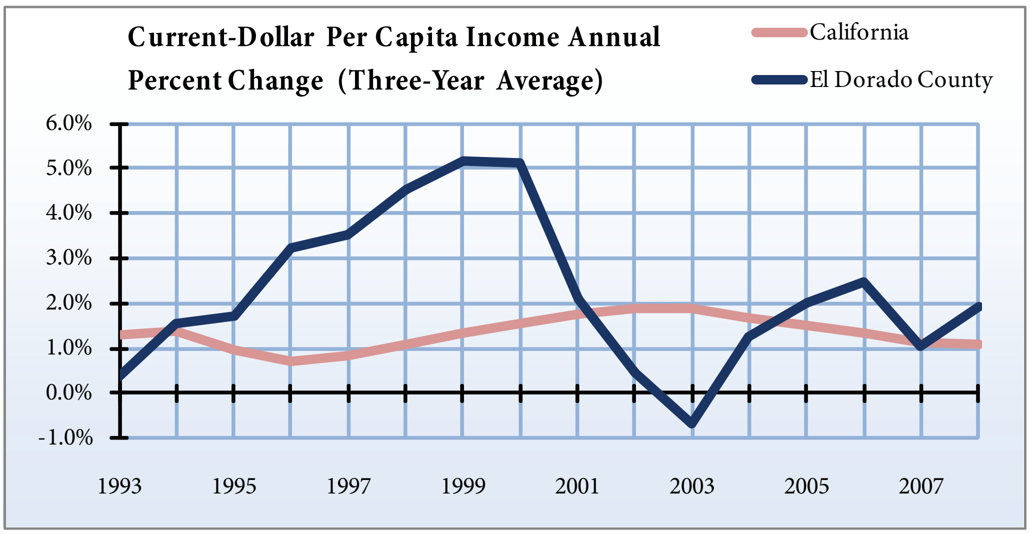
The nominal per capita income in El Dorado County in 2008 was $49,187 or 9.1 percent more than the previous year. When adjusted for inflation, the increase was 5.1 percent between 2007 and 2008. Inflation adjusted per capita income is expected to rise to $47,269 by 2030.

Per Capita Income

Year	Current-dollar per capita income (thousands)	1-year change	Inflation-adjusted per capita income (thousands, 2004$)	1-year change
1990	$ 20,257	n/a	$ 29,277	n/a
1991	$ 21,059	4.0 %	$ 29,208	- 0.2 %
1992	$ 22,216	5.5 %	$ 29,911	2.4 %
1993	$ 22,646	1.9 %	$ 29,604	- 1.0 %
1994	$ 24,004	6.0 %	$ 30,597	3.4 %
1995	$ 25,411	5.9 %	$ 31,497	2.9 %
1996	$ 27,044	6.4 %	$ 32,560	3.4 %
1997	$ 28,830	6.6 %	$ 33,932	4.2 %
1998	$ 31,051	7.7 %	$ 35,985	6.1 %
1999	$ 33,394	7.5 %	$ 37,864	5.2 %
2000	$ 35,939	7.6 %	$ 39,425	4.1 %
2001	$ 35,916	- 0.1 %	$ 38,309	- 2.8 %
2002	$ 36,562	1.8 %	$ 38,391	0.2 %
2003	$ 37,607	2.9 %	$ 38,608	0.6 %
2004	$ 39,787	5.8 %	$ 39,787	3.1 %
2005	$ 42,154	5.9 %	$ 40,773	2.5 %
2006	$ 44,363	5.2 %	$ 41,569	2.0 %
2007	$ 45,079	1.6 %	$ 41,069	- 1.2 %
2008	$ 49,187	9.1 %	$ 43,155	5.1 %
2020(p)	*n/a*	*n/a*	*$ 42,035*	*n/a*
2030(p)	*n/a*	*n/a*	*$ 47,269*	*n/a*

Source: California Department of Finance, Demographic Research Unit;
Projections (p): Woods & Poole Economics
Created by: Center for Economic Development, California State University, Chico


Inflation-Adjusted Per Capita Income
(Thousands, 2004$)
50,000
40,000
30,000
20,000
10,000
0
1990
1993
1996
1999
2002
2005
2008


Current-Dollar Per Capita Income Annual
Percent Change (Three-Year Average)
California
El Dorado County
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
-1.0%
1993
1995
1997
1999
2001
2003
2005
2007

4.5 Median Household Income

Overview

Median household income is the income level at which half of the area's households earn more and the other half earn less. It can be conceptualized as the income midpoint. It is measured every ten years and estimated annually by the U.S. Census Bureau.

Median household income is a better measure of average income than per capita income when evaluating income growth among all economic classes. Changes in per capita income may be driven by growth increases in the high income ranges only, whereas growth in median household income indicates expansion across the full range of incomes.

El Dorado County

The total nominal median household income in El Dorado County in 2008 was $67,019 very compatible to the $61,017 average in California in the same year. El Dorado County's median household income has been higher than the state average since 2000, indicating that its residents have more spending power than the average Californian.

Median Household Income (Nominal)

Year	County	California
2000	$ 52,155	$ 46,836
2001	$ 51,861	$ 47,064
2002	$ 53,182	$ 47,323
2003	$ 54,131	$ 48,440
2004	$ 56,629	$ 49,894
2005	$ 62,199	$ 53,627
2006	$ 67,605	$ 56,646
2007	$ 64,256	$ 59,928
2008	$ 67,019	$ 61,017

Source: U.S. Department of Commerce, Bureau of the Census

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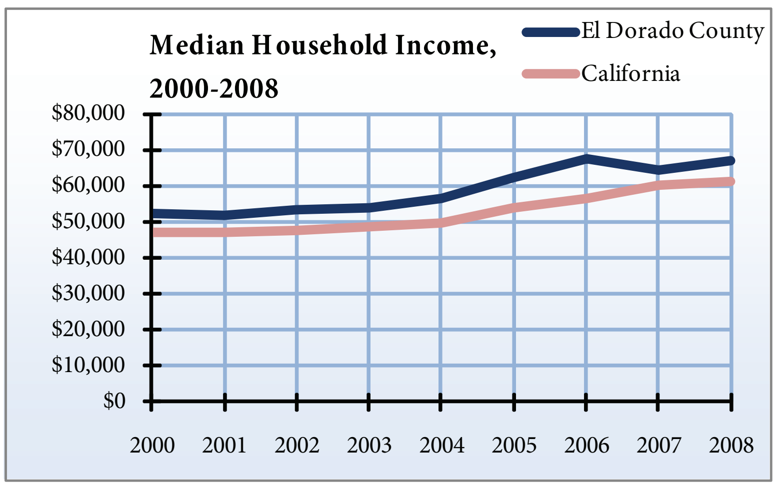

4.6 Poverty Rate

Overview

Poverty is a situation where people do not earn enough income to achieve a basic standard of living considered acceptable by society. Measurement of poverty is challenging in general because an assumption must be made about the standard of living society considers acceptable. The U.S. Census Bureau measures poverty as that level of income where a household is able to live in a community with an average cost of living and spend no more than 30 percent of their income on basic food items and 35 percent on basic housing. This measure is controversial because of disagreements over the assumed standard of living and the higher average cost of living in some areas, especially in California.

Poverty status is defined for each household; either everyone or no one in the household is in poverty. The characteristics of the household used to determine poverty status are: number of people, number of related children under 18, and whether the primary householder is over age 65. If a family's total income is less than the poverty threshold, then that family is considered to be impoverished. The poverty thresholds do not change geographically, but they are updated annually for inflation using Consumer Price Index (CPI-U). The official poverty definition includes money income before taxes and does not include capital gains or noncash benefits, such as public housing, Medi-Cal, or food stamps.

Poverty is not defined for people in military barracks, institutional group quarters (such as prisons or nursing homes), or for unrelated individuals under the age of 15, such as foster children.

A high poverty rate in an area can indicate social issues within the community. It may also indicate a scarcity of available employment. The poverty rate also affects such indicators as educational attainment and cost of living.

El Dorado County

The average poverty rate in El Dorado County in 2008 was 7.8 percent, well below the statewide average of 13.3 percent. The poverty rate throughout California as a whole has remained relatively constant between 2000 and 2008, increasing less than 1 percent. El Dorado showed a decrease of 0.4 percent between 2007 to 2008. This is certainly a positive trend for the county, and indicates a healthy and growing economy.

Poverty Rates

Year	County	California
2000	7.3 %	12.7 %
2001	7.3 %	12.9 %
2002	7.1 %	13.3 %
2003	7.5 %	13.7 %
2004	6.9 %	13.2 %
2005	7.4 %	13.3 %
2006	7.6 %	13.1 %
2007	8.2 %	12.4 %
2008	7.8 %	13.3 %

Source: U.S. Department of Commerce, Bureau of the Census

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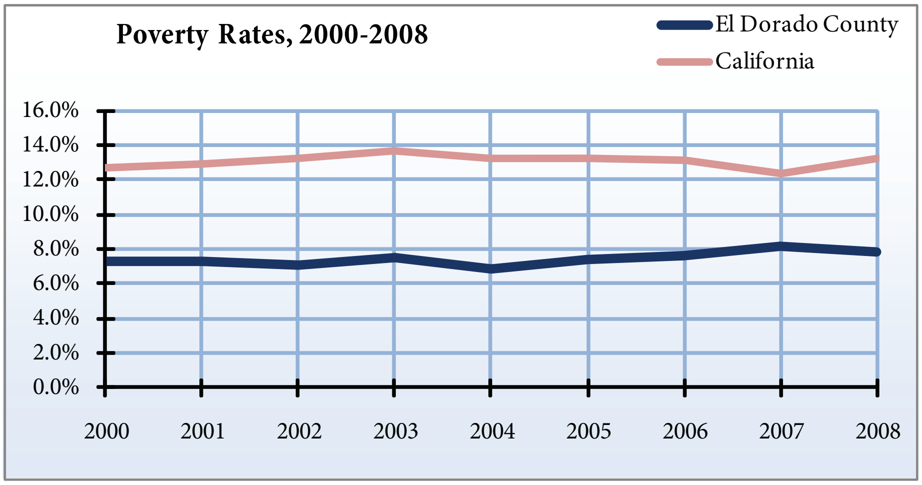


4.7 Business Taxable Sales

Overview

The taxable sales indicator is the value of all transactions subject to sales and use tax in California. Collected and published by the California Board of Equalization, sales and use taxes are imposed on the sale and use of tangible personal property. Total taxable sales do not necessarily reflect the gross sales of retail businesses because not all transactions are subject to sales and use tax, including nonprepared food items, prescription medicines, and services, whether or not the service is tied to the sale of a taxed product.

Taxable sales generate a substantial amount of income for local and state governments; however, rather than reflecting the revenue earned by a local government, taxable sales act as a gauge for consumer spending and local economic performance. Compared with total population, this is a helpful indicator for retail businesses to measure the potential for sales volume in a certain area. Changes in taxable sales are a measure of changes in both local government revenue and the economic health of the area.

NOTE: There is a lag time of one year and one quarter in the availability of the following data.

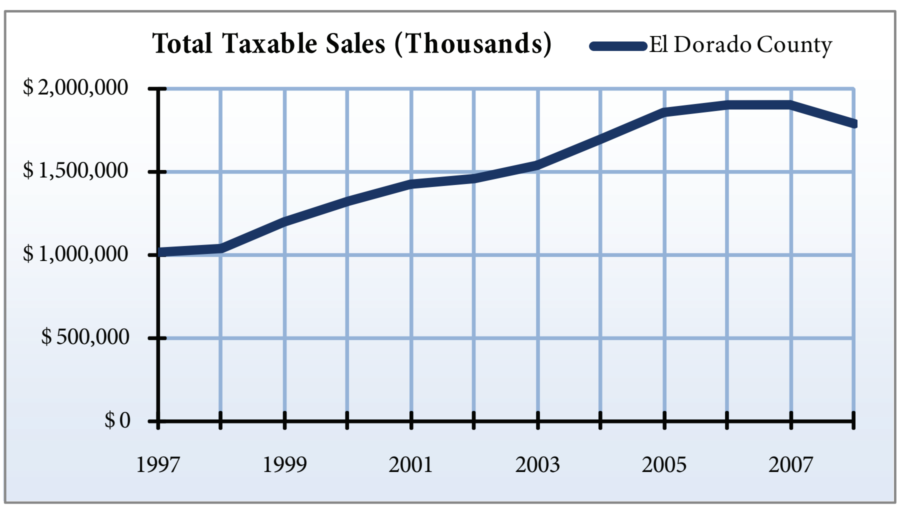
Total Taxable Retail Sales and Total Taxable Sales (Thousands)

Year	Taxable retail sales	Total taxable sales
1997	$ 701,638	$ 1,011,222
1998	$ 711,083	$ 1,041,654
1999	$ 803,857	$ 1,193,677
2000	$ 891,966	$ 1,324,416
2001	$ 964,304	$ 1,422,098
2002	$ 994,293	$ 1,451,334
2003	$ 1,071,096	$ 1,539,071
2004	$ 1,191,979	$ 1,697,888
2005	$ 1,292,107	$ 1,851,231
2006	$ 1,310,701	$ 1,898,805
2007	$ 1,303,337	$ 1,896,995
2008	$ 1,230,164	$ 1,787,804

Source: California Board of Equalization
Created by: Center for Economic Development, California State University, Chico

El Dorado County

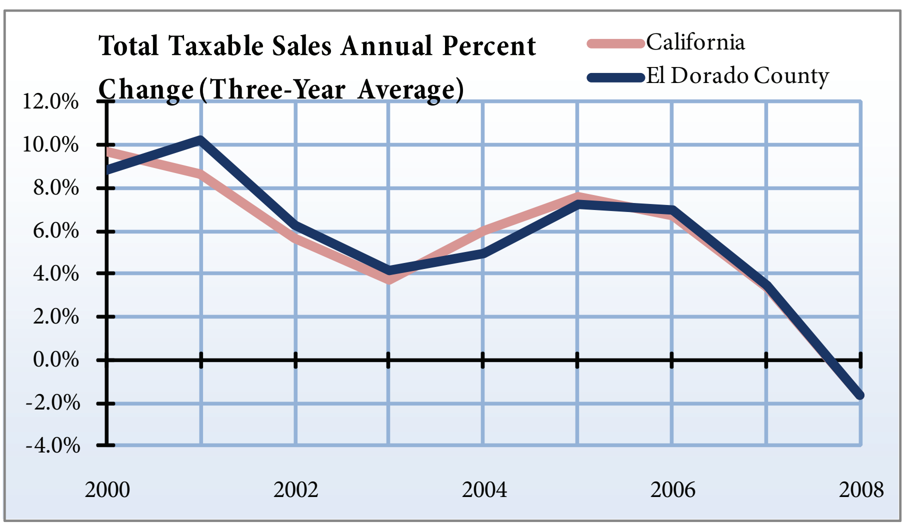
In 2008, total taxable sales in El Dorado County were almost $1.8 billion, and retail sales made up 69 percent of that total. Retail sales made up 71 percent of total taxable sales in California in 2008. Between 1998 and 2008, the city of South Lake Tahoe saw a 32 percent increase in total sales, while the city of Placerville saw a 39 percent increase. As the following figures show, El Dorado County's total taxable sales have matched similar statewide trends in the last decade.

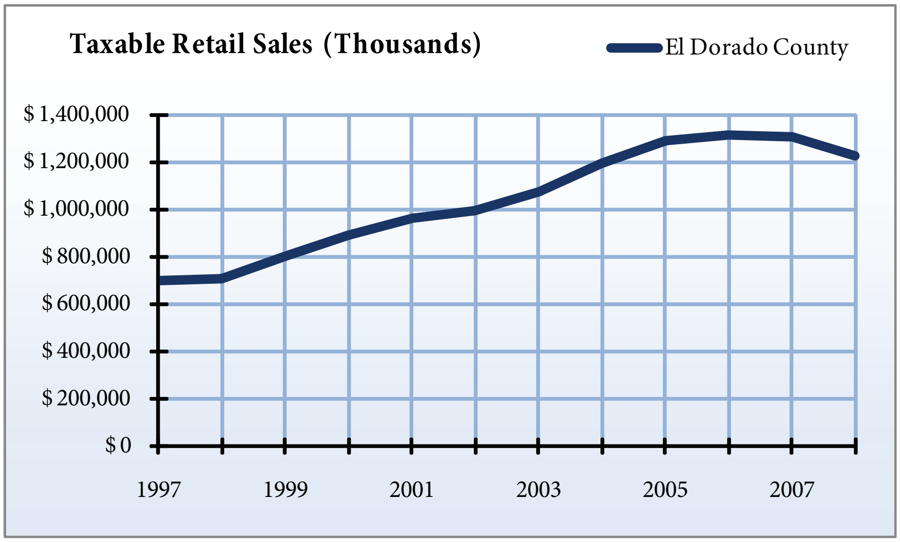


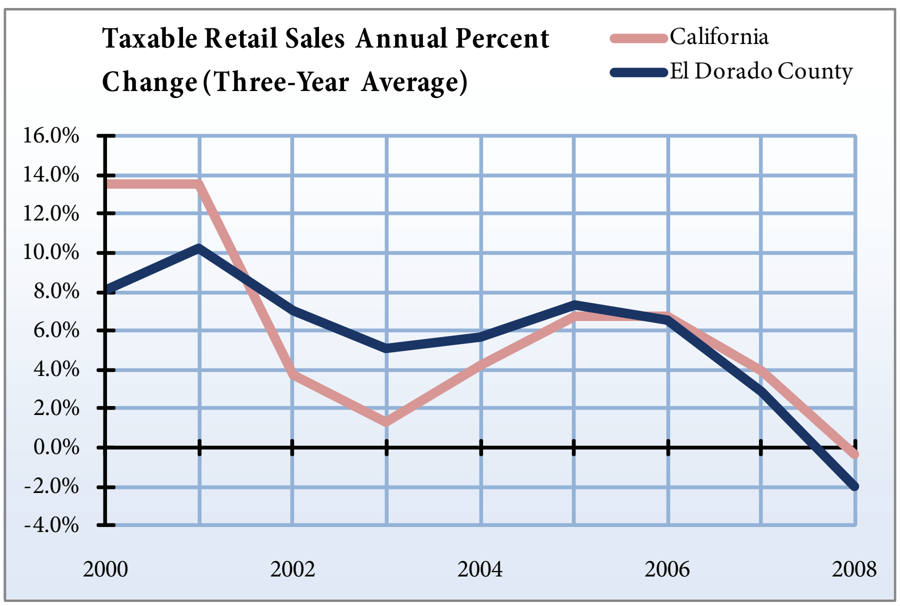
Total Taxable Sales (Thousands)

Year	Placerville	South Lake Tahoe
1997	$ 188,769	$ 254,153
1998	$ 195,982	$ 257,592
1999	$ 221,457	$ 282,051
2000	$ 242,721	$ 307,825
2001	$ 275,229	$ 306,875
2002	$ 285,842	$ 301,633
2003	$ 272,457	$ 305,274
2004	$ 288,125	$ 330,293
2005	$ 307,159	$ 357,944
2006	$ 334,334	$ 357,095
2007	$ 315,604	$ 354,514
2008	$ 269,799	$ 339,826

Source: California Board of Equalization
Created by: Center for Economic Development, California State University, Chico




Taxable Retail Sales (Thousands)
El Dorado County
$ 1,400,000
$ 1,200,000
$ 1,000,000
$ 800,000
$ 600,000
$ 400,000
$ 200,000
$ 0
1997
1999
2001
2003
2005
2007


Taxable Retail Sales Annual Percent Change (Three-Year Average)
California
El Dorado County
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
2000
2002
2004
2006
2008

4.8 Earnings by Industry

Overview

Earnings by industry is the total personal earnings from jobs in individual industries. It is not equivalent to the total revenue a business generates. The total earnings of an industry are calculated by taking the sum of three components: wage and salary disbursements, supplements to wages and salaries, and proprietor income.

Earnings by industry serves as a proxy and allows comparisons between industries or geographic areas because sales by industry are not reliably available at the county level.

Growth in earnings by industry can provide some insight into the relative competitiveness of an industry in a local economy, as well as which industries have the potential for expansion. For example, if the proportion of an industry's earnings is higher than in the state, then there is likely a competitive advantage to that industry's location in the county. Locations where an industry has a competitive advantage and/or has been growing rapidly in the past may have greater potential for expansion in the near future.

NOTE: (D) Figure not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

El Dorado County

The construction sector, and the government and public administration sector earned totals of $563 million and over $639 million, respectively, in the same year.

Within the services sector, professional, scientific, and technical services earned the highest reported total, with over $469 million in 2008. Health care and social assistance services followed with $412 million in earnings in the same year.

Earnings by Industry (Millions)

Industry	2001	2002	2003	2004	2005	2006	2007	2008
Farm	$ 666	$ 707	$ 760	$ 831	$ 898	$ 913	$ 843	$ 1,000
Forestry, fishing, related activities, and other	$ 23	$ 21	$ 21	$ 19	$ 19	$ 20	$ 21	$ 21
Mining	$ 6	$ 5	$ 7	$ 9	$ 10	$ 11	$ 13	$ 10
Utilities	$ 10	$ 11	$ 12	$ 13	$ 12	$ 12	$ 13	$ 16
Construction	$ 400	$ 414	$ 456	$ 512	$ 568	$ 595	$ 569	$ 563
Manufacturing	$ 120	$ 105	$ 112	$ 115	$ 122	$ 134	$ 142	$ 137
Wholesale trade	$ 53	$ 61	$ 59	$ 65	$ 70	$ 79	$ 81	$ 90
Retail trade	$ 234	$ 238	$ 236	$ 245	$ 256	$ 265	$ 263	$ 294
Transportation and warehousing	$ 25	$ 32	$ 31	$ 36	$ 39	$ 41	$ 39	$ 34
Information	$ 31	$ 32	$ 34	$ 41	$ 41	$ 46	$ 53	$ 48
Finance and insurance	$ 103	$ 150	$ 178	$ 194	$ 208	$ 224	$ 242	$ 272
Real estate and rental and leasing	$ 102	$ 119	$ 137	$ 154	$ 172	$ 150	$ 137	$ 83
Professional, scientific, and technical services	$ 403	$ 394	$ 392	$ 420	$ 465	$ 523	$ 491	$ 469
Management of companies and enterprises	$ 10	$ 10	$ 11	$ 11	$ 12	$ 12	$ 12	$ 6
Administrative and waste services	$ 75	$ 96	$ 100	$ 140	$ 146	$ 161	$ 170	$ 189
Educational services	$ 9	$ 11	$ 9	$ 11	$ 13	$ 26	$ 29	$ 36
Health care and social assistance	$ 226	$ 257	$ 280	$ 309	$ 330	$ 344	$ 363	$ 412
Arts, entertainment, and recreation	$ 55	$ 54	$ 49	$ 48	$ 50	$ 50	$ 50	$ 58
Accommodation and food services	$ 86	$ 93	$ 105	$ 118	$ 127	$ 124	$ 131	$ 145
Other services, except public administration	$ 91	$ 106	$ 116	$ 124	$ 133	$ 139	$ 143	$ 273
Government and government enterprises	$ 402	$ 436	$ 460	$ 485	$ 517	$ 557	$ 592	$ 639
*Value of withheld "(D)" employment	$ 2,633	$ 2,642	$ 2,715	$ 2,867	$ 3,088	$ 3,373	$ 3,614	$ 4,030
Total Earnings	$ 5,763	$ 5,994	$ 6,281	$ 6,766	$ 7,299	$ 7,798	$ 8,011	$ 8,823

Source: U.S. Department of Commerce, Bureau of Economic Analysis

**In 2001, the Standard Industrial Classification (SIC) System was converted to the North American Industrial Classification System (NAICS).*

Therefore, past data may not be comparable to that for 2001 and forward

Created by: Center for Economic Development, California State University, Chico

5. Agriculture

In certain areas of Northern California, agricultural production constitutes a significant portion of the economic base. The relative importance of agricultural production in an area affects the volatility of the local economy and determines what businesses are successful. Areas particularly dependent on a few agricultural crops can experience considerable instability in their economic performance as commodity prices fluctuate. In addition, seasonal unemployment is more pervasive in economies with a large agricultural sector, raising the average annual unemployment rate.

All information for this section was collected from the California Agricultural Statistics Service. It should be noted that the California Agricultural Statistics Service compiles data from each county's agricultural commissioner, who in turn collects data from farmers. In some cases, crops are classified under varying titles from year to year and deadlines are not always met for reporting information; therefore, some discrepancies exist in historical data and no crop specific historical data was analyzed in this section.

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In this section:

5.1 Harvested Acreage

Overview

Total harvested acreage is the amount of land that is harvested for agricultural products in a given year. This includes field crops, vegetable crops, seed crops, with pasture and rangeland included. Harvested acreage can fluctuate due to flooding, severe storms, fields that are left fallow for a season, government programs and regulations, pest control, and other factors. The county agricultural commissioner collects this data and reports it to the California Department of Food and Agriculture.

A decline in agricultural land availability may indicate urban expansion, a permanent removal of land from the production cycle. In some cases, crop types such as vines and orchards must grow for three to four years before being harvested, creating a cyclical pattern in harvested acreage. Therefore, evaluation of long-term patterns is more revealing than year-to-year comparisons.

NOTE: Estimates of harvested acreage can fluctuate primarily due to fluctuations in range pasture acreage. New county agricultural commissioners sometimes employ different methods for estimating range pasture than their predecessors.

El Dorado County

A total of 237,399 acres of land considered was harvested acreage, including pasture in El Dorado County in 2008, which accounts for 21.7 percent of the land area in the county and 1 percent of the total harvested land in California. Pasture for rangeland made up 98.1 percent of harvested acreage in the county. See the following illustrations for more detail on the county's harvested acreage by year, harvests of the most important crops, as well as rangeland.

Wine grapes were the dominant harvested crop in El Dorado County, with 1,901 acres harvested in 2008. This accounted for 0.2 percent of all wine grapes harvested in California. Bartlett pears comprised only eighty-four acres of harvested land in the county, yet accounted for 0.4 percent of the California total. Apples made up the next most abundant harvest, with 845 acres in 2008, or 3 percent of the state total.

Total Harvested Acreage

Year	Total Acres Harvested	Percent of Total Land Area
1990	255,577	23.3 %
1991	250,970	22.9 %
1992	250,775	22.9 %
1993	250,536	22.9 %
1994	250,376	22.9 %
1995	250,354	22.9 %
1996	249,744	22.8 %
1997	249,733	22.8 %
1998	249,777	22.8 %
1999	249,539	22.8 %
2000	249,404	22.8 %
2001	249,341	22.8 %
2002	249,533	22.8 %
2003	249,716	22.8 %
2004	249,674	22.8 %
2005	290,452	26.5 %
2006	290,495	26.5 %
2007	237,226	21.7 %
2008	237,399	21.7 %

Source: California Agricultural Statistics Service, California Department of Finance

Created by: Center for Economic Development, California State University, Chico

Top Crops Harvested Acreage

Crop	2008	Percent of Total
Pasture Range	233,000	98.1 %
Grapes Wine	1,901	0.8 %
Pasture, Irrigated	927	0.4 %
Apples, All	845	0.4 %
Hay Other Unspecified	216	0.1 %
Walnuts, English	145	0.1 %
Peaches, Unspecified	105	0.0 %
Pears, Bartlett	84	0.0 %
Plums	52	0.0 %
Cherries, Sweet	50	0.0 %

Source: California Agricultural Statistics Service

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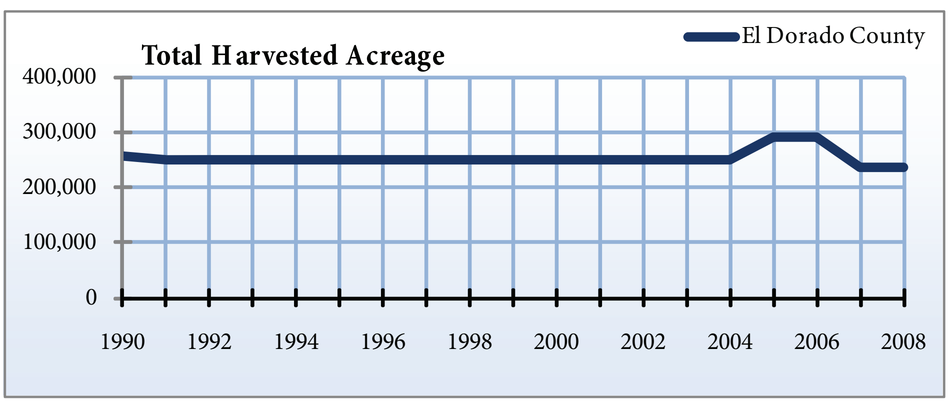


5.2 Value of Agricultural Production

Overview

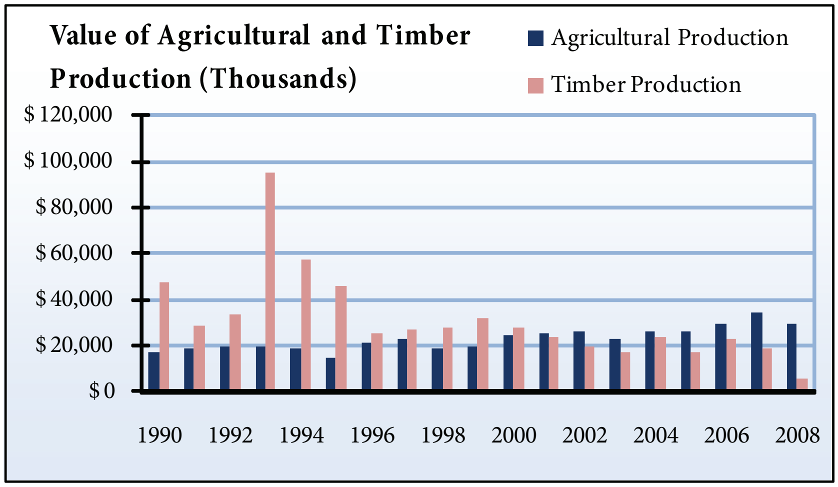
This is the total value of agricultural products producedThis is the total value of agricultural products produced in the county. The products do not have to be sold to be counted in the value of production. The data on crop production and prices is estimated by the county agricultural commissioner and reported to the California Department of Food and Agriculture. Included are the ten most important crops in the area, classified in terms of gross production value.

Agricultural production affects many aspects of a county's economy, including jobs, income, and the economic output of related industries. When agricultural production declines, so do purchases from some local businesses. Not all crops have the same impact on local employment and income. Increasing values of agricultural production is generally associated with higher local income.

El Dorado County

Total agricultural production totaled over $35 million in El Dorado County in 2008, a decrease of 34 percent from 2007.

The decrease in total production had a lot to do with the 87% decrease in timber production since 1990. Decreasing timber production is a consistent trend across northern California.



Agricultural and Timber Production (Thousands)

Year	Agricultural Production	Timber Production	Timber as a Percent of Total Production	Total Production
1990	$ 16,814	$ 47,456	73.8 %	$ 64,270
1991	$ 18,819	$ 29,035	60.7 %	$ 47,854
1992	$ 19,902	$ 33,784	62.9 %	$ 53,686
1993	$ 19,467	$ 95,521	83.1 %	$ 114,988
1994	$ 18,869	$ 57,355	75.2 %	$ 76,224
1995	$ 14,872	$ 45,800	75.5 %	$ 60,672
1996	$ 21,567	$ 25,676	54.3 %	$ 47,243
1997	$ 23,193	$ 27,050	53.8 %	$ 50,243
1998	$ 18,724	$ 27,640	59.6 %	$ 46,364
1999	$ 19,677	$ 31,761	61.7 %	$ 51,438
2000	$ 24,166	$ 28,208	53.9 %	$ 52,374
2001	$ 25,544	$ 23,665	48.1 %	$ 49,209
2002	$ 26,544	$ 19,445	42.3 %	$ 45,989
2003	$ 22,698	$ 17,442	43.5 %	$ 40,140
2004	$ 25,874	$ 23,333	47.4 %	$ 49,207
2005	$ 26,100	$ 16,798	39.2 %	$ 42,898
2006	$ 29,340	$ 22,847	43.8 %	$ 52,187
2007	$ 34,643	$ 18,521	34.8 %	$ 53,164
2008	$ 29,359	$ 5,964	16.9 %	$ 35,323

Source: California Agricultural Statistics Service, California Department of Finance

Created by: Center for Economic Development, California State University, Chico

5.3 Top Crops by Value

Overview

This section includes the top ten agricultural products in the county in terms of gross production value. Gross production value is measured for the calendar year and includes what is sold on the market and the portion used on the farm. The information is collected by the County Agricultural Commissioner, who in turn reports the data to the California Department of Food and Agriculture.

High prices and stable prices are important for agricultural producers and the local economy dependent on agriculture. When prices are too low or fluctuate excessively, profitability cannot be guaranteed and local production may weaken.

El Dorado County

Cattle and calves generated over $5.8 million in 2008, accounting for 19 percent of total agricultural production.

The production of apples, the most valuable crop in El Dorado County, generated over $5.8 million and made up 20 percent of the county's total agricultural value in 2008. The next most valuable crop in the county were wine grapes, with a value of $5.2 million in 2008, or 18 percent of the county's production value. Both wine grapes and apples are extremely important to the local economy of the county because their successful harvest contributes to the livelihood of the farming community.

Pasture for rangeland and cattle are also highly valuable in El Dorado County, as well as Christmas trees and nursery products. Please see the graphs for illustrations of El Dorado County's agricultural production value.

Top Crops by Value, 2008

Crop	Value
Apples, All	$ 5,845,500
Cattle & Calves Unspecified	$ 5,431,500
Grapes Wine	$ 5,229,100
Pasture Range	$ 2,796,000
Christmas Trees & Cut Greens	$ 2,520,300
Nursery Products Misc.	$ 1,560,000
Pears, Asian	$ 1,422,700
Livestock Unspecified	$ 1,254,800
Pears, Bartlett	$ 676,400
Apiary Products Bees Unspecif	$ 650,000

Source: California Agricultural Statistics Service, California Department of Finance

Created by: Center for Economic Development, California State University, Chico

5.4 Total Farm Revenue

Overview

Farm revenue is derived by the U.S. Department of Commerce from annual income tax returns delivered to the Internal Revenue Service. It is a tabulation of income from farms filing taxes in the county.

Farm revenue is what links agricultural production to economic impact in the county. The value of production may not include products sold, or income to local farmers. Production value also does not include government payments or other subsidies that would not be seen in the county if county farms did not exist.

El Dorado County

Although agricultal production was down significantly in 2008, total farm revenue exceeded $30 million for the first time in 2008. The average annual growth rate in farm revenue since 1990 is 6.6 percent. Most revenue comes from crop sales with a significant portion (about 24 percent) from miscellaneous income. Less than 1 percent of farm revenue comes from government payments.

Total Farm Revenue (Thousands)

Year	Cash Receipts from Livestock and Products	Cash Receipts from Crops	Government Payments	Miscellaneous Income	Total Revenue
1990	$ 3,207	$ 5,922	$ 0	$ 2,009	$ 11,184
1991	$ 4,111	$ 6,023	$ 0	$ 2,137	$ 12,297
1992	$ 3,511	$ 6,906	$ 68	$ 1,842	$ 12,327
1993	$ 4,030	$ 6,803	$ 76	$ 1,962	$ 12,871
1994	$ 3,254	$ 6,908	$ 69	$ 1,644	$ 11,875
1995	$ 2,673	$ 5,837	$ 53	$ 1,507	$ 10,070
1996	$ 2,691	$ 9,643	$ 0	$ 1,803	$ 14,164
1997	$ 4,058	$ 11,016	$ 0	$ 1,818	$ 16,912
1998	$ 2,624	$ 8,727	$ 57	$ 1,966	$ 13,374
1999	$ 3,025	$ 8,823	$ 393	$ 2,282	$ 14,523
2000	$ 3,446	$ 10,934	$ 562	$ 2,037	$ 16,979
2001	$ 3,050	$ 11,978	$ 313	$ 2,468	$ 17,809
2002	$ 2,637	$ 12,880	$ 136	$ 2,399	$ 18,052
2003	$ 2,646	$ 10,722	$ 383	$ 4,635	$ 18,386
2004	$ 3,070	$ 12,070	$ 146	$ 7,251	$ 22,537
2005	$ 3,756	$ 10,108	$ 423	$ 8,206	$ 22,493
2006	$ 3,820	$ 13,708	$ 92	$ 11,866	$ 29,486
2007	$ 3,239	$ 17,066	$ 0	$ 9,573	$ 29,878
2008	$ 3,119	$ 16,640	$ 302	$ 15,074	$ 35,135

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Created by: Center for Economic Development, California State University, Chico

6. Housing & Real Estate

In this section, we explore issues regarding housing and real estate. This includes how economic activity affects housing and real estate markets and how housing and real estate affect the local economy.

Generally, housing stock keeps pace with population, although in an economy that is intricately linked with those of surrounding counties, growth in housing stock can drive growth in population, rather than population changes the housing stock. Therefore, housing built locally often satisfies a regional demand. However, it is important for a community to allow the construction of housing to meet local demand as well. Not meeting this need can result in rapid increases in home prices. That said, home price increases, and most recently, price declines, are attributable to the housing bubble and its subsequent burst. Currently, home prices are more affordable than they have been in at least a decade.

Non-residential construction and real estate followed a similar, but lagging path. Commercial building was not originally affected by the housing bubble burst, although a lack of residential construction eventually resulted in a severe reduction in commercial construction because the local retail and service market failed to grow as quickly as in the past. Vacancy rates for retail have more than doubled the past few years, while vacancy for office and industrial space has increased significantly as well.

In this section:

6.1 Total Housing Units

Overview

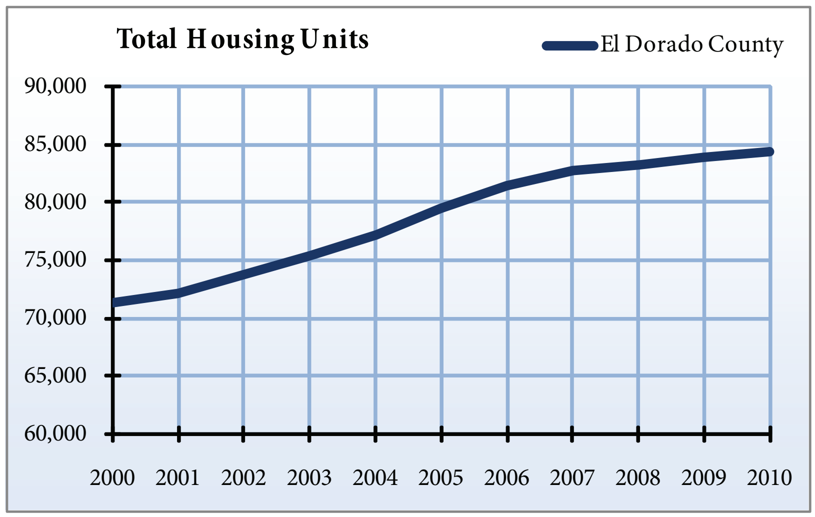
Total housing units is the number of single- and multiple-family dwellings, mobile homes, and other dwelling units located within a given jurisdiction. A housing unit may be the permanent residence for a family, a seasonal or second home, or it can be vacant. Occupancy may be by a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements. The number of housing units is estimated annually by the California Department of Finance and the department uses this data to estimate population change (section one).

Growth in the number of housing units typically keeps pace with population growth. A disparity between housing and population growth indicates something about a community. Housing growth without population growth may indicate an increase in the number of second homes in the community. Population growth without housing growth may result in a housing shortage and an increase in home prices, affecting housing affordability and the overall cost of living.

NOTE: The California Department of Finance uses the decennial census as a base for estimating total housing units. The estimates are produced by adding new construction with annexations and subtracting demolitions from the census benchmark.

El Dorado County

The total number of housing units in El Dorado County increased at an average annual rate of 1.7 percent between 2000 and 2010, compared to 1 percent in California. Single-family units have increased the most in the county, with a 20 percent increase since 2000. In 2010, about 82 percent of single-family units and 82 percent of mobile homes are outside



County Total Housing Units

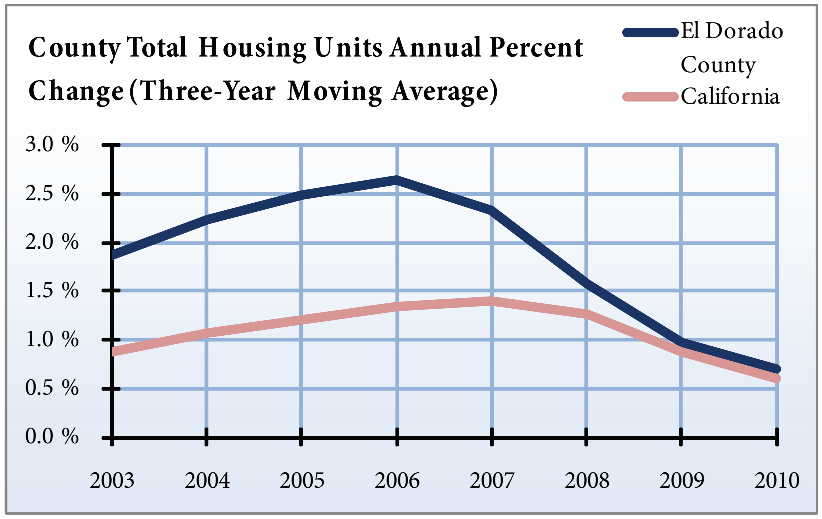
Year	Single-family units	Multiple-family units	Mobile Homes	Total Housing Units	Annual percent change
2000	58,692	8,213	4,373	71,278	n/a
2001	59,488	8,367	4,373	72,228	1.3 %
2002	60,974	8,444	4,373	73,791	2.2 %
2003	62,510	8,452	4,374	75,336	2.1 %
2004	64,227	8,580	4,374	77,181	2.4 %
2005	66,078	8,996	4,374	79,448	2.9 %
2006	67,699	9,404	4,375	81,478	2.6 %
2007	68,876	9,442	4,377	82,695	1.5 %
2008	69,429	9,469	4,377	83,275	0.7 %
2009	69,965	9,552	4,354	83,871	0.7 %
2010	70,395	9,685	4,369	84,449	0.7 %

Source: California Department of Finance, Demographic Research Unit

Created by: Center for Economic Development, California State University, Chico

city limits, while the majority of multiple-family units are within the county's incorporated areas.

The city of South Lake Tahoe had 14,450 total housing units in 2010, the largest amount in the county, and yet the city has only had an annual average increase of 0.3 percent over the last ten years. Placerville has had an average annual increase in total housing units of 1 percent over the last decade.



According to the California Construction Industry Research Board, single-family units include the following:

-Disconnected or detached units that stand apart from other units

-Semi-detached units that are attached to another unit on one side only

-Row houses and townhouses that are separated unit by unit by an unbroken ground-to-roof partition or firewall

-Condominiums are considered single-family units if they include the following:

-A zero-lot-line or zero-property-line construction (these terms can be used interchangeably referring to a lot that has no side yard but extends to the property line)

-A dividing line that separates two or more lots for the purpose of maintenance, repair, improvements, and reconstruction of the original dwelling

-Each unit is separated by an air space

-The units are separated by an unbroken ground-to-roof partition or firewall

Multi-family units include the following:

-Duplexes Three- to four-unit structures

-Apartment structures (with five or more units)

-Condominiums that do not meet the single-family definitions

Placerville Total Housing Units

Year	Single-family units	Multiple-family units	Mobile Homes	Total Housing Units	Annual percent change
2000	2,896	1,187	159	4,242	n/a
2001	2,920	1,265	159	4,344	2.4 %
2002	2,979	1,346	159	4,484	3.2 %
2003	3,000	1,348	160	4,508	0.5 %
2004	3,019	1,350	160	4,529	0.5 %
2005	3,044	1,356	160	4,560	0.7 %
2006	3,065	1,356	161	4,582	0.5 %
2007	3,088	1,356	163	4,607	0.5 %
2008	3,121	1,348	163	4,632	0.5 %
2009	3,145	1,348	163	4,656	0.5 %
2010	3,156	1,348	163	4,667	0.2 %

Source: California Department of Finance, Demographic Research Unit

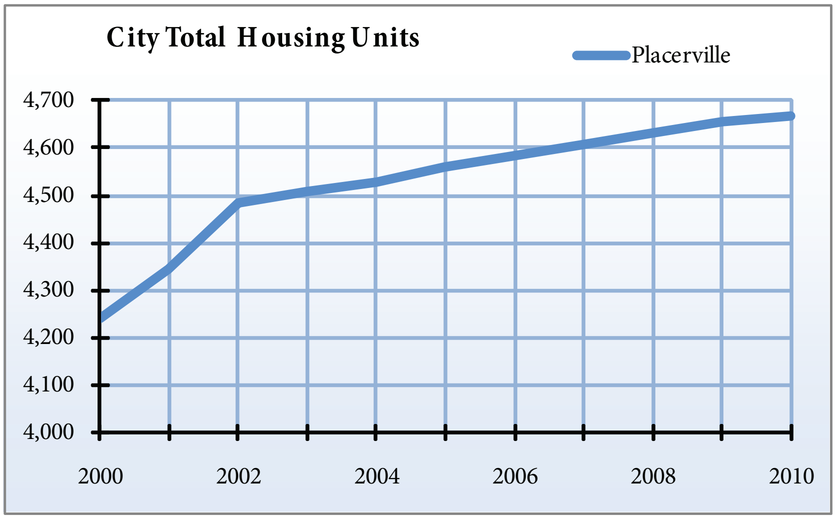
Created by: Center for Economic Development, California State University, Chico

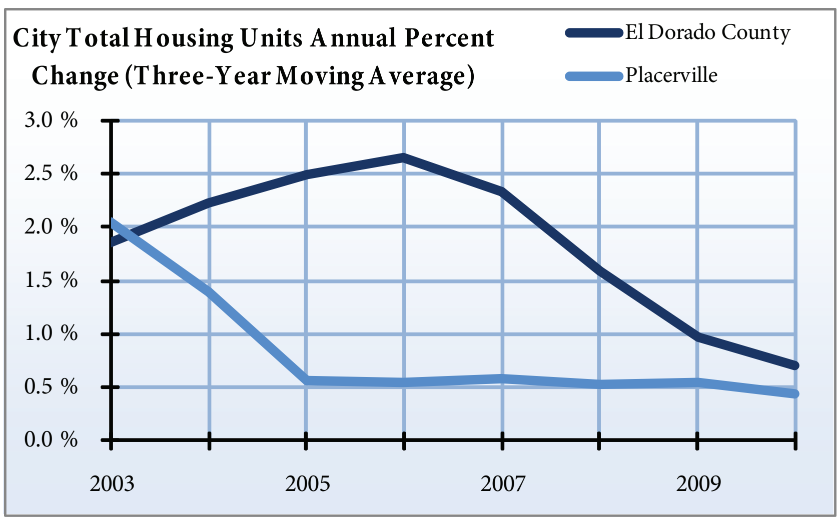
South Lake Tahoe Total Housing Units

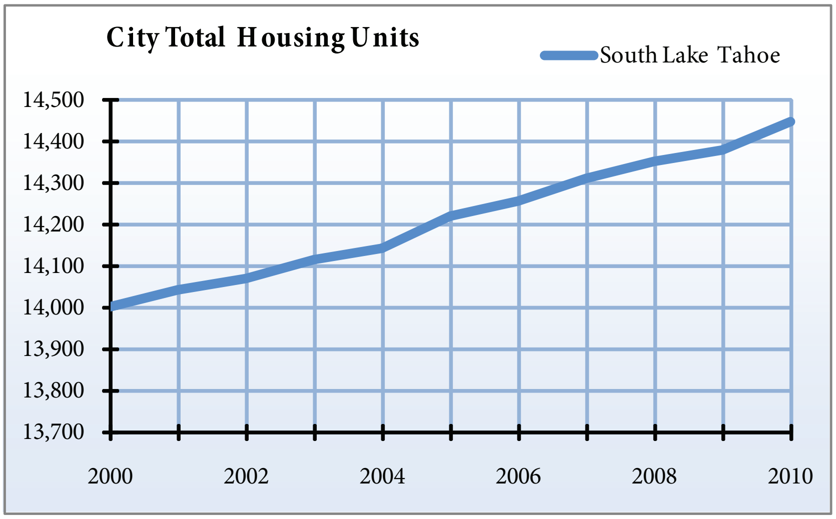
Year	Single-family units	Multiple-family units	Mobile Homes	Total Housing Units	Annual percent change
2000	9,120	4,217	668	14,005	n/a
2001	9,159	4,219	668	14,046	0.3 %
2002	9,188	4,217	668	14,073	0.2 %
2003	9,227	4,221	668	14,116	0.3 %
2004	9,268	4,209	668	14,145	0.2 %
2005	9,331	4,221	668	14,220	0.5 %
2006	9,346	4,245	668	14,259	0.3 %
2007	9,384	4,259	668	14,311	0.4 %
2008	9,424	4,263	668	14,355	0.3 %
2009	9,448	4,289	645	14,382	0.2 %
2010	9,512	4,293	645	14,450	0.5 %

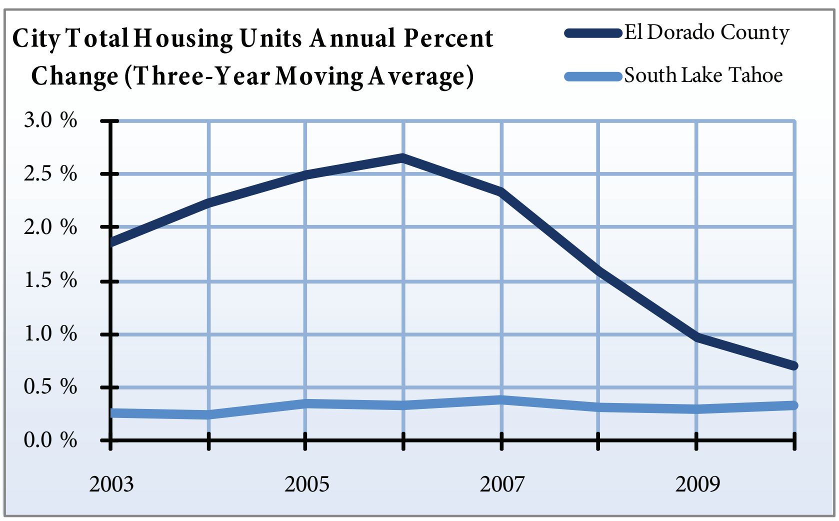
Source: California Department of Finance, Demographic Research Unit

Created by: Center for Economic Development, California State University, Chico


City Total Housing Units
Placerville
4,700
4,600
4,500
4,400
4,300
4,200
4,100
4,000
2000
2002
2004
2006
2008
2010


City Total Housing Units Annual Percent Change (Three-Year Moving Average)
El Dorado County
Placerville
3.0 %
2.5 %
2.0 %
1.5 %
1.0 %
0.5 %
0.0 %
2003
2005
2007
2009


City Total Housing Units
South Lake Tahoe
14,500
14,400
14,300
14,200
14,100
14,000
13,900
13,800
13,700
2000
2002
2004
2006
2008
2010


City Total Housing Units Annual Percent Change (Three-Year Moving Average)
El Dorado County
South Lake Tahoe
3.0 %
2.5 %
2.0 %
1.5 %
1.0 %
0.5 %
0.0 %
2003
2005
2007
2009

6.2 New Housing Units Authorized by Building

Overview

A building permit is required for all new construction. A permit may allow one or more homes in a subdivision. The number of housing units authorized by building permits is the primary factor used to calculate the changes in total housing units. The data is collected by every city and county, then reported to and disseminated by the California Construction Industry Research Board.

The number of building permits typically indicates building activity in the near future, either during the year the permit was issued or the next. An increase in the number of building permits issued indicates expansion in construction sector activity. That expansion may be a response to any number of factors including falling mortgage interest rates, economic growth, or the expectation of rising housing prices due to housing shortages or speculative activity.

New Housing Units Authorized by Building Permits, County

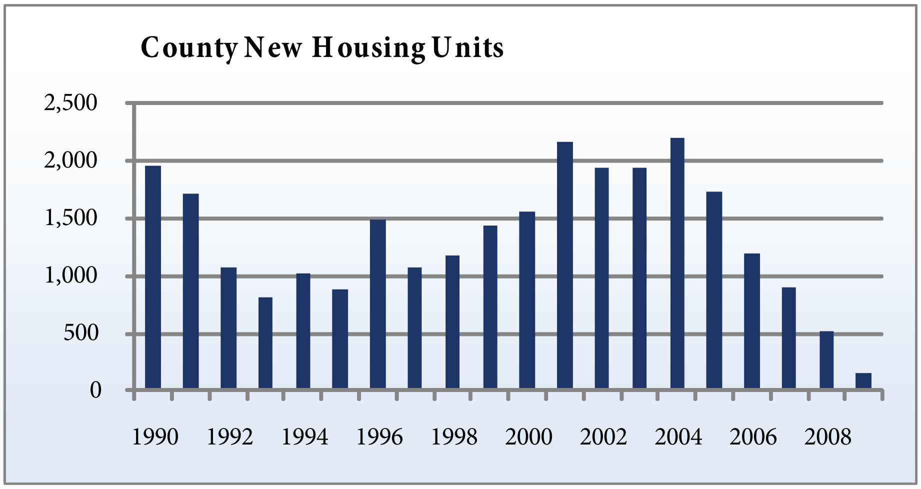
Year	New single-family units	New multiple-family units	Total new housing units	Annual percent change
1990	1,837	115	1,952	n/a
1991	1,478	238	1,716	- 12.1 %
1992	1,046	24	1,070	- 37.6 %
1993	783	25	808	- 24.5 %
1994	967	57	1,024	26.7 %
1995	874	6	880	- 14.1 %
1996	1,106	380	1,486	68.9 %
1997	1,079	0	1,079	- 27.4 %
1998	977	195	1,172	8.6 %
1999	1,212	223	1,435	22.4 %
2000	1,475	87	1,562	8.9 %
2001	1,470	704	2,174	39.2 %
2002	1,741	206	1,947	- 10.4 %
2003	1,911	28	1,939	- 0.4 %
2004	2,055	141	2,196	13.3 %
2005	1,566	165	1,731	- 21.2 %
2006	1,137	52	1,189	- 31.3 %
2007	714	180	894	- 24.8 %
2008	379	142	521	- 41.7 %
2009	160	2	162	- 68.9 %

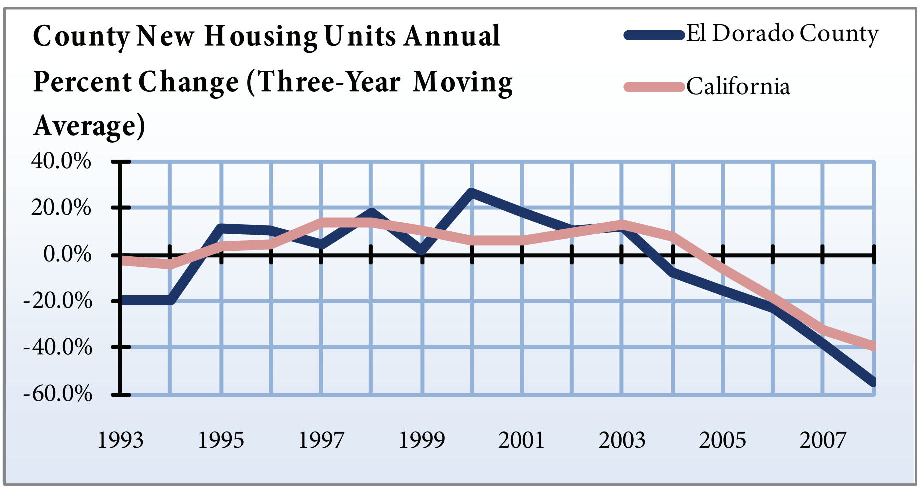
Source: California Construction Industry Research Board
Created by: Center for Economic Development, California State University, Chico

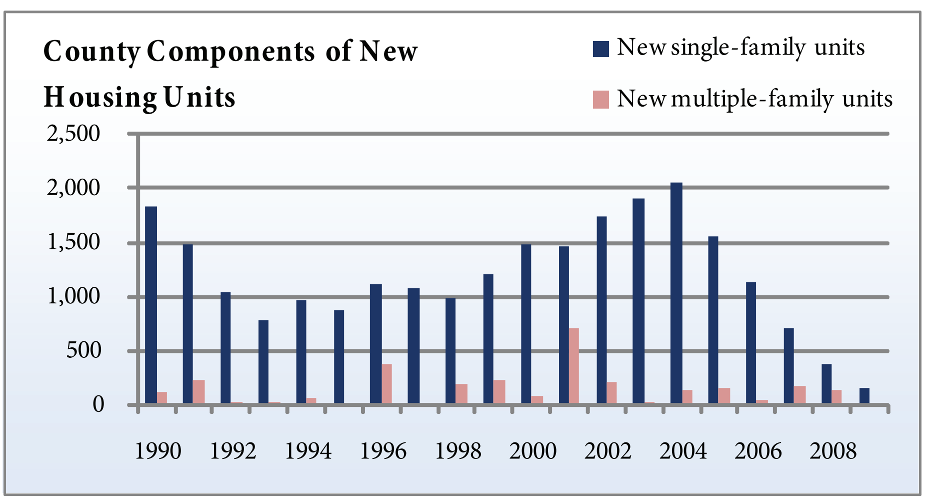
El Dorado County

An average of 1,432 new housing units have been authorized by building permits each year in El Dorado County between 1999 and 2009. During that same time, there was an average annual decrease of over 20 percent in new housing permits and a 2 percent increase in population. In comparison, California saw a 13 percent annual average decrease in housing permits, and a 1.4 percent average annual increase in population during the same time.

Between 1999 and 2009, there have been an average twenty-nine new single-family and sixteen multiple-family unit building permits each year in Placerville. In South Lake Tahoe, there were an average fourty-seven single-family and thirteen multiple-family unit permits during the same period of time. The combination of permits in these two cities accounted for 17 percent of the county total in 2009. This means that most of the construction of new housing units took place in unincorporated areas in El Dorado County that year, while 100 percent of new multiple-family units are in the City of Placerville.


County New Housing Units
2,500
2,000
1,500
1,000
500
0
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008

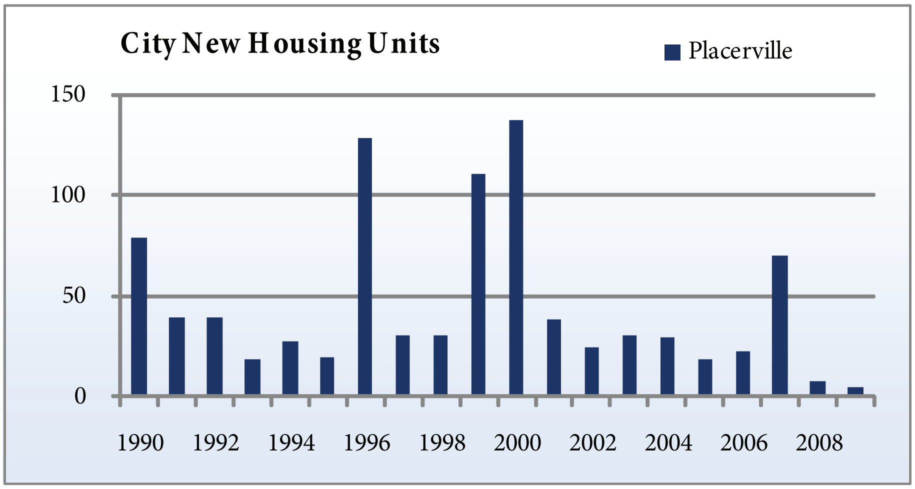

County New Housing Units Annual Percent Change (Three-Year Moving Average)
El Dorado County
California
40.0%
20.0%
0.0%
-20.0%
-40.0%
-60.0%
1993
1995
1997
1999
2001
2003
2005
2007

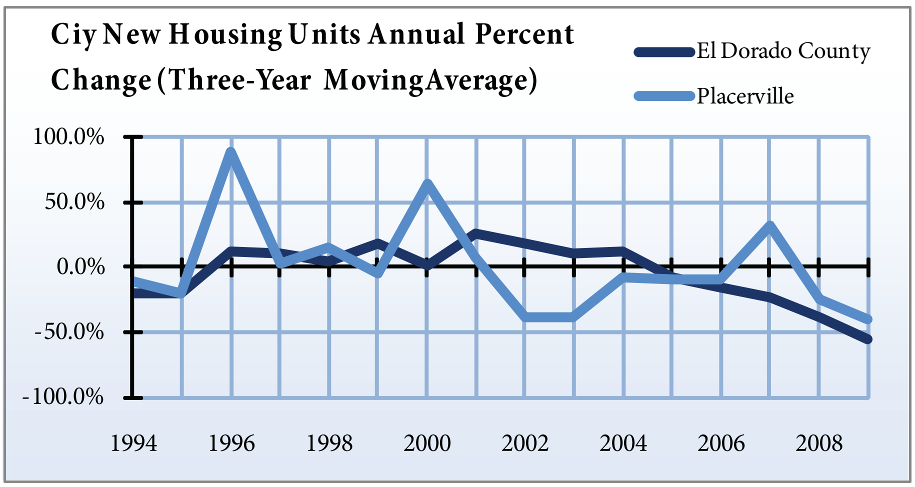

County Components of New Housing Units
New single-family units
New multiple-family units
2,500
2,000
1,500
1,000
500
0
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008

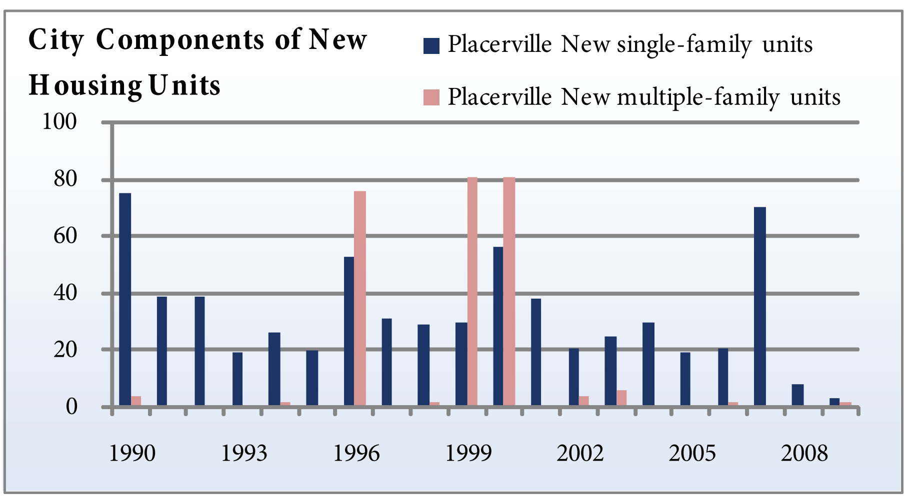
Placerville New Housing Units Authorized by Building Permits

Year	New single-family units	New multiple-family units	Total new housing units	Annual percent change
1990	75	4	79	n/a
1991	39	0	39	- 50.6 %
1992	39	0	39	0.0 %
1993	19	0	19	- 51.3 %
1994	26	2	28	47.4 %
1995	20	0	20	- 28.6 %
1996	53	76	129	545.0 %
1997	31	0	31	- 76.0 %
1998	29	2	31	0.0 %
1999	30	81	111	258.1 %
2000	56	81	137	23.4 %
2001	38	0	38	- 72.3 %
2002	21	4	25	- 34.2 %
2003	25	6	31	24.0 %
2004	30	0	30	- 3.2 %
2005	19	0	19	- 36.7 %
2006	21	2	23	21.1 %
2007	70	0	70	204.3 %
2008	8	0	8	- 88.6 %
2009	3	2	5	- 37.5 %

Source: California Construction Industry Research Board
Created by: Center for Economic Development, California State University, Chico


City New Housing Units
Placerville
150
100
50
0
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008

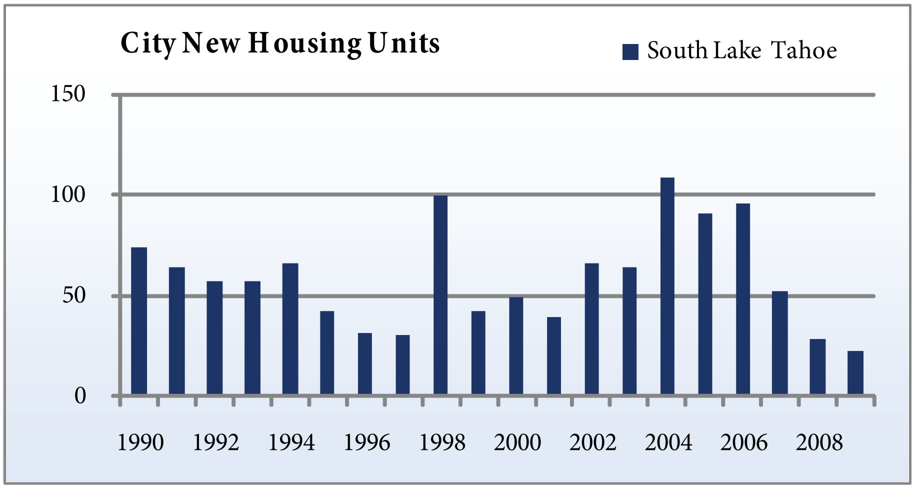

Ciy New Housing Units Annual Percent Change (Three-Year Moving Average)
El Dorado County
Placerville
100.0%
50.0%
0.0%
-50.0%
-100.0%
1994
1996
1998
2000
2002
2004
2006
2008

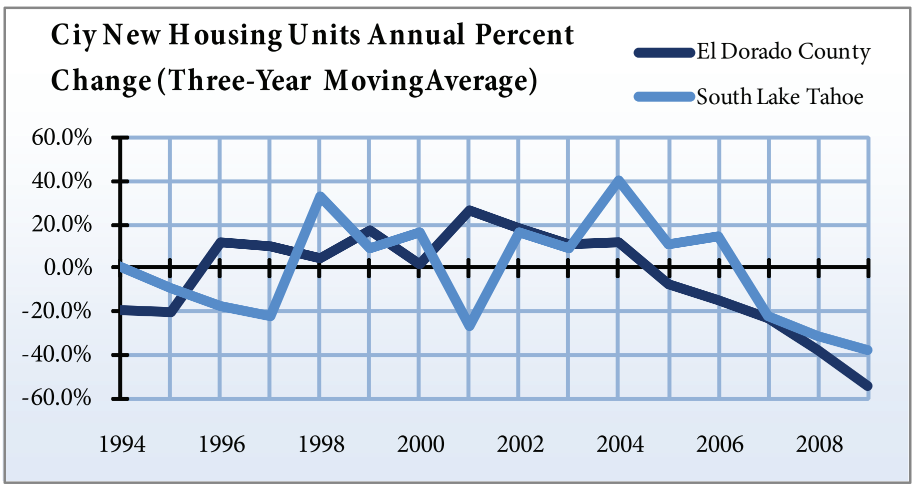

City Components of New Housing Units
Placerville New single-family units
Placerville New multiple-family units
100
80
60
40
20
0
1990
1993
1996
1999
2002
2005
2008

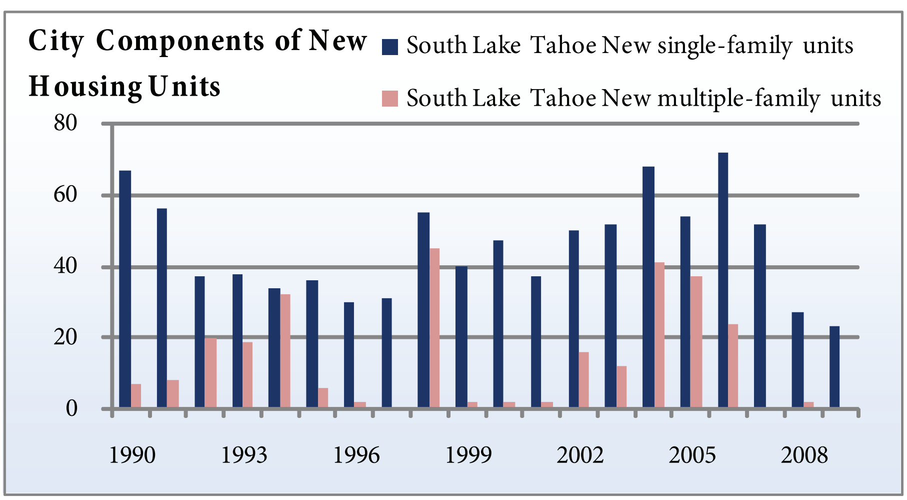
South Lake Tahoe New Housing Units Authorized by Building Permits

Year	New single-family units	New multiple-family units	Total new housing units	Annual percent change
1990	67	7	74	n/a
1991	56	8	64	- 13.5 %
1992	37	20	57	- 10.9 %
1993	38	19	57	0.0 %
1994	34	32	66	15.8 %
1995	36	6	42	- 36.4 %
1996	30	2	32	- 23.8 %
1997	31	0	31	- 3.1 %
1998	55	45	100	222.6 %
1999	40	2	42	- 58.0 %
2000	47	2	49	16.7 %
2001	37	2	39	- 20.4 %
2002	50	16	66	69.2 %
2003	52	12	64	- 3.0 %
2004	68	41	109	70.3 %
2005	54	37	91	- 16.5 %
2006	72	24	96	5.5 %
2007	52	0	52	- 45.8 %
2008	27	2	29	- 44.2 %
2009	23	0	23	- 20.7 %

Source: California Construction Industry Research Board
Created by: Center for Economic Development, California State University, Chico


City New Housing Units
South Lake Tahoe
150
100
50
0
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008


Ciy New Housing Units Annual Percent Change (Three-Year Moving Average)
El Dorado County
South Lake Tahoe
60.0%
40.0%
20.0%
0.0%
-20.0%
-40.0%
-60.0%
1994
1996
1998
2000
2002
2004
2006
2008


City Components of New Housing Units
South Lake Tahoe New single-family units
South Lake Tahoe New multiple-family units
80
60
40
20
0
1990
1993
1996
1999
2002
2005
2008

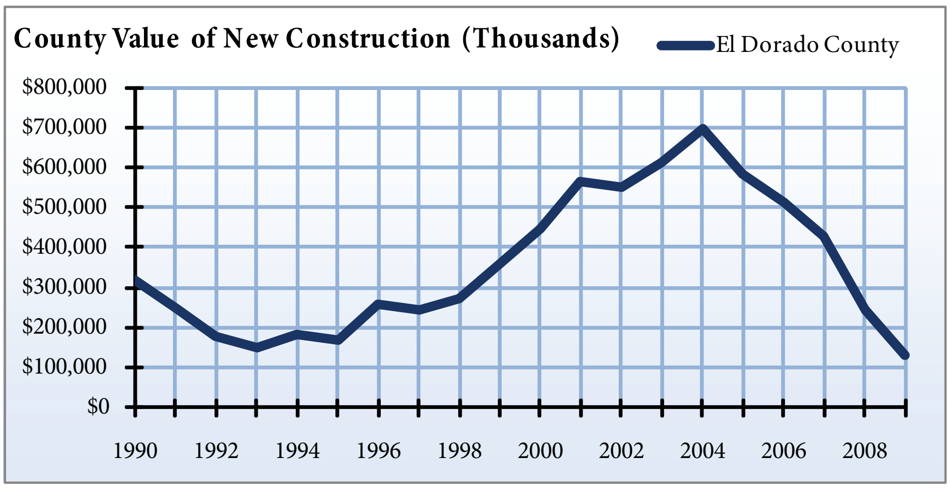
6.3 Value of New Construction (Building Permit Valuation in Dollars)

Overview

Building permits are required for all new construction, not just housing units as shown in the previous section. Permits are required not only for new commercial and industrial construction, but also for the demolition, remodeling, expansion, additions, and repairs made to existing residential, commercial, and industrial structures.

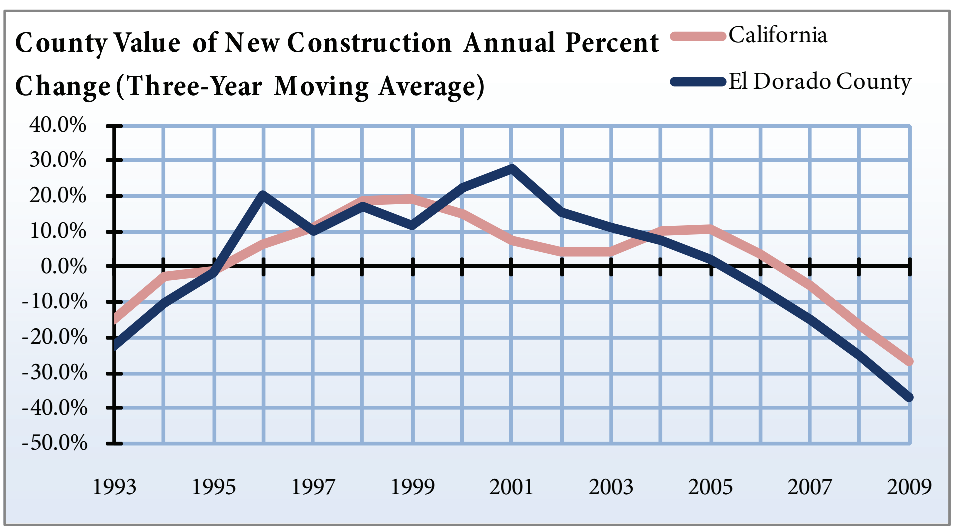
The value of new construction in this section is the total value reported in building permits. This often understates the true value of construction because many development impact fees are based on the value of permitted construction, giving builders an incentive to underestimate the cost of the completed structure. The valuation estimate is based on costs that include labor, materials, and architectural and engineering expertise.

Residential units are single-family and multi-family units, and typically account for about half of all permitted construction valuation.



Major components of nonresidential construction include commercial offices, commercial stores, other commercial, industrial buildings, and other construction

This section excludes public buildings when a building permit is not necessary for construction. This usually includes public schools and local government buildings.



The value of construction activity, especially of commercial and industrial buildings, is one of the primary indicators of economic expansion. It indicates economic investment in the community for which the investor is expecting a return. Because the building may not be complete and operational until the next year, building activity is often a leading indicator of near-term economic growth.

El Dorado County

The value of new construction decreased 10 percent on average each year between 1999 and 2009 in El Dorado County. California saw an average annual decrease of 6 percent the same time period. In 2009, single-family units made up 39 percent of all new construction value in the county, while multiple-family units made up less than 1 percent. Total commercial and industrial construction accounted for 9 percent of the total value in the county in the same year. The city of South Lake Tahoe had the highest new single-family unit valuation at $6 million, followed by the city of Placerville at over $726 thousand.

County Value of New Construction (Thousands)

Year	Single-family units	Multiple-family units	Residential alterations	Comml. offices	Comml. stores	Other Comml.	Industrial	Other construction	Non-residential alterations	Total valuation
1990	$230,573	$5,978	$19,524	$3,667	$6,369	$34,000	$426	$12,568	$7,187	$320,291
1991	$185,284	$12,797	$23,934	$ 0	$9,885	$675	$122	$10,986	$5,623	$249,306
1992	$129,089	$2,037	$20,349	$ 0	$4,557	$1,827	$182	$11,734	$6,496	$176,271
1993	$103,794	$2,497	$17,884	$478	$4,313	$ 0	$ 0	$9,723	$9,322	$148,012
1994	$127,179	$3,877	$16,830	$371	$11,422	$ 0	$ 0	$10,984	$10,164	$180,826
1995	$121,798	$535	$16,088	$580	$6,080	$ 0	$490	$10,742	$12,488	$168,800
1996	$167,748	$22,751	$18,426	$4,360	$4,984	$13,194	$444	$15,074	$10,777	$257,756
1997	$173,320	$ 0	$21,973	$5,525	$3,499	$7,856	$5,771	$18,010	$6,564	$242,517
1998	$190,783	$12,178	$23,537	$901	$5,958	$3,270	$3,283	$17,902	$12,834	$270,645
1999	$263,487	$17,013	$25,356	$11,909	$7,316	$908	$1,287	$19,774	$10,182	$357,233
2000	$347,610	$6,513	$24,350	$18,531	$14,544	$3,563	$464	$18,324	$11,109	$445,007
2001	$350,215	$56,506	$24,300	$3,905	$9,564	$61,941	$ 0	$27,014	$30,534	$563,978
2002	$437,738	$16,483	$25,826	$5,930	$23,541	$272	$ 0	$27,052	$13,491	$550,333
2003	$507,969	$3,524	$33,497	$886	$21,500	$322	$1,098	$29,295	$15,528	$613,619
2004	$558,216	$13,381	$33,014	$1,456	$20,554	$14,409	$ 0	$37,808	$19,252	$698,091
2005	$428,836	$13,418	$41,595	$2,777	$18,633	$20,622	$2,223	$38,370	$17,657	$584,132
2006	$368,126	$6,190	$40,044	$2,337	$23,609	$6,211	$ 0	$37,911	$26,380	$510,808
2007	$246,294	$24,850	$43,467	$ 0	$23,330	$17,099	$902	$39,225	$30,920	$426,087
2008	$122,588	$15,519	$41,035	$1,961	$19,252	$288	$ 0	$28,666	$13,261	$242,570
2009	$50,041	$358	$26,611	$2,078	$4,020	$4,799	$ 0	$24,827	$15,377	$128,112

Source: California Construction Industry Research Board

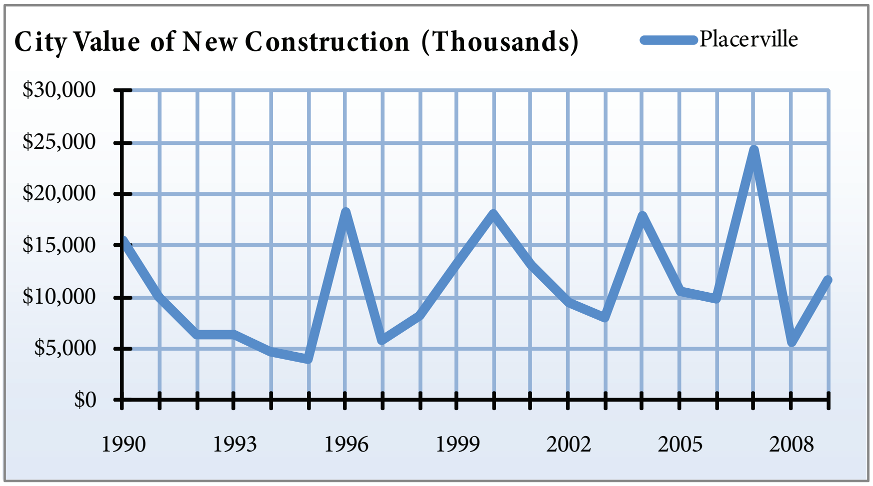
Created by: Center for Economic Development, California State University, Chico

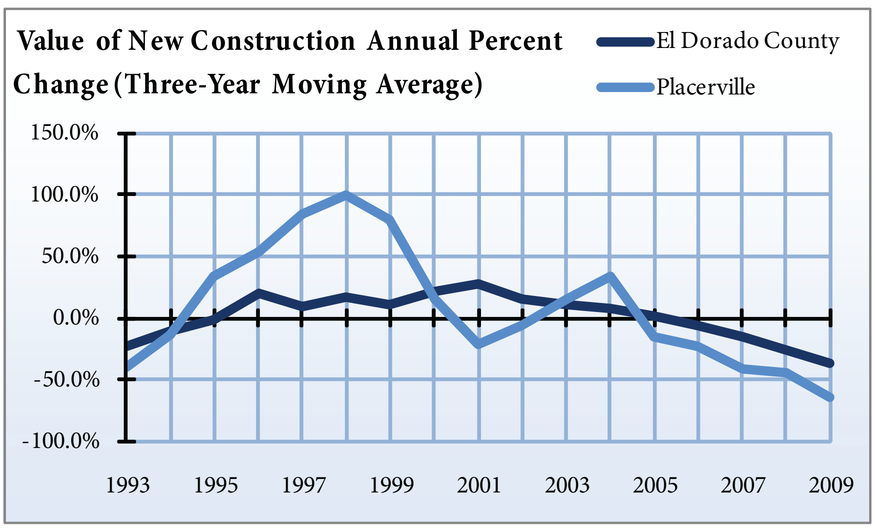
Placerville Value of New Construction (Thousands)

Year	Single-family units	Multiple-family units	Residential alterations	Comml. offices	Comml. stores	Other Comml.	Industrial	Other construction	Non-residential alterations	Total valuation
1990	$9,293	$189	$993	$2,311	$461	$ 0	$ 0	$531	$1,824	$15,601
1991	$4,452	$ 0	$1,861	$ 0	$ 0	$550	$ 0	$387	$2,844	$10,093
1992	$4,975	$ 0	$812	$ 0	$ 0	$ 0	$ 0	$40	$644	$6,472
1993	$2,824	$ 0	$531	$94	$ 0	$ 0	$ 0	$734	$2,163	$6,347
1994	$3,424	$275	$794	$ 0	$ 0	$ 0	$ 0	$36	$150	$4,679
1995	$3,245	$ 0	$385	$ 0	$ 0	$ 0	$ 0	$81	$336	$4,047
1996	$6,468	$5,417	$555	$ 0	$238	$ 0	$ 0	$3,598	$1,925	$18,201
1997	$3,599	$ 0	$537	$ 0	$265	$ 0	$ 0	$1,138	$332	$5,871
1998	$3,809	$180	$260	$159	$1,548	$ 0	$ 0	$2,259	$92	$8,308
1999	$4,780	$6,893	$570	$ 0	$ 0	$ 0	$ 0	$829	$342	$13,414
2000	$9,133	$5,860	$829	$ 0	$667	$ 0	$ 0	$1,385	$140	$18,014
2001	$6,979	$ 0	$583	$ 0	$3,665	$ 0	$ 0	$1,337	$516	$13,080
2002	$4,306	$491	$1,025	$ 0	$ 0	$ 0	$ 0	$2,359	$1,322	$9,502
2003	$5,651	$761	$815	$ 0	$200	$ 0	$ 0	$459	$234	$8,119
2004	$6,945	$ 0	$1,007	$1,068	$5,774	$ 0	$ 0	$1,986	$1,078	$17,857
2005	$4,812	$ 0	$1,302	$ 0	$ 0	$ 0	$ 0	$3,244	$1,251	$10,609
2006	$4,588	$273	$855	$ 0	$329	$ 0	$ 0	$3,377	$387	$9,811
2007	$11,100	$ 0	$1,290	$ 0	$2,046	$ 0	$ 0	$7,649	$2,196	$24,282
2008	$1,502	$ 0	$1,255	$ 0	$155	$ 0	$ 0	$2,068	$711	$5,691
2009	$726	$358	$1,815	$ 0	$ 0	$4,799	$ 0	$2,293	$1,766	$11,757

Source: California Construction Industry Research Board

Created by: Center for Economic Development, California State University, Chico


City Value of New Construction (Thousands)
Placerville
$30,000
$25,000
$20,000
$15,000
$10,000
$5,000
$0
1990
1993
1996
1999
2002
2005
2008


Value of New Construction Annual Percent Change (Three-Year Moving Average)
El Dorado County
Placerville
150.0%
100.0%
50.0%
0.0%
-50.0%
-100.0%
1993
1995
1997
1999
2001
2003
2005
2007
2009

South Lake Tahoe Value of New Construction (Thousands)

Year	Single-family units	Multiple-family units	Residential alterations	Comml. offices	Comml. stores	Other Comml.	Industrial	Other construction	Non-residential alterations	Total valuation
1990	$10,692	$605	$3,045	$318	$ 0	$34,000	$ 0	$122	$1,263	$50,044
1991	$8,420	$738	$3,374	$ 0	$314	$125	$ 0	$35	$1,175	$14,180
1992	$6,131	$1,674	$2,898	$ 0	$192	$1,827	$ 0	$288	$2,444	$15,454
1993	$5,837	$2,106	$5,350	$384	$74	$ 0	$ 0	$174	$3,005	$16,930
1994	$4,913	$2,033	$3,787	$371	$ 0	$ 0	$ 0	$2,295	$3,920	$17,318
1995	$4,896	$535	$4,076	$491	$557	$ 0	$ 0	$846	$2,409	$13,809
1996	$4,780	$195	$4,446	$156	$1,432	$13,090	$ 0	$1,962	$3,210	$29,272
1997	$3,592	$ 0	$5,059	$ 0	$760	$7,255	$ 0	$196	$2,222	$19,084
1998	$8,740	$2,729	$4,837	$ 0	$ 0	$2,007	$ 0	$197	$4,406	$22,916
1999	$5,714	$274	$5,451	$454	$ 0	$ 0	$ 0	$2,572	$2,127	$16,591
2000	$7,188	$212	$5,769	$935	$6,107	$ 0	$ 0	$399	$3,165	$23,774
2001	$8,103	$259	$4,120	$ 0	$111	$61,941	$ 0	$13	$9,583	$84,130
2002	$10,784	$2,228	$3,950	$927	$2,598	$ 0	$ 0	$103	$2,333	$22,924
2003	$11,198	$1,494	$5,910	$ 0	$5,215	$ 0	$ 0	$286	$5,519	$29,622
2004	$15,588	$6,955	$6,284	$ 0	$247	$ 0	$ 0	$243	$7,173	$36,490
2005	$13,964	$3,888	$4,933	$ 0	$3,464	$20,202	$ 0	$284	$3,770	$50,504
2006	$17,974	$2,459	$4,244	$ 0	$173	$4,079	$ 0	$466	$5,666	$35,061
2007	$12,729	$ 0	$4,263	$ 0	$1,250	$17,099	$ 0	$480	$5,684	$41,506
2008	$6,050	$262	$4,091	$ 0	$3,363	$ 0	$ 0	$932	$2,039	$16,737
2009	$5,966	$ 0	$5,727	$ 0	$ 0	$ 0	$ 0	$661	$4,730	$17,085

Source: California Construction Industry Research Board

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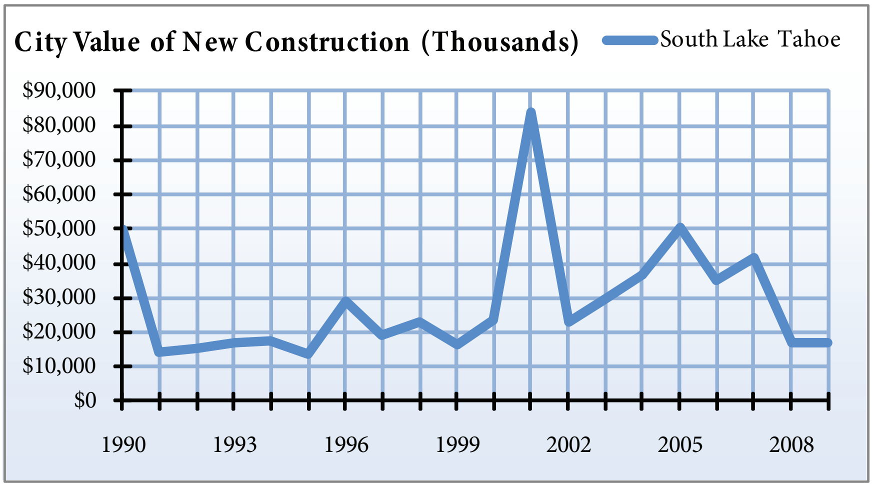
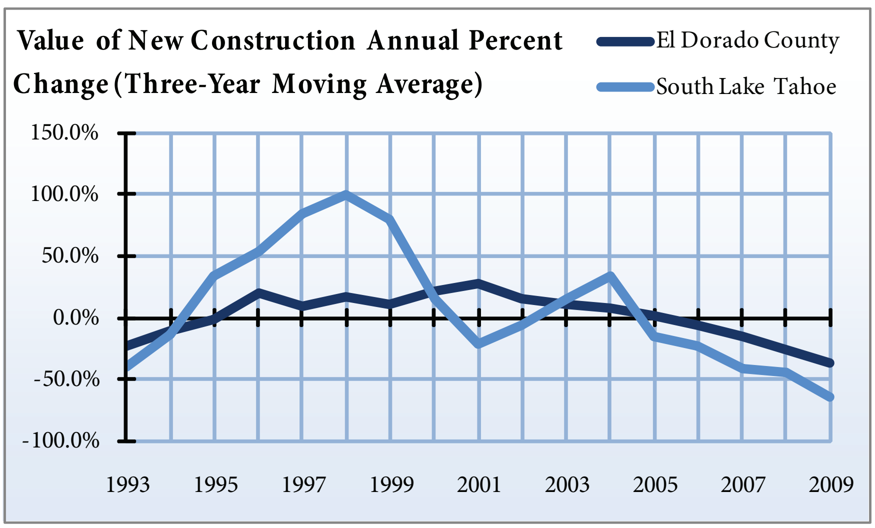

City Value of New Construction (Thousands)
South Lake Tahoe
$90,000
$80,000
$70,000
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$0
1990
1993
1996
1999
2002
2005
2008


Value of New Construction Annual Percent Change (Three-Year Moving Average)
El Dorado County
South Lake Tahoe
150.0%
100.0%
50.0%
0.0%
-50.0%
-100.0%
1993
1995
1997
1999
2001
2003
2005
2007
2009

6.4 Fair Market Rent

Overview

Fair market rent acts as a proxy for monthly rent values. It is calculated by the U.S. Department of Housing and Urban Development using surveys of privately-owned dwellings with standard sanitary facilities. Fair market rent is set at the fortieth percentile, which means that 40 percent of the units in a given area pay less than the fair market rent and 60 percent pay more. It is calculated for various numbers of bedrooms in the house or apartment. Fair market rental values are gross rent estimates and they include shelter, rent, and the cost of utilities, except telephone.

Most wealthy households can afford a home. Fair market rent is an indicator of housing costs for poorer households in a county and is used to determine whether families or individuals qualify for rent and utility assistance. Fair market rent figures are descriptive of the local rental housing market in the region and are useful for individuals or businesses contemplating a move to the area.

Fair market rent also allows community leaders to evaluate the adequacy of the supply of rental housing in the community by calculating how much a household must earn to afford a certain type of unit. A rental unit is defined as affordable if rent plus utilities is not more than 30 percent of income.

El Dorado County

From 2009 to 2010, El Dorado County rent prices consistently increased between 1.6 percent and 1.7 percent regardless of the number of bedrooms. Between 2000 and 2010, county rent prices increased on average approximatley 54 percent.

Fair Market Rent

Year	0-Bedroom	1-Bedroom	2-Bedroom	3-Bedroom	4-Bedroom	5-Bedroom	6-Bedroom
2000	$ 447	$ 504	$ 631	$ 875	$ 1,031	$ 1,186	$ 1,363
2001	$ 486	$ 547	$ 685	$ 950	$ 1,120	$ 1,288	$ 1,481
2002	$ 503	$ 566	$ 709	$ 983	$ 1,159	$ 1,333	$ 1,533
2003	$ 651	$ 733	$ 918	$ 1,273	$ 1,501	$ 1,726	$ 1,985
2004	$ 674	$ 759	$ 950	$ 1,318	$ 1,554	$ 1,787	$ 2,055
2005	$ 707	$ 812	$ 971	$ 1,403	$ 1,639	$ 1,885	$ 2,168
2006	$ 959	$ 691	$ 786	$ 1,384	$ 1,586	$ 1,824	$ 2,097
2007	$ 715	$ 813	$ 992	$ 1,431	$ 1,641	$ 1,887	$ 2,170
2008	$ 708	$ 805	$ 982	$ 1,417	$ 1,624	$ 1,868	$ 2,148
2009	$ 737	$ 838	$ 1,022	$ 1,475	$ 1,690	$ 1,944	$ 2,235
2010	$ 749	$ 852	$ 1,039	$ 1,499	$ 1,719	$ 1,977	$ 2,273

Source: U.S. Department of Housing and Urban Development

Created by: Center for Economic Development, California State University, Chico

7. Travel & Tourism

People travel away from home for many reasons, including business, pleasure, and other personal reasons. A traveler is considered to be anyone who spends time in a community other than the one in which they reside, whether it is a day trip or an overnight stay. Many areas of Northern California rely on visitor spending as a significant part of the economy. This section presents data on travel to El Dorado County including data resulting from tourism and daily commutes. Estimates of the economic impacts of tourism travel are also presented in this section, including sales, income, and employment.

Tourism in El Dorado County is important due to a number of attractions in the area, including wilderness areas, camping, hiking, and fishing opportunities.

In this section:

7.1 Travel Expenditures

Overview

Every year, the California Travel and Tourism Commission hires Dean Runyan Associates on contract to estimate the impacts of travel spending by county in California. Dean Runyan specializes in economic and market research related to travel, tourism, and recreation. They are on contract with ten U.S. states to produce travel spending estimates.

Travel and tourism spending includes all purchases made by a traveler at the point of sale while visiting a county. Travelers include those making day trips, staying overnight, and people just passing through (buying gasoline, etc.). The travel can be for any reason, including but not limited to recreation, business, personal, and family visits.

Travel expenditures is the base indicator for evaluating the impacts of travel and tourism in El Dorado County. It is an estimate from which the following three important indicators are calculated.

El Dorado County

Over the past few decades, the travel and tourism industry has been responsible for a steady rise in the amount of money spent in California. Total travel expenditures in California in 2008 reached $97.5 billion, a 3 percent increase from the previous year. Travel expenditures in El Dorado County decreased by 1 percent in the same year, to $604.3 million. Between 1992 and 2008, El Dorado County was respon-sible for an annual average of 0.7 percent of all travel expenditures in California.

Total Annual Travel Expenditures by County and State (Millions)

Year	Expenditures in County	Annual percent change	Expenditure in California	Annual percent change
1992	$ 425.0	n/a	$ 50,700	n/a
1993	$ 438.1	3.1 %	$ 51,600	1.8 %
1994	$ 449.8	2.7 %	$ 52,600	1.9 %
1995	$ 455.7	1.3 %	$ 54,200	3.0 %
1996	$ 462.1	1.4 %	$ 58,900	8.7 %
1997	$ 484.4	4.8 %	$ 64,100	8.8 %
1998	$ 502.1	3.7 %	$ 66,500	3.7 %
1999	$ 528.1	5.2 %	$ 70,900	6.6 %
2000	$ 541.2	2.5 %	$ 76,500	7.9 %
2001	$ 542.5	0.2 %	$ 73,300	- 4.2 %
2002	$ 552.2	1.8 %	$ 72,700	- 0.8 %
2003	$ 595.3	7.8 %	$ 75,600	4.0 %
2004	$ 611.9	2.8 %	$ 80,700	6.7 %
2005	$ 629.4	2.9 %	$ 87,000	7.8 %
2006	$ 631.0	0.3 %	$ 91,800	5.5 %
2007	$ 608.5	- 3.6 %	$ 95,100	3.6 %
2008	$ 604.3	- 0.7 %	$ 97,500	2.5 %

Source: California Travel and Tourism Commission, Dean Runyan Associates

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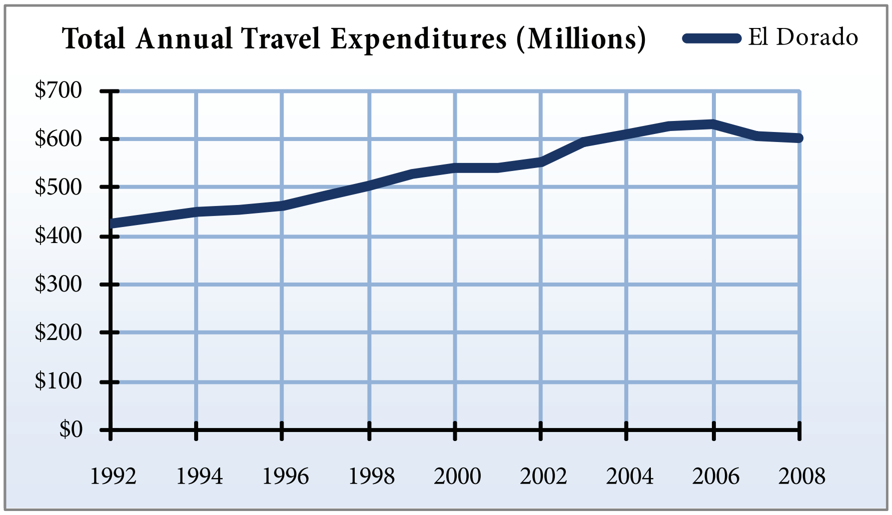
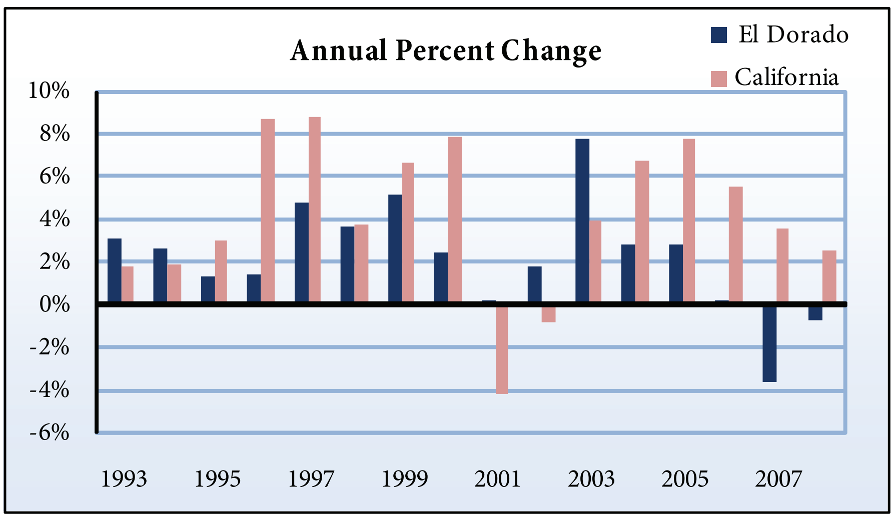




The expenditures shown in the graph are estimated in current dollars and include the following:

Accommodations refer to spending by travelers on lodging in hotels, motels, camping sites, and rented vacation homes.

Eating/drinking refers to purchases made by travelers at restaurants and other businesses that serve food and beverages for consumption on the premises.

Retail sales refer to spending by travelers on gifts and souvenirs, or any items other than food and recreation.

Transportation refers to spending by travelers for travel arrangements to and from their destinations.

Recreation refers to spending by travelers for amusement and enjoyment, such as admission to tourist attractions.

7.2 Travel-Generated Employment

Overview

The employment indicator is an estimate of the number of jobs generated in the county from travel spending shown in the previous indicator. Travel generated employment is spread across nearly all industries evaluated by the U.S. Department of Commerce. Travel-generated employment is the impact of travel spending on jobs and job growth in the county. It is a measure of the benefit to workers.

Travel and tourism can play a vital role in the economy and economic growth of small towns, particularly those in Northern California dependent on visitors to wine country. It is a source of jobs for many otherwise less-skilled or -educated workers in the county.

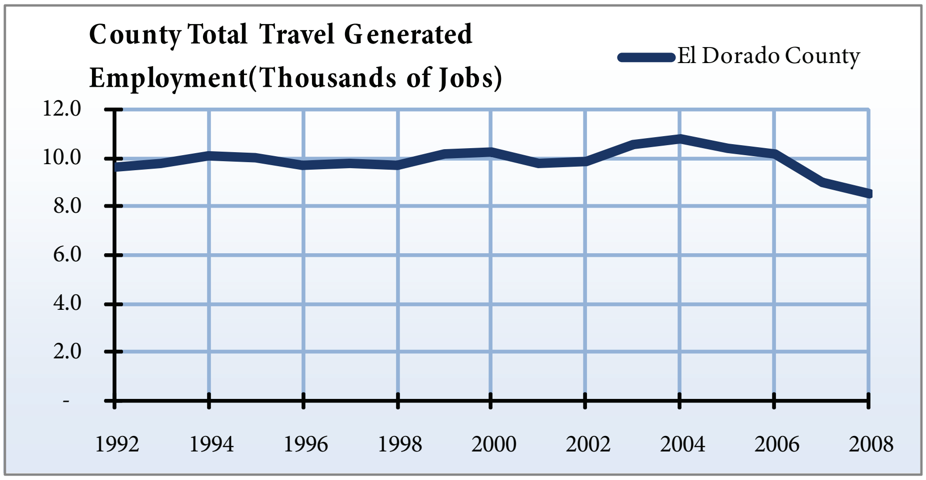
El Dorado County

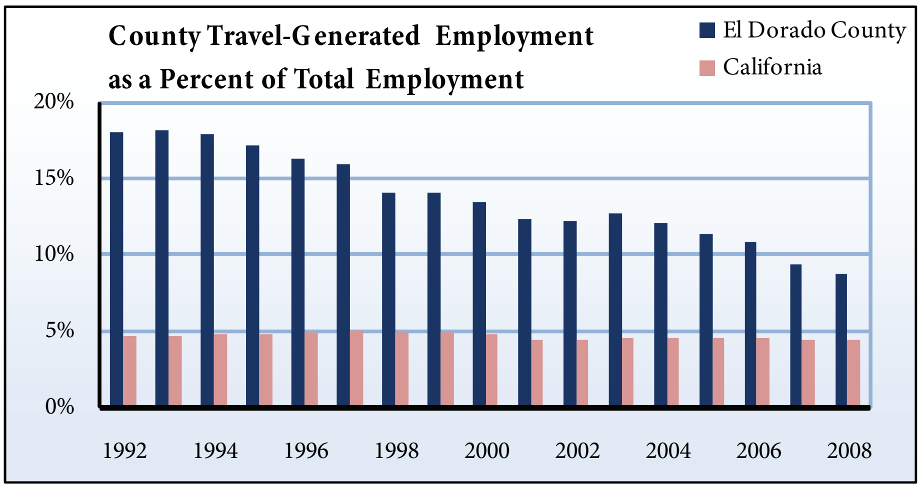
Travel-generated employment produced 8,500 jobs in El Dorado County in 2008, accounting for 9 percent of the total employment in the county. Between 2002 and 2004, El Dorado County experienced increases in travel-generated employment, but over the last four years employment has decreased. Between 1998 and 2008, El Dorado County was responsible for an annual average of 1 percent of the total travel-generated employment in the state.

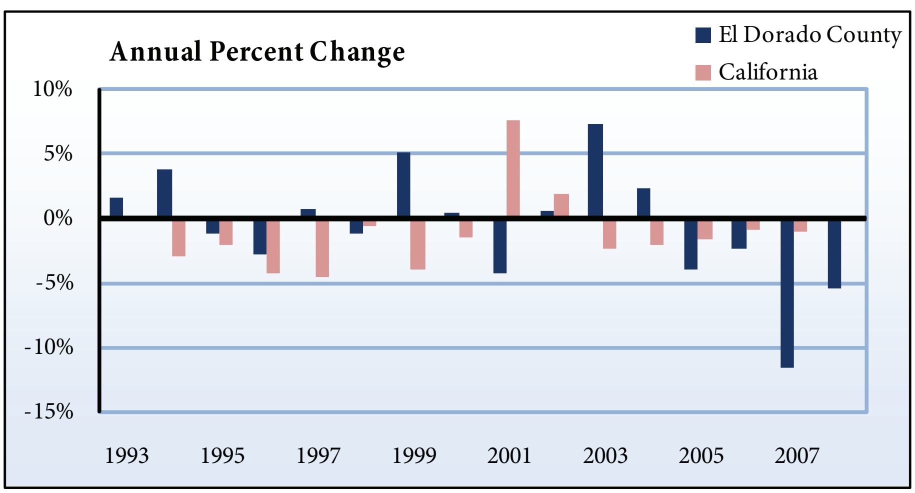
Total Travel-Generated Employment (Thousands of Jobs)

Year	Travel-generated employment	Annual percent change	Total employment	County Travel-generated employment as a percent of total employment	California Travel-generated employment as a percent of total employment
1992	9.6	n/a	53.1	18.0 %	4.7 %
1993	9.7	1.6 %	53.6	18.2 %	4.7 %
1994	10.1	3.8 %	56.6	17.9 %	4.8 %
1995	10.0	- 1.1 %	58.2	17.2 %	4.8 %
1996	9.7	- 2.7 %	59.7	16.3 %	4.9 %
1997	9.8	0.7 %	61.3	16.0 %	5.0 %
1998	9.7	- 1.2 %	68.6	14.1 %	4.9 %
1999	10.2	5.2 %	72.1	14.1 %	4.9 %
2000	10.2	0.5 %	76.3	13.4 %	4.8 %
2001	9.8	- 4.2 %	79.5	12.3 %	4.5 %
2002	9.9	0.6 %	80.4	12.3 %	4.4 %
2003	10.6	7.4 %	83.0	12.8 %	4.5 %
2004	10.8	2.4 %	89.2	12.1 %	4.5 %
2005	10.4	- 3.9 %	91.9	11.3 %	4.5 %
2006	10.2	- 2.3 %	93.8	10.8 %	4.5 %
2007	9.0	- 11.6 %	95.8	9.4 %	4.4 %
2008	8.5	- 5.3 %	97.2	8.8 %	4.4 %

Source: California Travel and Tourism Commission, Dean Runyan Associates
Created by: Center for Economic Development, California State University, Chico


County Total Travel Generated
Employment(Thousands of Jobs)
El Dorado County
12.0
10.0
8.0
6.0
4.0
2.0
-
1992
1994
1996
1998
2000
2002
2004
2006
2008


County Travel-Generated Employment
as a Percent of Total Employment
El Dorado County
California
20%
15%
10%
5%
0%
1992
1994
1996
1998
2000
2002
2004
2006
2008


Annual Percent Change
El Dorado County
California
10%
5%
0%
-5%
-10%
-15%
1993
1995
1997
1999
2001
2003
2005
2007

7.3 Total Annual Travel Earnings

Overview

Earnings listed in this indicator are an estimate of the amount of personal income generated from the jobs shown in the previous indicator. As with employment, the earnings indicator represents those in nearly all industries evaluated by the U.S. Department of Commerce. Total annual tourism earnings are all the earnings of employees and business owners over the course of a year that can be attributed to travel expenditures, including wages and salaries, earned benefits, and proprietor income. Other earnings that do not directly relate to travel are excluded.

Tourism earnings measure the personal financial benefit of travel and tourism in El Dorado County. If earnings are increasing faster than the number of jobs, then travel and tourism jobs are generating higher wage jobs or the work season (if employment is seasonal) is expanding.

El Dorado County

El Dorado County's tourism industry generated $224.8 million in 2008, which is a 1 percent decrease from the previous year, and $42.1 million more than the county generated in 1998. Statewide, tourism earnings increased 2 percent in 2008. Between 1992 and 2008, El Dorado County's tourism earnings made up an annual average of 0.8 percent of all the tourism earnings in California.

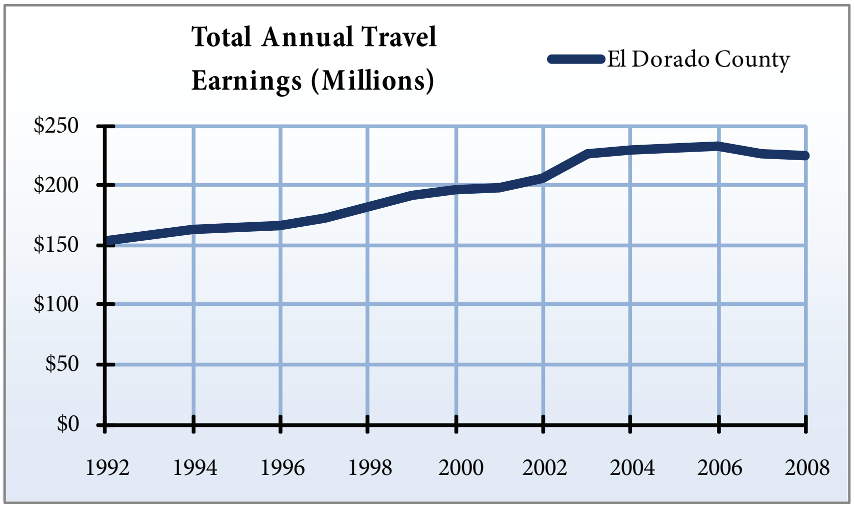
NOTE: Data prior to 1997 was not revised by Dean Runyan and Associates to include NAICS revisions at the time of writing. Therefore, data may not be comparable to previous years. Please contact the CED for any available updates in the near future.

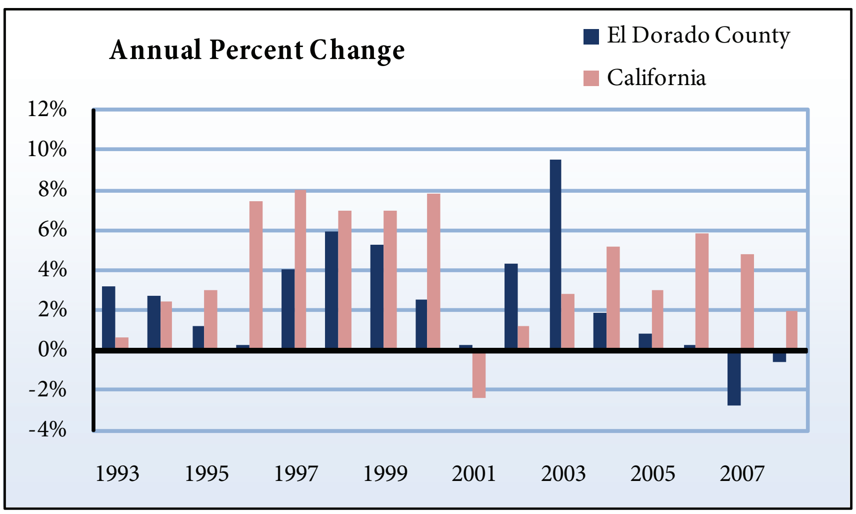
Total Annual Travel Earnings by County and State (Millions)

Year	Earnings in County	Annual percent change	Earnings in California	Annual percent change
1992	$ 154.2	n/a	$ 16,400	n/a
1993	$ 159.1	3.2 %	$ 16,500	0.6 %
1994	$ 163.4	2.7 %	$ 16,900	2.4 %
1995	$ 165.4	1.2 %	$ 17,400	3.0 %
1996	$ 165.8	0.2 %	$ 18,700	7.5 %
1997	$ 172.5	4.0 %	$ 20,200	8.0 %
1998	$ 182.7	5.9 %	$ 21,600	6.9 %
1999	$ 192.4	5.3 %	$ 23,100	6.9 %
2000	$ 197.2	2.5 %	$ 24,900	7.8 %
2001	$ 197.8	0.3 %	$ 24,300	- 2.4 %
2002	$ 206.4	4.3 %	$ 24,600	1.2 %
2003	$ 226.1	9.5 %	$ 25,300	2.8 %
2004	$ 230.3	1.9 %	$ 26,600	5.1 %
2005	$ 232.1	0.8 %	$ 27,400	3.0 %
2006	$ 232.7	0.3 %	$ 29,000	5.8 %
2007	$ 226.2	- 2.8 %	$ 30,400	4.8 %
2008	$ 224.8	- 0.6 %	$ 31,000	2.0 %

Source: California Travel and Tourism Commission, Dean Runyan Associates

Created by: Center for Economic Development, California State University, Chico


Total Annual Travel Earnings (Millions)
El Dorado County
$250
$200
$150
$100
$50
$0
1992
1994
1996
1998
2000
2002
2004
2006
2008


Annual Percent Change
El Dorado County
California
12%
10%
8%
6%
4%
2%
0%
-2%
-4%
1993
1995
1997
1999
2001
2003
2005
2007

7.4 Tax Revenues Generated by Travel Expenditures

Overview

The tax revenues indicator is an estimate of revenue generated by local government from travel expenditures shown earlier in this section. The revenue can be in the form of taxes, fees for service, fines, or any other source. The totals are not limited to general revenue, which can be spent at the discretion of the local governmental jurisdiction, but also include functional revenue that must be spent for a specific purpose.

Tax Revenues Generated by Travel Expenditures, County and State (Millions)

Year	Local rax revenues	State tax revenues	Total tax revenues	County Annual percent change	California Annual percent change
1992	$ 9.7	$ 14.7	$ 24.4	n/a	n/a
1993	$ 10.1	$ 15.1	$ 25.2	3.3 %	2.3 %
1994	$ 10.4	$ 15.4	$ 25.8	2.4 %	3.7 %
1995	$ 10.5	$ 15.8	$ 26.3	1.9 %	6.7 %
1996	$ 10.4	$ 16.2	$ 26.6	1.1 %	9.1 %
1997	$ 10.7	$ 17.0	$ 27.7	4.1 %	9.3 %
1998	$ 11.3	$ 17.7	$ 29.0	4.7 %	5.4 %
1999	$ 12.1	$ 18.6	$ 30.7	5.9 %	6.7 %
2000	$ 12.6	$ 18.9	$ 31.5	2.6 %	7.5 %
2001	$ 12.4	$ 18.4	$ 30.8	- 2.2 %	- 5.9 %
2002	$ 12.7	$ 19.2	$ 31.9	3.6 %	0.8 %
2003	$ 13.7	$ 20.6	$ 34.3	7.5 %	4.4 %
2004	$ 13.8	$ 21.5	$ 35.3	2.9 %	6.2 %
2005	$ 14.2	$ 22.3	$ 36.5	3.4 %	7.8 %
2006	$ 14.4	$ 22.3	$ 36.7	0.5 %	5.3 %
2007	$ 13.6	$ 21.5	$ 35.1	- 4.4 %	4.1 %
2008	$ 13.3	$ 21.3	$ 34.6	- 1.4 %	2.1 %

Source: California Travel and Tourism Commission, Dean Runyan Associates

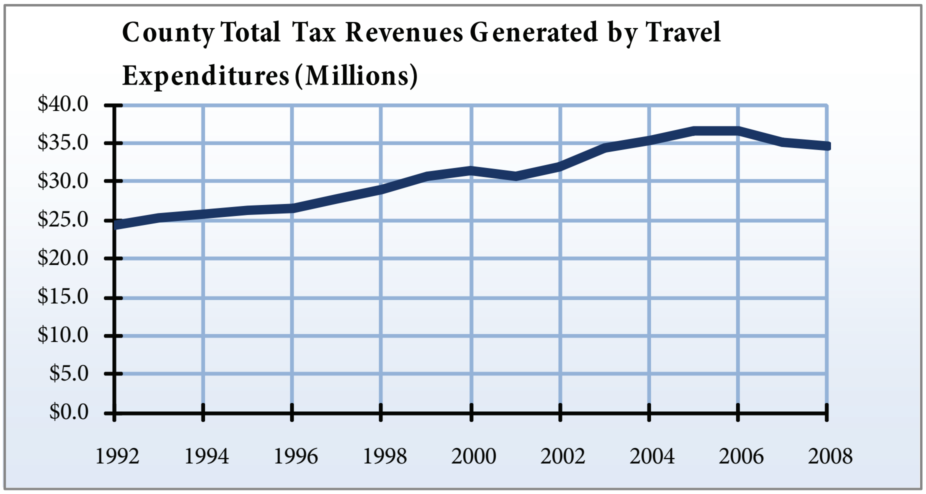
Created by: Center for Economic Development, California State University, Chico

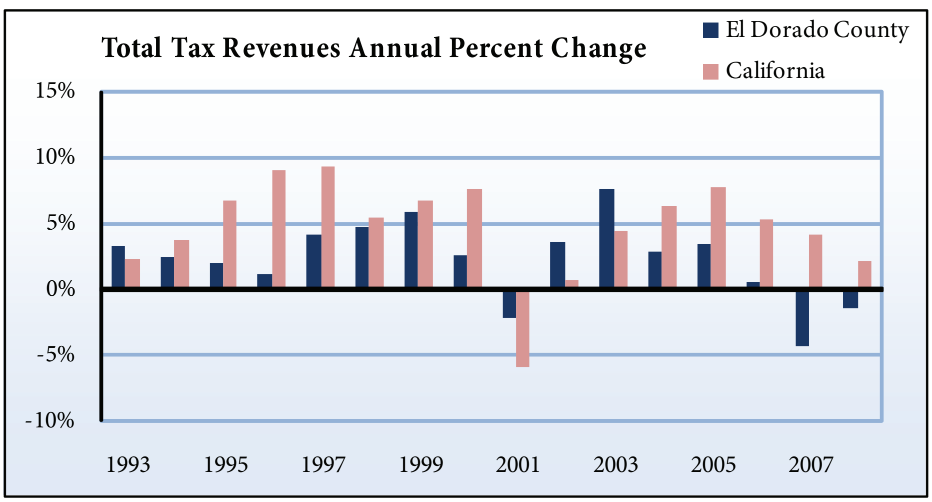
Local sales taxes and transient occupancy taxes (TOT) are typically the largest components of tax revenues generated by travel expenditures. This represents a portion of the revenues generated by sales of taxable items shown in section six.

Tax revenues generated by travel expenditures are a measure of the fiscal benefit to local governments in El Dorado County that is derived from travel and tourism. The size of the revenue impact can help determine the desirability of local government investment in promoting travel and tourism within its jurisdiction.

El Dorado County

Tourism tax revenues in El Dorado County decreased each of the last 2 years. In 1997, El Dorado County generated over $27.7 million in tax revenues, including both local and state taxes. By 2008, total tax revenues in El Dorado County increased to $34.6 million, a 19 percent increase since 1998. This was behind the state of California, which saw a 46 percent increase. During the same time period, El Dorado County's travel-generated local tax revenue increased 18 percent, while state tax revenues in the county increased 20 percent. Many attractions in the county offer untaxed goods and services, so the numbers may not reflect the total tourism activity in the county.


County Total Tax Revenues Generated by Travel Expenditures (Millions)
$40.0
$35.0
$30.0
$25.0
$20.0
$15.0
$10.0
$5.0
$0.0
1992
1994
1996
1998
2000
2002
2004
2006
2008


Total Tax Revenues Annual Percent Change
El Dorado County
California
15%
10%
5%
0%
-5%
-10%
1993
1995
1997
1999
2001
2003
2005
2007

7.5 Selected Highway Traffic Volumes

Overview

Traffic volumes on California State Highways are estimated annually and measured on-the-ground periodically by the California Department of Transportation. The data is collected to help the state understand where traffic volume is growing and for planning traffic improvements.

Traffic volume is an indicator of change in economic interconnectivity between regions and communities. Most traffic growth over a ten-year period reflects increases in commute patterns, although other factors include increased shopping trips and commercial traffic.

Average Annual Daily Traffic Volumes

		1999		2009		Percent Change	
Highway/ Interstate	Location	North/ East	South/ West	North/ East	South/ West	North/ East	South/ West
49	MISSOURI FLAT RD	13,400	12,300	15,000	13,500	11.9%	9.8%
49	PLACERVILLE, PACIFIC/ MAIN STS	15,600	2,600	5,400	3,500	-65.4%	34.6%
49	COOL, JCT. RTE. 193 EAST	8,300	5,300	8,600	14,000	3.6%	164.2%
50	LATROBE RD	60,000	67,000	72,000	95,000	20.0%	41.8%
50	PLACERVILLE, JCT. RTE. 49	38,000	45,000	40,000	45,000	5.3%	0.0%
50	SOUTH LAKE TAHOE, PIONEER TRAIL RD	41,000	35,500	31,500	31,500	-23.2%	-11.3%
89	JCT. RTE. 50	18,000	4,400	16,900	4,500	-6.1%	2.3%
193	GEORGETOWN, LOWER MAIN ST	2,050	4,950	3,550	5,300	73.2%	7.1%

Source: California Department of Transportation

Created by: Center for Economic Development, California State University, Chico

7.6 Travel Time to Work

Overview

Travel time to work is the amount of time, in minutes, workers estimate it takes them to get to work on a normal workday. Travel time can be influenced by distance to work, traffic levels, and the means of transportation utilized (evaluated in the following indicator). It is measured every ten years by the decennial census.

As the U.S. economy heads toward a broader global market, the dynamics of transportation to and from work change as well. Commuting has become a way of life. People spend an increasing number of hours on the road traveling to and from work, and lose valuable time that otherwise might be spent working, at home, or in the marketplace. In addition, the increasing use of the Internet to conduct business has had an impact on the number of people working from their homes or nearby offices, while the expansion of large businesses in metropolitan areas attracts employees from rural areas. Commuting has had a tremendous effect on local economies, increasing the need for alternative forms of transportation, including public transit.

El Dorado County

For many residents in El Dorado County, commuting to work is a ten- to nineteen-minute drive in a personal car, truck, or van. As of 2000, 19,619 residents in El Dorado County, which is 27.2 percent of total employed residents, commuted to their place of employment in a ten- to nineteen-minute drive, while 15.3 percent faced a commute of twenty to twenty-nine minutes. These were also the two most common commute times statewide. A significant number of El Dorado County residents had much easier commutes, with 9,407 people reporting a commute time of less than ten minutes. This number, which is 13.1 percent of all employed El Dorado County residents, is higher than the 11 percent of workers with similar commutes throughout California.

Travel Time to Work

	1990		2000	
Travel Time to Work	**Number**	**Percent**	**Number**	**Percent**
Did not work at home	55,290	96.1%	67,904	94.2%
Less than 5 minutes	2,398	4.2%	2,139	3.0%
5 to 9 minutes	7,161	12.4%	7,268	10.1%
10 to 19 minutes	18,158	31.6%	19,619	27.2%
20 to 29 minutes	8,391	14.6%	11,004	15.3%
30 to 39 minutes	6,956	12.1%	8,783	12.2%
40 to 44 minutes	2,326	4.0%	3,108	4.3%
45 to 59 minutes	5,193	9.0%	7,258	10.1%
60 to 89 minutes	3,533	6.1%	5,894	8.2%
90 or more minutes	1,174	2.0%	2,831	3.9%
Worked at home	2,257	3.9%	4,215	5.8%
Total	57,547	100.0%	72,119	100.0%

Source: Bureau of the Census

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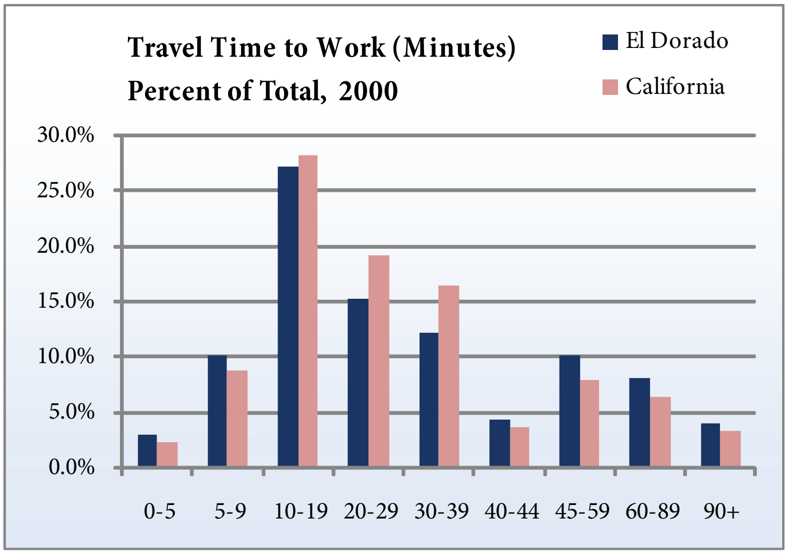

Travel Time to Work (Minutes)
Percent of Total, 2000
El Dorado
California
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
0-5
5-9
10-19
20-29
30-39
40-44
45-59
60-89
90+

7.7 Means of Transportation to Work

Overview

Means of transportation to work is the type of vehicle or mode used to get from home to work on work days. As with travel time, it is only consistently measured by the decennial census unless a local survey is conducted during noncensus years.

Commuting is a necessary and regular part of life for most people in the workforce. The means by which the population travels to and from work can be used to analyze the need and importance of public transportation in a county.

El Dorado County

As of 2000, the vast majority of El Dorado County workers, 89.1 percent, got to work via car, truck, or van. Of those residents, 85.1 percent drove alone, compared to 83.2 percent throughout California in 2000. In the county, 14.9 percent of that group carpooled in the same year.

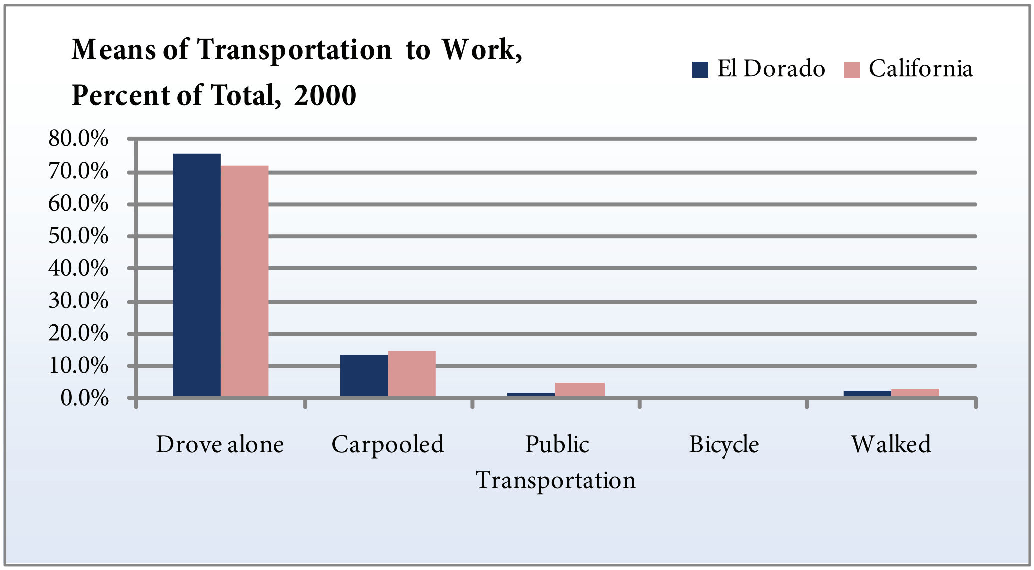
In 2000, 3.1 percent of El Dorado County's employed residents used nonmotorized means to get to work: 0.3 percent rode a bicycle, 2.2 percent walked, and 0.6 percent got to work using some other mode of transportation. Only 1.8 percent of the total number of employed residents in El Dorado County used public transportation of some kind, which can either be attributed to a lack of available public transportation, or a negative connotation associated with it.

Means of Transportation to Work

	1990		2000	
Means of Transportation	**Number**	**Percent**	**Number**	**Percent**
Car, truck, or van	51,610	89.7%	64,255	89.1%
Drove alone	43,213	75.1%	54,656	75.8%
Carpooled	8,397	14.6%	9,599	13.3%
Public Transportation	920	1.6%	1,294	1.8%
Motorcycle	132	0.2%	123	0.2%
Bicycle	213	0.4%	244	0.3%
Walked	1,947	3.4%	1,570	2.2%
Other means	468	0.8%	418	0.6%
Worked at Home	2,257	3.9%	4,215	5.8%
Total	57,547	100.0%	72,119	100.0%

Source: California Travel and Tourism Commission, Dean Runyan Associates

Created by: Center for Economic Development, California State University, Chico


Means of Transportation to Work,
Percent of Total, 2000
El Dorado
California
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Drove alone
Carpooled
Public Transportation
Bicycle
Walked

7.8 Vehicle Registration

Overview

Registration is an annual fee based on vehicle type and required for all vehicles intended for use on the highway or in town. A biennial smog check is required for all gasoline vehicles made made after 1975. Models made before that time are exempt, as well as models made within the last six years, some diesel powered vehicles, motorcycles, hybrids, and electric vehicles.

Vehicle registration, per capit, a has generally increased over time, meaning more cars on the road for every living person. Increasing volume of vehicles can indicate increasing traffic levels, the impacts of which may need to be addressed by state and local government bodies.

The California Highway Patrol (CHP) and the Department of Motor Vehicles (DMV) use vehicle registration fees to offset costs for road safety, maintenance, and repairs. Registration fees also benefit local projects, such as fingerprint identification for children in the community, the disposal of abandoned vehicles, Service Authority for Freeway Emergencies (SAFE), auto theft deterrence/DUI educational prevention tactics, and air quality monitoring and management programs.

Estimated Fee Paid Vehicle Registrations

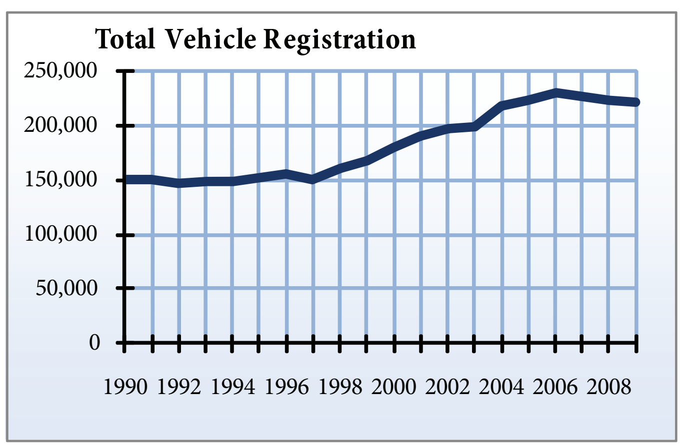
Year	Autos	Trucks	Trailers	Mortorcycles	Total
1990	81,941	40,362	22,185	3,841	150,319
1991	85,323	38,460	20,404	4,253	150,431
1992	83,601	36,674	20,357	4,126	146,750
1993	84,125	36,415	21,678	4,081	148,292
1994	85,135	36,672	20,981	4,071	148,853
1995	87,043	37,181	22,684	4,161	153,064
1996	88,725	37,956	23,207	4,184	156,068
1997	85,369	35,885	23,571	3,296	150,118
1998	93,259	38,606	23,949	3,421	161,233
1999	95,962	39,977	26,161	3,674	167,773
2000	100,916	41,915	30,473	4,161	179,465
2001	105,836	43,438	34,403	4,736	190,414
2002	110,817	46,075	33,075	5,126	197,095
2003	110,652	46,069	35,320	5,667	199,711
2004	119,460	49,593	41,050	6,534	218,641
2005	119,094	49,152	46,586	7,003	223,840
2006	121,335	50,063	48,761	7,626	229,791
2007	122,360	50,190	43,773	7,935	226,265
2008	122,082	48,376	43,066	8,393	223,925
2009	121,768	47,309	41,555	8,158	220,799

Source: California Department of Motor Vehicles

Created by: Center for Economic Development, California State University, Chico

El Dorado County

The number of total vehicle registrations had increased steadily in El Dorado County until reaching a peak of 229,791 in 2006. It has since fallen to 220,799 in 2009. Of these, 121,768 were automobiles, 47,309 were trucks, 41,555 were trailers, and 8,158 were motorcycles. These numbers are expected to rise as more people obtain their driver's license and begin driving in El Dorado County. Because registration fees in certain cases can be more than $400, vehicle registration and



8. Community Health

Health and human service agencies are involved in treating and monitoring the health care needs of the community. Community health indicators measure the success of programs and services that provide access to physical and mental support for the community.

When considering community health indicators, it is helpful to look not only at traditional medical indicators (births, deaths, etc.), but those that measure individual and collective health as well. Individual health may be influenced by a variety of factors, including educational attainment, employment, environmental factors, and even community relations. Other indicators measure the availability, and perhaps the adequacy, of health care services in the area.

Indicators in this section can be linked to issues of unemployment and poverty as poverty can affect a persons ability to recieve adequate health care. Conversley health issues can affect a person's ability to work and improve their standard of living.

In this section:

8.1 Death Rate

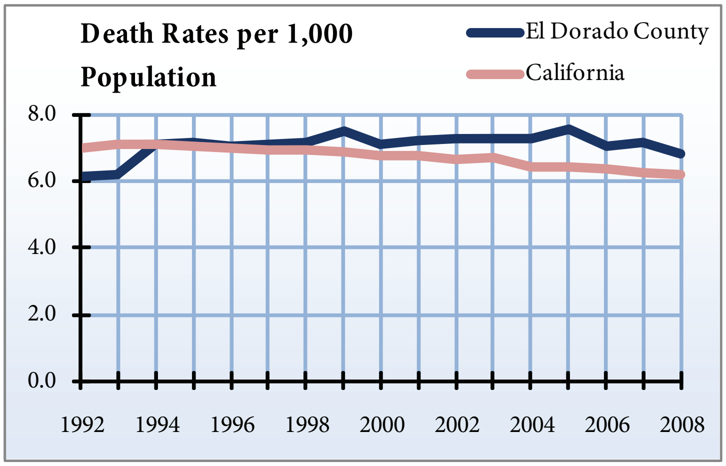
Overview

The data is reported by place of residence at the time of death; as long as the decedent was a permanent resident of El Dorado County at the time of death, they are included. Age and race/ethnicity of decedent, place of death, and cause of death, among other characteristics are also reported to the California Department of Public Health.

Death statistics are essential when evaluating public health and generally identifies the degree to which the county has an aging population. This data is used for identifying health issues in the community, and targeting public health programs and services. Age-adjusted death rates are not published by CDPH at the county level.

El Dorado County

1,227 El Dorado County residents died in 2008. The death rate in El Dorado County decreased from 7.1 deaths per 1,000 residents in 1998 to 6.8 in 2008. In comparison, California had a lower death rate of 6.2 deaths in 2008 per 1,000 residents, and it also has a decreasing death rate. A death rate higher than that of California's death rate means either or both of the following are true: the population of the county is much older than that of California's population, or El Dorado County residents have a lower standard of living/health than the California average.



Number of Deaths, County

Year	Number	Rate per 1,000
1991	901	6.9
1992	827	6.1
1993	856	6.2
1994	1,004	7.1
1995	1,026	7.1
1996	1,024	7.0
1997	1,053	7.1
1998	1,078	7.1
1999	1,149	7.5
2000	1,101	7.1
2001	1,161	7.2
2002	1,191	7.3
2003	1,213	7.3
2004	1,235	7.3
2005	1,303	7.5
2006	1,233	7.0
2007	1,275	7.2
2008	1,227	6.8

Source: California Department of Public Health

Created by: Center for Economic Development, California State University, Chico

Number of Deaths, California

Year	Number	Rate per 1,000
1991	214,220	7.1
1992	214,586	7.0
1993	220,271	7.1
1994	222,854	7.1
1995	222,626	7.0
1996	222,308	7.0
1997	223,438	6.9
1998	225,450	6.9
1999	227,965	6.9
2000	228,281	6.8
2001	232,790	6.8
2002	233,246	6.7
2003	239,325	6.7
2004	232,464	6.4
2005	236,220	6.4
2006	236,452	6.4
2007	233,467	6.2
2008	234,072	6.2

Source: California Department of Public Health

Created by: Center for Economic Development, California State University, Chico

8.2 Birth Rate

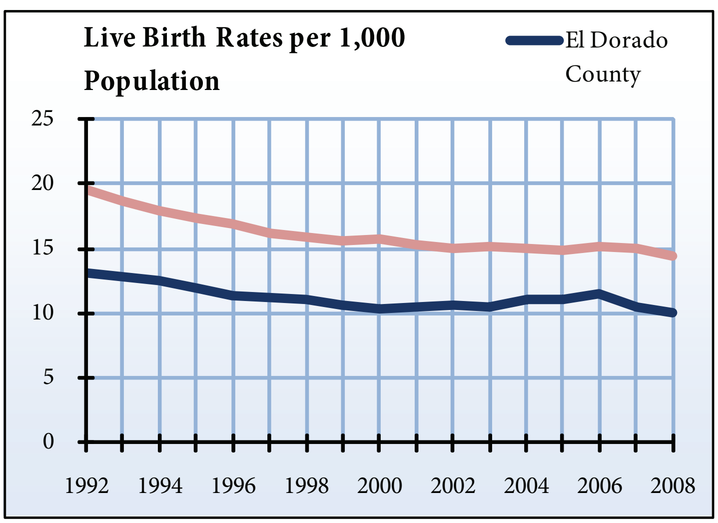
Overview

The birth rate is the number of live births that occur for every 1,000 people in the county. The number of births and rate is tabulated by the California Department of Public Health from records of the state's county health departments.

Birth rates indicate the degree to which the population reproduces. High birth rates can indicate a healthier population, although lower birth rates may be due to fewer family-age adults in the community, or a greater propensity for lifestyles that include smaller than average families. Birth rates tend to increase slightly during economic booms and decrease slightly during recessions, although long-term trends in birth rates are not an indicator of long-term economic activity.

El Dorado County

County birth rates are consistently below average compared to the state, which is attributable to the higher senior population of the county. Rates have been declining along with those of the state since 1991.



Number of Live Births, County

Year	Number	Rate per 1,000
1991	1,956	15.0
1992	1,773	13.1
1993	1,789	12.9
1994	1,792	12.6
1995	1,726	12.0
1996	1,664	11.4
1997	1,666	11.2
1998	1,677	11.1
1999	1,637	10.7
2000	1,628	10.5
2001	1,698	10.6
2002	1,765	10.8
2003	1,751	10.5
2004	1,897	11.2
2005	1,930	11.1
2006	2,036	11.6
2007	1,881	10.6
2008	1,814	10.1

Source: California Department of Public

Created by: Center for Economic Development, California State University, Chico

Number of Live Births, California

Year	Number	Rate per 1,000
1991	609,228	20.2
1992	600,838	19.6
1993	584,483	18.8
1994	567,034	18.0
1995	551,226	17.4
1996	538,628	16.9
1997	524,174	16.3
1998	521,265	16.0
1999	518,073	15.6
2000	531,285	15.8
2001	527,371	15.3
2002	529,245	15.1
2003	540,827	15.2
2004	544,685	15.0
2005	548,700	15.0
2006	562,157	15.2
2007	566,137	15.1
2008	551,567	14.6

Source: California Department of Public Health

Created by: Center for Economic Development, California State University, Chico

8.3 Leading Causes of Death

Overview

Each death in the county is reported with certain characteristic information, including age and race/ethnicity of decedent, place of residence at time of death, and cause of death, among other characteristics. This indicator includes data on the ten leading causes of death in California each year, broken out by county. The tables show the number of deaths in El Dorado and in California in order of California's top ten most common causes of death in California between 1999 and 2008.

El Dorado County

The leading cause of death in El Dorado County is cancer, which is the second leading cause of death in the state. The second leading cause of death in El Dorado County is heart disease, California's leading cause of death. In the last ten years, the number of deaths caused by heart disease has fluctuated between 343 with 301 deaths in 2008.

Leading Causes of Death, County

Cause of Death	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Causes	1,149	1,101	1,161	1,191	1,213	1,235	1,303	1,233	1,275	1,227
Heart Disease	343	275	324	329	292	341	304	313	298	301
Cancer	302	300	295	323	324	296	319	300	319	333
Cerebro-Vascular Disease	76	69	66	72	74	76	83	52	56	56
Pulmonary Disease	51	67	71	84	75	73	104	70	79	76
Accidents	47	54	65	47	55	59	74	86	96	70
Alzheimers	40	22	33	32	36	33	41	32	48	59
Diabetes	28	28	23	19	18	26	23	24	29	20
Pneumonia & Influenza	17	29	38	35	24	33	33	36	18	23
Cirrhosis	21	18	13	17	22	30	23	22	23	16
Suicide	21	19	25	22	29	14	34	31	21	16
All other causes	203	220	208	211	264	254	265	267	288	257

Source: California Department of Public Health

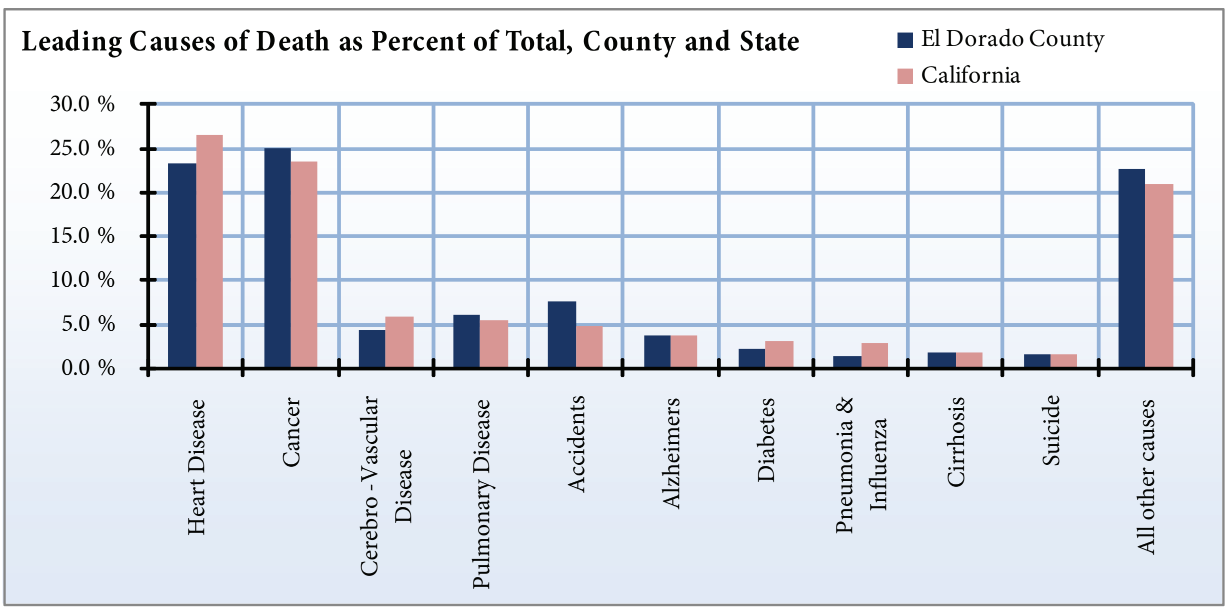
Created by: Center for Economic Development, California State University, Chico

Leading Causes of Death, California

Cause of Death	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Causes	227,965	228,281	232,790	233,246	239,325	232,464	236,220	236,452	233,467	234,072
Heart Disease	69,900	68,533	69,004	68,387	69,013	65,002	64,689	64,648	62,220	60,739
Cancer	52,880	53,005	53,810	53,926	54,307	53,708	54,613	54,043	54,918	54,579
Cerebro-Vascular Disease	18,079	18,090	18,078	17,551	17,686	16,884	15,551	15,011	13,724	13,792
Pulmonary Disease	13,187	12,754	13,056	12,643	13,380	12,519	13,167	12,807	12,497	13,346
Accidents	8,940	8,814	9,274	9,882	10,470	10,614	10,926	11,236	11,426	10,667
Alzheimers	8,014	4,398	4,897	5,405	6,585	6,962	7,694	8,141	8,495	10,095
Diabetes	6,004	6,203	6,457	6,783	7,088	7,119	7,679	7,367	7,395	7,349
Pneumonia & Influenza	3,934	8,355	8,167	8,098	8,184	7,331	7,537	7,329	6,522	6,576
Cirrhosis	3,546	3,673	3,759	3,725	3,832	3,686	3,819	3,826	4,052	4,142
Suicide	3,047	3,113	3,256	3,210	3,396	3,364	3,188	3,296	3,543	3,729
All other causes	40,434	41,343	43,032	43,636	45,384	45,275	47,357	48,748	48,675	49,058

Source: California Department of Public Health

Created by: Center for Economic Development, California State University, Chico



8.4 Infant Mortality

Overview

Infant mortality is used to compare the health and well-being of populations across and within countries.

Infant mortality rates are a subset of total deaths presented earlier in this section and are the sum of infant and neonatal deaths, which are described below:

·**Neonatal death** is a death occurring within the first twenty-eight days of life.

·**Infant death** is a death occurring during the first year of life.

Infant mortality represents many factors surrounding birth, including but not limited to the health and socioeconomic status of the mother, prenatal care, quality of the health services delivered to the mother and child, and infant care. In addition, high infant mortality rates are often considered preventable and can be influenced by various education and care programs.

El Dorado County

There were a total of eight infant deaths in El Dorado County in 2007, an increase of one death from the previous year. In 2002, El Dorado County saw the highest number of infant deaths since 1994.

At the time of data collection the most current data available was from 2007.

Number of Infant Deaths, County

Year	Number	Deaths per 1,000 live births
1999	8	4.9
2000	3	1.8
2001	9	5.3
2002	12	6.8
2003	4	2.3
2004	10	5.3
2005	5	2.6
2006	7	3.4
2007	8	4.3

Source: California Department of Public Health

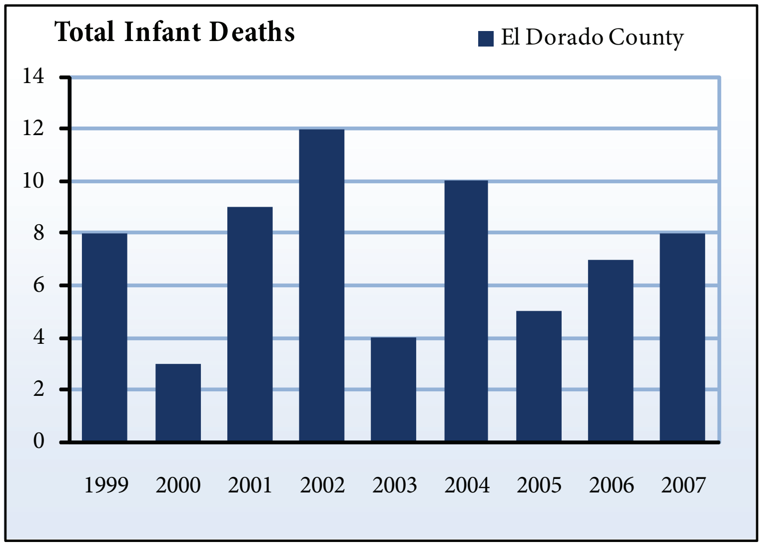
Created by: Center for Economic Development, California State University, Chico

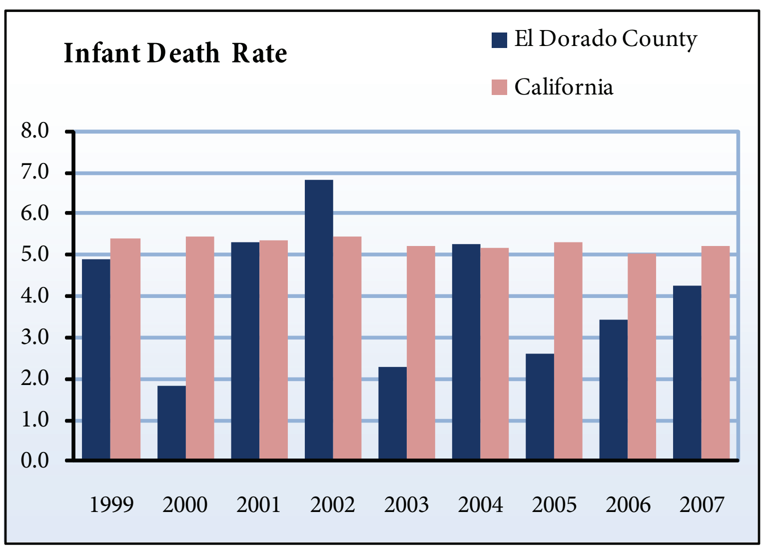
Number of Infant Deaths, California

Year	Number	Deaths per 1,000 live births
1999	2,787	5.4
2000	2,884	5.4
2001	2,815	5.3
2002	2,875	5.4
2003	2,819	5.2
2004	2,811	5.2
2005	2,913	5.3
2006	2,829	5.0
2007	2,941	5.2

Source: California Department of Public Health

Created by: Center for Economic Development, California State University, Chico


Total Infant Deaths
El Dorado County
14
12
10
8
6
4
2
0
1999
2000
2001
2002
2003
2004
2005
2006
2007


Infant Death Rate
El Dorado County
California
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1999
2000
2001
2002
2003
2004
2005
2006
2007

8.5 Low Birth Weight Infants

Overview

Births of infants with a low birth weight (less than 2,500 grams, about 5.5 pounds) are reported by the California Department of Health Services as a subset of birth data.

Low Birth Weight Infants, California

Year	Number	Percent of live births
1990	35,474	5.8 %
1991	35,359	5.8 %
1992	35,608	5.9 %
1993	35,116	6.0 %
1994	34,876	6.2 %
1995	33,588	6.1 %
1996	32,649	6.1 %
1997	32,232	6.1 %
1998	32,438	6.2 %
1999	31,686	6.1 %
2000	32,853	6.2 %
2001	33,196	6.3 %
2002	33,859	6.4 %
2003	35,659	6.6 %
2004	36,481	6.7 %
2005	37,653	6.9 %
2006	38,517	6.9 %
2007	38,923	6.9 %
2008	37,507	6.8 %

Source: California Department of Public Health
Created by: Center for Economic Development, California State University, Chico

Low Birth Weight Infants, County

Year	Number	Percent of live births
1990	91	4.6 %
1991	116	5.9 %
1992	104	5.9 %
1993	104	5.8 %
1994	98	5.5 %
1995	96	5.6 %
1996	107	6.4 %
1997	110	6.6 %
1998	86	5.1 %
1999	81	4.9 %
2000	93	5.7 %
2001	84	4.9 %
2002	122	6.9 %
2003	121	6.9 %
2004	119	6.3 %
2005	107	5.5 %
2006	134	6.6 %
2007	114	6.1 %
2008	120	6.6 %

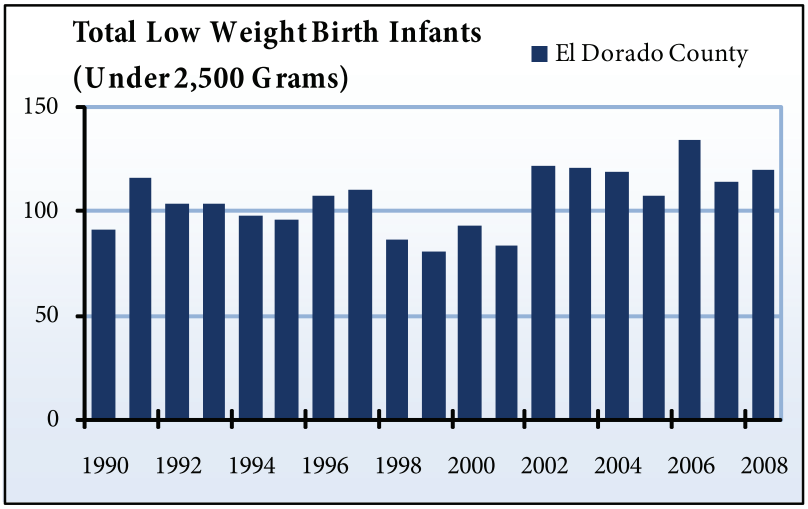
Source: California Department of Public Health
Created by: Center for Economic Development, California State University, Chico

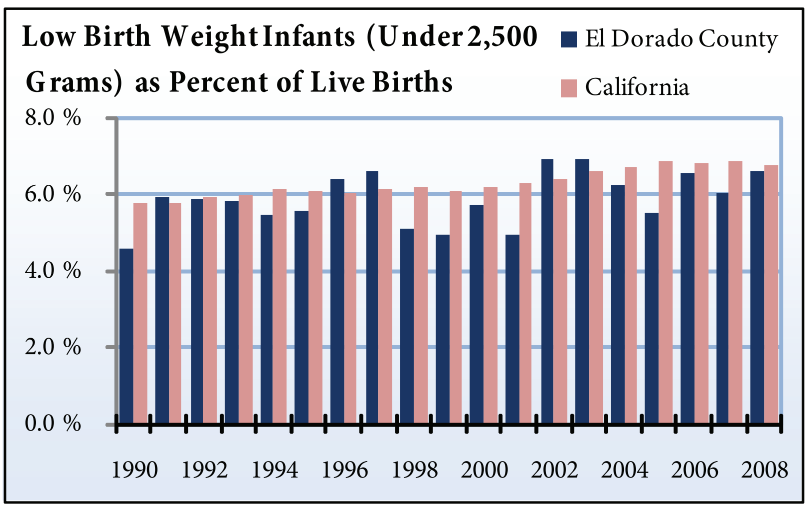
Low birth weight is a major cause of infant mortality. Birth weight is also an important element in childhood development. There are many factors that lead to low birth weights, such as smoking tobacco during pregnancy, using alcohol or other nonprescribed substances, poor nutrition, inadequate prenatal care, and premature birth.

Low birth weight babies are at a higher risk to be born with underdeveloped organs. This can lead to lung problems, such as respiratory distress syndrome, bleeding of the brain, vision loss, and/or serious intestinal problems. Low birth weight babies are more than twenty times more likely to die in their first year of life than babies born at a normal weight.

El Dorado County

The total number of low birth weight babies was 120 in El Dorado County in 2008, which was 6.6 percent of the total number of births in the same year. This percentage has decreased from 7 percent in 2002 and 2003, and is 0.2 percent less than the rate of low birth weight babies across California.


Total Low Weight Birth Infants (Under 2,500 Grams)
El Dorado County
150
100
50
0
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008


Low Birth Weight Infants (Under 2,500 Grams) as Percent of Live Births
El Dorado County
California
8.0 %
6.0 %
4.0 %
2.0 %
0.0 %
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008

8.6 Teenage Pregnancy

Overview

Teen births are reported by the California Department of Health Services as births to mothers under the age of twenty. It is a subset of the birth data published by the California Department of Public Health.

Teen pregnancy is a major national and state concern because teen mothers and their babies face increased risks to their health and economic status. According to the National Center for Health Statistics, teen mothers are more likely than mothers over age twenty to give birth prematurely (before thirty-seven completed weeks of pregnancy). Many factors contribute to the increased risk of health problems of babies born to teenage mothers. Teens often have poor eating habits and neglect taking vitamins. Many teens smoke, drink alcohol, or even take drugs.

Teenage mothers are more likely to drop out of high school than those who wait until later years to have their own children. Usually lacking necessary education skills, teenage mothers potentially have a harder time finding and keeping well-paying jobs.

El Dorado County

Births to teenage mothers in El Dorado County represented 10 percent of all live births in 1995, but have since been decreasing even though the population has grown. Also, teen pregnancy rates in El Dorado County have always been lower than the overall incidence throughout California. Only 6.2 percent of all births in the county were from teen mothers in 2008, lower than the California average of 9.4 percent.

Total Teen Births, California

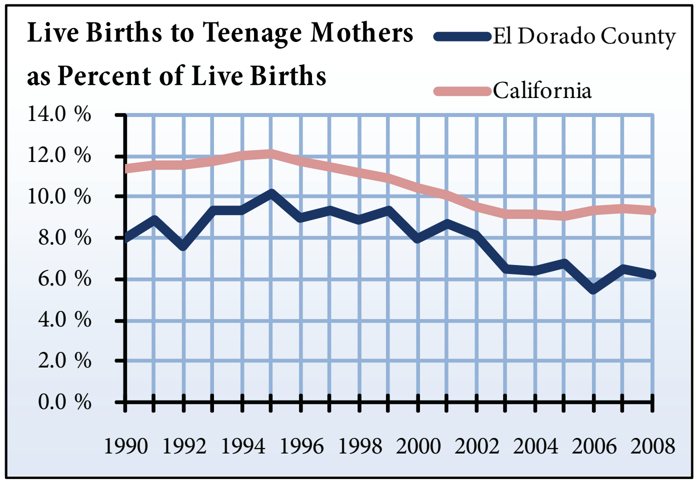
Year	Number	Percent of live births
1990	69,560	11.4 %
1991	70,322	11.5 %
1992	69,272	11.5 %
1993	68,519	11.7 %
1994	68,198	12.0 %
1995	66,644	12.1 %
1996	63,118	11.7 %
1997	59,851	11.4 %
1998	58,141	11.2 %
1999	56,577	10.9 %
2000	55,373	10.4 %
2001	52,966	10.0 %
2002	50,201	9.5 %
2003	49,330	9.1 %
2004	49,737	9.1 %
2005	50,017	9.1 %
2006	52,770	9.4 %
2007	53,393	9.4 %
2008	51,704	9.4 %

Source: California Department of Public Health
Created by: Center for Economic Development, California State University, Chico

Total Teen Births, County

Year	Number	Percent of live births
1990	159	8.0 %
1991	174	8.9 %
1992	135	7.6 %
1993	167	9.3 %
1994	167	9.3 %
1995	176	10.2 %
1996	150	9.0 %
1997	155	9.3 %
1998	149	8.9 %
1999	153	9.3 %
2000	129	7.9 %
2001	148	8.7 %
2002	144	8.2 %
2003	113	6.5 %
2004	122	6.4 %
2005	131	6.8 %
2006	111	5.5 %
2007	123	6.5 %
2008	112	6.2 %

Source: California Department of Public Health
Created by: Center for Economic Development, California State University, Chico



8.7 Late Prenatal Care

Overview

Late prenatal care is a count of births where the mother first saw a physician about her pregnancy after her third trimester began. Data is collected by county health departments from surveys of every birth and reported to the California Department of Public Health. The survey includes a question about when the mother first sought medical care during her pregnancy.

Late prenatal care is one of the more prominent risk factors for many medical complications later in pregnancy, during childbirth, or among the children themselves. Early medical care can help expectant mothers with lifestyle and medication changes that might otherwise affect their child.

Births With Late or No Prenatal Care, California

Year	Number	Percent of live births
1990	42,553	7.0 %
1991	38,277	6.3 %
1992	31,755	5.3 %
1993	29,185	5.0 %
1994	27,458	4.8 %
1995	25,099	4.6 %
1996	20,328	3.8 %
1997	19,244	3.7 %
1998	18,650	3.6 %
1999	16,319	3.1 %
2000	16,051	3.0 %
2001	15,258	2.9 %
2002	13,606	2.6 %
2003	13,447	2.5 %
2004	14,123	2.6 %
2005	14,635	2.7 %
2006	15,658	2.8 %
2007	17,847	3.2 %
2008	17,388	3.2 %

Source: California Department of Public Health

Created by: Center for Economic Development, California State University, Chico

Births With Late or No Prenatal Care, County

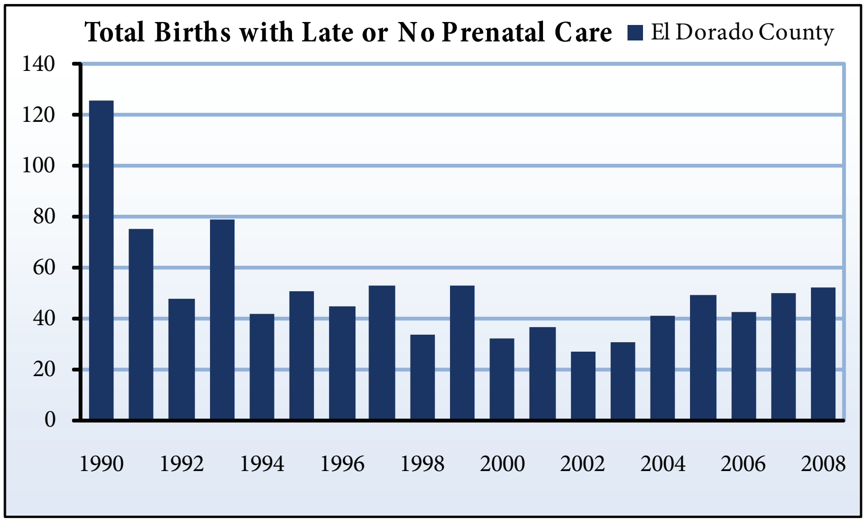
Year	Number	Percent of live births
1990	126	6.3 %
1991	75	3.8 %
1992	48	2.7 %
1993	79	4.4 %
1994	42	2.3 %
1995	51	3.0 %
1996	45	2.7 %
1997	53	3.2 %
1998	34	2.0 %
1999	53	3.2 %
2000	32	2.0 %
2001	37	2.2 %
2002	27	1.5 %
2003	31	1.8 %
2004	41	2.2 %
2005	49	2.5 %
2006	43	2.1 %
2007	50	2.7 %
2008	52	2.9 %

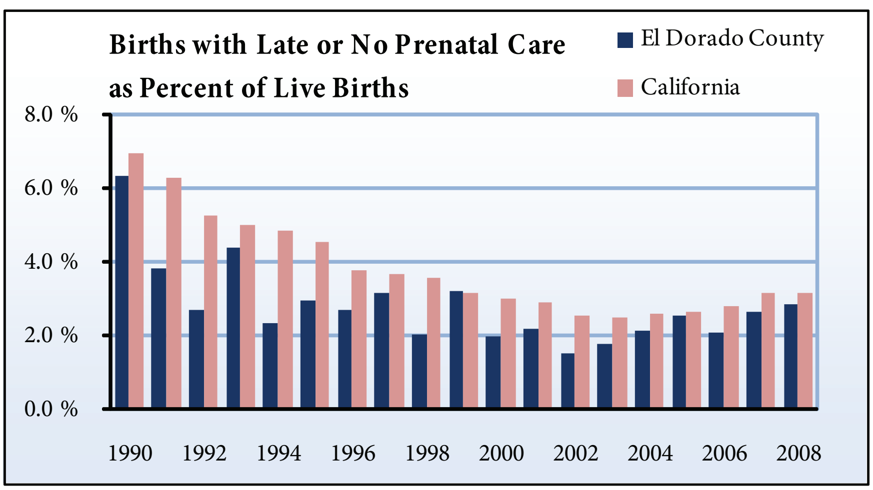
Source: California Department of Public Health

Created by: Center for Economic Development, California State University, Chico

El Dorado County

In 2008 the percent of live births with late prenatal care in the county was 2.9 percent compared to 3.2 percent in the state. However, county rates have been similar to state rates since 1996.


Total Births with Late or No Prenatal Care
El Dorado County
140
120
100
80
60
40
20
0
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008


Births with Late or No Prenatal Care
as Percent of Live Births
El Dorado County
California
8.0 %
6.0 %
4.0 %
2.0 %
0.0 %
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008

8.8 Medical Service Providers

Overview

The Medical Board of California is the state's licensing agency for practicing physicians. The table in this section presents the number of licenses where the primary address of the practice is in El Dorado County. This may not entirely represent health care availability in the area if there are a significant number of physicians practicing part-time in El Dorado County with a primary address in neighboring places.

The number of practitioners providing services within an area can indicate the available health care resources in a community. Access to health care and preventative services, such as immunizations and health screenings, are important to an individual's health. Those lacking preventative services are at a higher risk for some diseases, especially those that are preventable by vaccine.

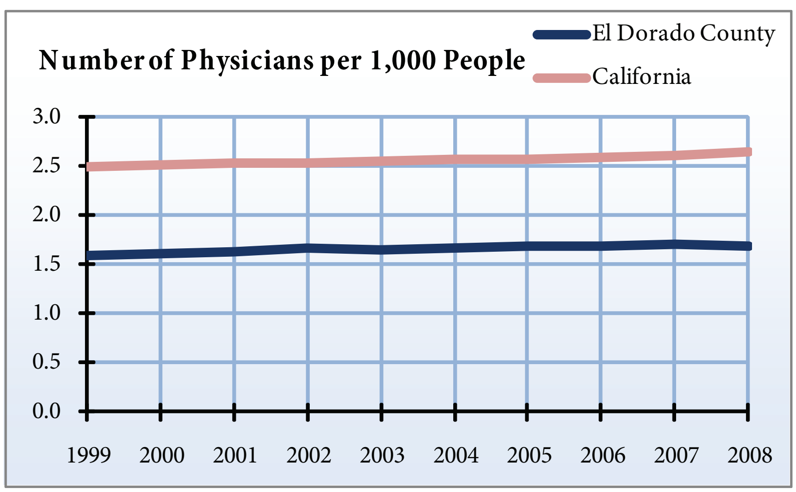
El Dorado County

As of 2008, there were 302 physicians actively practicing in El Dorado County, a decrease of one physician from the previous year, although there is a general upward trend over the last decade. As the number of physicians in California and El Dorado County continue to rise, community health and preventative care services will continue to improve. Also, an influx of physicians in a particular area raises that area's economic and educational status.

Number of Physicians

Fiscal Year	Number of physicians	Total physicians in California
1999	242	82,872
2000	251	84,675
2001	261	86,934
2002	274	89,025
2003	276	91,049
2004	282	92,852
2005	292	94,546
2006	297	96,299
2007	303	97,878
2008	302	99,900

Source: Medical Board of California
Created by: Center for Economic Development, California State University, Chico



9. Welfare

The amount of assistance utilized by families and individuals in need is an indication of how well the community is meeting the basic needs of the less fortunate in our society. Also, by assessing the available services and the amount of existing need, it becomes apparent what additional services and/or assistance might improve the quality of life in a specific area. Welfare indicators are also a good indication of the county's socio-economic make-up.

In this section:

9.1 TANF/CalWORKs Caseload

Overview

The table shows the annual average number of California Work Opportunity and Responsibility to Kids (CalWORKs) recipients (persons) and cases (families or households). CalWORKs is California's implementation of the federal Temporary Aid to Needy Families (TANF) program. Under the welfare reform legislation of 1996, TANF replaced the old welfare programs known as Aid to Families with Dependent Children (AFDC), the Job Opportunities and Basic Skills Training (JOBS) program, and the Emergency Assistance (EA) program.

CalWORKs is a welfare program that gives cash aid and services to eligible needy California families. The program serves all fifty-eight counties in the state and is locally operated by county welfare departments. If a family has little or no cash and needs housing, food, utilities, clothing, or medical care, they may be eligible to receive immediate short-term help. Families eligible for cash aid are those with needy children who are deprived because of a disability, absence or death of a parent, or unemployment of the principal earner. The assistance is intended to encourage work, enable families to become self-sufficient, and provide financial support for children who lack the proper support and care.

Information about these programs is useful in determining which areas need the most assistance and which areas have the greatest number of people utilizing assistance programs. Higher incidence of CalWORKs enrollment may indicate a lack of job opportunities for lesser skilled workers, or additional health or social issues that keep people from holding on to adequate employment.

El Dorado County

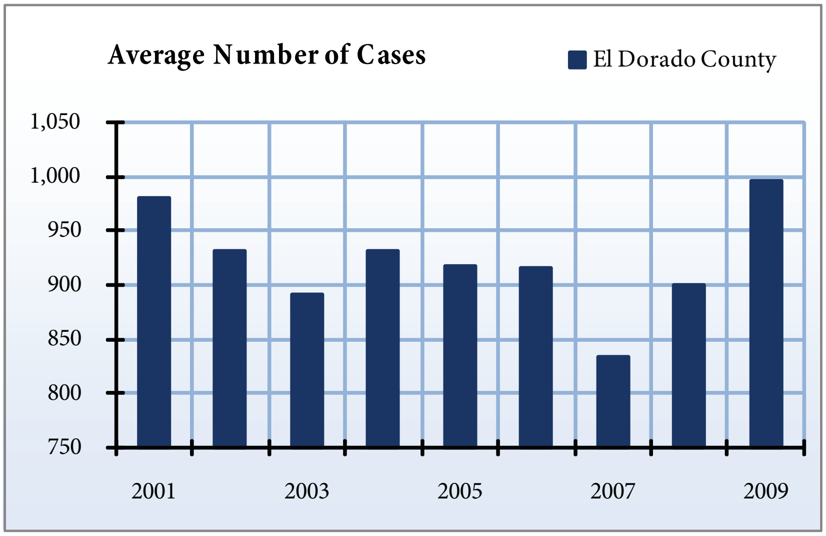
Between 2008 and 2009, the number of TANF/CalWORKs cases in the county increased 11 percent, compared to an 8 percent increase in California. In the same year, the number of recipients in the county increased 16 percent, compared to a 9 percent increase in California.

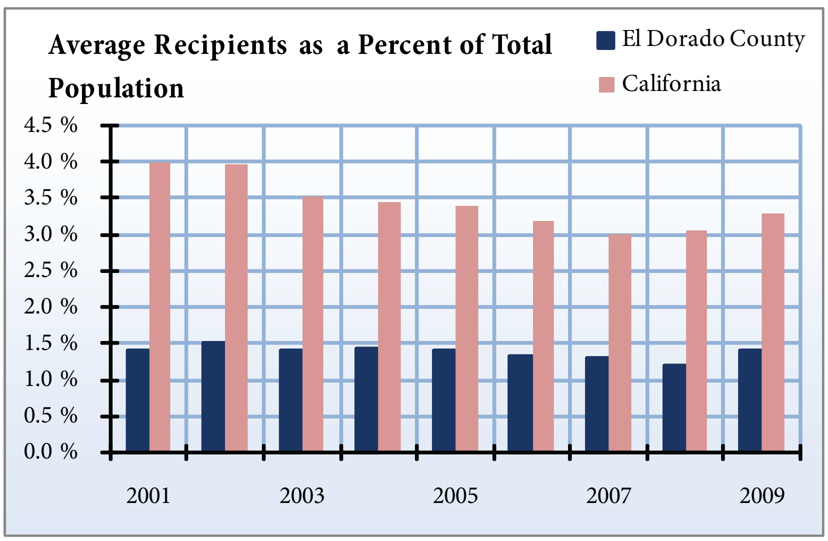
TANF/CalWORKs Caseload

Year	Average number of cases	Average number of recipients
2001	979	2,233
2002	931	2,462
2003	892	2,336
2004	931	2,382
2005	917	2,434
2006	916	2,341
2007	834	2,304
2008	900	2,164
2009	995	2,513

Source: California Department of Social Services

Created by: Center for Economic Development, California State University, Chico


Average Number of Cases
El Dorado County
1,050
1,000
950
900
850
800
750
2001
2003
2005
2007
2009


Average Recipients as a Percent of Total Population
El Dorado County
California
4.5 %
4.0 %
3.5 %
3.0 %
2.5 %
2.0 %
1.5 %
1.0 %
0.5 %
0.0 %
2001
2003
2005
2007
2009

9.2 Food Stamps Caseload & Expenditures

Overview

The food stamp program is a federally funded program aimed at ending hunger and improving nutrition and health. The program is available to people whose income falls below a certain level, but who are actively seeking employment or are currently employed.

The food stamp program is administered through the U.S. Department of Agriculture (USDA). The department pays all of the costs of the food stamps issued and half of the administrative costs of the program. The state and county share the other half of the administrative costs. Through this system a county can provide for the basic nutrition needs of its population without suffering a major drain on its economy. Food stamps cannot be used to buy items such as pet food, soap, paper products, household supplies, alcoholic beverages, vitamins, or any food prepared in the store or ready-to-eat.

As with CalWORKs, food stamp caseloads and expenditures may be an indication that issues exist in the county affecting the ability of people to work, either due to lack of jobs or lack of ability to do paid work. Since those working may also be eligible for food stamp assistance, a high food stamp caseload may also indicate that a large percentage of households are supported by employment paying relatively low wages.

El Dorado County

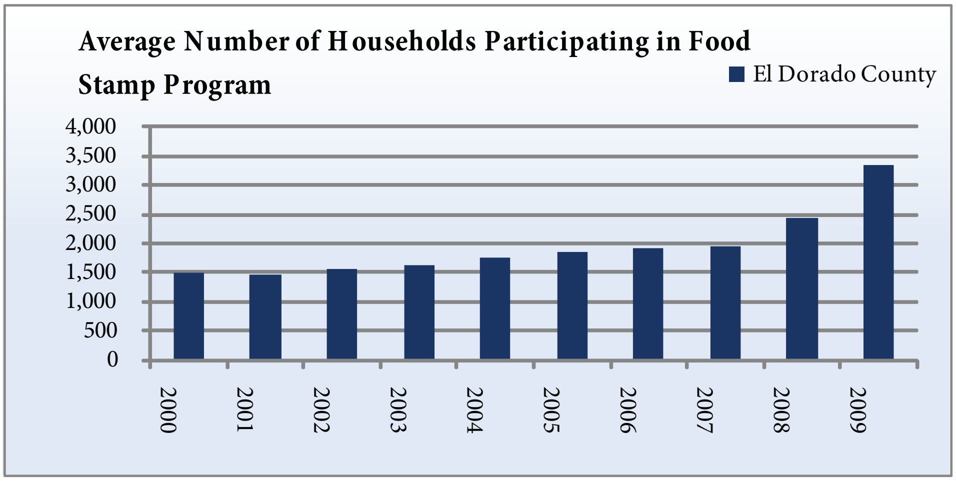
Between 2008 and 2009, the number of households receiving food stamps increased 9 percent, while the number of persons increased 8 percent. In comparison, the average number of households receiving food stamps in California increased 9 percent, and the average number of persons receiving food stamps increased 7 percent in the same year.

Total expenditures in the county rose to its highest point ever in 2009, increasing by 14 percent , compared to a 15 percent increase in California.

Food Stamps, Recipients, and Expenditures

Year	Average number of households	Average number of persons	Total expenditures
2000	1,513	3,478	$ 3,051,748
2001	1,453	3,285	$ 2,984,037
2002	1,555	3,502	$ 3,357,184
2003	1,633	3,586	$ 3,704,341
2004	1,766	3,971	$ 4,337,484
2005	1,856	4,153	$ 4,984,568
2006	1,919	4,318	$ 5,394,680
2007	1,960	4,379	$ 5,804,278
2008	2,426	5,324	$ 7,593,014
2009	3,362	7,067	$ 12,266,308

Source: California Department of Social Services
Created by: Center for Economic Development, California State University, Chico


Average Number of Households Participating in Food Stamp Program
El Dorado County
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009

9.3 Medi-Cal Caseload & Expenditures

Overview

Medi-Cal is California's program that replaces the federal Medicaid program in the state. It was created before Medicaid and, therefore, California legislators successfully requested that the federal government exclude this state from their program. It covers people who are disadvantaged physically or financially. Some examples of Medi-Cal eligibles are people aged 65 or older, those who are blind or disabled, those who receive a check through the Supplemental Security Income/State Supplemental Payments program, children and parents who receive financial assistance through the CalWORKs program, and women who are pregnant or diagnosed with cervical or breast cancer.

Many Medi-Cal recipients are also either CalWORKs or food stamp recipients, creating an overlap in program enrollment.

Information on Medi-Cal programs is helpful in determining the need for public medical assistance in a particular community. As with CalWORKs and food stamps, the relative need for assistance is also an indicator of the social and/or economic status of area residents.

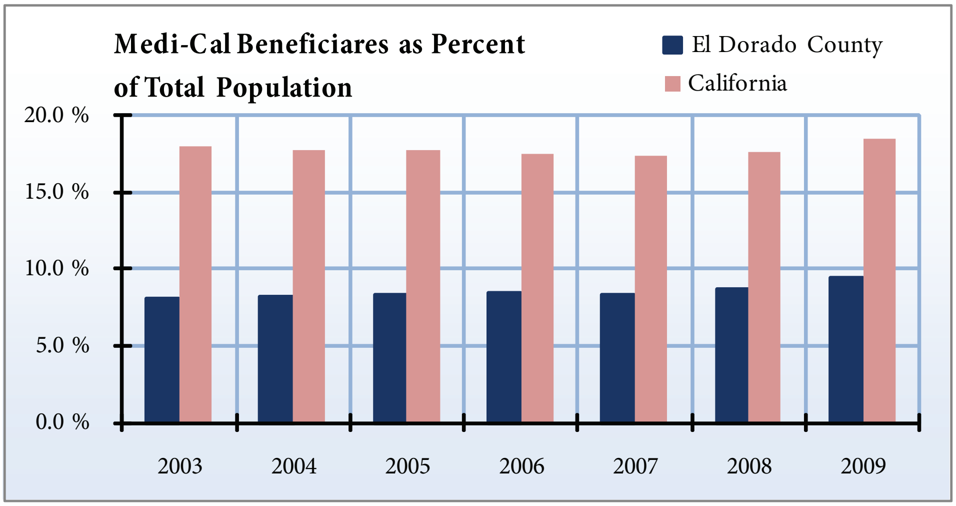
El Dorado County

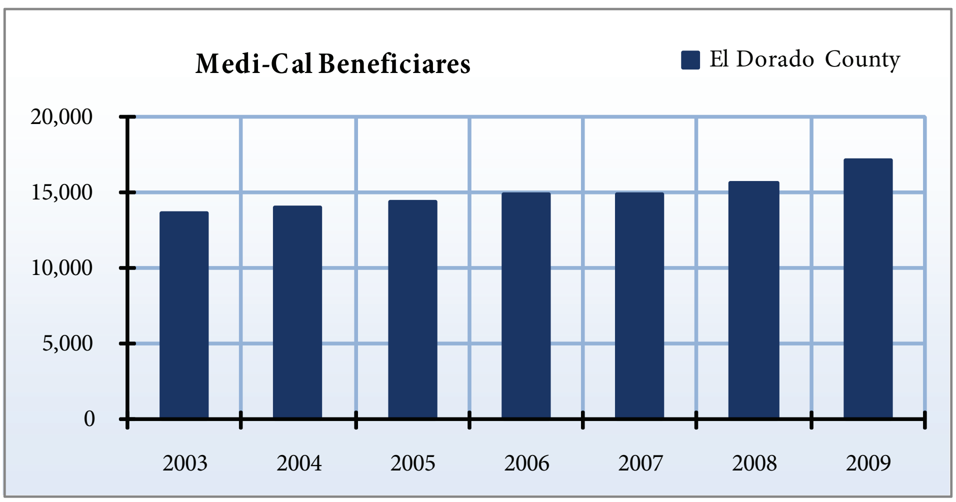
In 2009, approximately 10 percent of the population in El Dorado County was eligible for Medi-Cal programs (17,192 people). In comparison, 18 percent of the population throughout California was eligible. The number of eligibles in the county has been increasing since 2003.

Medi-Cal Users

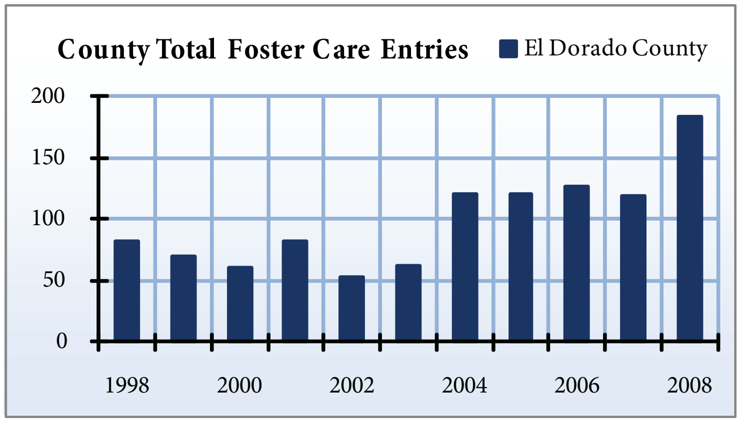
Year	Beneficiaries	Percentage of County Population	California Beneficiaries	Percentage of California Population
2003	13,621	8.1 %	6,478,049	18.0 %
2004	14,004	8.2 %	6,489,774	17.8 %
2005	14,455	8.3 %	6,560,346	17.8 %
2006	14,927	8.4 %	6,534,983	17.5 %
2007	14,917	8.3 %	6,553,258	17.4 %
2008	15,687	8.7 %	6,721,003	17.6 %
2009	17,192	9.5 %	7,094,877	18.4 %

Source: California Department of Healthcare Services
Created by: Center for Economic Development, California State University, Chico


Medi-Cal Beneficiares as Percent of Total Population
El Dorado County
California
20.0 %
15.0 %
10.0 %
5.0 %
0.0 %
2003
2004
2005
2006
2007
2008
2009


Medi-Cal Beneficiares
El Dorado County
20,000
15,000
10,000
5,000
0
2003
2004
2005
2006
2007
2008
2009

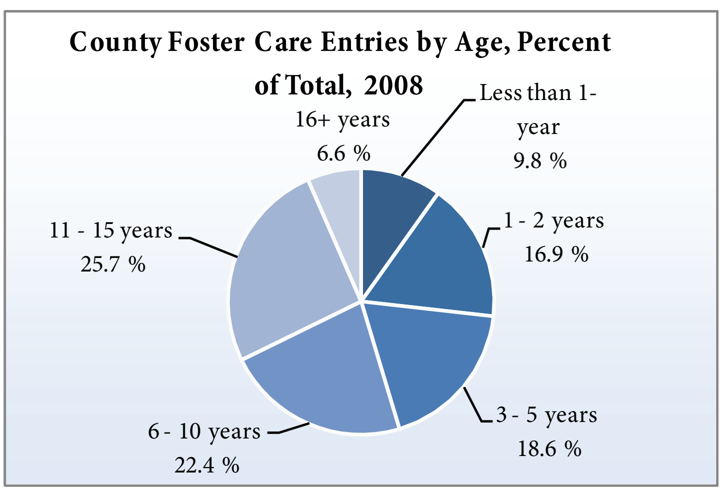
9.4 Foster Care Entries



Overview

Foster care is an out-of-home care system designed to protect children who cannot safely remain in the care of their families. Child abuse and/or neglect are the main causes of child removal from the home, making the child a dependent of the court. The foster care program is aimed at placing these children (who have been removed from their families) in an environment where they will receive proper care and attention. Foster care entries can be of many different types, including kinship, foster, foster family agencies, group homes, shelters, and guardian care.

It is common for children placed in foster care to remain in the system, with multiple placements, until age eighteen. Depending on the success of the initial placements, the time spent in the welfare foster system can have lasting effects on the child's adult life following emancipation. For example, statistics show that children with over five placements suffer more hardships than a child who had fewer than five placements. A small but disturbing number of males enter the state prison system after they leave the child welfare system, while those women who become mothers while in foster care are four times as likely to receive welfare or state aid compared to other young females in their age group. It has been determined by the California Youth Connection that many emancipating foster youth are not made aware of their eligibility for benefits that could support their housing, child care, and employment needs. Roughly two-thirds of foster youth have college ambitions, but many emancipating youths do not attend because information on higher education and financial aid opportunities is not consistently provided in a timely manner.



El Dorado County

A total of 183 children entered foster care in El Dorado County in 2008, an increase of 54 percent from the previous year. The age of these children varied greatly, ranging from less than one year old to over 16 years of age. Of the 183 children who entered foster care in 2008, eighteen were less than one year old.

County Foster Care Entries by Age

Year	Less than 1-year	1 - 2 years	3 - 5 years	6 - 10 years	11 - 15 years	16+ years	Total	Annual percent change
1998	6	9	15	22	26	4	82	n/a
1999	8	9	15	17	19	1	69	- 15.9 %
2000	6	12	7	12	17	6	60	- 13.0 %
2001	11	12	17	19	19	4	82	36.7 %
2002	9	8	4	12	16	4	53	- 35.4 %
2003	4	8	15	19	14	2	62	17.0 %
2004	19	21	23	31	22	5	121	95.2 %
2005	21	24	18	26	24	8	121	0.0 %
2006	30	15	17	24	34	6	126	4.1 %
2007	20	20	17	29	24	9	119	- 5.6 %
2008	18	31	34	41	47	12	183	53.8 %

*Source: CWS/CMS 2009 Q3 Extract *8 days or more*

Created by: Center for Economic Development, California State University, Chico

County Foster Care Entries by Placement Type

Year	Kinship	Foster	FFA	Group	Shelter	Guardian	Missing	Court	Other	Total
1998	15	23	33	4	0	6	0	1	0	82
1999	13	15	32	4	0	2	0	3	0	69
2000	7	23	22	3	0	5	0	0	0	60
2001	12	27	33	7	0	3	0	0	0	82
2002	5	13	20	10	0	5	0	0	0	53
2003	10	15	30	5	0	2	0	0	0	62
2004	5	45	57	11	0	2	0	1	0	121
2005	26	36	39	18	0	2	0	0	0	121
2006	22	31	57	16	0	0	0	0	0	126
2007	22	43	42	11	0	1	0	0	0	119
2008	19	41	91	26	0	6	0	0	0	183

*Source: CWS/CMS 2009 Q3 Extract *8 days or more*

Created by: Center for Economic Development, California State University, Chico

9.5 School Free and Reduced Meals

Overview

This indicator is the count of K-12 students enrolled in the free or reduced-priced meal program. The program provides meals to students from income-qualifying families. Families only have to claim a certain income level to enroll their children in the program, and no evidence or auditing is required. Periodically, schools will actively promote the program, which can temporarily boost enrollment.

NOTE: Total enrollment numbers differ between this indicator and section 10.1 because total enrollment for the free and reduced meal is calculated for total enrollment in October of a given year, students between ages 5 and 17.

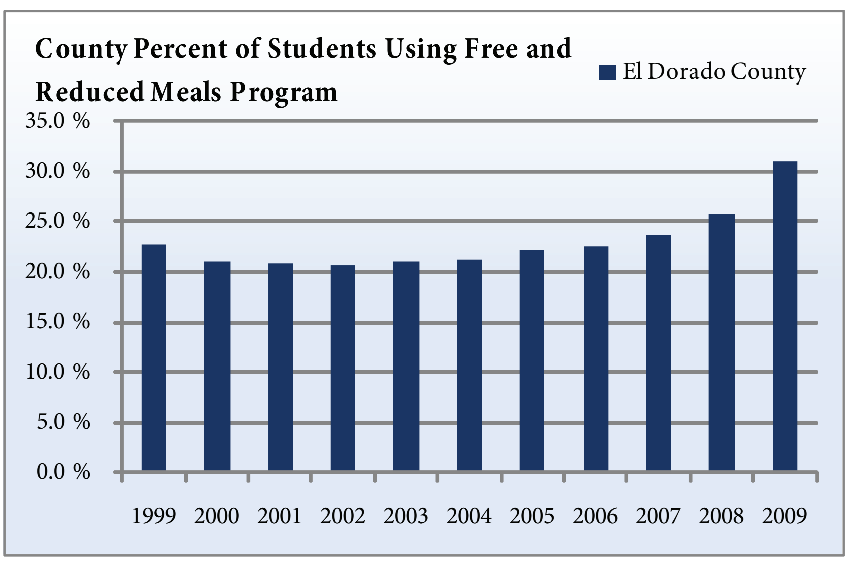
El Dorado County

The percent of students enrolled in the free and reduced price meal program has increased significantly since 2000, from 21 percent to 31 percent in 2009. Program enrollment went from a low of 5,925 in 2000 to a high of 8,980 in 2009.

School Free and Reduced Meals

Year	Total Free and Reduced Meals	Total Enrollment	Percent of Students
1999	6,334	27,844	22.7 %
2000	5,925	28,096	21.1 %
2001	5,965	28,690	20.8 %
2002	5,948	28,874	20.6 %
2003	6,105	29,072	21.0 %
2004	6,242	29,396	21.2 %
2005	6,449	29,183	22.1 %
2006	6,561	29,138	22.5 %
2007	6,826	28,950	23.6 %
2008	7,392	28,686	25.8 %
2009	8,980	29,021	30.9 %

Source: California Department of Education
Created by: Center for Economic Development, California State University, Chico



10. Education

The quality of an area's educational institutions can be a critical factor in a person's decision on where to live, raise a family, and locate his or her business. Education is considered one of the most fundamental socio-economic indicators of a successful life, and a county with substantial, respectable schools is very attractive to parents.

The indicators in this section cover enrollment volume and student performance, each indicating different aspects of the local community. Enrollment data can be used to refine the estimate of population by age (section one) and school performance can influence employment and income potential. Good performance in schools can help residents avoid the need for public assistance health and welfare programs in the future. Often, the amount of education a person achieves has a strong influence on occupations, earnings, poverty, and health care.

In this section:

10.1 School Enrollment

Overview

Total enrollment as reported by the California Department of Education is shown for the 2001-2002 school year through the 2008-2009 school year. The data was compiled from the California Basic Education Data System (CBEDS). On October 4th of each year, the number of students enrolled in public schools that day is reported to CBEDS. California Youth Authority schools (CYA) are also included in enrollment figures. CYA schools provide institutional training and parole supervision for juvenile and young adult offenders.

School enrollment is the most useful indicator of change in the child population after the 2000 Census. As discussed in the age distribution indicator in section one, the decennial census is the only time when population by age is counted, and any data for later years is typically a projection of 2000 Census data. The child population is the most difficult to project because of changing family migration and fertility patterns. School enrollment provides the best data with which to estimate the population of children in the community.

Enrollment trends provide insight into a school's financial stability. Funding is based primarily on enrollment and average daily attendance. Since school districts often face funding challenges, understanding trends in enrollment will help them produce more accurate financial plans.

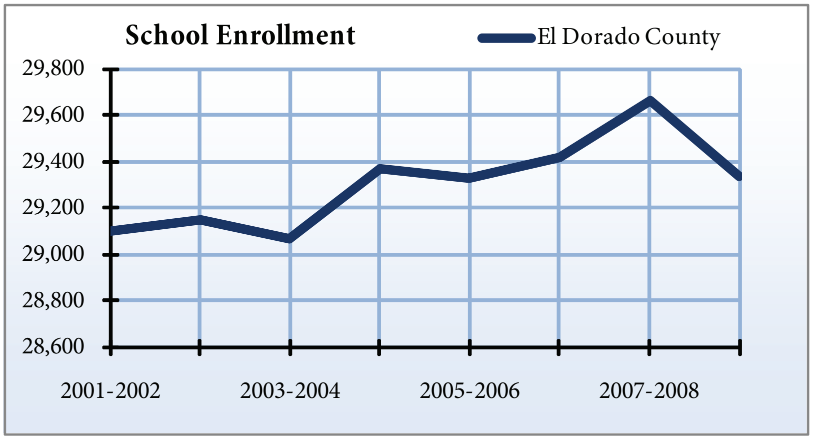
El Dorado County

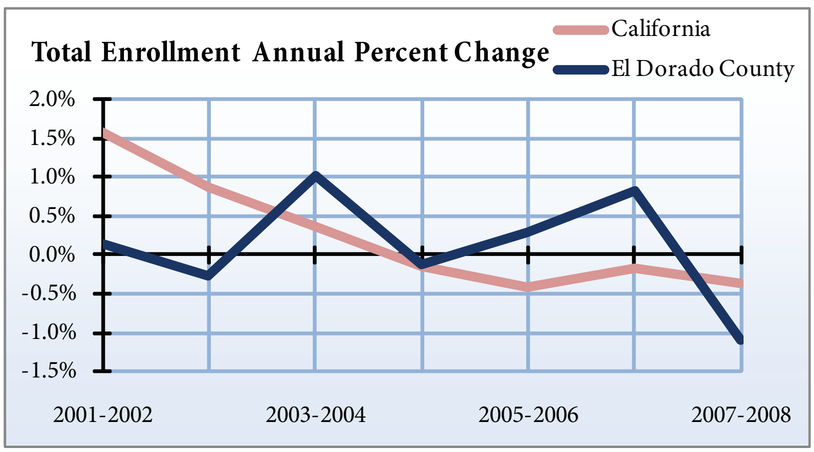
In the 2008-2009 school year, 29,336 students were enrolled in El Dorado County schools. This number represents a 1 percent decrease from the 2007-2008 year. Total enrollment has increased by 232 students since the 2001-2002 school year.

Total School Enrollment

School Year	Total Enrollment	Annual Percent Change
2001-2002	29,104	n/a
2002-2003	29,147	0.1 %
2003-2004	29,072	- 0.3 %
2004-2005	29,368	1.0 %
2005-2006	29,332	- 0.1 %
2006-2007	29,417	0.3 %
2007-2008	29,662	0.8 %
2008-2009	29,336	- 1.1 %

Source: California Department of Education
Created by: Center for Economic Development, California State University, Chico


School Enrollment
El Dorado County
29,800
29,600
29,400
29,200
29,000
28,800
28,600
2001-2002
2003-2004
2005-2006
2007-2008


Total Enrollment Annual Percent Change
California
El Dorado County
2.0%
1.5%
1.0%
0.5%
0.0%
-0.5%
-1.0%
-1.5%
2001-2002
2003-2004
2005-2006
2007-2008

10.2 High School Dropout Rate

Overview

High school dropout rates measure how many students fail to complete state-mandated curriculum requirements. In order for a student to be officially designated as a dropout, he or she must have been previously enrolled in any grade level, 9-12, and left school without re-enrolling in another public or private educational institution or school program for forty-five consecutive days. The one-year dropout rate is the number of dropouts in grades 9-12 divided by the total enrollment in those grades.

The completion of high school is a requirement for most jobs. Even many lower skilled jobs require a high school diploma. According to the U.S. Census Bureau, people with a high school diploma who did not attend college earn 23 percent more per year on average than those without a diploma. The employment rate for high school dropouts is 11 percent less than rate for high school graduates.

High dropout rates may indicate social issues with families in the community. It may also indicate a workforce that is not skilled enough to attract higher wage jobs to the area, which is important for economic development.

NOTE: Due to Department of Education data discrepencies 2006 - 2008 drop out numbers are not historically comparable.

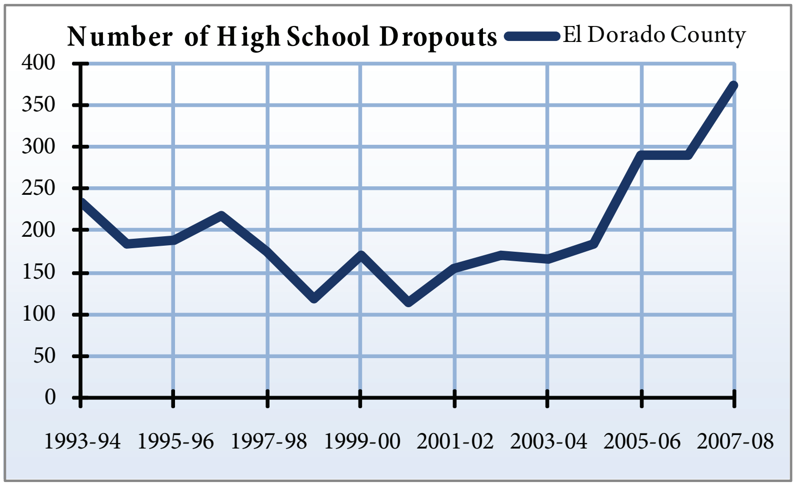
El Dorado County

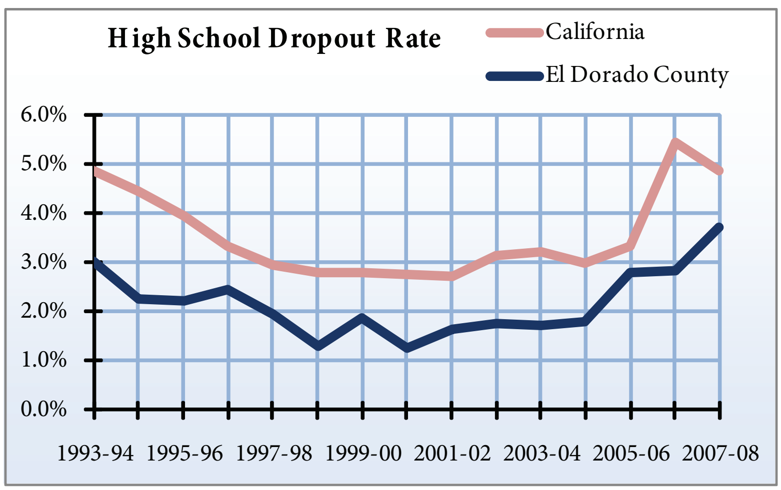
There were 373 students designated as high school dropouts in El Dorado County in 2007, or a 3.7 dropout rate. This number is lower than the 4.9 one-year drop-out rate in California.

High School Dropouts, County (Percent of Total Enrollment)

Year	Number of dropouts	1-year dropout rate	CA 1-year dropout rate
1993-1994	233	3.0 %	4.9 %
1994-1995	184	2.3 %	4.4 %
1995-1996	189	2.2 %	3.9 %
1996-1997	217	2.4 %	3.3 %
1997-1998	176	1.9 %	2.9 %
1998-1999	119	1.3 %	2.8 %
1999-2000	171	1.9 %	2.8 %
2000-2001	115	1.2 %	2.8 %
2001-2002	154	1.6 %	2.7 %
2002-2003	170	1.8 %	3.1 %
2003-2004	166	1.7 %	3.2 %
2004-2005	184	1.8 %	3.0 %
2005-2006	289	2.8 %	3.3 %
2006-2007	289	2.8 %	5.5 %
2007-2008	373	3.7 %	4.9 %

Source: California Department of Education
Created by: Center for Economic Development, California State University, Chico


Number of High School Dropouts
El Dorado County
400
350
300
250
200
150
100
50
0
1993-94
1995-96
1997-98
1999-00
2001-02
2003-04
2005-06
2007-08


High School Dropout Rate
California
El Dorado County
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
1993-94
1995-96
1997-98
1999-00
2001-02
2003-04
2005-06
2007-08

10.3 Graduates Eligible for UC or CSU System

Overview

This indicator is the count of high school graduates who have completed coursework required by either the California State University or University of California postsecondary education systems. The data is reported by schools to the California Department of Education in their annual California Basic Educational Data System (CBEDS) reports. Further eligibility based on SAT or other college entrance exams are not included here.

A college education is critical for most students looking for higher-wage employment. Also, this is an indicator of the support provided to K-12 students from a combination of the local school system, parents, and the community.

El Dorado County

Between 2000 and 2007, the county has had a similar percentage of its graduates complete coursework to be CSU/UC eligibile to that of California. However, that percentage decreased significantly in 2007-08. This decrease may be temporary or due to incomplete reporting, which can happen – forthcoming data for 2008-09 will help clarify the picture.

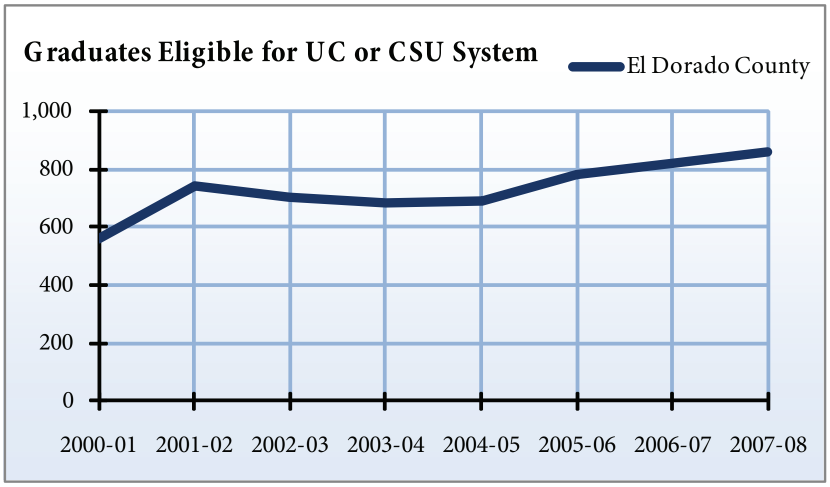
With the exception of the 2007-2008 school year the percent of El Dorado County graduates eligible for the UC or CSU system has been very comprable to the state average.

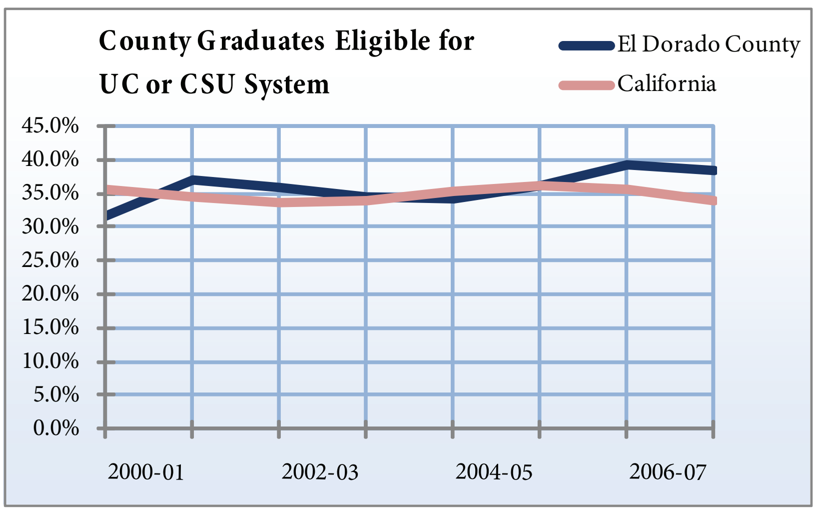
Graduates Eligible for UC or CSU System

Year	County Graduates eligible for UC or CSU System	County Percent of Graduates eligible for UC or CSU System	CA Percent of Graduates eligible for UC or CSU System
2000-01	560	31.5 %	35.6 %
2001-02	743	36.9 %	34.6 %
2002-03	701	35.9 %	33.6 %
2003-04	685	34.4 %	33.8 %
2004-05	693	34.2 %	35.2 %
2005-06	782	36.1 %	36.1 %
2006-07	821	39.2 %	35.5 %
2007-08	860	38.5 %	33.9 %

Source: California Department of Education

Created by: Center for Economic Development, California State University, Chico


Graduates Eligible for UC or CSU System
El Dorado County
1,000
800
600
400
200
0
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08


County Graduates Eligible for
UC or CSU System
El Dorado County
California
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
2000-01
2002-03
2004-05
2006-07

10.4 English Learners Enrollment

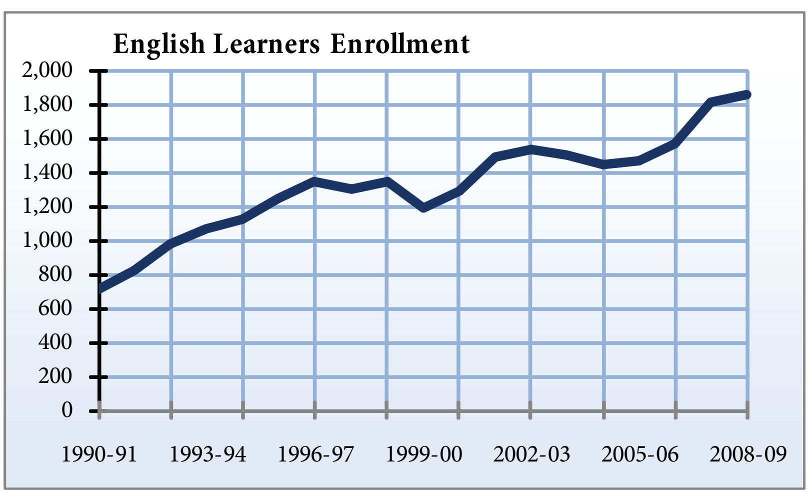
Overview

This is the count of K-12 students enrolled in English language learning (ELL) programs. These programs were once referred to as "English as a second language" (ESL).

ELL programs require additional school resources per student, although enrollment in the program does not increase school funding, so this can be a measure of hardship for local school districts. It is also a measure of community culture – children and families who continue to primarily use a non-English language can indicate adherence to native culture and may have less access to high paying employment opportunities.

El Dorado County

The total English learner enrollment has increased steadily over the past two decades. From 1990 to 2009 the total increase in English learners was 161 percent compared to a 53 percent increase in California. The sharp increase seems to have flattened out somewhat as there was a 2.2 percent increase from the 2007-2008 scchool year to the 2008-2009 school year.



English Learners Enrollment

Year	Enrollment
1990-1991	711
1991-1992	825
1992-1993	977
1993-1994	1,064
1994-1995	1,127
1995-1996	1,252
1996-1997	1,352
1997-1998	1,305
1998-1999	1,352
1999-2000	1,187
2000-2001	1,294
2001-2002	1,495
2002-2003	1,537
2003-2004	1,501
2004-2005	1,450
2005-2006	1,464
2006-2007	1,565
2007-2008	1,814
2008-2009	1,854

Source: California Department of Education

Created by: Center for Economic Development, California State University, Chico

10.5 Average SAT Scores

Overview

The SAT is designed to measure verbal and mathematical reasoning abilities that are related to successful performance in college, according to the California Department of Education. Academic, demographic, and socioeconomic factors can affect the results of the test scores. The largest factor affecting average SAT scores is the number of students taking the test; as the number of test takers increases, scores tend to fall.

Students are required to take the test only if they plan on attending a college that requires it for admission. This is the primary reason the SAT is not an accurate measure of the effectiveness of school curriculum or teaching. If a small percentage of students from a school take the test, then the average score could reflect selective testing; a school may encourage only those students who are identified as high achievers to participate. For this reason, the percentage of students who took the exam is provided. The highest possible score a student can receive is 2400.

NOTE: Average SAT scores are only reported for graduating seniors. The scores from students who take the SAT as juniors are included with their graduating class.

El Dorado County

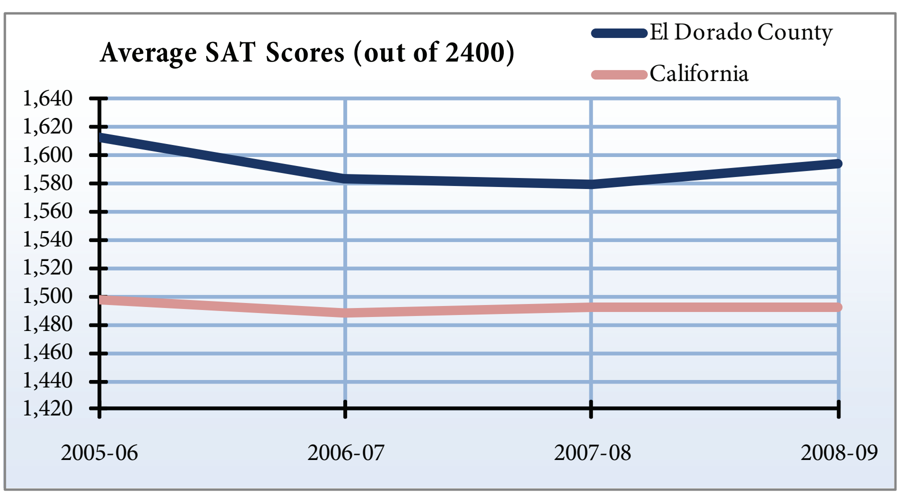
Average SAT scores in the county are significantly higher than those in California. During the 2008-2009 school year, the average score was 1594 compared to 1492 in the state as a whole.

Average SAT Scores (out of 2400)

School Year	County % of Students who took SAT	County Average SAT Scores	CA % of Students who took SAT	CA Average SAT Scores
2005-06	34.4%	1613	36.7%	1498
2006-07	34.7%	1583	36.9%	1489
2007-08	35.4%	1580	35.9%	1493
2008-09	37.2%	1594	34.7%	1492

Source: California Department of Education

Created by: Center for Economic Development, California State University, Chico



10.6 Academic Performance Index (API)

Overview

The purpose of the Academic Performance Index is to measure the academic performance and progress of schools. It is a reliable measure of academic performance and progress because it uses a test that every student is required to take yearly beginning in second grade and continuing through eleventh grade. The base year for a school's API result is 2006. These results will be used to monitor academic growth.

The 2006 base API incorporates the results of school performance in California's Standardized Testing and Reporting (STAR) program, the California High School Exit Examination (CAHSEE), and the California Alternate Performance Assessment (CAPA). The API is calculated on a scale from 200-1000, using individual student performance on four different tests.

The State Board of Education adopted a performance target of 800 for the 1999 API. This target will serve as an interim statewide target until state performance standards are adopted. The annual growth rate target for schools is equal to 5 percent of the distance between a school's API and the interim state performance target of 800. Schools that receive an API less than 800 have a minimum target of a one-point increase. Schools that meet or exceed the interim target must maintain an API of 800.

The California Department of Education did not calculate API scores for schools with less than 100 students with valid Stanford 9 test scores, or county administered, alternative, continuation, independent, or community day schools.

Combined with SAT scores, API scores can indicate either the learning ability of children in the community, or measure the effect of broader social or economic maladies in the community on children.

It is also important to keep track of a school's API scores because federal No Child Left Behind includes provisions allowing the state to assume more financial and administrative control over local schools that do not make the required improvements in test scores toward a national benchmark.

El Dorado County

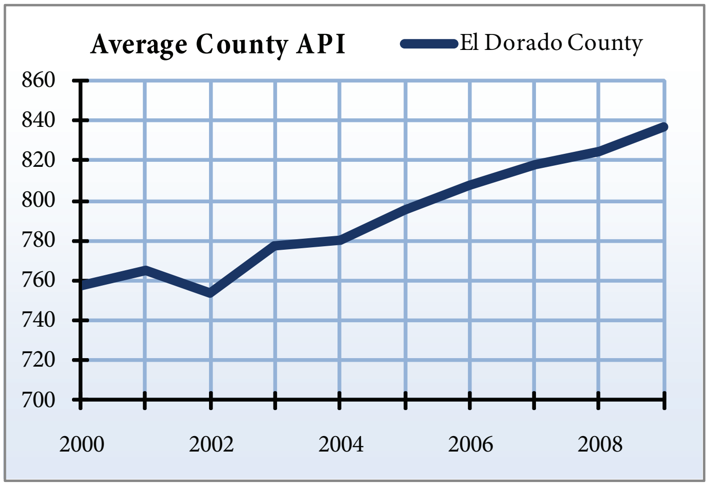
El Dorado County's average API has been steadily increasing since 2000. As stated, the goal for county schools is to make an annual minimum increase that is equal to 5 percent of the differance between the school or county's API and 800. El Dorado County has reached the State Board of Educations's performance target each year since 2006.

Average County API

Year	Average API	1 Year Change
2000	758	n/a
2001	765	1.0 %
2002	753	- 1.5 %
2003	777	3.1 %
2004	780	0.4 %
2005	795	1.9 %
2006	807	1.5 %
2007	818	1.3 %
2008	825	0.8 %
2009	837	1.5 %

Source: California Department of Education

Created by: Center for Economic Development, California State University, Chico


Average County API
El Dorado County
860
840
820
800
780
760
740
720
700
2000
2002
2004
2006
2008

11. Crime

Crime rate statistics include information on crimes reported, staffing of the criminal justice system, and the probation caseload. Interpretation of crime statistics is difficult because they may be indicative of any number of local conditions and attitudes, both negative and positive. An above average rate of reported crime in an area can be a direct reflection of social problems in a community. It can also indicate a greater willingness within the community to report crime, perhaps due to a more cooperative relationship between local law enforcement and the citizens. The adequacy of local law enforcement cannot be determined by the information presented in this section.

In this section:

11.1 Reported Crime & Crime Rates

Overview

Crime counts are a summation of crimes reported to local law enforcement agencies. They include misdemeanor and felony reports, but not infractions such as traffic violations. Reported crimes are counted whether or not the criminal is apprehended.

The crime rate is the number of crimes committed per 100,000 people, and includes both violent and property crimes.

Crime rate data can be used to determine whether the amount of crime in a given area is increasing or decreasing, and also to show how crime rates from various areas compare to each other. Crime is an important factor in terms of an area's quality of life. An area with a high crime rate is usually a much less attractive place to live than one with a low crime rate. While it is impossible to predict when or where a crime will occur, individuals and communities can help with prevention by taking note of patterns and trends collected by legitimate agencies.

Crime rates can rise and fall with increasing or decreasing incidence of crime, but rates could also change if more or fewer crimes are reported to local law enforcement agencies. Therefore, careful analysis is needed when evaluating change in crime rates.

El Dorado County

There were 2,027 property crimes and 451 violent crimes in El Dorado County in 2008. The crime rate in the county in 2008 was 14 crimes per 1,000 people, which reflects no significant change in the number of crimes per 1,000 from the preceding year.

County and California Crime Rate per 1,000 Population

Year	County property crime rate	County violent crime rate	County total	State property crime rate	State violent crime rate	State total
1999	10	4	14	17	6	23
2000	11	5	16	17	6	23
2001	12	4	16	18	6	24
2002	14	3	17	19	6	25
2003	14	3	16	19	6	25
2004	15	3	18	20	5	25
2005	13	3	16	20	5	25
2006	13	3	17	19	5	24
2007	11	3	14	18	5	23
2008	11	3	14	17	5	22

Source: California Department of Justice, Criminal Justice Statistics Center

Created by: Center for Economic Development, California State University, Chico

Violent Crimes

Year	Homicide	Forcible rape	Robbery	Aggravated assault	Total
1999	3	38	41	468	550
2000	3	37	29	633	702
2001	5	43	42	473	563
2002	4	41	50	429	524
2003	2	44	61	374	481
2004	2	45	59	361	467
2005	5	21	42	414	482
2006	4	40	51	519	614
2007	4	39	55	373	471
2008	8	29	60	354	451

Source: California Department of Justice, Criminal Justice Statistics Center

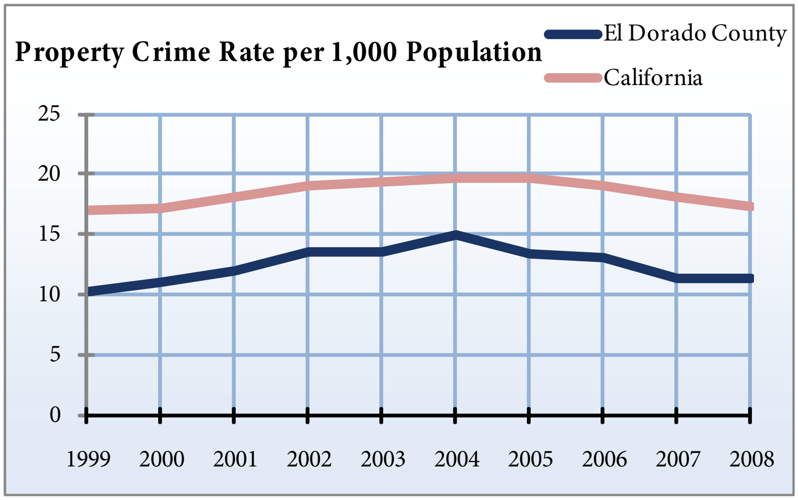
Created by: Center for Economic Development, California State University, Chico

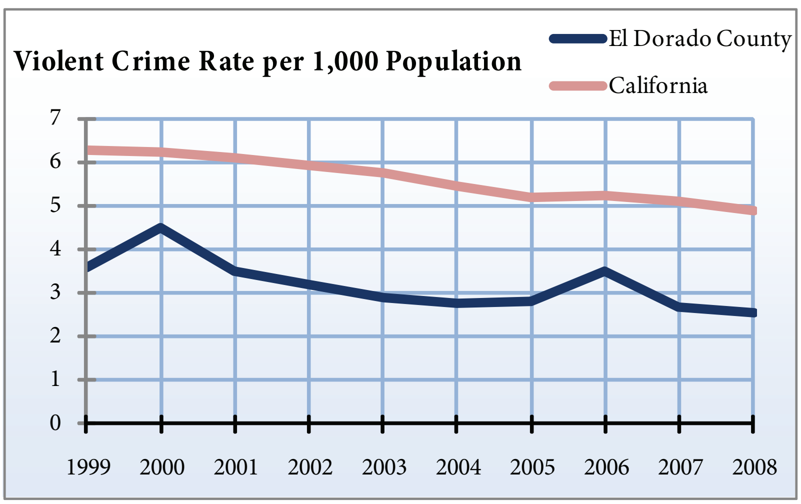
Property Crimes

Year	Burglary	Motor vehicle theft	Larceny over $400	Total
1999	820	209	534	1,563
2000	807	293	612	1,712
2001	1,059	271	602	1,932
2002	1,212	371	643	2,226
2003	1,009	446	811	2,266
2004	1,149	516	873	2,538
2005	1,010	518	780	2,308
2006	993	468	850	2,311
2007	958	297	774	2,029
2008	1,086	244	697	2,027

Source: California Department of Justice, Criminal Justice Statistics Center

Created by: Center for Economic Development, California State University, Chico


Property Crime Rate per 1,000 Population
El Dorado County
California
25
20
15
10
5
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008


Violent Crime Rate per 1,000 Population
El Dorado County
California
7
6
5
4
3
2
1
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008

11.2 Criminal Justice Personnel

Overview

Criminal justice personnel includes the law enforcement employees working in the different agencies as reported by the California Department of Justice. NOTE: The California Department of Justice relies on local agencies to report the number of criminal justice personnel in their area every year.

Criminal justice personnel information helps identify the types of criminal justice employment within a county. Counties with higher incidence of crime need greater numbers of criminal justice personnel to handle the caseload. If crime is rising and the number of criminal justice personnel is not keeping pace, then local personnel are likely handling greater workloads.

The following types of criminal justice personnel are shown:

Law enforcement or sworn officers and civilian employees in local law enforcement agencies, including city police and county sheriff's departments

Prosecution or personnel involved in the prosecution of the accused

Public defense or personnel primarily responsible for representing those unable to hire a private lawyer

Trial courts or primary and auxiliary judges employed during trials

El Dorado County

The total number of criminal justice personnel in El Dorado County increased slightly between 2007 and 2008. There was an increase of 34 sheriff's department personnel in the same year. In the state of California, the total number of law enforcement personnel increased from 210,797 in 2007 to 227,958 in 2008, according to the California Department of Justice.

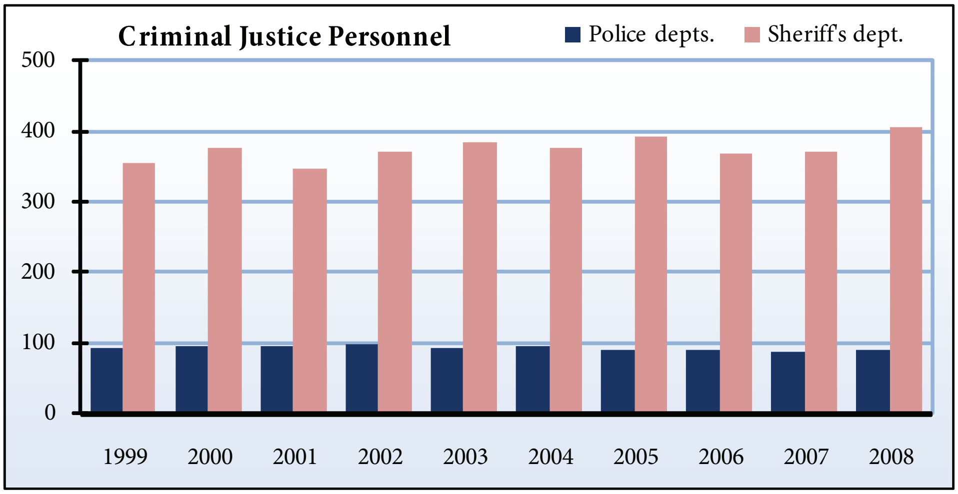
Criminal Justice Personnel

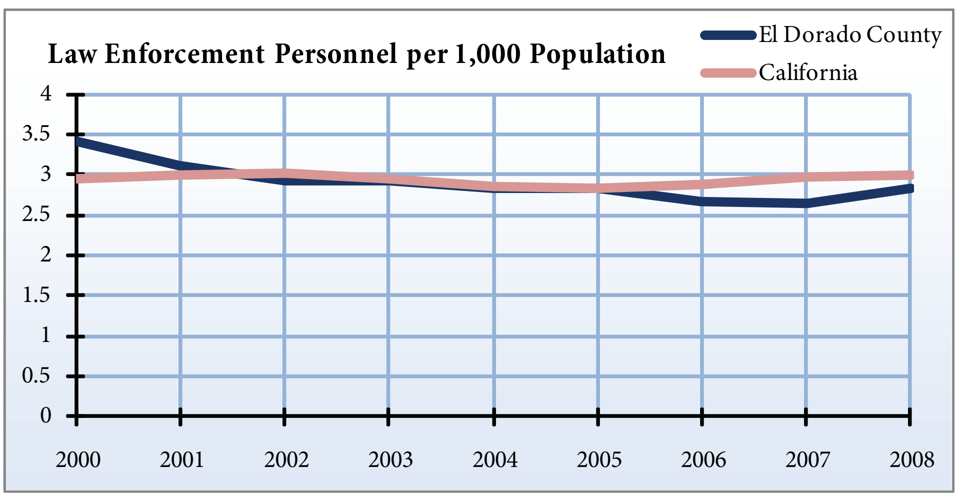
Year	Police depts.	Sheriff's dept.	Other law enforcement	Total law enforcement	Prosecution staff	Public defense staff	Court staff
1999	92	354	55	501	112	16	8
2000	96	376	59	531	115	17	8
2001	95	347	57	499	117	17	8
2002	97	372	10	479	56	18	9
2003	94	384	9	487	52	17	9
2004	96	376	9	481	50	17	9
2005	89	393	9	491	51	19	9
2006	89	368	13	470	59	30	9
2007	86	372	12	470	73	32	9
2008	89	406	11	506	64	35	9

Source: California Department of Justice, Criminal Justice Statistics Center

n/a: Data not reported by source

Created by: Center for Economic Development, California State University, Chico


Criminal Justice Personnel
Police depts.
Sheriff's dept.
500
400
300
200
100
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008


Law Enforcement Personnel per 1,000 Population
El Dorado County
California
4
3.5
3
2.5
2
1.5
1
0.5
0
2000
2001
2002
2003
2004
2005
2006
2007
2008

11.3 Crime Expenditures

Overview

Expenditures for criminal justice programs in a county measure the amount of money allocated to local law enforcement each year. Criminal justice expenditures include the amount of money spent by a county in a fiscal year, according to the California Department of Justice. These expenses include employee salaries and benefits, as well as services and supplies. Capital expenditures (expenditures made to acquire, add to, or improve property, plant, and equipment) and construction and maintenance of structures are not included in the data.

NOTE: The California Department of Justice relies on local agencies to report criminal justice expenditures in their area. Local government expenditure reports may show different spending patterns on criminal justice line-items, which usually include capital expenditures. The data reported to the department should include some expenditures entered in administrative line items, as well.

The criminal justice expenditures statistic is somewhat ambiguous because higher expenditures may imply a local problem with crime or a budgetary priority for prevention or prosecution of crimes. Evaluation must be included with trends in crimes and personnel.

NOTE: Criminal Justice Expenditures are not inflation adjusted.

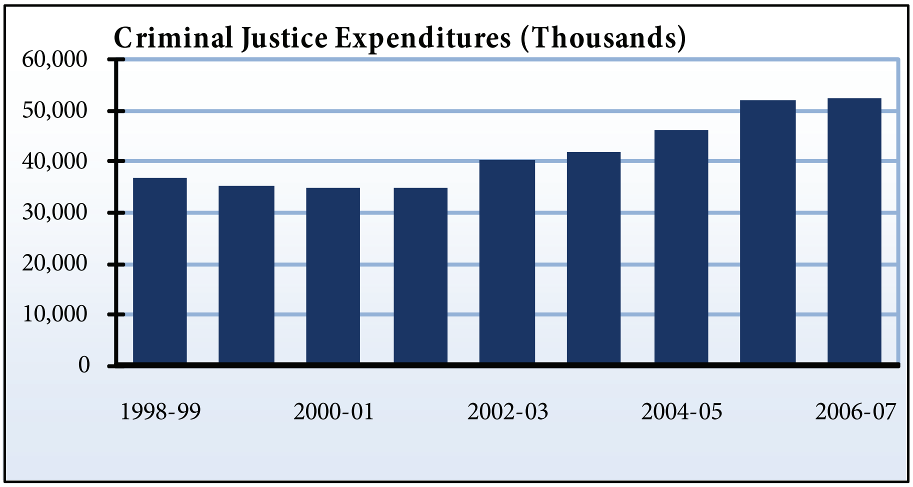
El Dorado County

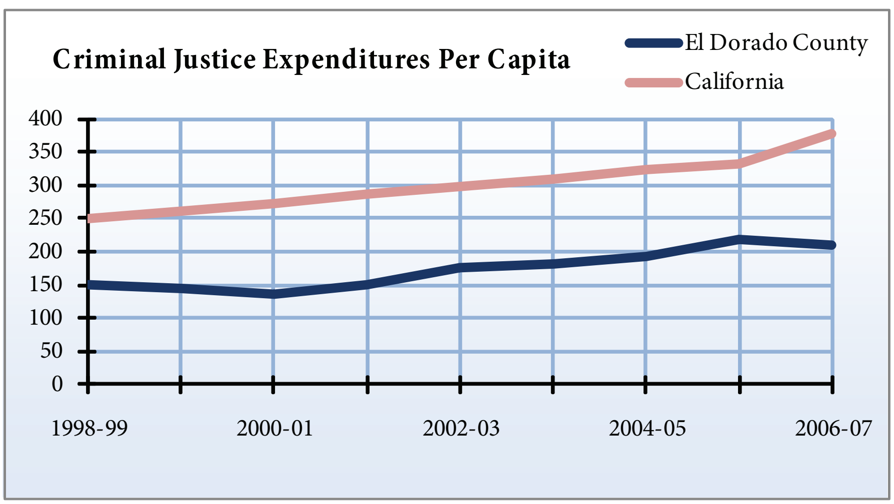
In FY06, approximately $52.5 million was spent on criminal justice expenditures in El Dorado County. Those expenditures have increased $15.7 million since FY98. Between FY98 and FY07, public defense expenditures increased the most, with a 126 percent increase. This increase in expenditures was followed by law enforcement expenditures (64 percent). Judicial expenditures (-4.4 percent) and prosecution expenditures (-0.3 percent) experienced a decrease over the same time period.

Criminal Justice Expenditures (Thousands)

Year	Law enforcement	Judicial	Prosecution	Public defense	Total
1998-99	$ 22,827	$ 5,970	$ 6,843	$ 1,148	$ 36,788
1999-00	$ 22,714	$ 4,068	$ 7,372	$ 1,266	$ 35,420
2000-01	$ 21,646	$ 4,112	$ 7,905	$ 1,312	$ 34,975
2001-02	$ 24,596	$ 4,469	$ 4,349	$ 1,481	$ 34,895
2002-03	$ 29,422	$ 4,723	$ 4,477	$ 1,677	$ 40,299
2003-04	$ 30,863	$ 4,963	$ 4,673	$ 1,596	$ 42,095
2004-05	$ 33,293	$ 5,773	$ 5,251	$ 1,826	$ 46,143
2005-06	$ 38,251	$ 5,806	$ 5,914	$ 2,309	$ 52,280
2006-07	$ 37,346	$ 5,706	$ 6,821	$ 2,597	$ 52,470

Source: California Department of Justice, Criminal Justice Statistics Center
Created by: Center for Economic Development, California State University, Chico


Criminal Justice Expenditures (Thousands)
60,000
50,000
40,000
30,000
20,000
10,000
0
1998-99
2000-01
2002-03
2004-05
2006-07


Criminal Justice Expenditures Per Capita
El Dorado County
California
400
350
300
250
200
150
100
50
0
1998-99
2000-01
2002-03
2004-05
2006-07

11.4 Probation Caseload

Overview

Probation allows people who have been convicted of a minor crime to serve time outside criminal justice facilities, performing various duties such as trash collection, park cleanup, and landscape maintenance of the surrounding community. Data is representative of December 31 of a given year.

Significant probation caseloads in a county can be indicative of minor criminal activity within the community, a criminal justice system that relies on community-based rehabilitation programs, or any number of additional factors.

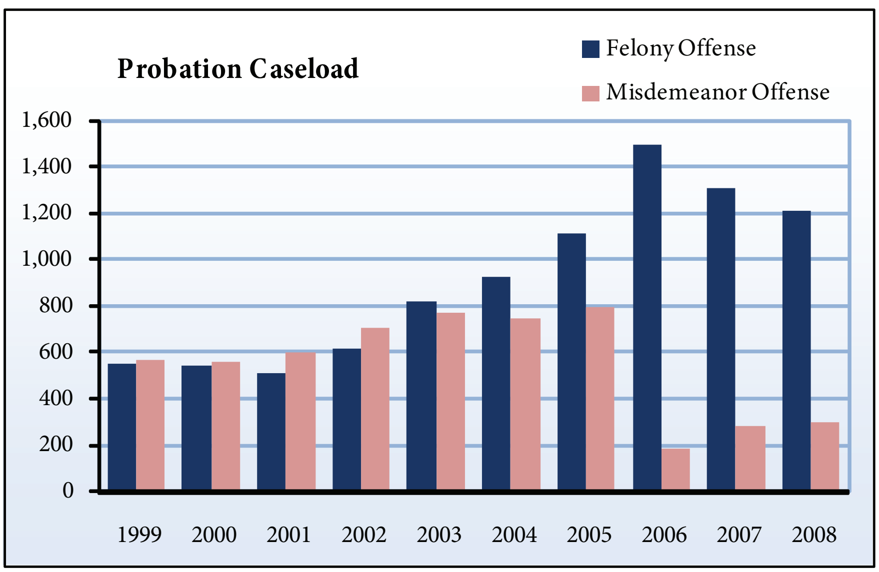
El Dorado County

There were a total of 1,512 probation cases in El Dorado County in 2008, with 1,211 cases related to felony offenses (a decrease of 95 from the previous year) and 301 related to misdemeanors (an increase of 23 from the previous year).

County Probation Caseload

Year	Felony Offense	Misdemeanor Offense	Total
1999	552	568	1,120
2000	541	562	1,103
2001	506	597	1,103
2002	613	706	1,319
2003	820	768	1,588
2004	929	748	1,677
2005	1,116	796	1,912
2006	1,494	184	1,678
2007	1,306	278	1,584
2008	1,211	301	1,512

Source: California Department of Justice, Criminal Justice Statistics Center
Created by: Center for Economic Development, California State University, Chico



291112 Part 2

COSUMNES RIVER FLOW AUGMENTATION PROJECT

2005 PROJECT DELIVERABLES

Prepared for:

Southeast Sacramento County Agricultural Water Authority

The Nature Conservancy

Sacramento County Water Agency

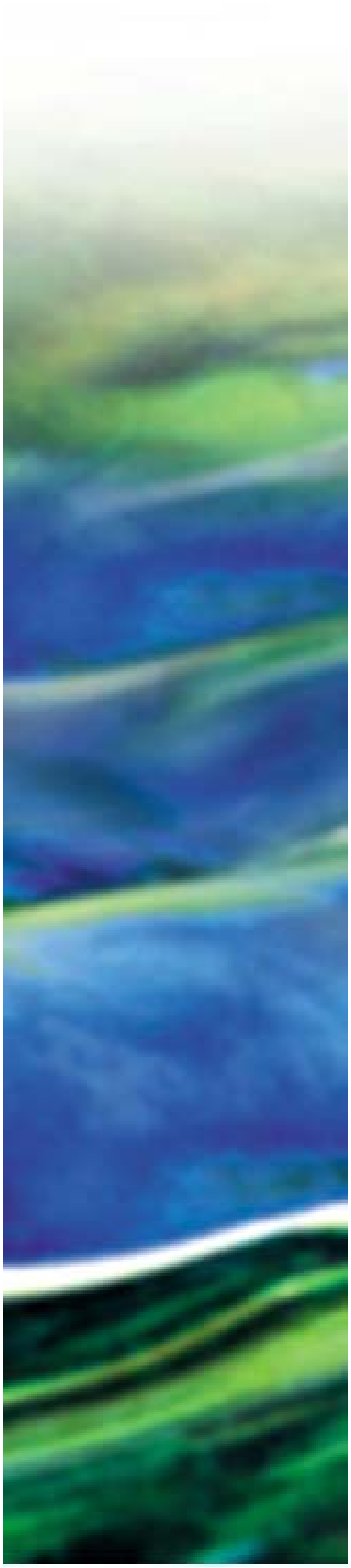
Prepared by:

Robertson - Bryan, Inc.

Specializing in Water and Power Resources

April 4, 2006

291112 Part 2



COSUMNES RIVER FLOW AUGMENTATION PROJECT

2005 PROJECT DELIVERABLES

Prepared for:

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9888 Kent Street
Elk Grove, CA 95624
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April 4, 2006

REPORTS

COSUMNES RIVER FLOW AUGMENTATION PROJECT

PROJECT SUMMARY

Introduction

The Cosumnes River Flow Augmentation Project (Project) is being proposed by a Coalition of interests[1] to provide supplemental flows to the Cosumnes River that will provide fish passage improvements for fall-run chinook salmon and for evaluation of groundwater recharge rates from the Cosumnes River channel. This project will be facilitated by releasing supplemental water from the Folsom South Canal into the Cosumnes River to pre-wet the river channel prior to the onset of natural fall flows in the lower reaches of the river. Figure 1 shows the project location and major features. The Project will provide critical information regarding the effectiveness of releasing supplemental water for local groundwater recharge and of supplementing the natural flow regime to restore a historical flow pattern for the improvement of fall-run chinook salmon passage.

The Cosumnes River is a keystone of fishery conservation efforts in the North Delta. The Anadromous Fish Restoration Program (AFRP), The Nature Conservancy (TNC), and the University of California, Davis (UCD), have sponsored numerous research projects on the health of the salmon fishery of the Cosumnes River. AFRP has also identified the Cosumnes as having potential for contributing to the fish doubling goals of the Central Valley Project Improvement Act (CVPIA). The AFRP has also set program objectives specifically directed at the Cosumnes River and the acquisition and restoration of fish habitat, primarily directed at improving passage and spawning habitat for fall-run chinook salmon.

The geologic setting and unregulated nature of the Cosumnes River has also made it a focus of regional water management strategies for Sacramento County, and particularly for the Southeast Sacramento County Agricultural Water Authority (SSCAWA). The SSCAWA, in partnership with the Sacramento County Water Agency (SCWA), the TNC and UCD are sponsoring a number of programs aimed at evaluating and developing a conjunctive use strategy that capitalizes on the natural geology of the region for groundwater recharge and surface water management.

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[1] The Coalition consists of the Sacramento County Water Agency, The Nature Conservancy, the Southeast Sacramento County Agricultural Water Authority (members include Omochumne-Hartnell Water District, Galt Irrigation District, and Clay Water District), the Fisheries Foundation of California, and the UCD Center for Integrated Watershed Science and Management.

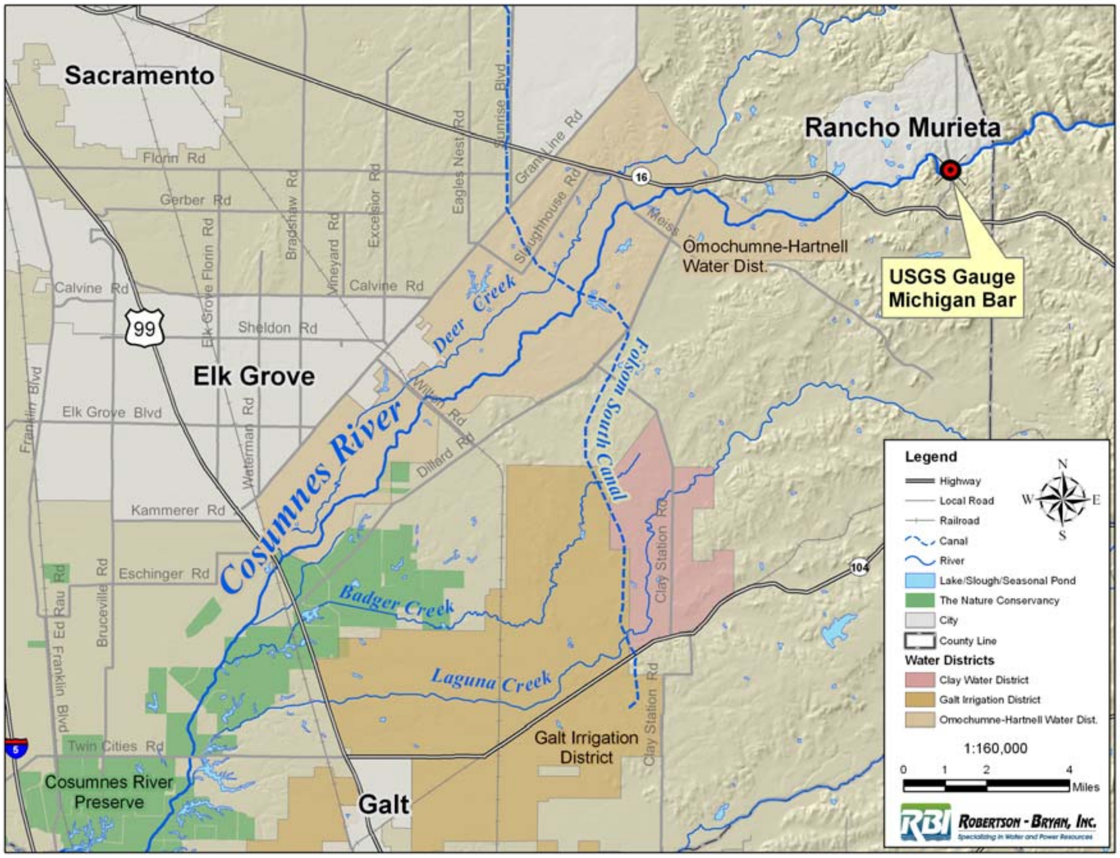

Figure 1. Project Area.

Project Overview

The Project will release up to 5,000 acre-feet (af) of water into the Cosumnes River from an existing turnout of the Folsom South Canal. The objectives are to 1) improve upstream fall migration of salmon, and 2) to evaluate groundwater recharge from the Cosumnes River channel. The first objective will be accomplished by allowing the Cosumnes to connect to tidewater earlier in the fall and sustaining non-barrier flow conditions after initial connection. The second objective will be accomplished by making controlled releases into the river channel and monitoring the surface water–groundwater exchange processes along the length of the channel.

Project Water Supply

The long-term water supply for the Project will be provided by Sacramento County Water Agency (SCWA) using water developed from the Eastern Sacramento County Replacement Water Supply Project (RWSP). The RWSP is intended to provide for the beneficial use of remediated water generated by groundwater extraction and treatment (GET) facilities of the Aerojet / Boeing groundwater cleanup project mandated by the Regional Water Quality Control Board.

Currently, GET facilities are discharging approximately 11,600 acre-feet annually (afa) to Alder Creek, which discharges to Lake Natoma, and 8,600 afa to Buffalo Creek, which discharges to the American River below Lake Natoma. None of the current discharges are being reclaimed for beneficial uses. At full development the RSWP will provide 30,465 afa of water for potable use and 5,000 afa to the CRFAP. Remediated water from the GET facilities will be discharged to the American River via various creeks and drainages and rediverted from the American and Sacramento River at the following locations:

Discharge Points:	**Diversion Points:**
Alder Creek to Lake Natoma(15,951 afa)	Folsom South Canal to American States Water Company (5,000 afa)
Buffalo Creek (6,693 afa)	Folsom South Canal to Cosumnes River (5,000 afa)
Boyd Station Channel (8,798 afa)	Fairbairn Diversion to City of Sacramento (5,000)
Local storm drain (3,709 afa)	Freeport Diversion to SCWA (20,465 afa)
Cordova Drainage Channel (323 afa)	

Project Operations

The Project is designed to create river conditions similar to what might have been experienced prior to the reduction of groundwater levels underlying the Cosumnes River between Highway 16 and the Cosumnes River Preserve (downstream of Twin Cities Road). The Project is not intended to create a hydraulic connection with the tidewater area of the Cosumnes River and the Delta before it naturally occurs from run-off generated by fall precipitation in the Sierra Nevada foothills.

A preliminary flow-release schedule (Figure 2) has been develop that meets the following criteria: (1) pre-wet the greatest length of channel possible, and (2) maintain sufficient water in reserve for augmenting river flow to sustain the connection with tidewater during the optimal salmon migration period of November 1 to December 31.

Channel pre-wetting flows will begin on October 15 and continue through December 31. By beginning flow releases on October 15, the Cosumnes River channel would receive approximately 2,000 af of water before the river typically connects with tidewater (mid-November).

Water not used for channel pre-wetting will be held in reserve and used to supplement natural flows through December 31 to eliminate stranding conditions during the migration period. Flow augmentation releases will be made when Cosumnes River flows fall below that required to maintain upstream migration conditions, estimated to be 65–70 cubic feet per second (cfs), measured at the U.S. Geological Survey (USGS), Michigan Bar gauging station. Historical flow record for the Cosumnes River, with consideration of today's groundwater conditions, indicates that supplement releases to maintain migration conditions would be needed in about 93% of the years.

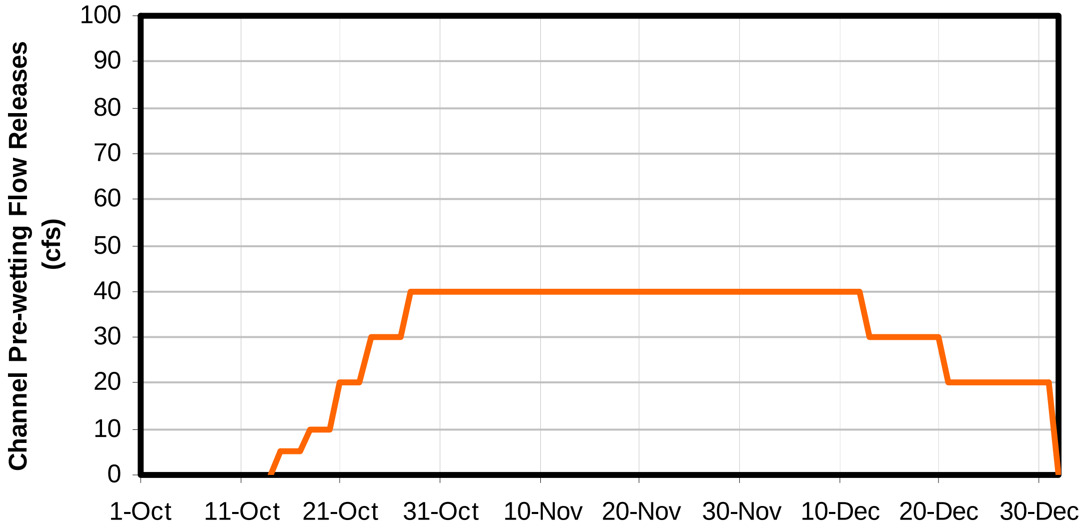

Figure 2. Cosumnes River channel pre-wetting releases from the Folsom South Canal.

Monitoring Program

Escapement and Out-Migration Monitoring

The Fisheries Foundation of California (FFC) will conduct Escapement and Out-Migration Monitoring. The FFC will either be funded through the SSCAWA, if the SSCAWA and Coalition partners develop the funding for this task, or the FFC may fund this task directly.

This task will evaluate the adequacy of flows for salmon passage by life stage. Flow needs will focus on the lower critical passage reach, below Folsom South Canal, to above tidewater (Twin Cities Road crossing) where passage presents the biggest problem. The duration and rate of flow needed to allow the run to proceed upstream and successfully reach spawning grounds will be a focused evaluation building on information gathered in previous years. The duration and rate of flow needed to maintain a successful migration pattern will be determined through adaptive management of flow releases from the Folsom South Canal. The FFC will also conduct out-migration surveys to provide information on the success of fall spawning in the Cosumnes River.

Groundwater-Surface Water Interaction Monitoring

Professor Graham Fogg, Ph.D., of the Land, Air, and Water Resources and Geology Department at UCD, will lead the Groundwater–Surface Water Interaction Monitoring

Task. UCD will either be funded through the SSCAWA, if the SSCAWA and Coalition partners develop the funding for this task, or UCD may fund this task directly.

Ongoing work on hydrogeology of the Cosumnes River aquifer system has shown that the river is the major source of recharge to the local groundwater system and that most of this recharge probably occurs over a small percentage of the channel between Michigan Bar and Twin Cities Road. Successful management of river flows to sustain salmon migration in the fall requires more detailed information on river–aquifer water exchange along this entire reach. This more detailed information can be obtained through careful hydrologic monitoring before and after a controlled flow release experiment, wherein a known amount of water is diverted into the channel near Folsom South Canal. Instrumentation deployed for such an experiment will also be useful for studying interaction between groundwater and surface water in the system on a continuous basis.

COSUMNES RIVER FLOW AUGMENTATION PROJECT
2005 PILOT PROJECT OPERATION PLAN

Introduction

The Cosumnes River Flow Augmentation Project (Project) is being proposed by a coalition of interests[1] to provide supplemental flows to the Cosumnes River that will provide fish passage improvements for fall-run chinook salmon and for evaluation of groundwater recharge rates from the Cosumnes River channel. This project will be facilitated by releasing supplemental water from the Folsom South Canal into the Cosumnes River to pre-wet the river channel prior to the onset of natural fall flows in the lower reaches of the river. Figure 1 shows the project location and major features.

The pilot project phase of the Project is aimed at implementing the releases to the Cosumnes River in the fall of 2005, to evaluate the effectiveness and adequacy of project operations. Information gained in during the pilot project phase will be used to refine long-term project operations planning. The pilot project will have a duration of only one season (October 2005 through January 2006) for which a temporary non-permanent water supply is being requested from the U.S. Bureau of Reclamation (Reclamation).

Project Objectives

The pilot project phase of this Project proposed to release up to 5,000 acre-feet (af) of water into the Cosumnes River from an existing turnout of the Folsom South Canal. The objectives are to: 1) improve upstream fall migration of salmon, and 2) evaluate groundwater recharge from the Cosumnes River channel. The first objective will be accomplished by allowing the nature flows of the Cosumnes River to connect to tidewater earlier in the fall, and sustaining non-barrier flow conditions after initial connection. The second objective will be accomplished by making controlled releases into the river channel and monitoring the surface water–groundwater exchange processes along the length of the channel.

The Cosumnes River is a keystone of fishery conservation efforts in the North Delta. The Anadromous Fish Restoration Program (AFRP), The Nature Conservancy (TNC), and the University of California, Davis (UCD), have sponsored numerous research projects on the health of the salmon fishery of the Cosumnes River. AFRP has also identified the

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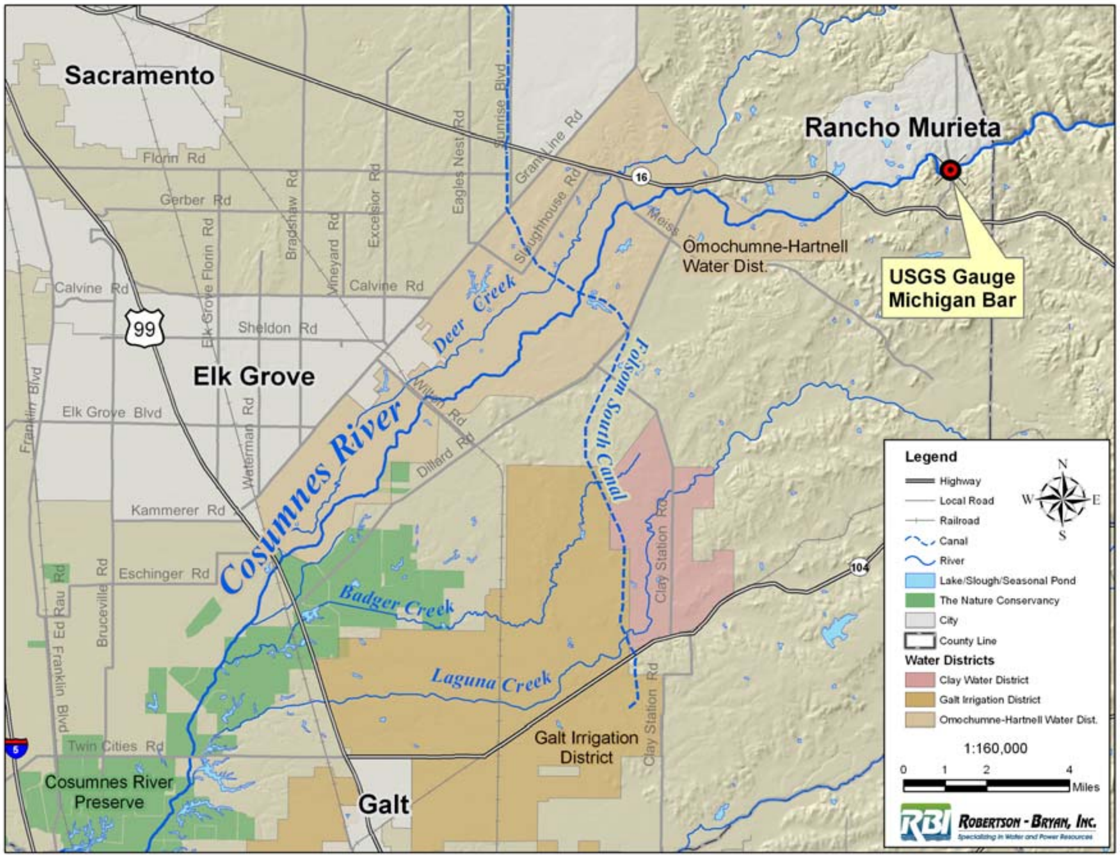

Figure 1. Project Area.

Cosumnes as having potential for contributing to the fish doubling goals of the Central Valley Project Improvement Act (CVPIA). The AFRP has also set program objectives specifically directed at the Cosumnes River and the acquisition and restoration of fish habitat, primarily directed at improving passage and spawning habitat for fall-run chinook salmon.

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Pilot Project Water Supply

The Project proponents are requesting the assistance of the Reclamation in identifying a source of surplus or environmental water for implementation of this pilot project. The Project proponents make this request in light of the surplus water conditions that exist within the State this year. This request is aimed at acquiring a one-time commitment of 5,000 ac-ft in the fall of 2005, as described in the following sections. The Project proponents also understand that should Reclamation identify and provide water for this pilot project that this supply will be for one year only. The intent of the pilot project is to allow the Project proponents and Reclamation to identify and address issue that will be faced under long-term implementation of the Project. The Project proponents are committed to addressing the concerns raised by Reclamation regarding the source of water identified for the long-term implementation of the Project.

Pilot Project Operations

The Project is designed to create river conditions similar to what might have been experienced prior to the reduction of groundwater levels underlying the Cosumnes River between Highway 16 and the Cosumnes River Preserve (downstream of Twin Cities Road). The Project is not intended to create a hydraulic connection with the tidewater area of the Cosumnes River and the Delta before it naturally occurs from run-off generated by fall precipitation in the Sierra Nevada foothills.

A preliminary flow-release schedule (Figure 2) has been developed that meets the following criteria: (1) pre-wet the greatest length of channel possible, and (2) maintain sufficient water in reserve for augmenting river flow to sustain the connection with tidewater during the optimal salmon migration period of November 1 to December 31.

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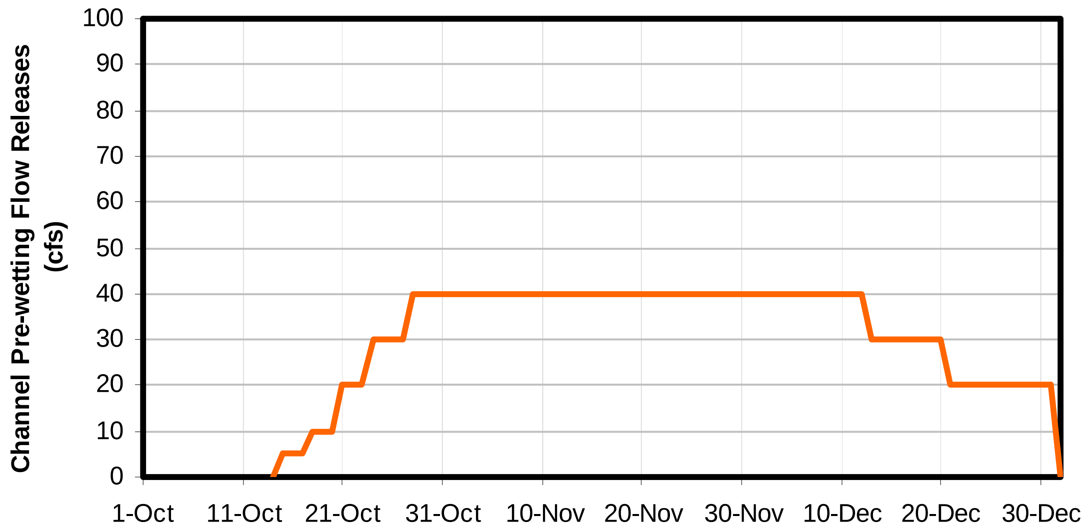

Figure 2. Cosumnes River channel pre-wetting releases from the Folsom South Canal.

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The Fisheries Foundation of California (FFC) will conduct Escapement and Out-Migration Monitoring. The FFC will either be funded through the SSCAWA, if the SSCAWA and Coalition partners develop the funding for this task, or the FFC may fund this task directly.

This task will evaluate the adequacy of flows for salmon passage by life stage. Flow needs will focus on the lower critical passage reach, below Folsom South Canal, to above tidewater (Twin Cities Road crossing) where passage presents the biggest problem. The duration and rate of flow needed to allow the run to proceed upstream and successfully reach spawning grounds will be a focused evaluation building on information gathered in previous years. The duration and rate of flow needed to maintain a successful migration pattern will be determined through adaptive management of flow releases from the Folsom South Canal. The FFC will also conduct out-migration surveys to provide information on the success of fall spawning in the Cosumnes River.

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Ongoing work on hydrogeology of the Cosumnes River aquifer system has shown that the river is the major source of recharge to the local groundwater system and that most of this recharge probably occurs over a small percentage of the channel between Michigan Bar and Twin Cities Road. Successful management of river flows to sustain salmon migration in the fall requires more detailed information on river–aquifer water exchange along this entire reach. This more detailed information can be obtained through careful hydrologic monitoring before and after a controlled flow release experiment, wherein a known amount of water is diverted into the channel near Folsom South Canal. Instrumentation deployed for such an experiment will also be useful for studying interaction between groundwater and surface water in the system on a continuous basis.

COSUMNES RIVER FLOW AUGMENTATION PILOT PROJECT

MONITORING PLAN

Prepared for:

Southeast Sacramento County Agricultural Water Authority

The Nature Conservancy

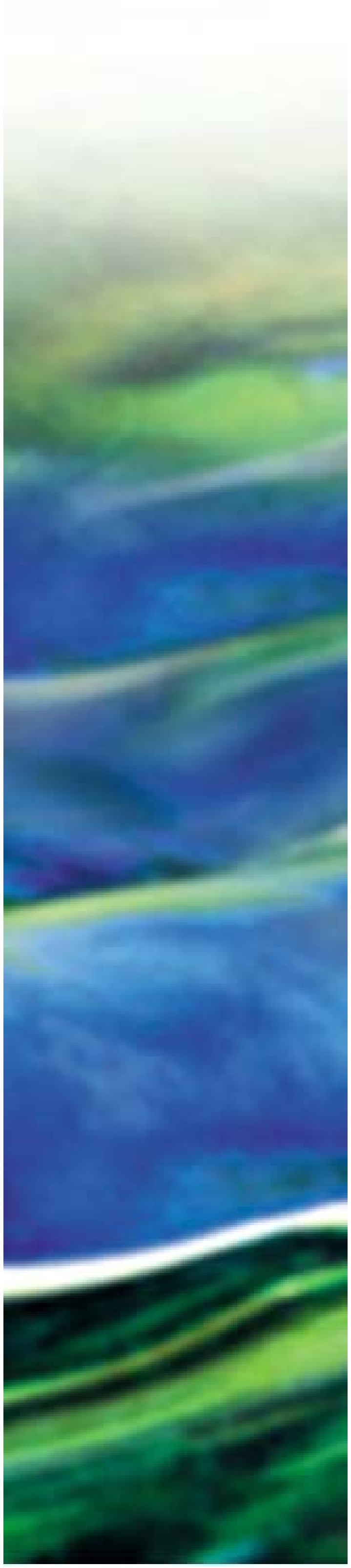
Sacramento County Water Agency

Prepared by:

ROBERTSON - BRYAN, INC.
Specializing in Water and Power Resources

September 26, 2005

291112 Part 2



COSUMNES RIVER FLOW AUGMENTATION PILOT PROJECT

MONITORING PLAN

Prepared for:

Southeast Sacramento County Agricultural Water Authority

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Prepared by:

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September 26, 2005

TABLE OF CONTENTS

List of Figures

1 INTRODUCTION

A coalition of interests[1] supports and developed the Cosumnes River Flow Augmentation Pilot Project (Project) to provide supplemental flows to the Cosumnes River that will improve fish passage for fall-run chinook salmon (*Oncorhynchus tshawytscha*) and provide an opportunity to evaluate the interaction of groundwater and surface water in the Cosumnes River channel. The objectives of the Project are twofold:

- To improve fall-run chinook salmon migration conditions by: (1) allowing the Cosumnes River to connect to tidewater earlier in the fall, and (2) sustaining surface flow continuity within the Cosumnes River after its initial connection.
- To evaluate the rate of groundwater recharge from the river channel between the Folsom South Canal and Twin Cities Road to better guide future groundwater management and environmental restoration efforts along the Cosumnes River corridor.

The Project will release up to 5,000 acre-feet of water into the Cosumnes River from an existing turnout of the Folsom South Canal. The project constitutes the first year of augmenting Cosumnes River flows to meet the above objectives. It is the intent of the coalition of interests that are supporting the Project to continue the Pilot Project through 2010, after which it will become an ongoing annual operation. Hence, this first year effort largely constitutes a demonstration effort to help the Project proponents develop and improve the long-term management of this action. The U.S. Bureau of Reclamation (Reclamation) and the B2 Environmental Water Program will provide the water supply for the Project during its demonstration phase.

This Monitoring Plan identifies the monitoring programs necessary to evaluate the effectiveness of the Project. Monitoring will include:

1) flow-release scheduling performed by Robertson-Bryan, Inc. (RBI), under contract with the Southeast Sacramento County Agricultural Water Authority (SSCAWA);
2) passage of low-flow migration barriers by immigrating adult fall-run salmon and location and timing of spawning by the Fisheries Foundation of California (FFC), under contract with the Anadromous Fish Restoration Program (AFRP); and

[1] The Coalition consists of the Sacramento County Water Agency (SCWA), The Nature Conservancy (TNC), the Southeast Sacramento County Agricultural Water Authority (SSCAWA) (members include Omochumne-Hartnell Water District, Galt Irrigation District, and Clay Water District), the Fisheries Foundation of California (FFC), and the UCD Center for Integrated Watershed Science and Management (UCD).

3) groundwater recharge quantification performed by the Center for Integrated Watershed Science and Management at the University of California, Davis (UCD).

2 PROJECT BACKGROUND

The Cosumnes River corridor provides habitat for a number of special-status plants and animals and is considered an ecological area of statewide importance. The Cosumnes River is the last unregulated major river draining the western slope of the Sierra Nevada having no major dams (Figure 1). Historically, the lower reach of the river supported a matrix of riparian habitats, freshwater marshes, and large tracts of valley oak woodlands.

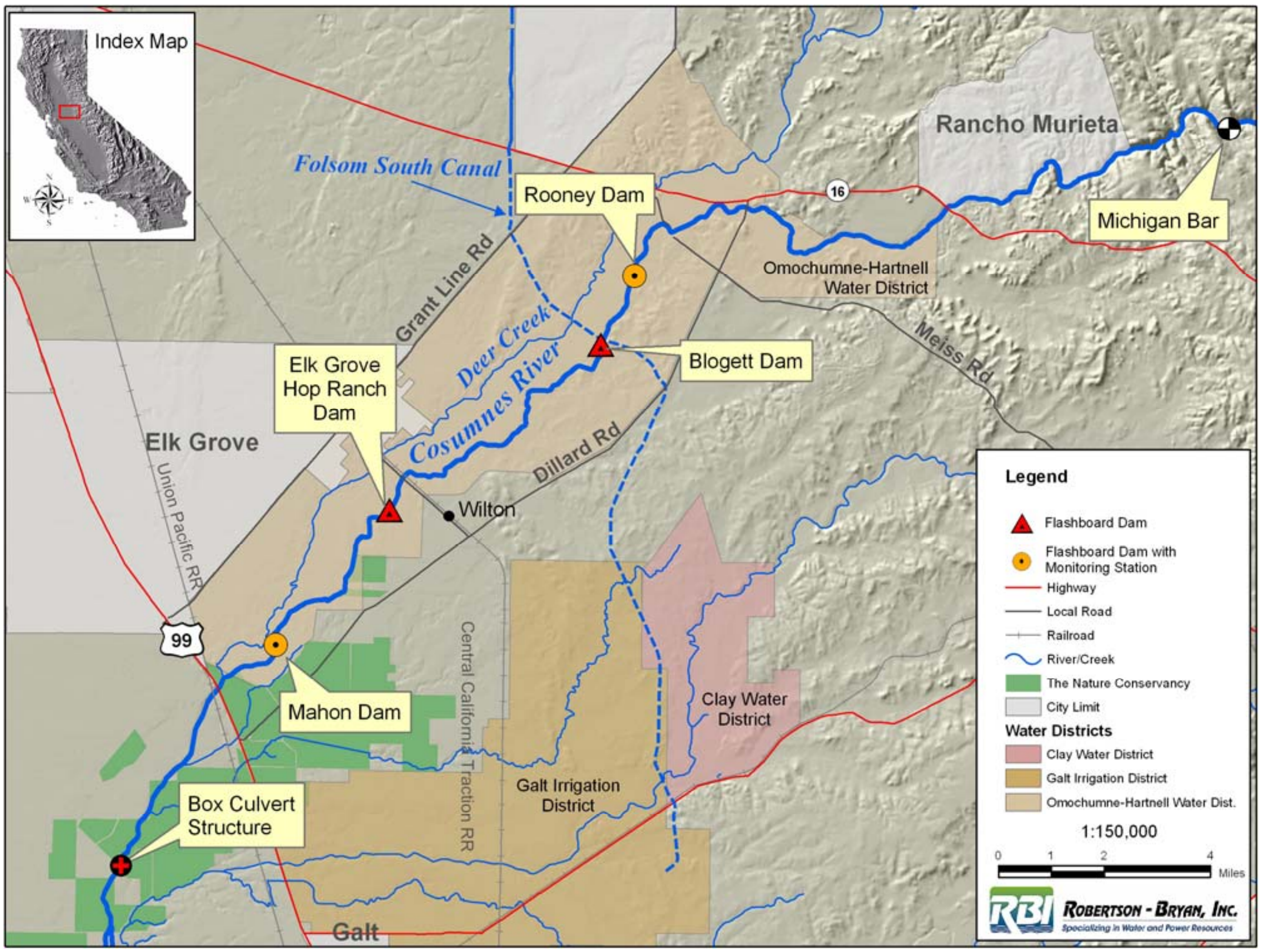


Figure 1. Location map for the Cosumnes River Flow Augmentation Pilot Project.

Recent field and modeling efforts conducted by UCD and others indicate that extensive regional and local groundwater withdrawals over the past 50 years substantially lowered groundwater tables and reduced the base flow of the Cosumnes River and its major tributaries. The Cosumnes River now frequently ceases to flow during summer months, stays dry longer into the fall, and has a dry river bed over an increasingly longer reach compared to historical conditions.

Diminished surface flows have reduced the quality and quantity of aquatic and riparian habitats and the species associated with those habitats.

The Cosumnes River is a cornerstone of fishery conservation efforts in the North Delta. The Anadromous Fish Restoration Program (AFRP) sponsored research on surface flows in the Cosumnes River, the relationship of surface flows to groundwater conditions, and the health of the salmon fishery. The AFRP also identified the Cosumnes as having potential for contributing to the fish doubling goals of the Central Valley Project Improvement Act (CVPIA). The AFRP work plan for Fiscal Year 2004 identifies program objectives specifically directed at the Cosumnes River and the acquisition and restoration of fish habitat, primarily directed at improving passage and spawning habitat for fall-run chinook salmon. In addition, the Nature Conservancy and its partners established the Cosumnes River Preserve on approximately 30,000 acres upstream of the river's confluence with the Mokelumne River. The Preserve provides protection for important biological resources associated with the Cosumnes River through land conservation, habitat restoration, and research.

The size of the Cosumnes River's fall-run chinook salmon population has declined over the past several decades, which has been related to a decline in fall streamflow in the lower Cosumnes River and a shortage of spawning and rearing habitat. Adult fall-run chinook salmon generally migrate up the river with the first fall rains, sometimes becoming stranded by receding flows following the initial storms. Groundwater pumping in the lower basin increased beginning in the 195's, resulting in reduced groundwater levels, such that the river is now disconnected from the regional groundwater table. Summer and fall flow in the lower river below Highway 16 is generally zero, leaving a barren channel of dry substrate. Above Highway 16, in the Sierra foothills, the stream is perennial with some minimal flow even in late summer. Most of the spawning occurs in the upper 10 miles of the reach extending from Latrobe Falls (a natural barrier to upstream passage of anadromous fish) downstream to Meiss Road at Sloughhouse, several miles below the Highway 16 crossing. Some additional spawning occurs below Meiss Road for several miles to the town of Wilton (observations from FFC 2002 survey). The problem for chinook salmon has been lack of fall flows between Highway 16 and tidewater to provide upstream passage to spawning grounds in the perennial flow reach in the foothills. In some years the river remained disconnected with a dry riverbed between tidewater and the spawning grounds (about 20 miles) during the entire fall spawning season.

3 MONITORING PLAN ELEMENTS

Information developed by the monitoring efforts will be used to refine Project operations and to assist in the development of a long-term program for improvement of fall-run chinook salmon migration conditions in the Cosumnes River. The following section describes the approaches that will be used to:

1. monitor and adaptively manage releases from the Folsom South Canal to the Cosumnes River to achieve Project objectives;

2. monitor the abundance, distribution, and lifestage-specific migration timing of fall-run chinook salmon in the Cosumnes River and compare these data to historical data to determine Project effectiveness; and

3. monitor groundwater-surface water interactions to develop a better understanding of the rate and locations of groundwater affected from the river channel.

TASK 1 – FLOW RELEASE SCHEDULING AND MANAGEMENT

The SSCAWA will take the lead in scheduling and managing releases from the Folsom South Canal. On behalf of the SSCAWA, RBI will facilitate the task of flow release scheduling and management. RBI also will coordinate with all members of the Coalition, Reclamation, and permitting and other regulatory authorities regarding the flow releases, as needed. RBI also will also perform field measurements of flows to monitor the effect of releasing channel-wetting flows and regulate flow releases as needed to meet the multiple objectives of the Project.

Flow Schedule

The Project is designed to create river conditions similar to what might have been experienced before the lowering of groundwater levels underlying the Cosumnes River between Highway 16 and the Cosumnes River Preserve (downstream of Twin Cities Road). The Project is not intended to create a hydraulic surface-flow connection with the Mokelumne River and the Delta before it would naturally occur from run-off generated by fall precipitation in the Sierra Nevada foothills (i.e., following the first few substantial storm events).

The flow-release schedule is designed to meet the following operational objectives: (1) to pre-wet the channel (i.e., saturate the channel's underlying substrates), and (2) maintain sufficient water in reserve for purposes of augmenting the Cosumnes River flow in the event additional water is needed to sustain surface water flows to tidewater during the peak salmon migration period during November and December. Figure 2 shows flow-release schedule developed for the demonstration phase of the Project. This schedule provides a framework for managing releases; however, flows may change through adaptive management to maximize the benefits of the available water supply. Channel pre-wetting releases will be made until natural flows sustain a surface-flow connection to tidewater. Studies indicate that in most years, a minimum flow of 75 cfs is required at Michigan Bar to create a connection to tidewater, when the river channel is properly wetted. Therefore, pre-wetting releases from the Folsom South Canal will likely stop once flows measured at Michigan Bar reach 75 cfs.

Once surface flows connect to tidewater as a result of pre-wetting and natural flows, RBI and Fisheries Foundation will monitor river conditions to ensure that upstream passage is maintained free of low-flow barriers. In the event that flows measured at Michigan Bar fall below 75 cfs, augmentation releases will likely begin to prevent stranding of adult salmon in the river reach between the Folsom South Canal and tidewater, with releases to maintain a minimum flow of 75 cfs at Blodgett Dam, immediately downstream of the canal. RBI will evaluate the adequacy of this flow through field measurements and observation of known, low-flow barriers, and make changes to canal releases as appropriate.

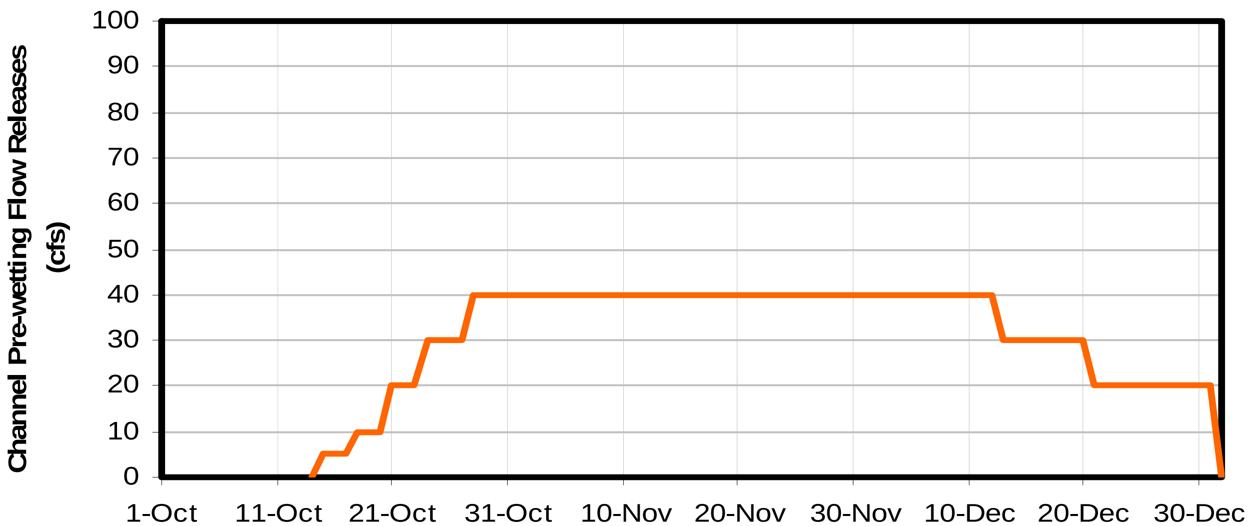


Figure 2. Planned Cosumnes River channel pre-wetting releases from the Folsom South Canal.

The following additional operational criteria will govern releases to achieve Project objectives.

1. Channel pre-wetting flows will be released from the Folsom South Canal beginning on or about October 15, and continue until natural runoff is predicted to create a surface-flow connection with tidewater.
2. The flow-release schedule represents a proposed maximum rate of release. Release rates will be modified, as necessary, to prevent channel erosion at the outlet facility, increase the extent of channel wetting, or improve fish passage conditions.
3. The rate of release of channel-wetting flows will be managed to avoid prematurely creating a surface-flow connection to tidewater. In the event that either the rate of channel wetting releases or a combination of channel wetting releases plus natural run-off creates a connection, the rate of release from the Folsom South Canal will be reduced to avoid an "unnatural" connection.

4. Water not released for channel wetting purposes will be credited to the volume of water allocated for flow augmentation purposes. During most years, the Cosumnes River connects around mid-November and, therefore, will not require the use of the entire 5,000 acre-feet. Water not used for channel pre-wetting will be allocated for surface-flow augmentation following initial connection to tidewater.
5. The flow-release schedule for channel pre-wetting and the volume of water for flow augmentation will be re-evaluated and modified based on results of Project implementation, research findings, and/or coordination with other projects that provide mutually acceptable benefits.

By beginning flow releases on October 15, the Cosumnes River channel would receive approximately 2,400 acre-feet of water prior to the time the river typically has surface flow continuity to tidewater (mid-November). To the extent that water allocated for channel pre-wetting is not required for that purpose, it would be held in reserve and used for sustaining surface-flow continuity during salmon migration or, if excess water is available, for enhancing critical habitat along the Cosumnes River or its tributaries.

Flow-Monitoring Locations

Monitoring flows in the Cosumnes River resulting from natural and/or released flows will require constant field monitoring and reporting during the October 15 through December 31 period. RBI will conduct flow and temperature measurements at two-day intervals at the following five locations along the river (Figure 1) to determine the progress of channel-wetting flows and to determine the need to change Cosumnes River releases from the Folsom South Canal:

1. Rooney Dam (RM 24) – approximately 1.1 miles upstream of the Folsom South Canal,
2. Blodgett Dam (RM 22.8) – approximately 500 feet downstream of the Folsom South Canal,
3. Elk Grove Hop Ranch (RM 16.2) – approximately 6.7 miles downstream of the Folsom South Canal,
4. Mahon Ranch (RM 11.5) – approximately 11.4 miles downstream of the Folsom South Canal,
5. Box Culvert Structure (Oneto Property; RM 6.5) – 16.4 miles downstream of the Folsom South Canal.

Flows from the Michigan Bar USGS gauging station (Figure 1), and precipitation forecasts, will be reviewed daily to assist in managing flow releases.

TASK 2 – FALL-RUN CHINOOK SALMON RUN SIZE (ESCAPEMENT) AND JUVENILE DOWNSTREAM MIGRATION (EMIGRATION) MONITORING

This task will evaluate the effects of the Project on adult and juvenile fall-run chinook salmon migration. Flow needs will focus on the lower critical passage reach, from Folsom South Canal to tidewater, where low-flow barriers have historically existed. The duration and rate of river flow needed at Blodgett Dam immediately downstream of the Folsom South Canal to eliminate all downstream low flow barriers will be a focused evaluation building on information gathered in previous years. The duration and rate of flow needed to maintain successful upstream adult migration will be determined through adaptive management of flow releases from the Folsom South Canal.

Flow needs for successful juvenile downstream migration (emigration) will depend directly on the timing of emigration and the rate at which young salmon travel from the spawning/rearing reaches to tidewater. Screw trap sampling in the lower river in the winter and spring of 2003 indicated that salmon emigrate as fry, fingerlings, pre-smolts, and smolts. This Project's findings, combined with information from past surveys, will be useful in determining flow needs for emigrating salmon. Emigration surveys will, indirectly, provide information on the success of fall spawning in the Cosumnes River.

Run Size (Escapement) Surveys

Field crews will closely monitor critical riffles and barriers during the October through December 2005 migration period to determine the success of adult upstream migration and to determine if additional flows need to be released from the Folsom South Canal to minimize delays in migration and stranding. Ultimately, the distribution of spawners and redds in the river in relation to critical riffles and weirs among and within years, and their relationship to flow, will be the primary indicator of migration delay or hindrance, as well as success of the run reaching spawning habitat in the upper river. Carcass and spawner surveys will be conducted weekly throughout the spawning season to determine spawning distribution, mortality of fish that fail to reach spawning grounds, and total run size or "escapement". In addition, carcasses will be examined for the presence of markings (e.g., fin clips, coded wire tags) indicating whether fish are of hatchery origin. All observations of markings will be recorded for subsequent estimation of straying rates from other (e.g., Mokelumne River) systems. Two independent escapement estimates will be made for adult spawners: (1) carcass tag returns, and (2) redd counts. Estimates will be made of the proportion of the run that passes known barriers to spawning in the Cosumnes River between Latrobe Falls and Meiss Road. During the surveys, this section of the Cosumnes River will be divided into two reaches based on historic protocol and local access to survey crews: (1) Michigan Bar to Highway 16, and (2) Highway 16 to Meiss Road.

Total escapement and escapement relative to improved sites will be estimated using the standard Peterson Index (Lincoln Index) as employed by Snider and Reavis (2000):

$$N = MC/R$$

where,

- N = estimated spawning population,
- M = number of carcasses marked during the survey,
- C = total number of carcasses examined during the survey, and
- R = number of marked carcasses recovered during the survey.

The Petersen index is a consistent estimator of the population size under the following conditions:

1. Either or both of the samples is a simple random sample (i.e., all fish in the population have the same probability of being tagged or all fish have the same probability of being captured in the second sample, or tagged fish mix uniformly with untagged fish).
2. The population is closed.
3. There is no tag loss.
4. The tagging status of each fish is determined without error.
5. Tagging has no effect on the subsequent behavior of the fish.

Employing the Peterson Index under these circumstances has the potential of severe bias (Snider and Reavis 2000, Law 1994); particularly when fish numbers are low (Ricker 1975). If observations at the weirs suggest that the run size on a given year will be low, Bailey's (1951) modification, which allows for multiple recaptures of marked fish, may be employed as an alternative. The equation for the Bailey's Modification is:

$$N = M(C+1)/(R+1)$$

The parameters for Bailey's Modification are the same as the Peterson Index described above.

Escapement also will be estimated by expanding total redd counts by a factor of 2.5. This information also will add to information gathered as part of the AFRP sponsored Project, "***Flow Requirements for Salmon Passage, Cosumnes River, Sacramento County, California***".

Juvenile Downstream Migration (Emigration) Surveys

The FFC will continue to operate a screw trap during the winter-spring juvenile emigration period (typically mid-January to May, depending on initiation of spawning) at river mile 6.7 to estimate emigration timing and production, relative to total escapement. As juvenile salmon migrate downstream, they will be intercepted at a five-foot rotary screw trap. The number of juvenile emigrants will be estimated by using a trap efficiency method of releasing marked fish upstream of the trap. Fish will be marked with Bismark Brown dye prior to being released 1 mile upstream of the trap. Trap efficiency tests will be conducted when numbers captured merit the effort (i.e., when more than 100 fish are available to be marked and released). Trap efficiency will be estimated using a modification to the Petersen estimate from the equation:

$$e = (R+1)/(M+1),$$

where:

- e is the estimated trap efficiency,
- M is the number of marked fish released upstream of the trap, and
- R is the number of marked fish recaptured.

Murphy et al. (1996) listed the standard assumptions of the Petersen method. The same assumptions apply in trap-efficiency experiments: (1) the population is closed, (2) all fish have the same probability of capture in the first sample, (3) marking does not affect catchability, (4) the second sample is either a simple random sample, or if the second sample is systematic, marked and unmarked fish mix randomly, (5) fish do not lose their marks, and (6) all recaptured marks are recognized. Specific performance measures will be juvenile abundance relative to total escapement and emigration timing.

These data will be used to monitor the overall success of emigration and determine rates of migration at various flow rates. Data collected under this monitoring plan will be incorporated with data collected in the fall of 2004 as part of the AFRP-sponsored Project, ***"Flow Requirements for Salmon Passage, Cosumnes River, Sacramento County, California"***.

TASK 3 – GROUNDWATER-SURFACE WATER INTERACTION MONITORING

Professor Graham Fogg, Ph.D., of the Land, Air, and Water Resources and Geology Department at UCD, will lead the Groundwater–Surface Water Interaction Monitoring Task. UCD will either be funded through the SSCAWA, if the SSCAWA and Coalition partners develop the funding for this task, or UCD may fund this task directly.

Ongoing work on hydrogeology of the Cosumnes River aquifer system has shown that the river is the major source of recharge to the local groundwater system, and that most of this recharge probably occurs over a small percentage of the channel between Michigan Bar and Twin Cities Road. Successful management of river flows to sustain salmon migration in the fall requires more detailed information on water exchange between the river and the underlying groundwater aquifer along this entire reach. This more detailed information can be obtained through careful hydrologic monitoring before and after a controlled flow release experiment, wherein a known amount of water is diverted into the channel near the Folsom South Canal. Instrumentation deployed for such an experiment also will be useful for studying interaction between groundwater and surface water in the system on a continuous basis.

Channel Instrumentation

Portions of the Cosumnes River channel between the Folsom South Canal and Twin Cities Road will be instrumented in order to detect, in real time, spatially and temporally varying losses and gains of streamflow due to interplay with groundwater. Observations will attempt to detect key river reaches within which most of the streamflow losses (groundwater recharge) are occurring.

Instrumentation will include the following:

- Automatic monitoring of river bed temperature along 6 to 8 transects to provide higher-resolution information on the rate of downstream movement of flow pulses during dry and wet conditions (100 Tidbit temperature loggers). This also will help detect sub-reaches that are most active in terms of groundwater interaction.

- Additional installation of shallow piezometers in near-channel and floodplain areas to provide more groundwater level information beyond our existing triangular floodplain and Highway 99 sites. This also will help us pin down the role of little-studied and little-understood perched aquifers in regulation of baseflow into the summer and fall months.

- Additional streamflow monitoring at strategic locations.

This task would begin prior to water releases and continue through July 2006.

TASK 4 – PROJECT REPORTING

The SSCAWA and RBI will lead the task of reporting Project activities and results. RBI will provide the SSCAWA and Coalition partners with periodic report of operations for flow management activities, during all periods in which flows are being released. The FFC will provide a report on escapement and juvenile emigration monitoring, approximately 3 months after the completion of emigration monitoring activities. Information gathered by UCD will be included in a report on groundwater and surface water Interaction, approximately 6 months after the completion of monitoring activities.

4 LITERATURE CITED

Bailey, N.J. 1951. On estimating the size of mobile populations from recapture data. Biometrika 38:293-306.

Law, P.M.W. 1994. A simulation study of salmon carcass survey by capture-recapture method. California Department of Fish and Game 80(1): 14-28.

Murphy, M.L., J.F. Thedinga, and J.J. Pella. 1996. Bootstrap confidence intervals for trap-efficiency estimates of migrating fish. U.S. Department of Commerce, National Marine Fisheries Service, Alaska Fisheries Science Center, Juneau, Alaska.

Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Bulletin of Fisheries Research Board of Canada (23) Suppl.1(2):519–29.

Snider, B., B. Reavis, and R. Titus. 2000. 1999 Upper Sacramento River winter-run chinook salmon escapement survey, April – August 1999. CDFG Environmental Service Division, Sacramento, California.

ENVIRONMENTAL DOCUMENTATION

Notice of Exemption

To: ☐ Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 95812-3044

☑ County Clerk
County of
Sacramento County

From: (Public Agency) Southeast Sacramento Co. Agricultural Water Authority (SSCAWA)
P.O. Box 445, Herald, CA 95638
(Address)

Project Title: Cosumnes River Flow Augmentation Project - 2005 Demonstration Phase

Project Location - Specific:

Project Location – City: n/a **Project Location – County:** Sacramento County

Description of Project:

The project would release up to 5,000 acre-feet of water from the Folsom South Canal to supplement flows in the lower Cosumnes River during October-December 2005. The purpose is to conduct monitoring to evaluate effectiveness for improving passage of migrating fall-run chinook salmon and to evaluate groundwater recharge rates in the channel. The Bureau of Reclamation would provide B2 surplus water for the project.

Name of Public Agency Approving Project: SSCAWA

Name of Person or Agency Carrying Out Project: SSCAWA

Exempt Status: (*check one*)

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☑ Categorical Exemption. State type and section number: Class 6, Sec. 15306
- ☐ Statutory Exemptions. State code number:

Reasons why project is exempt:

The project would not involve any construction or operation disturbances to environmental resources and would specifically benefit anadromous fish production goals. No regulatory permits or appprovals are required for the project. Fisheries and hydrologic data would be collected to aid design of the future long-term operations. None of the exceptions under CEQA Guidelines Section 15300.2 apply to the project.

Lead Agency
Contact Person: Ronald R. Lowry Area Code/Telephone/Extension: (209) 748-5044

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☑ Yes ☐ No

Signature: Date: Title:

☑ Signed by Lead Agency
☐ Signed by Applicant

Date received for filing at OPR:

January 2004

CEC # 566

CATEGORICAL EXCLUSION CHECKLIST

Project: Cosumnes River Augmentation Pilot Study **Date:** 9/19/2005

Nature of Action: Local groundwater withdrawals over the past 50 years have substantially lowered groundwater tables and reduced the Cosumnes River and Deer Creek baseflow. The Cosumnes River now ceases to flow earlier in the year, stays dry longer into the fall, and dries over an increasingly long reach compared to historic conditions. Because of the increase over time in the number of days that the river is dry each year, it requires more surface flow from the upper watershed to re-wet the channel and connect the surface flow from the upper watershed to re-wet the channel and connect the Cosumnes River to the Delta. Cosumnes River surface flows supporting aquatic and riparian habitats and species have been diminished, thereby reducing the quality and quantity of those habitats and associated species. The objective of this project, to improve fall salmon migration conditions, would be accomplished by: (1) allowing the Cosumnes River to connect to tidewater earlier in the fall; (2) sustaining the flow of the Cosumnes River after its initial connection; and, (3) redistributing excess water for improvement and maintenance of fish passage flows on the Cosumnes River. This pilot study is designed to demonstrate the effectiveness of using limited surface water supplies to meet multiple objectives of improving conditions for key aquatic communities as part of an integrated regional water management strategy. In the initial year, some of the basic assumptions will be tested, operational issues will be addressed, and fishery and hydrologic conditions will be monitored.

The water source for this pilot study would be 5,000 acre-feet of previously banked CVP project storage accounted for as a portion of the supply annually dedicated under §3406(b)(2) of the Central Valley Project Improvement Act for the primary purpose of implementing the fish, wildlife, and habitat restoration purposes.

Exclusion Category: D.12. Conduct of programs of demonstration, educational, and technical assistance to water user organizations for improvement of project and on-farm irrigation water use and management.

Evaluation of Criteria for Categorical Exclusion

1. This action or group of actions would have a significant effect on the quality of the human environment. No x Uncertain ____ Yes______

2. This action or group of actions would involve unresolved conflicts concerning alternative uses of available resources. No x Uncertain ____ Yes______

Evaluation of Exceptions to Actions within Categorical Exclusion

1. This action would have significant adverse affects on public health or safety. No x Uncertain ____ Yes______

2. This action would affect unique geographical features as: wetlands, wild or scenic rivers, refuges, floodplains, etc. No x Uncertain ____ Yes______

3. The action will have highly controversial environmental effects. No x Uncertain ____ Yes______

4. The action will have highly uncertain environmental effects or involve unique or unknown environmental risk. No x Uncertain ____ Yes_____

5. This action will establish a precedent for future actions. No __x__ Uncertain ____ Yes________

6. This action is related to other actions with individual insignificant but cumulatively significant environmental effects. No __x__ Uncertain ____ Yes_______

7. This action will affect properties listed or eligible for listing in the National Register of Historic Places. No __x__ Uncertain ____ Yes_______

8. This action will adversely affect species listed or proposed to be listed as Endangered or Threatened. No __x__ Uncertain ____ Yes______

CATEGORICAL EXCLUSION CHECKLIST
(Continued)

9. This action threatens to violate Federal, State, local or tribal law or requirements imposed for protection of the environment. No __x__ Uncertain ____ Yes______

10. This action will affect Indian Trust Assets. No__x__ Uncertain ____ Yes________

11. This action will disproportionately affect minority or low-income populations. No __x__ Uncertain ____Yes_______

NEPA Action: Categorical Exclusion

Remarks / Comments: Reclamation has determined that the proposed action is appropriate for Categorical Exclusion under the National Environmental Policy Act of 1969 (42 United States Code [U.S.C.] 4321, et seq.) based on the following information:

- The project is designed to be beneficial by supporting the restoration of more normative ecological conditions within the lower watershed;
- The quality of the water to be used is very good and would not cause an adverse impact to native biota or groundwater. Local proponents have consulted with the Regional Water Quality Control Board;
- The inter-basin movement of water would not induce additional straying of salmonids from neighboring watersheds due the timing and magnitude of the application of available source supply (e-mail communication from C. Ingram, US Fish and Wildlife Service, 9/16/05);
- There would be no effect to threatened steelhead because the presence of a natural barrier to upstream migration at a point upstream for the point of deliver has historically excluded steelhead from suitable spawning habitat. The Cosumnes Rive is not considered to provide any critical habitat for steelhead.

Preparer: David B Robinson **Date:** 9/19/05

Concur: Pete Vorl **Date:** 9/19/05
NEPA and ESA adequacy

ENV-6.00

Concur: ______(see attached)______ **Date:** __________
Regional Archeologist Concurrence with Item 7

Concur: ______(see attached)______ **Date:** __________
Regional Director or ITA Designee Concurrence with Item 10

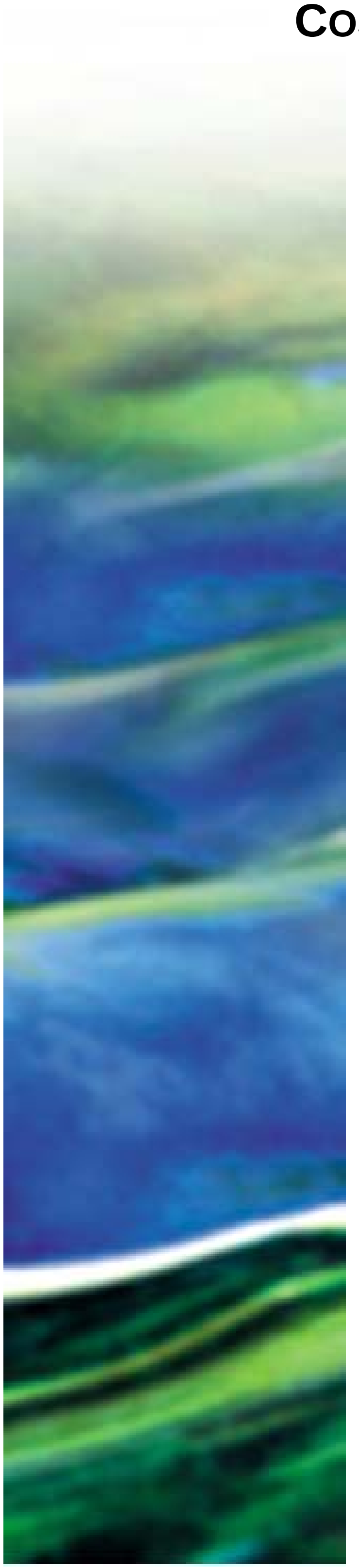
Approve: ______Richard M Johnson______ **Date:** 20 Sep 2005
Area Manager, CCAO

ENV 6.00

FILE ORIGINAL IN ENV 6.00

291112 Part 2

COSUMNES RIVER FLOW AUGMENTATION PROJECT



CATEGORICAL EXEMPTION

Prepared for:

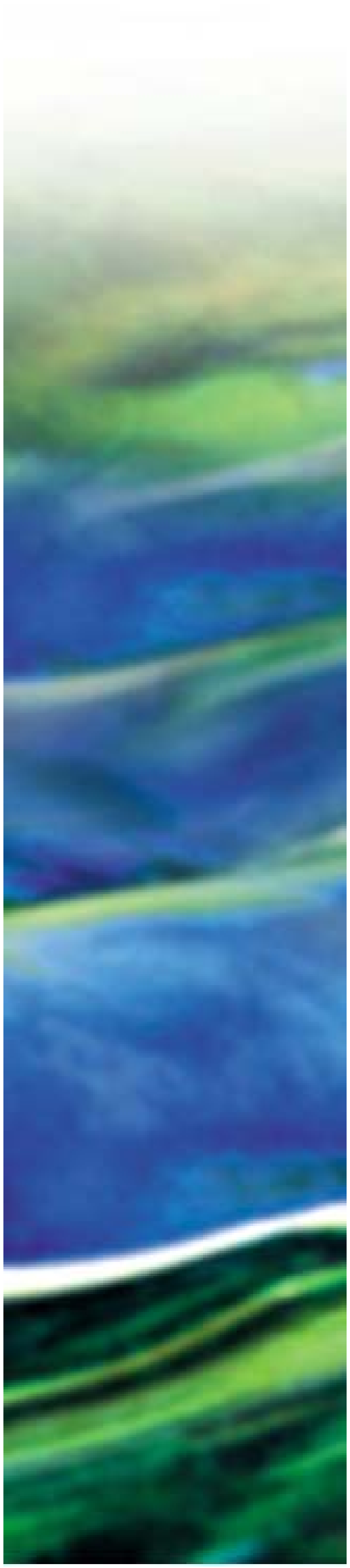
Southeast Sacramento County
Agricultural Water Authority

Prepared by:

ROBERTSON - BRYAN, INC.
Specializing in Water and Power Resources

October 10, 2005

291112 Part 2



COSUMNES RIVER FLOW AUGMENTATION PROJECT

CATEGORICAL EXEMPTION

Prepared for:

Southeast Sacramento County
Agricultural Water Authority
P.O. Box 445
Herald, CA 95638

Prepared by:

ROBERTSON - BRYAN, INC.
Specializing in Water and Power Resources

9888 Kent Street
Elk Grove, CA 95624
(916) 714-1801

October 10, 2005

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1 INTRODUCTION

The Southeast Sacramento County Agricultural Water Authority (SSCAWA) will be undertaking the Cosumnes River Flow Augmentation Project (Project) – 2005 Demonstration Phase from October through December 2005. The activity is specifically designed to collect basic operational and research information to refine a long-term program of fisheries enhancement and groundwater recharge. Because the activity will not cause adverse environmental effects, the Project qualifies for a categorical exemption as outlined in State California Environmental Quality Act (CEQA) Guidelines Sections 15061, 15062, and 15306. The following information describes the activities that will occur during the demonstration phase of the Project and the regulatory determination for supporting a CEQA categorical exemption.

2 PROJECT DESCRIPTION

2.1 Introduction

The Cosumnes River is a keystone of anadromous salmon fishery conservation efforts in the North Delta. The Anadromous Fish Restoration Program (AFRP), The Nature Conservancy (TNC), and the University of California, Davis (UCD), have sponsored numerous research projects on the health of the salmon fishery of the Cosumnes River. Historical decline of the Cosumnes River fall-run chinook salmon (*Oncorhynchus tshawytscha*) populations are apparently due to the altered hydrology of the system during the critical salmon migration period coupled with a short supply of suitable spawning and rearing habitat. AFRP has identified the Cosumnes as having potential for contributing to the fish doubling goals of the Central Valley Project Improvement Act (CVPIA). The AFRP has also set forth program objectives specifically directed at the Cosumnes River and the acquisition and restoration of fish habitat, primarily directed at improving passage and spawning habitat for fall-run chinook salmon.

The geologic setting and unregulated nature of the Cosumnes River has also made it a focus of regional water management strategies for south Sacramento County, and particularly for SSCAWA and its member district, Omochumne-Hartnell Water District (OHWD), through which the Cosumnes River flows. SSCAWA and OHWD, in partnership with the Sacramento County Water Agency (SCWA), TNC, and UCD are sponsoring a number of programs aimed at evaluating and developing a conjunctive use strategy that capitalizes on the natural geology of the region for groundwater recharge and surface water management.

Recent field and modeling efforts conducted by UCD researchers and others indicate that extensive regional and local groundwater withdrawals over the past 50 years substantially lowered groundwater tables and reduced the base flow of the Cosumnes River and its major tributaries. The Cosumnes River now frequently ceases to flow during summer months, stays dry longer into the fall, and has a dry river bed over an increasingly longer reach compared to historical conditions.

A Coalition of interests[1] support this project that will provide supplemental flows to the Cosumnes River to improve fish passage for fall-run chinook salmon and provide a controlled environment to evaluate the interaction of groundwater and surface water in the Cosumnes River channel. Figure 1 shows the project area and major features. The objectives of the Project are twofold:

- To improve fall-run chinook salmon migration conditions by: (1) allowing the Cosumnes River to connect to tidewater earlier in the fall, and (2) sustaining surface flow continuity within the Cosumnes River after its initial connection.

- To evaluate the rate of groundwater recharge from the river channel between the Folsom South Canal and Twin Cities Road to better guide future groundwater management and environmental restoration efforts along the Cosumnes River corridor.

2.2 Demonstration Project Operations

The Project will release up to 5,000 acre-feet (af) of water into the Cosumnes River starting on or about October 15, 2005, from an existing turnout of the Folsom South Canal. The Folsom South Canal diverts water from the lower American River at Lake Natoma and conveys it to the south Sacramento County area. The Project is designed to create river conditions similar to what might have been experienced prior to the reduction of groundwater levels underlying the Cosumnes River between Highway 16 and the Cosumnes River Preserve (downstream of Twin Cities Road). The Project is not intended to create a hydraulic connection with the tidally influenced area of the Cosumnes River and the Delta before it would historically have occurred naturally from run-off generated by fall precipitation in the Sierra Nevada foothills.

The intent of the Coalition is that the Project continue into a Pilot Project phase from 2006 through 2010, after which it will become a permanent annual operation. Hence, the 2005 effort constitutes a demonstration phase to help the project proponents develop and improve the long-term management strategy of the Project. Sacramento County Water Agency (SCWA) will provide the long-term water supply for the Project using water developed from the Eastern Sacramento County Replacement Water Supply Project (RWSP). CEQA compliance for the

[1] The Coalition consists of the Sacramento County Water Agency, The Nature Conservancy, Southeast Sacramento County Agricultural Water Authority (members include Omochumne-Hartnell Water District, Galt Irrigation District, and Clay Water District), Fisheries Foundation of California, and the UCD Center for Integrated Watershed Science and Management.

Pilot Project phase (2005–2010) will be prepared by the end of 2005, and any necessary regulatory permits or approvals for construction of permanent features associated with the Project would be secured in early 2006.

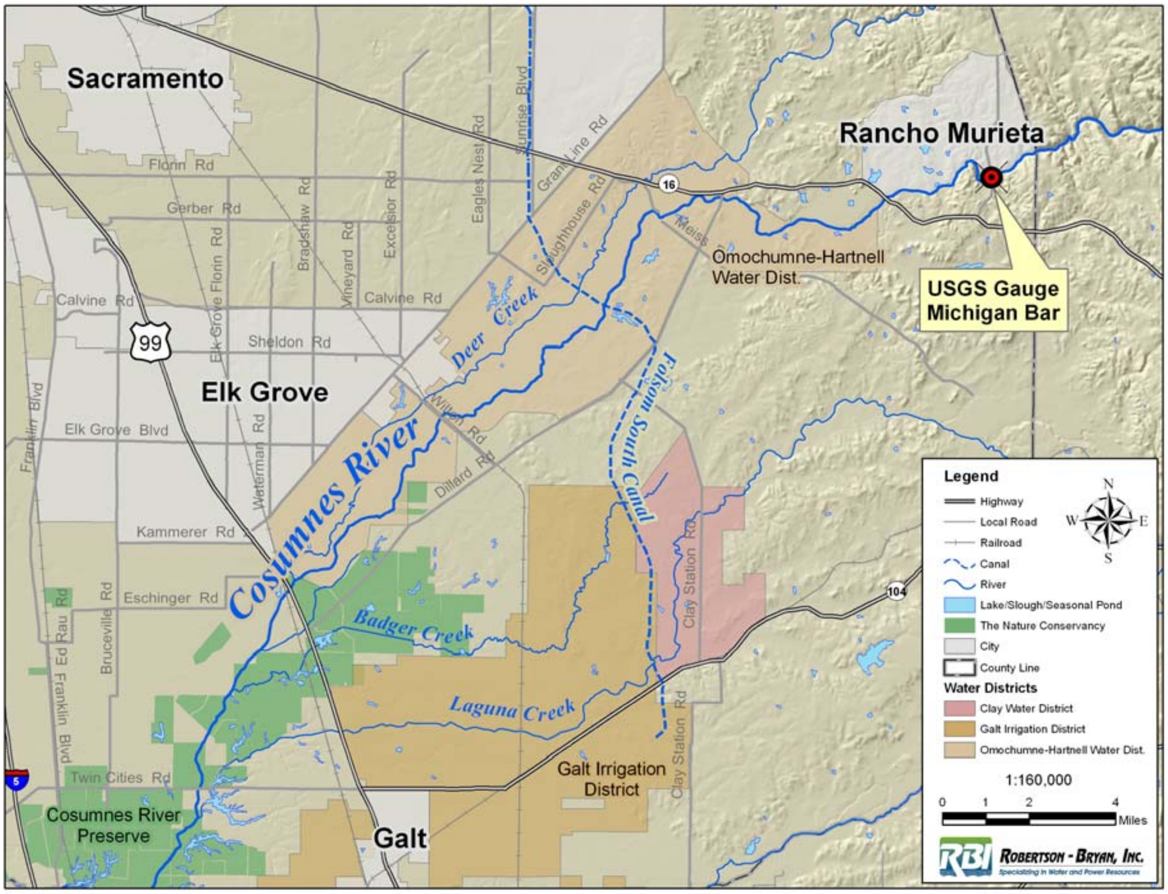

Figure 1. Location map for the Cosumnes River Flow Augmentation Project.

Demonstration Phase Water Supply

The U.S. Bureau of Reclamation (Reclamation) and the B2 Environmental Water Program will provide the water supply for the demonstration phase of the Project. Up to 40 cubic feet per second (cfs) will be diverted from the American River system, supplied from storage in Folsom Reservoir, between October 15 and December 31. This water is allocated to the B2 Environmental Water Program and, as such, will be diverted entirely from storage, thereby leaving streamflow in the American River unaffected. Water released from Folsom Reservoir for the Project will fall within Reclamation's normal operating ranges for the fall period.

Flow Release Operations

The demonstration phase of the Project will not require construction or physical alteration of existing facilities, streambed or streambank modifications, or vegetation removal to implement the release of water from the Folsom South Canal to the Cosumnes River. Releases will be made from the canal via an existing outlet structure on the canal abutment on the south side of the Cosumnes River. The outlet structure consists of an operable gate located on the canal leading into a buried 48-inch pipeline. The gravity-fed pipeline terminates on the south bank of the river, approximately three feet above the normal water surface elevation. Releases will be controlled and monitored to ensure that the hydraulic energy of the water entering the river does not cause adverse localized channel or streambank scour, erosion, or excessive turbidity in the water column. In addition, there is natural streamflow in the Cosumnes River in this section of the river because of the large 2004-05 winter snowpack in the Sierra Nevada. Existing streamflow currently extends downstream to the vicinity of Wilton Road (river mile 15) where percolation into the stream channel is complete and the channel becomes dry from that point downstream to the area of tidal influence (river mile 5). Natural streamflow is expected to continue through the 2005 implementation period. The existing streamflow will also serve to dissipate the hydraulic energy of the discharge from the canal, eliminating the need for streambed erosion controls.

Figure 2 depicts the flow release schedule developed to meet the following criteria: (1) pre-wet the greatest length of channel possible without reaching the tidally influenced area, and (2) maintain sufficient water in reserve for augmenting river flow to sustain the connection with tidewater during the optimal salmon migration period of November 1 to December 31.

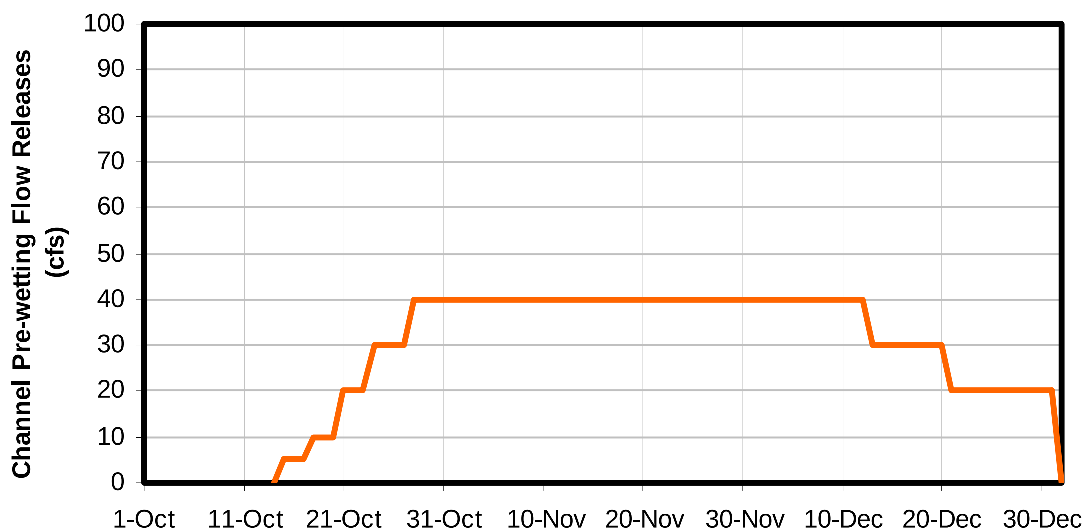

Figure 2. Cosumnes River channel pre-wetting releases from the Folsom South Canal.

Channel pre-wetting flows will begin on or about October 15 and continue through December 31. By beginning flow releases in mid-October, the Cosumnes River channel will receive approximately 2,400 af of water before the river typically connects to tidewater in mid-November. Water not used for channel pre-wetting will be reserved and used to supplement natural flows through December 31 in an effort to eliminate stranding conditions during the migration period. Flow augmentation releases will be made when Cosumnes River flows fall below that required to maintain upstream migration conditions, estimated to be 65–70 cfs, measured at the U.S. Geological Survey (USGS), Michigan Bar gauging station. Historical flow records for the Cosumnes River, with consideration of today's groundwater conditions, indicate that supplemental flows to maintain barrier-free migration conditions would be needed in about 93% of years.

2.3 Monitoring Program

SSCAWA and partner organizations of the Coalition will conduct fisheries and hydrologic monitoring as an element of the Project. Information developed by the monitoring efforts will be used to refine Project operations and to assist in the development of the long-term streamflow augmentation program for improvement of fall-run chinook salmon migration conditions in the Cosumnes River.

Flow Release Scheduling

SSCAWA will take the lead in scheduling and managing releases from the Folsom South Canal. On behalf of SSCAWA, Robertson-Bryan, Inc. (RBI) will facilitate the task of flow release scheduling and management. RBI will perform field measurements of flows to monitor the effect of releasing channel-wetting flows and regulate flow releases as needed to meet the multiple objectives of the Project. RBI will coordinate with all members of the Coalition, Reclamation, and permitting and other regulatory authorities regarding flow releases, as needed.

Fall-run Chinook Salmon Run Size (Escapement) and Juvenile Downstream Migration (Emigration) Monitoring

The Fisheries Foundation of California (FFC) will monitor the abundance, distribution, and lifestage-specific migration timing of fall-run chinook salmon in the Cosumnes River and compare these data to historical data to determine Project effectiveness. This task will evaluate the adequacy of flows for salmon passage by life stage. Flow needs will focus on the lower river reach, from below the Folsom South Canal to the tidal area, where passage of migrating adult salmon presents the biggest problem. The duration and rate of flow needed to allow the run to proceed upstream and successfully reach spawning grounds will be a focused evaluation building on information gathered in previous years. The duration and rate of flow needed to maintain a successful migration pattern will be determined through adaptive management of flow releases from the Folsom South Canal. The FFC will also conduct out-migration surveys to provide information on the relative success of fall spawning in the Cosumnes River.

Groundwater-Surface Water Interaction Monitoring

Professor Graham Fogg, Ph.D., of the Land, Air, and Water Resources and Geology Department at UCD, will lead the Groundwater–Surface Water Interaction Monitoring task. Ongoing work on hydrogeology of the Cosumnes River aquifer system has shown that the river is the major source of recharge to the local groundwater system and that most of this recharge probably occurs over a small percentage of the channel between Michigan Bar and Twin Cities Road. Successful management of river flows to sustain salmon migration in the fall requires more detailed information on river–aquifer water exchange along this entire reach. This more detailed information can be obtained through careful hydrologic monitoring before and after a controlled flow release experiment, wherein a known amount of water is diverted into the channel near Folsom South Canal. Instrumentation deployed for such an experiment will also be useful for studying interaction between groundwater and surface water in the system on a continuous basis.

3 PROJECT DETERMINATION

In compliance with the State CEQA Guidelines, the potential environmental effects of the demonstration phase of the Project were evaluated and it was determined that its implementation is exempt from CEQA under the State CEQA Guidelines; specifically, Title 14, California Code of Regulations (CCR) Section 15061(b)(3), and subject to a Category Exemption under Title 14, CCR Section 15306 (Class 6, Information Collection).

Pursuant to CEQA, a categorical exemption provides for an exemption from CEQA environmental documentation requirements for a class of projects determined not to have a significant effect on the environment. The demonstration phase of the Project is consistent with the designated Class 6 categorical exemption and thus determined to be exempt from the provisions of CEQA. The Class 6 – Information Collection class of categorical exemptions is defined as follows:

> *Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action, which a public agency has not yet approved, adopted, or funded.*

The demonstration phase of the Project meets this definition in that the Project serves to develop and evaluate research data in support of planning and design options for long-term resource management that would benefit anadromous fisheries and groundwater recharge in the Cosumnes River. Additionally, any subsequent projects that would be developed to address this problem have not yet been approved, adopted, or funded by SSCAWA.

In addition, the demonstration phase of the Project is covered by the general rule that CEQA does not apply to activities where it can be seen with certainty that there is no possibility that a significant effect on the environment could occur (State CEQA Guidelines Section 15061[b][3]). The project consists of a temporary discharge of American River water from the Folsom South Canal to the Cosumnes River for the specific purpose of anadromous fisheries enhancement and groundwater recharge. Thus, the Project is similar to a temporary water transfer program for which the State Water Resources Control Board has found to be subject to a CEQA Statutory Exemption under State CEQA Guidelines Section 15282(v) and the California Water Code, Section 1729.

Reclamation has determined that the use of B2 Environmental Water for the Project is consistent with Reclamation policy for a Categorical Exclusion for the "Conduct of programs of demonstration, educational, and technical assistance to water user organizations for improvement of project and on-farm irrigation water use and management" pursuant to the National Environmental Policy Act (NEPA), Code of Federal Regulations (CFR) Section 1508.4.

No other local, state, or federal regulatory approvals or permits are required for implementation of the Project.

3.1 Analysis of Potential CEQA Exceptions to the Categorical Exemption

Categorical exemptions represent activities that generally do not result in significant environmental impacts. However, there are six exceptions to categorical exemptions, defined in CEQA Guidelines Section 15300.2. Generally, a categorical exemption does not apply if a project would occur in certain specified sensitive environments, would affect scenic resources within official state scenic highways, or is located on a designated hazardous waste site. In addition, a categorical exemption would not apply if the project causes substantial adverse changes in the significance of a historical resource or would be considered significant within a cumulative context. Table 1 identifies specific exceptions from CEQA Guidelines Section 15300.2 and a brief discussion as to why each exception does not apply to the demonstration phase of the Project.

Table 1. Categorical Exemption Exceptions (CEQA Guidelines Section 15300.2)

Exception	Applicability
(a) Location. Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located—a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply in all instances, except where the project may impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.	The Project is specifically designed to benefit fisheries resources and local water supplies associated with Cosumnes River where resource conditions are known to be limited by the historical reduction in favorable seasonal streamflow conditions. Central Valley steelhead are threatened under the federal Endangered Species Act and the Mokelumne River downstream of the project area is designated critical habitat for steelhead. The Project will not create early attraction flows or false attraction flows that would lead to straying of fish from their native stream of origin. In addition, the Project would not involve any construction activity or operations that would cause an impact to any resource of hazardous or critical concern.
(b) Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.	Resource data collection conducted during the Project will specifically be used to refine the design of the long-term streamflow augmentation project. Consequently, it is anticipated that the long-term project will be constructed and operated so as to not cause any significant cumulative environmental effects.
(c) Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.	The proposed study design incorporates measures to ensure that no significant impacts will occur as a result of study activities. These include manually controlling and monitoring the flow augmentation operations, conducting hydrologic and fisheries monitoring downstream of the discharge to ensure that adverse effects do not occur, and using the data that is collected to refine the design of the long-term flow augmentation project.

Table 1. Categorical Exemption Exceptions (CEQA Guidelines Section 15300.2)

Exception	Applicability
(d) Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements, which are required as mitigation by an adopted negative declaration or certified EIR.	There are no officially designated state scenic highways in the proposed study area. The Project will not cause any aesthetic effects.
(e) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site, which is included on any list compiled pursuant to Section 65962.5 of the Government Code.	The Project does not involve any construction or operations that would disturb, and/or alter the fate and transport, of any known or unknown hazardous waste sites.
(f) Historical Resources. A categorical exemption shall not be used for a project, which may cause a substantial adverse change in the significance of a historical resource.	The Project does not involve any construction or operations that would disturb any known or unknown cultural resources.

3.2 Environmental Impact Analysis

The following briefly describes the environmental setting in the project area, the environmental effects of the demonstration phase of the Project, and supporting evidence for this categorical exemption.

Biological Resources

The Cosumnes River is a tributary of the Mokelumne River. The discharge location is approximately 23 river miles upstream of the confluence of the two rivers. The Mokelumne River supports an annual run of Central Valley Evolutionarily Significant Unit (ESU) steelhead (*Oncorhynchus mykiss*), which are listed as threatened under the federal Endangered Species Act, and the Mokelumne River is within the designated critical habitat for the species. Anecdotal evidence suggests that Central Valley ESU steelhead may occur, seasonally, in the Cosumnes River upstream of Rancho Murrieta during some years. However, the Cosumnes River is excluded from the critical habitat designation, and steelhead occurring in the Cosumnes River are likely strays from the Mokelumne River. It is highly unlikely that the Cosumnes River can support a naturally reproducing steelhead population because juvenile fish rear in their natal streams for a period of one to three years and require perennial flow and cool summertime water temperatures during this rearing period. The Cosumnes River does not provide perennial flows and cool summertime water temperatures below Latrobe Falls, the section of the river accessible to steelhead.

It is unlikely that steelhead from the American River or Mokelumne River will be falsely attracted into the Cosumnes River, or attracted earlier than would occur without the Project, for several reasons. First, American River water will be used to “pre-wet” dry reaches of the Cosumnes River channel primarily during October and November and possibly into December (depending on when initial rains occur). Because the time at which active flow will extend to the tidal area from the discharge location will not differ appreciably from existing conditions, the discharge will not produce early attraction flow. Second, adult American River steelhead migrate upstream through the Sacramento River and are primarily attracted by a combination of olfactory cues and increased flows. Transferred water will be diluted by Cosumnes River, Mokelumne River, and numerous other tributaries to the extent that it is not expected to alter the migratory cues for American River steelhead coming up through the Delta to levels that would cause them to stray, with greater frequency, into the Cosumnes River. The small and short-term increase in flows will be regulated to pre-wet the Cosumnes River channel only, and will not be substantial enough to artificially create or increase attraction flows at the confluence of the Mokelumne and Cosumnes rivers. In addition, monitoring of the fisheries and hydrologic conditions will occur during the Project.

Folsom and Nimbus operations will not be affected by the demonstration phase of the Project. The Project will not adversely affect coldwater pool management at Folsom Reservoir, nor will it alter lower American River flows or temperatures.

Hydrology and Water Quality

The temporary interbasin transfer of water from the American River to the Cosumnes River would not cause or contribute to any substantial adverse hydrologic or water quality effects. American River water and Cosumnes River water physical and chemical characteristics are generally similar with respect to their origin from Sierra Nevada sources and suitability for designated beneficial uses supported in both rivers.

Other CEQA Issues

The demonstration phase of the Project will have no other direct or indirect environmental effects for CEQA resource issues of concern (i.e., aesthetics, agricultural resources, air quality, cultural resources, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/ traffic, utilities and service systems) or any cumulative impacts.

Memorandums

ROBERTSON - BRYAN, INC.
Specializing in Water and Power Resources

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MEMORANDUM

DATE: SEPTEMBER 15, 2005

TO: DAVE ROBINSON, US BUREAU OF RECLAMATION

FROM: LARRY RODRIGUEZ
DAVE THOMAS
MICHAEL BRYAN

PROJECT: COSUMNES RIVER FLOW AUGMENTATION PROJECT

SUBJECT: NO ADVERSE AFFECT TO CENTRAL VALLEY STEELHEAD

Robertson-Bryan, Inc. (RBI) has prepared the following to support the U.S. Bureau of Reclamation's (Reclamation) determination of no adverse affect to Central Valley Evolutionarily Significant Unit (ESU) steelhead or designated critical habitat as a result of implementation of the demonstration phase of the Cosumnes River Flow Augmentation Pilot Project using water available through the B2 Environmental Water Program.

Anecdotal evidence suggests that Central Valley ESU steelhead (*Oncorhynchus mykiss*) may occur seasonally in the Cosumnes River upstream of Rancho Murrieta during some years. Central Valley ESU steelhead are currently listed as threatened under the federal Endangered Species Act (63 FR 13347, May 18, 1998); no State designation has been made. NOAA Fisheries issued its final designation for critical habitat on September 2, 2005 (50 CFR Part 226). The designation includes the Mokelumne River; however, the Cosumnes River was considered and excluded because the watersheds containing this river were of "…low conservation value." Steelhead occurring in the Cosumnes River are likely strays from the Mokelumne River, which supports an annual run of steelhead. In contrast, it is unlikely that the Cosumnes River can support a naturally reproducing steelhead population because juvenile fish rear in their natal streams for a period of one to three years and require perennial flow and cool summertime water temperatures during this rearing period. The Cosumnes River does not provide perennial flows and cool summertime water temperatures below Latrobe Falls, the section of the river accessible to steelhead. Latrobe Falls, located at river mile 40 where elevation is approximately 350 feet (msl), is a natural barrier to upstream migration

The proposed Pilot Project will augment the natural flow regime of the Cosumnes River with American River water conveyed through the Folsom South Canal. The potential adverse effects of such an action on Central Valley ESU steelhead include: (1) false attraction of non-natal (i.e., American River- or Mokelumne River-derived) fish into the Cosumnes River as a result of the inter-basin water transfer, (2) early attraction and potential stranding of steelhead because of early hydraulic connectivity, and (3) adverse alteration of designated critical habitat, including habitats of the lower American River.

It is unlikely that steelhead from the American River or Mokelumne River will be falsely attracted into the Cosumnes River, or attracted earlier than would occur without the Pilot Project, for several reasons. First, American River water will be used to “pre-wet” dry reaches of the Cosumnes River channel primarily during October and November and possibly into December (depending on when initial rains occur). Second, adult American River steelhead migrate upstream through the Sacramento River and are primarily attracted by a combination of olfactory cues and increased flows. Transferred water will be diluted by Cosumnes River, Mokelumne River, and numerous other tributaries to the extent that it is not expected to alter the migratory cues for American River steelhead coming up through the Delta to levels that would cause them to stray, with greater frequency, into the Cosumnes River. The small and short-term increase in flows will be regulated to pre-wet the Cosumnes River channel only, and will not be substantial enough to artificially create or increase attraction flows at the confluence of the Mokelumne and Cosumnes rivers.

It is unlikely that critical habitat will be adversely affected by increases in flow for several reasons. First, the Cosumnes River, which will be directly affected by the Pilot Project, is not designated critical habitat for steelhead. Second, increases in flow will be short-term in nature. Third, the incremental increase in flow will be small in the Cosumnes River and negligible in the Mokelumne River, thereby leaving critical habitat virtually unaffected. The American River, which also is designated critical habitat for steelhead, will not be adversely affected by the Pilot Project. The water to be diverted (up to 40 cfs) from the American River system will be taken from storage in Folsom Reservoir between October 15 and December 31. This water is allocated to the B2 Environmental Water Program and, as such, will be diverted entirely from storage, thereby leaving stream flow in the American River unaffected. Water released from Folsom Reservoir for the Pilot Project will fall within Reclamation’s normal operational parameters for the fall period. Folsom and Nimbus operations are not anticipated to be affected by the Pilot Project. Any minor effect on operations would not adversely affect coldwater pool management at Folsom Reservoir, nor would it alter lower American River flows or temperatures by magnitudes that would adversely affect steelhead or critical habitat.

For the reasons stated herein, the proposed Pilot Project will not adversely affect Central Valley ESU steelhead or designated critical habitat.

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MEMORANDUM

Date: October 12, 2005

To: David Robinson, US Bureau of Reclamation

From: Larry Rodriguez

Project: Cosumnes River Flow Augmentation Project

Subject: Flow Release Scheduling

On behalf of the Southeast Sacramento County Agricultural Water Authority (SSCAWA), Robertson-Bryan, Inc. (RBI) prepared this memorandum to provide US Bureau of Reclamation (Reclamation) with an updated flow release schedule and communication protocols for the Cosumnes River Flow Augmentation Project – Demonstration Phase (Project). Conditions in the Cosumnes River, readiness of Folsom South Canal (FSC) turnout facilities, and the timing of the availability of US Bureau of Reclamation (Reclamation) water supplies have prompted these changes to the release schedule provided to Reclamation in the Project Monitoring Plan (September 26, 2005).

Release Schedule

The Monitoring Plan indicates that releases from the FSC will be ramped up to 40 cubic-feet-per-second (cfs) beginning on October 15. The intent of ramping flows was to first wet then fill the in-channel pool located at the FSC crossing, presuming that the channel is typically dry in October. However, the Cosumnes River at the FSC crossing is currently flowing at about 16 cfs, therefore, we do not feel the need to ramp up flows to 40 cfs. Instead, we are requesting that Reclamation start releases at 40 cfs. RBI will monitor releases to ensure that no excessive erosion occurs. If it is determined that releases need to be reduced to avoid erosion, RBI will request a change from Reclamation.

RBI is requesting that Reclamation adopt the following schedule to facilitate the initial release of water and to allow for channel erosion evaluation.

- **Monday October 17, 2005, 10:00 –** Release begin at a rate of 40 cfs. First releases will be coordinated with a project initiation ceremony and media coverage.
- **Thursday October 20, 2005, afternoon –** Shut off releases to allow for channel erosion evaluation on Friday morning.
- **Friday October 21, 2005, afternoon –** Reinitiate releases at a rate determined by RBI. Flows will be maintained at the determined rate until natural river flows increase or the channel

wetting front progresses to downstream of Twin Cities Road. RBI will determine when changes to releases are needed and will notify Reclamation of the needed change. Requests for changes in releases will be made 3 days prior to needed change.

As a component of the monitoring program, RBI will conduct regular flow measurements in the Cosumnes River. Flow monitoring locations include the seasonal dam located immediately downstream of the FSC and a location above the FSC that captures the inflow to the in-channel pool formed at the FSC crossing. These monitoring points will assist RBI and Reclamation in calibrating the releases from the FSC. All flow measurements and FSC meter readings will be conducted by RBI at two-day intervals and will be recorded onto a project data sheet that will be distributed to all project partners.

Communication Protocols

RBI will direct all communication for changes in release rates to the following parties:

1. David Robinson via phone at (916) 979-7179 and email at drobinson@mp.usbr.gov,
2. Dave Lawson via email at dlawson@mp.usbr.gov and by phone at (916) 979-7233, if David Robinson is not available, and
3. James Taylor via email at jtaylor@mp.usbr.gov and by phone at (916) 979-7252, if either David Robinson or Dave Lawson are not available.
4. In the case of an emergency, RBI will contact the Reclamation Control Room at (916) 979-7251.

RBI will direct regular communications of project status and flow reporting to David Robinson and Dave Lawson via email.

Reclamation will direct all communications regarding release management to following parties:

1. Brook Edwards via phone at (916) 714-8351 (office) or (916) 216-7330 (cell phone), and by email at brook@robertson-bryan.com,
2. Larry Rodriguez via email at larry@robertson-bryan.com, or by phone at (916) 714-1806 (office) or (916) 212-4678 (cell phone), if Brook Edwards is not available, and
3. Stuart Robertson via phone at (916) 687-7799, if either Brook Edwards or Larry Rodriguez is not available.

Reclamation will direct all general communications about project status and management to Larry Rodriguez.

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MEMORANDUM

Date:	November 18, 2005
To:	B2 Environmental Water Program – Interagency Management Team
From:	***Project Partners:*** The Nature Conservancy Fisheries Foundation of California Southeast Sacramento County Agricultural Water Authority ***Project Management Team (RBI):*** Larry J. Rodriguez David Thomas Michael Bryan, Ph.D.
Project:	Cosumnes River Flow Augmentation Project
Subject:	Proposed Operational Changes to the Cosumnes River Flow Augmentation Project

INTRODUCTION

The operational approach for the Demonstration Phase of the Cosumnes River Flow Augmentation Project (Project) is being reconsidered in light of current conditions on the Cosumnes River, and the small amount of allocated water used to date. Due to rather unique hydrologic conditions this year, it required only 760 acre-feet (ac-ft) of B2 water to "pre-wet" the river channel, which was the original goal of the Project. Although the channel is now pre-wetted, there have been no significant precipitation events and none are projected in the near future. Salmon are likely waiting to enter the Cosumnes River, but cannot due to the lack of surface flow continuity between the tidal reach and the upper watershed. Based on this situation, coupled with availability of over 4,000 ac-ft of allocated water, we now propose to release water from the Folsom South Canal sufficient to attract salmon into the river and ultimately to historic spawning reaches. The Project partners have determined that creating an attraction flow would be a reasonable use of available water and would offer a unique opportunity to assess numerous additional research questions regarding salmon behavior.

This memorandum provides a summary of the original project objectives and operations, 2005 operations and conditions, and proposed next steps for the Demonstration Phase of the Project.

PROJECT OBJECTIVES AND OPERATIONS

The intent of the 2005 Demonstration Phase of the Project is to allow the Project partners to refine and improve the long-term operations plan for the Project. During the Demonstration Phase up to 5,000 acre-feet (ac-ft) of water is available from the B2 Environmental Water Program and the U.S. Bureau of Reclamation (Reclamation). The objectives of the Project are twofold:

- To improve fall-run chinook salmon migration conditions by: (1) allowing the Cosumnes River to connect to tidewater earlier in the fall, and (2) sustaining surface flow continuity within the Cosumnes River after its initial connection.

- To evaluate the rate of groundwater recharge from the river channel between the Folsom South Canal and Twin Cities Road to better guide future groundwater management and environmental restoration efforts along the Cosumnes River corridor.

To achieve the above objectives the Project design is to create river conditions similar to what might have existed prior to the reduction of groundwater levels underlying the Cosumnes River. This historical condition is a "gaining" riverine system connected to and receiving water input from the underlying groundwater table. This system would have remained wet, if not flowing, in all but the driest of conditions and flow would have been reestablished each fall with even small amounts of precipitation in its watershed.

The Project will accomplish this by releasing pre-wetting flows into the Cosumnes River from the Folsom South Canal (Figure 1). Pre-wetting release will be managed to wet the river channel from the Folsom South Canal to Twin Cities Road beginning on October 15 and continue through December 31, depending

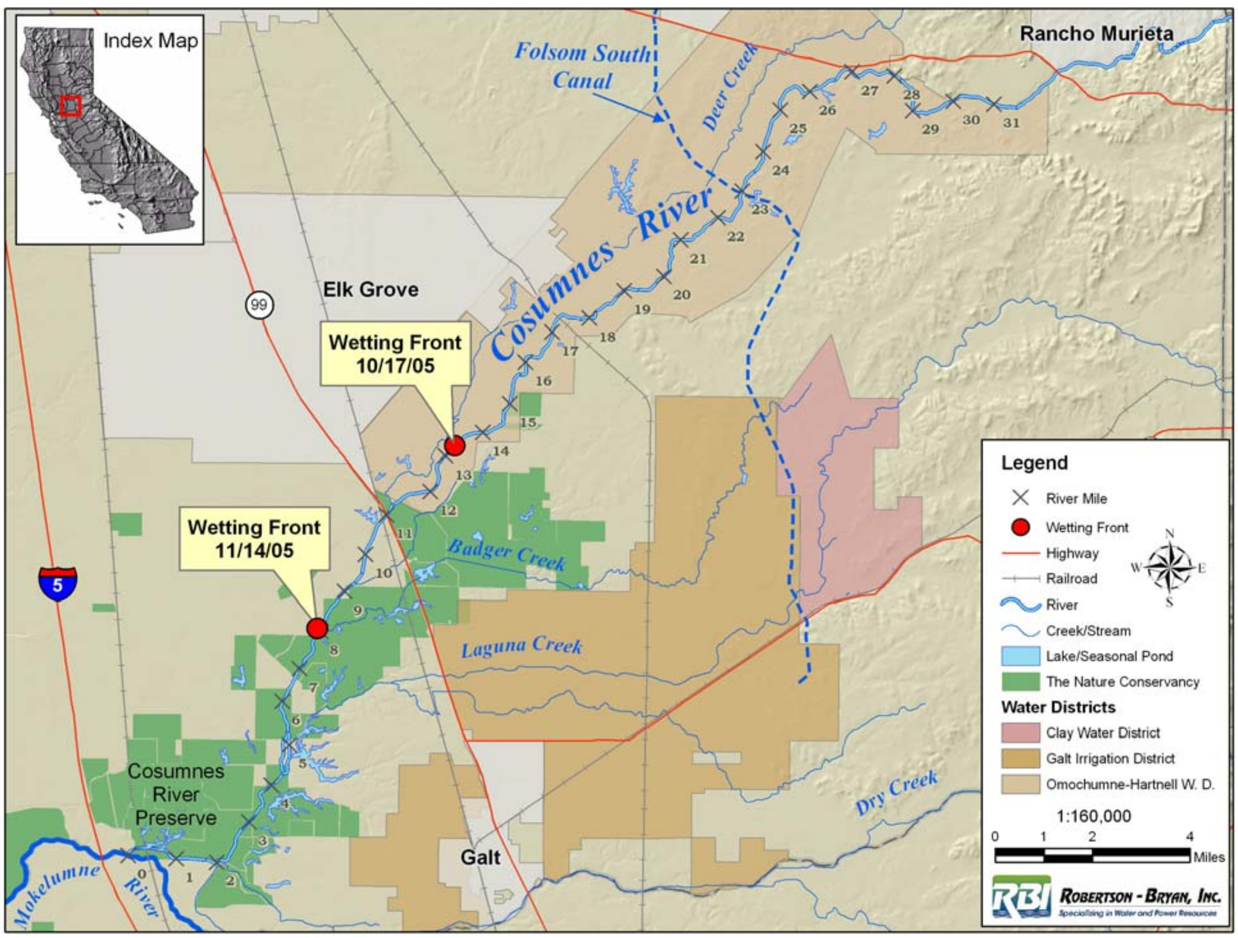


Figure 1. Cosumnes River Flow Augmentation Project location map.

on precipitation and natural flow conditions. Figure 2 shows the schedule for pre-wetting flow releases. Creating a connection with tidewater during the pre-wetting phase will be avoided to avoid attracting salmon into the river during the pre-wetting phase. During the pre-wetting period the Cosumnes River upstream of the Folsom South Canal is typically dry or has very little flow and, therefore, conditions above the canal would not support salmon passage or provide adequate spawning habitat.

Water not used for pre-wetting will be available to augment natural flows through December 31 to eliminate stranding conditions after a natural connection with tidewater is been established. Flow augmentation releases will be made when Cosumnes River flows fall below that required to maintain upstream migration conditions, estimated to be 65–70 cubic feet per second (cfs), measured at the Michigan Bar gauging station. Historical flow records for the Cosumnes River, with consideration of today's groundwater conditions, indicate that 93% of all years would require supplement releases to maintain migration conditions through December 31.

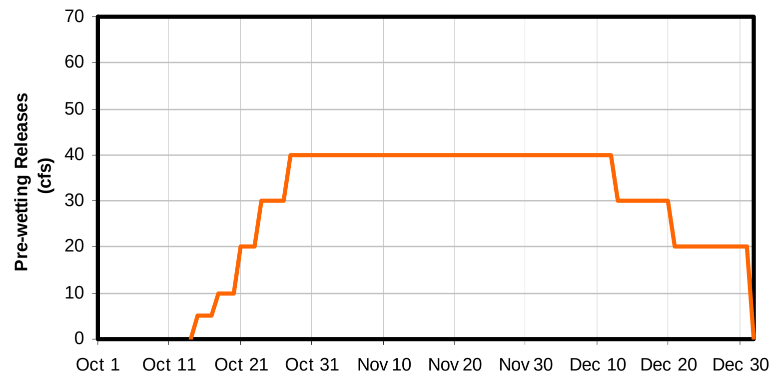


Figure 2. Cosumnes River channel pre-wetting releases from the Folsom South Canal.

2005 Operations and Conditions

The 2005 Demonstration Phase of the Project has presented several unique challenges. Implementation of the Demonstration Phase is possible because of available surplus water in the B2 Program resulting from a wetter than normal winter and spring. On the Cosumnes River, wet conditions sustained higher flows on the river throughout the summer (Figure 3). These higher flows kept the river channel wet to about river mile 13, near Wilton. Typically, summer flows will only maintain a wet channel to about river mile 32, just below the Highway 16 crossing.

At the start of the Demonstration Phase, October 17 2005, the Cosumnes River at the Folsom South Canal had a flow of 20 cfs (Figure 1). Because the river channel at the Folsom South Canal outfall was full of water, canal releases were not ramped up as shown in Figure 2; rather, the initial release was set at 40 cfs. The purpose of ramping up releases was to fill the in-channel pool at the canal outfall, which would dissipate the energy of full releases from the canal.

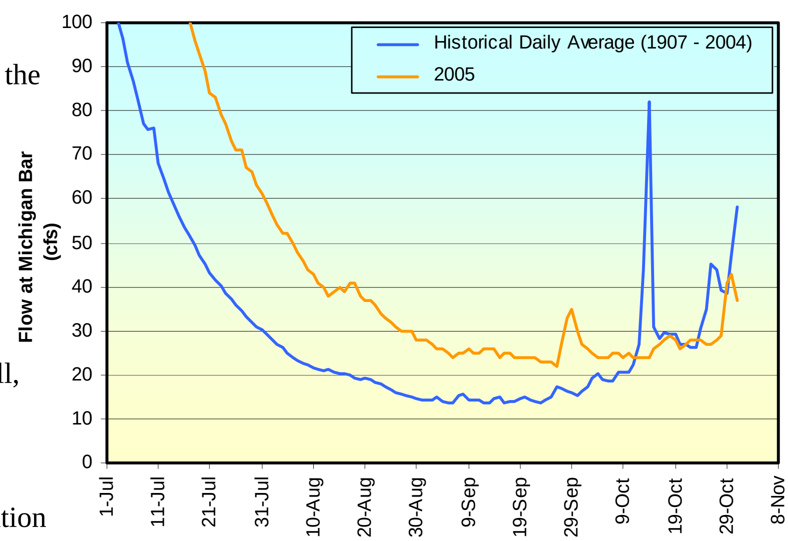


Figure 3. Historical daily average flow and 2005 flow at Michigan Bar.

Not surprisingly, the first weeks of operation revealed that the seepage losses in the channel were much lower than expected. Lower seepage losses meant that the river was very responsive to pre-wetting flows and the wetting front moved quickly downstream. Figure 4 shows the rate of release from the Folsom South Canal and the combined flow of the river and canal releases at Blodgett Dam, immediately downstream of the canal. Figure 5 shows the location of the wetting front resulting from the combination of canal releases and natural river flow. As Figure 5 shows, connection to tidewater occurred on two separate occasions. The first was a result of pre-wetting releases from the canal. During this occurrence a maximum of 8 cfs flowed into tidewater over a period of about 5 days. The second occurrence was the result of unpredicted precipitation in the upper watershed. This resulted in a maximum of 12 cfs entering tidewater for another 5 days. Neither occurrence attracted salmon into the river.

Erosion at the canal outfall was evaluated on October 21, after 4 days of 40 cfs releases into the river. Streambed surveys taken on the 21st were compared to surveys taken prior to the start of the Project. This comparison indicated that while some shifting of the sandy channel bottom has occurred, no significant scouring below the outfall or on the stream bank has occurred as a result of canal releases.

Because of the higher than normal natural river flow, only 740 ac-ft of the available 5,000 ac-ft has been released from the canal. In addition, as Figure 4 indicates, canal releases have been shut off since November 2. The current natural flow of about 40 cfs is maintaining a wetted channel to river mile 8, approximately 3.5 miles upstream of tidewater.

The current forecast for the Sacramento area is for dry and warm conditions through November 24. Under these conditions, the flows at Michigan Bar are expected to remain stable at just above 30 cfs and the wetting front is expected to maintain its position at about river mile 8.

If current weather and river conditions persist, additional pre-wetting releases will not be required. Additionally, continued dry conditions may jeopardize this year's entire salmon run on the Cosumnes River if no significant precipitation occurs until December.

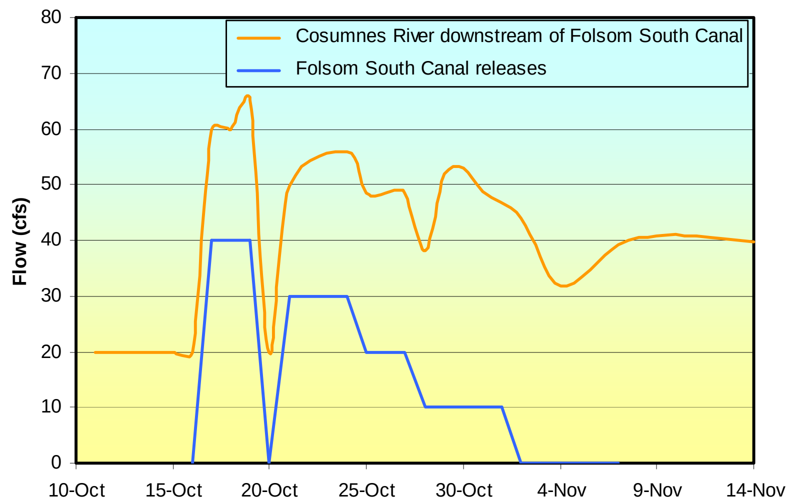


Figure 4. Folsom South Canal releases and flow in the Cosumnes River immediately downstream.

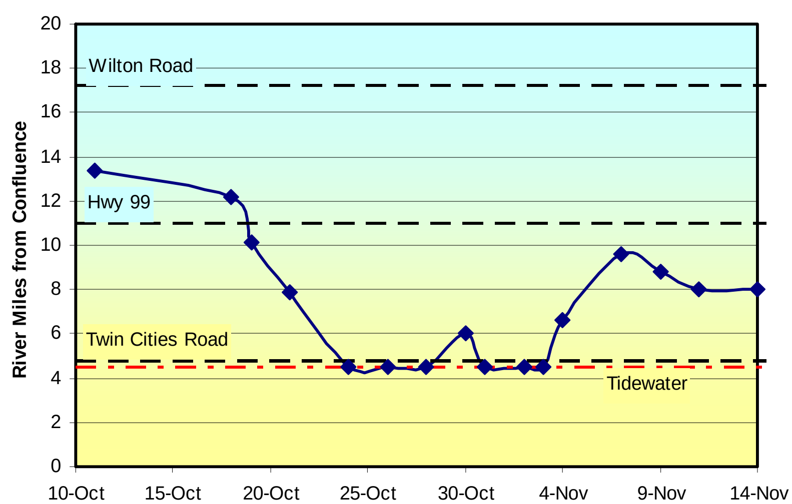


Figure 5. Location of wetting front on the Cosumnes River.

PROPOSED NEXT STEPS

Unique conditions on the Cosumnes River make it possible to consider changing the Project's operation to make canal releases that will provide attraction flows for salmon. The Project partners have determined that creating an attraction flow would be a reasonable use of available water and would offer a unique opportunity to assess numerous research questions regarding salmon behavior. This section details proposed Project operations for the remainder of 2005, provides justification for these operations, and identifies the research questions that will be addressed based on proposed operational changes.

Proposed Operational Changes

The proposed change to the original operations plan, summarized above, would entail making canal releases sufficient to augment natural flows to create a total river flow adequate to attract salmon into the Cosumnes River. Observations from this year's operations and historical hydrology suggest that a total flow of approximately 100 cfs immediately downstream of the Folsom South Canal for a period of 7 days would be sufficient to provide a freshwater pulse through the tidal portion of the lower Cosumnes River (river mile 4.5 to 0) and into the Mokelumne River. Based on observations from previous years, such a pulse should attract salmon into the Cosumnes River.

After completion of the pulse flow, Project operations will shift to maintaining viable upstream passage conditions from tidewater to the Folsom South Canal, according to the original operations plan. A total flow of approximately 70 cfs immediately below the canal is required to maintain upstream migration conditions for salmon. According to the original operation plan, release will be made from the Folsom South Canal to meet the required flow.

Figure 6 shows the proposed pulse and augmentation flow releases needed to maintain passage under the worse case scenario that natural river flows remain near 33 cfs through December 31. Under this scenario, the Project would release an additional 3,910 ac-ft of the remaining 4,260 ac-ft available to the Project.

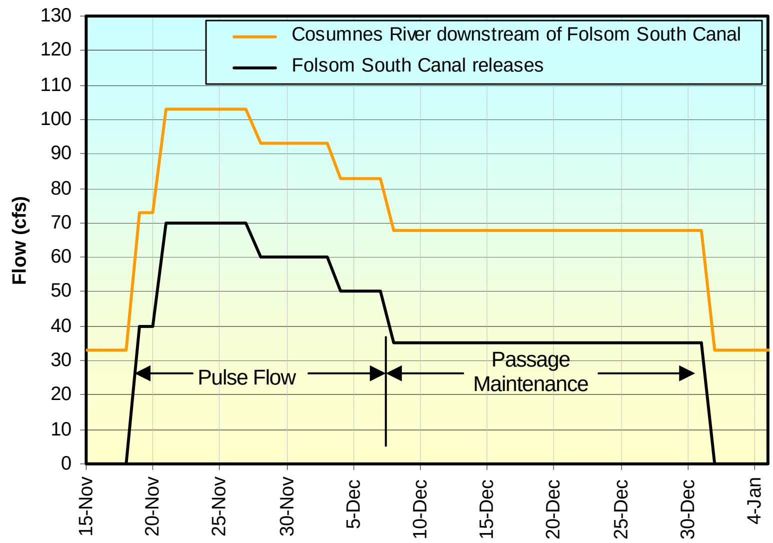


Figure 6. Proposed Folsom South Canal releases.

Justification for Operational Changes

River Conditions – Several conditions exist that justify the proposed changes to the original operations plan. Foremost of these is the natural flow condition of the Cosumnes River. As shown in Figure 3, flows have been much higher than normal this year. These higher flows have created acceptable salmon spawning conditions in the main spawning reach (river mile 27.5 to 51) of the river, as verified by Fisheries Foundation of California (FFC) biologists during several field surveys conducted since the

November 1. FFC monitoring indicates that water temperatures at the bottom of the spawning reach (river mile 17.5) are ranging from 55°C to 59°C. The current availability of spawning habitat provides spawning opportunities similar to conditions experienced in 2002, when the Cosumnes experienced a run of over 1,300 salmon. In 2002, the river experienced 4 days of high flows in early November, peaking at nearly 300 cfs, after which flows receded to 34-38 cfs until early December.

In most years, fall river conditions, in the absence of significant precipitation, would not provide suitable conditions for salmon spawning. Therefore, the original project objectives included language that specifically precluded creating attraction flows which would draw salmon into inhospitable conditions. As described in this document, conditions in the river are not typical and as such warrant consideration of alternative operations that would overcome the lack of precipitation and take advantage of acceptable spawning conditions that currently exist in the upper river.

> "…conditions in the river… warrant consideration of alternative operations that would overcome the lack of precipitation and take advantage of acceptable spawning conditions."

Water Availability – With the dedication of 5,000 ac-ft of B2 water to the Demonstration Phase of the Project there is ample water supply to make the pulse flow release and to sustain upstream migration conditions through December 31. To date the project has only utilized 740 ac-ft of the available supply. The proposed pulse flow operation will require 2,240 ac-ft. Augmentation releases to maintain upstream migration will require 1,670 ac-ft, in the worse case scenario that no precipitation occurs before December 31. With the proposed operational changes, an additional 3,910 ac-ft is needed to complete the Demonstration Phase, bringing the total projected water need to 4,650 ac-ft.

> "With the proposed operational changes, an additional 3,910 ac-ft is needed to complete the Demonstration Phase, bringing the total projected water need to 4,650 ac-ft "

Rescuing the 2005 Cosumnes River Salmon Run – While it has been eluded to extensively in this document, the primary justification for using canal releases to create an attraction flow is to simply rescue the 2005 fall chinook salmon run on the Cosumnes River. River conditions and the availability of water have converged to present the fisheries and water management interests on the Cosumnes River with an opportunity to rescue this year's salmon run, which has suffered significant declines due to groundwater pumping and habitat degradation.

> "…the primary justification for using canal releases to create an attraction flow is to simply rescue the 2005 fall chinook salmon run on the Cosumnes River. "

Research Questions and Assessment Approaches

The implementation of proposed operational changes will allow the FFC, The Nature Conservancy (TNC), UC Davis, and the Southeast Sacramento County Agricultural Water Authority (SSCAWA) to assess the following list of research questions. The FFC, TNC, and SSCAWA will collect much of the data required to perform these assessments through existing monitoring program.

1. Will release of American River via the Folsom South Canal (FSC) result in immediate immigration of fall-run chinook salmon presumably holding in the tidal reach of the lower Cosumnes River?
   a. Examine the confluence pool prior to connection for the presence of holding fish;

   b. Monitor the number of fish moving upstream immediately following connection (e.g., at the box culvert).

2. Will artificially creating passage by releasing water from the FSC increase attraction of non-natal fall-run chinook salmon?
   a. Conduct carcass surveys of the Cosumnes River;
   b. Examine carcasses for adipose fin clips (indicating the presence of a coded wire tag) to determine the hatchery origin of marked fall-run chinook salmon in the Cosumnes River;
   c. Determine the origin of coded wire tags to obtain abundance of fish from other systems (e.g., American River, Mokelumne River, Merced River);
   d. Compare numbers of fish derived from other systems this year with numbers from previous years;
   e. Determine the proportion of any fish derived from the American River that spawned in the lower reach of the Cosumnes River where flows are influenced/dominated by releases from the FSC.

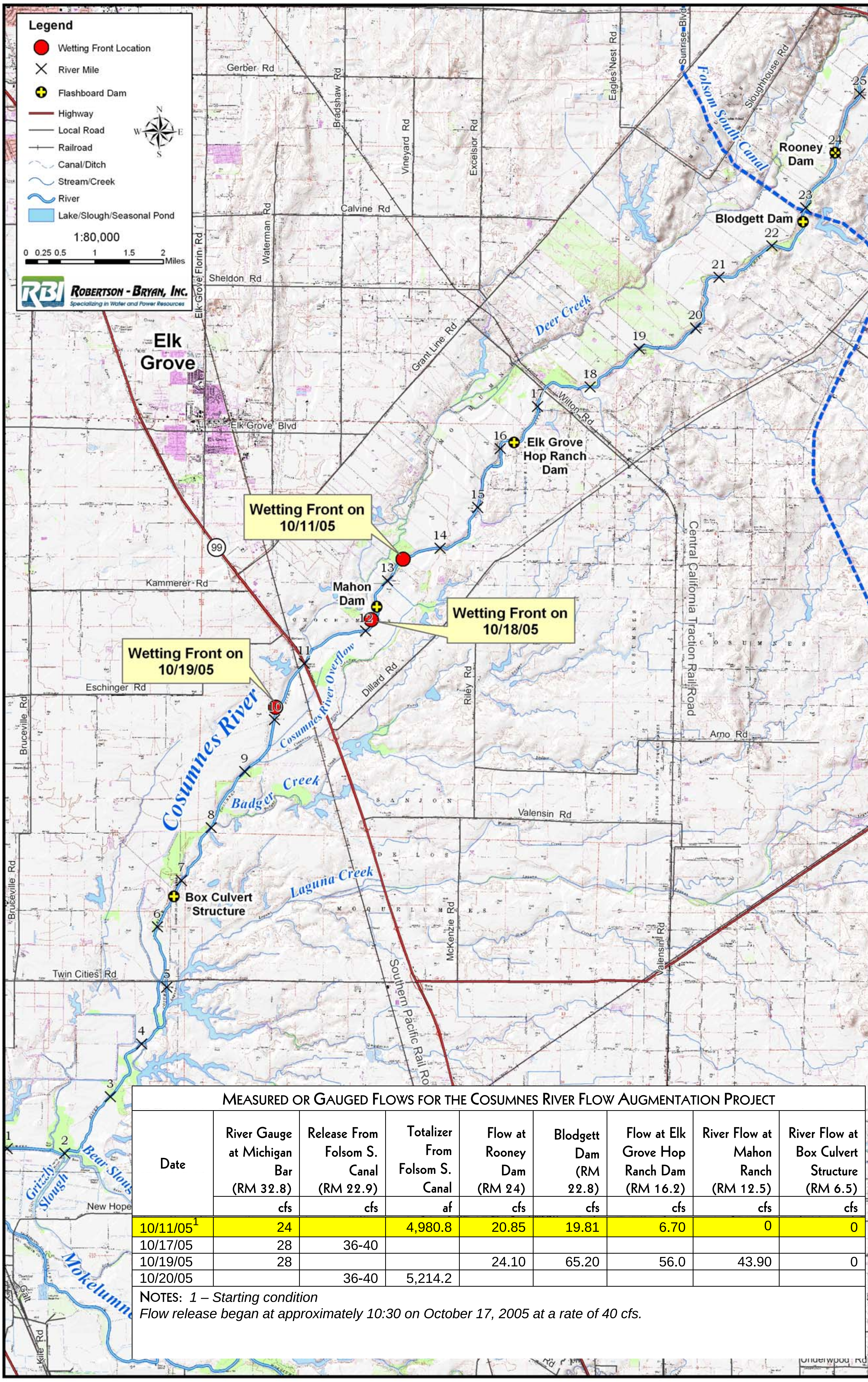
3. Will artificially creating passage affect pre-spawning mortality relative to past years?
   a. Determine the relative numbers of spawned-out carcasses and non-spawned carcasses;
   b. Calculate the proportion of each;
   c. Compare the proportions of each to previous years.

4. At what water temperature does chinook salmon spawning activity begin? Peak?
   a. Monitor spawning activity throughout historic spawning reaches of the Cosumnes River;
   b. Monitor water temperatures at several locations using Onset StowAway loggers; deploy additional units at the following locations: 1) in the FSC and 2) at Blodgett Dam;
   c. Characterize the relationship between water temperature and the onset and peak of spawning activity.

5. Will release of American River water affect the spawning distributions of fall-run chinook salmon within the Cosumnes River?
   a. Determine the relative numbers of fish spawning upstream and downstream of the FSC;
   b. Compare upstream/downstream spawning distributions to historic data.

6. Will release of water from the FSC turnout delay or disrupt migrating fishes, causing them to congregate at the outfall?
   a. Examine the outfall of the FSC for the presence of milling fish and/or fish trying to jump into the outfall;
   b. Survey the Cosumnes River upstream of the FSC for potential migration barriers.

Monitoring Reports

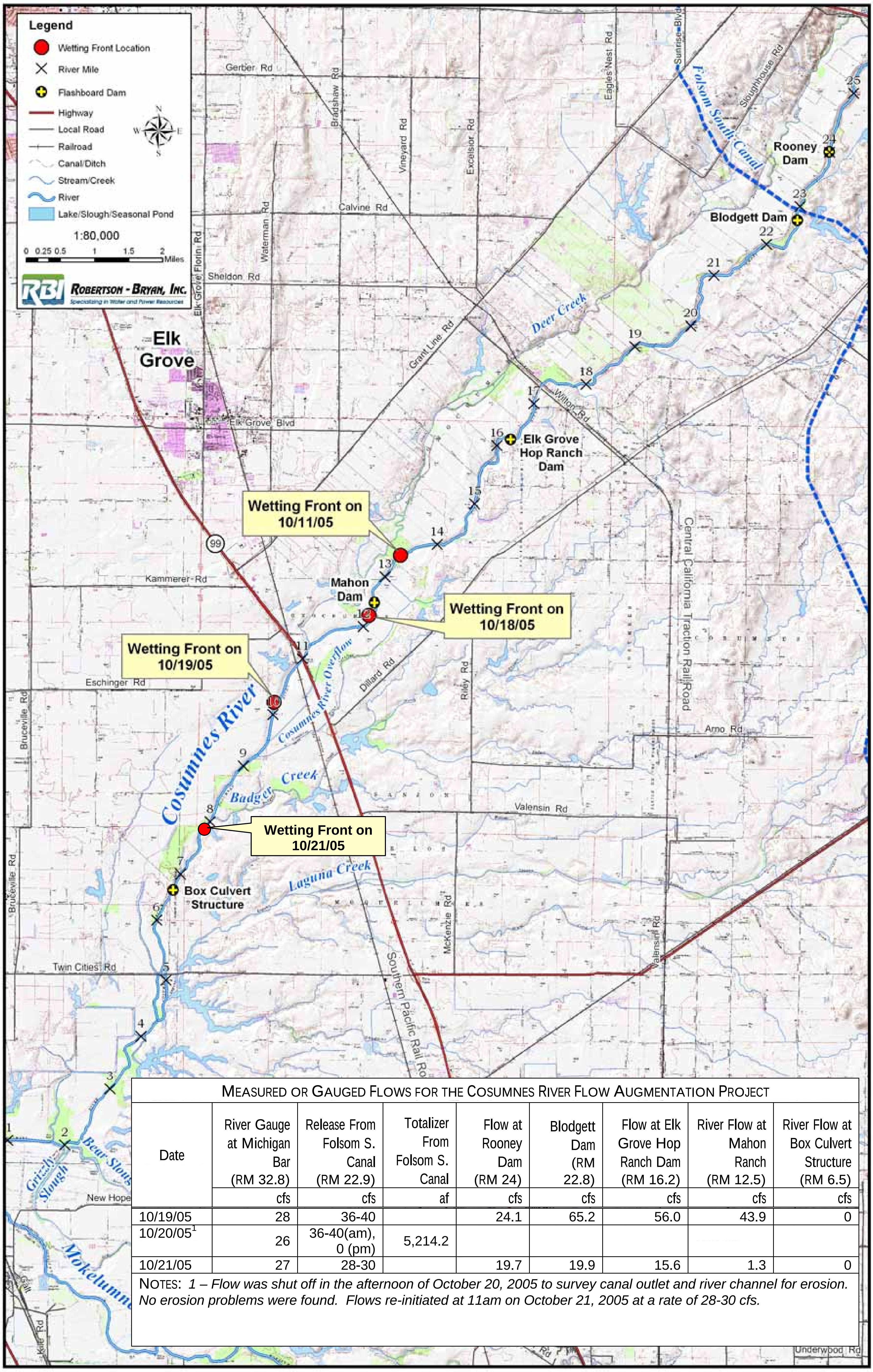


MEASURED OR GAUGED FLOWS FOR THE COSUMNES RIVER FLOW AUGMENTATION PROJECT

Date	River Gauge at Michigan Bar (RM 32.8)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Flow at Rooney Dam (RM 24)	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	af	cfs	cfs	cfs	cfs	cfs
10/11/05[1]	24		4,980.8	20.85	19.81	6.70	0	0
10/17/05	28	36-40						
10/19/05	28			24.10	65.20	56.0	43.90	0
10/20/05		36-40	5,214.2					

NOTES: *1 – Starting condition*

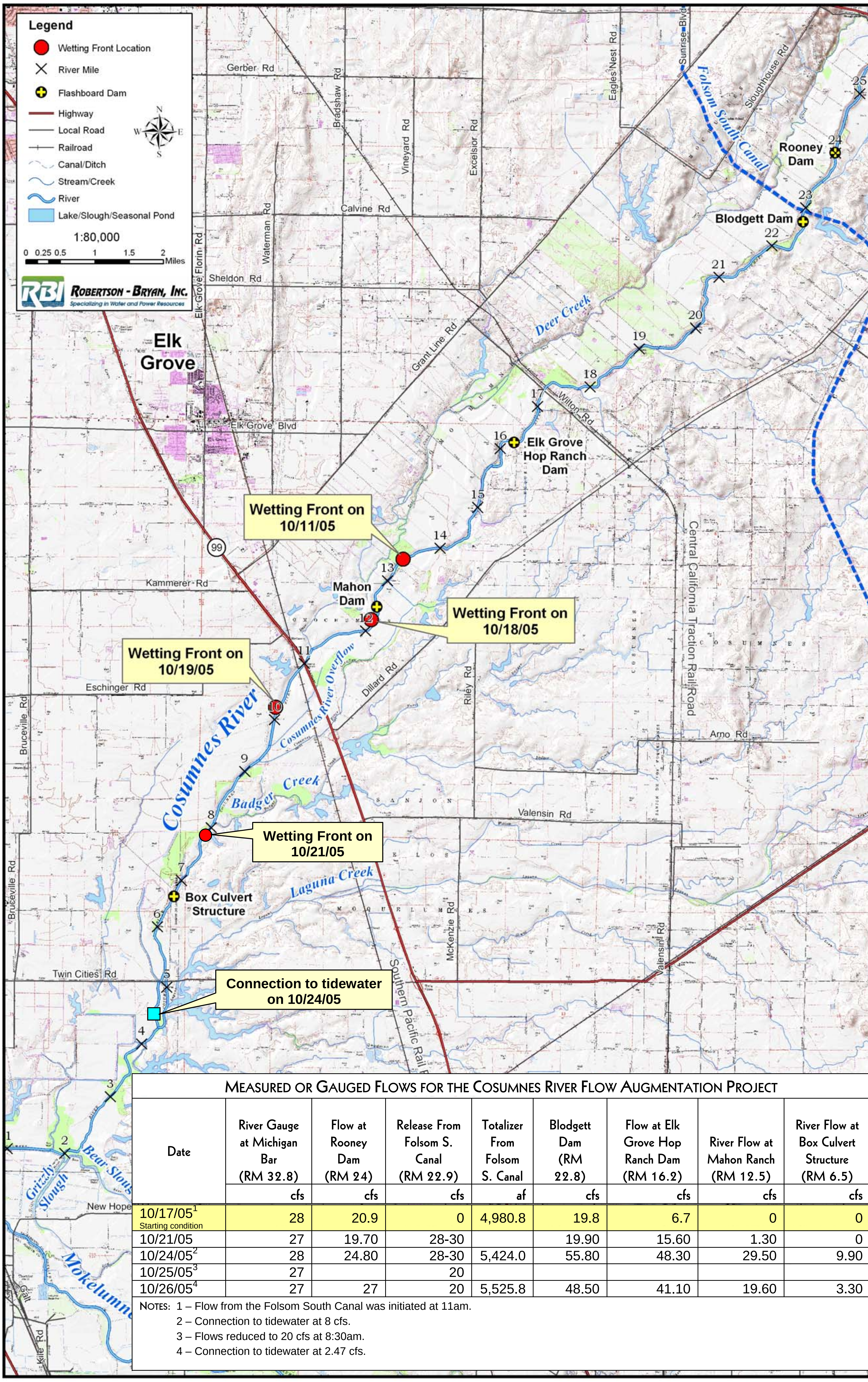
Flow release began at approximately 10:30 on October 17, 2005 at a rate of 40 cfs.



MEASURED OR GAUGED FLOWS FOR THE COSUMNES RIVER FLOW AUGMENTATION PROJECT

Date	River Gauge at Michigan Bar (RM 32.8)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Flow at Rooney Dam (RM 24)	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	af	cfs	cfs	cfs	cfs	cfs
10/19/05	28	36-40		24.1	65.2	56.0	43.9	0
10/20/05[1]	26	36-40(am), 0 (pm)	5,214.2					
10/21/05	27	28-30		19.7	19.9	15.6	1.3	0

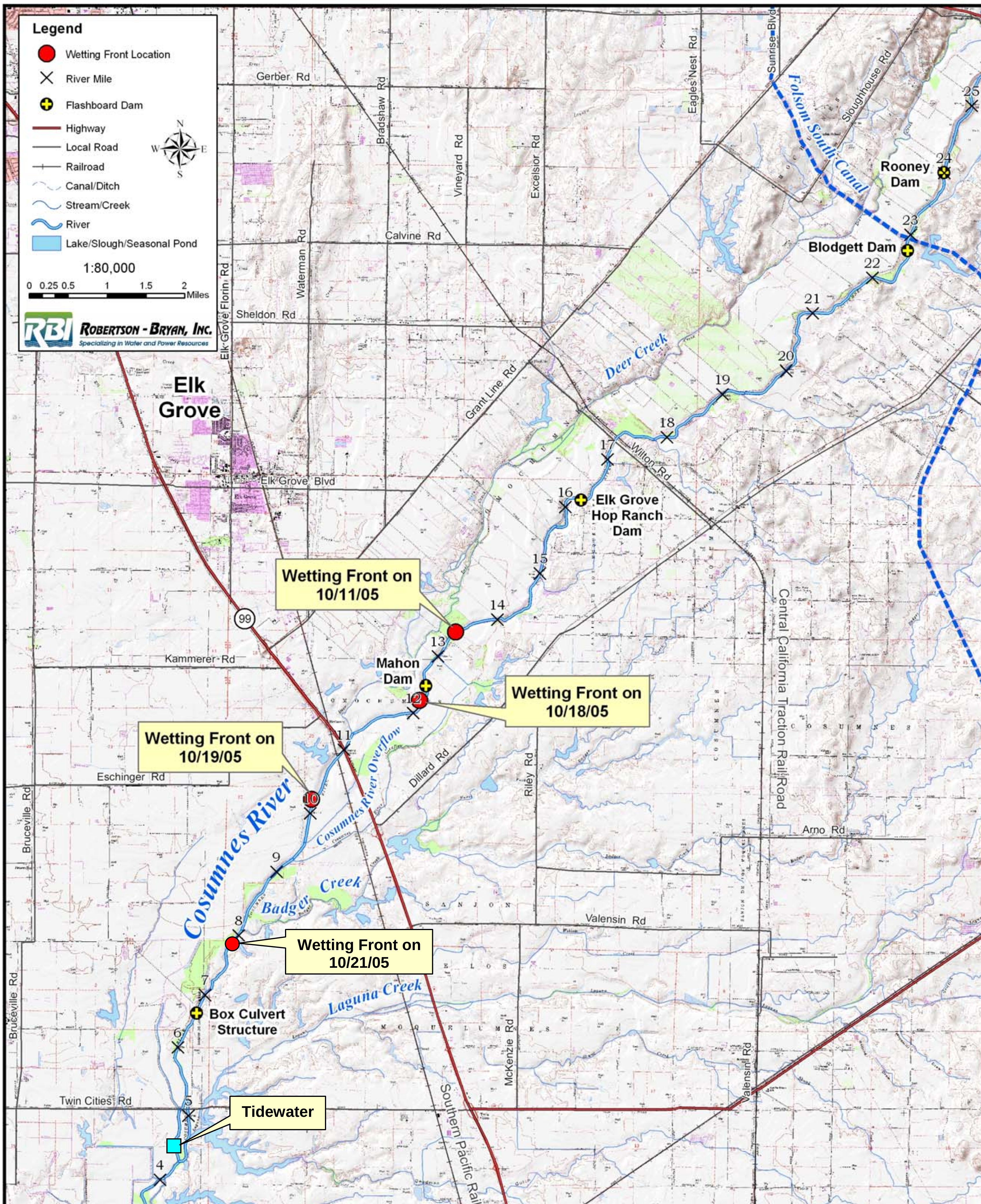
NOTES: *1 – Flow was shut off in the afternoon of October 20, 2005 to survey canal outlet and river channel for erosion. No erosion problems were found. Flows re-initiated at 11am on October 21, 2005 at a rate of 28-30 cfs.*



MEASURED OR GAUGED FLOWS FOR THE COSUMNES RIVER FLOW AUGMENTATION PROJECT

Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
10/21/05	27	19.70	28-30		19.90	15.60	1.30	0
10/24/05[2]	28	24.80	28-30	5,424.0	55.80	48.30	29.50	9.90
10/25/05[3]	27		20					
10/26/05[4]	27	27	20	5,525.8	48.50	41.10	19.60	3.30

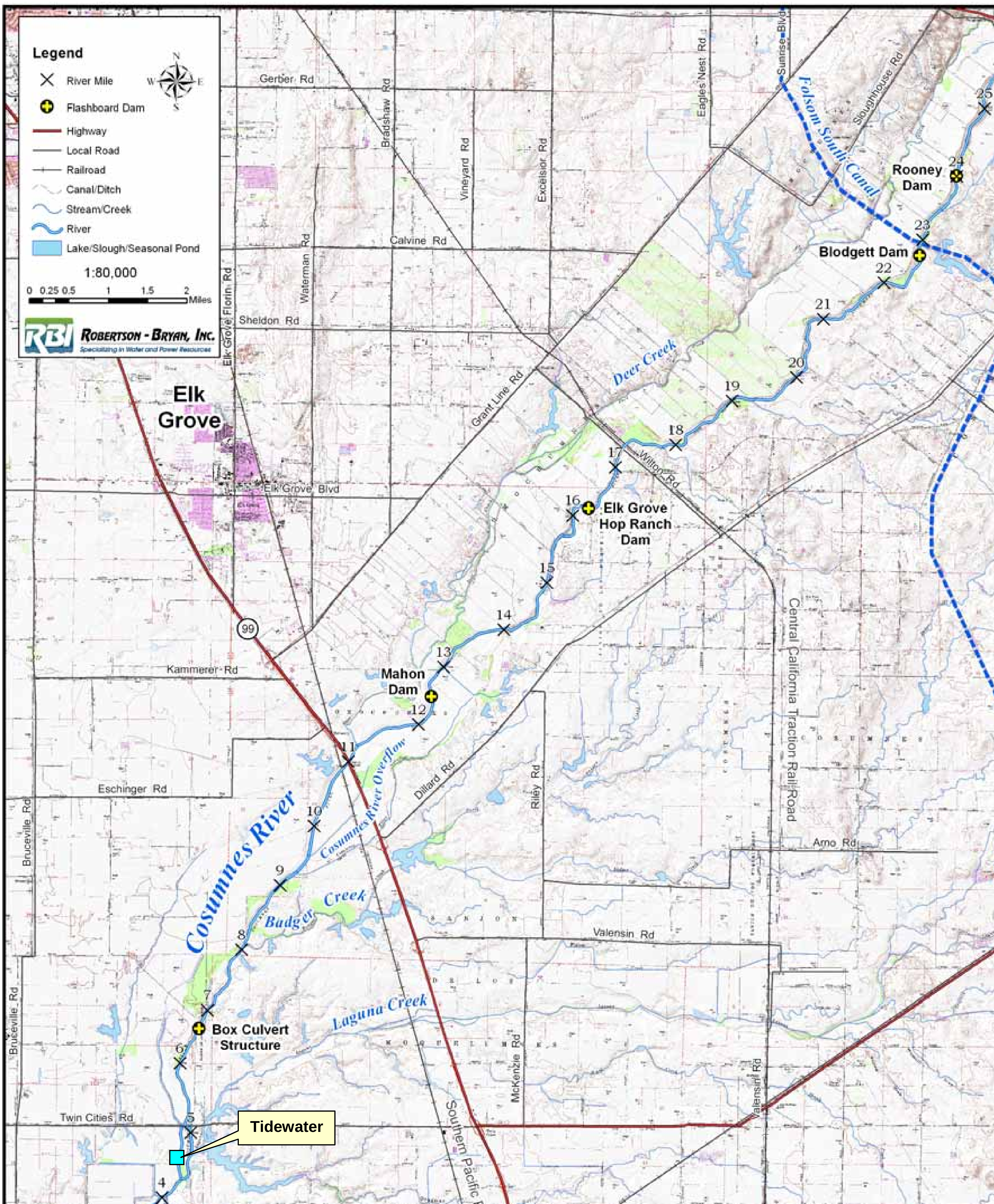
NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am.
2 – Connection to tidewater at 8 cfs.
3 – Flows reduced to 20 cfs at 8:30am.
4 – Connection to tidewater at 2.47 cfs.



Measured or Gauged Flows for the Cosumnes River Flow Augmentation Project

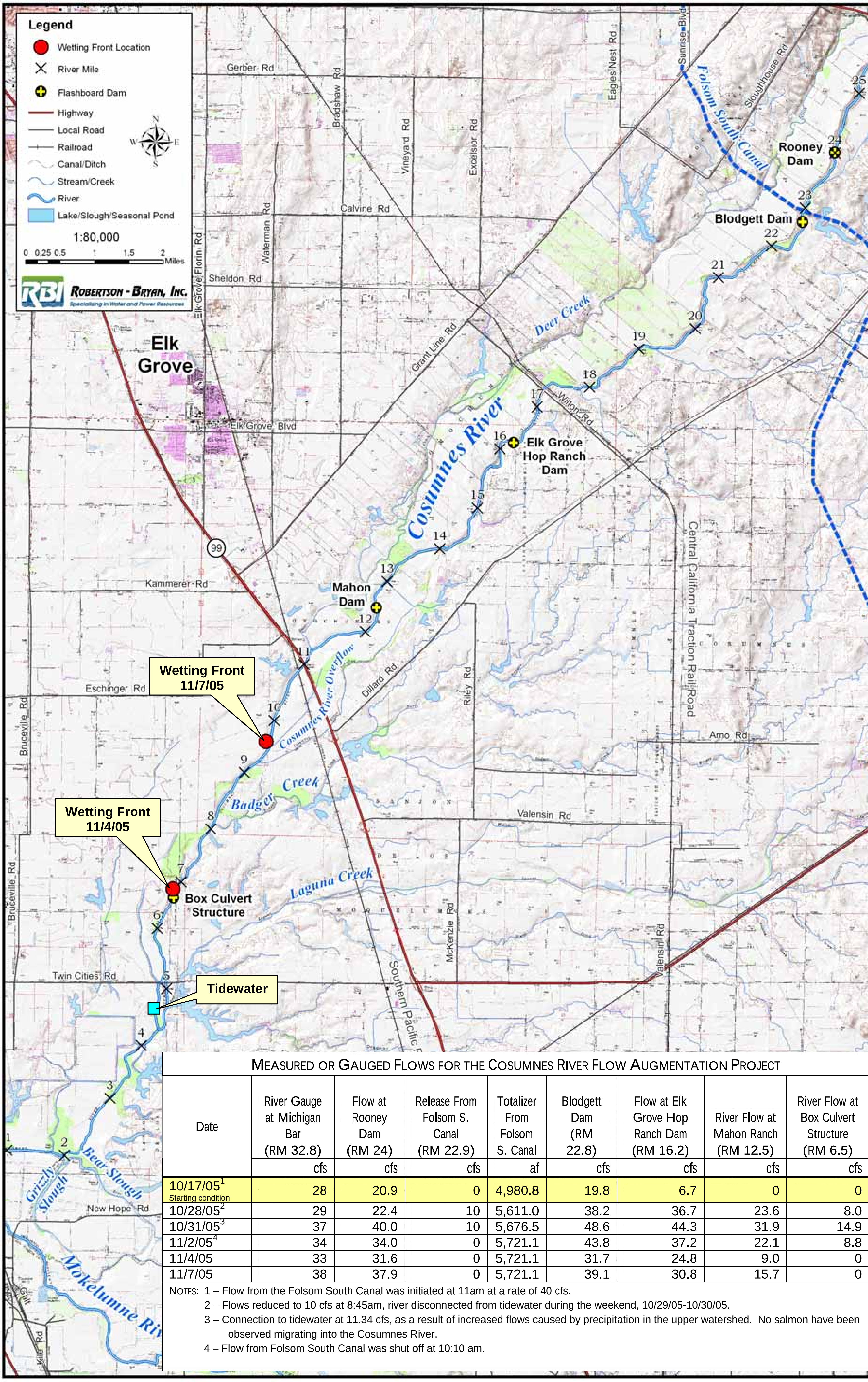
Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
10/26/05	27	27	20	5,525.8	48.50	41.10	19.60	3.30
10/28/05[2]	29	22.4	10	5,611.0	38.20	36.7	23.6	8.02
10/31/05[3]	37	40.07	10	5,676.5	48.62	44.3	31.96	14.99

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flows reduced to 10 cfs at 8:45am, river disconnected from tidewater during the weekend, 10/29/05-10/30/05.
3 – Connection to tidewater at 11.34 cfs, as a result of increased flows caused by precipitation in the upper watershed. No salmon have been observed migrating into the Cosumnes River.



MEASURED OR GAUGED FLOWS FOR THE COSUMNES RIVER FLOW AUGMENTATION PROJECT								
Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
10/26/05	27	27	20	5,525.8	48.5	41.1	19.6	3.3
10/28/05[2]	29	22.4	10	5,611.0	38.2	36.7	23.6	8.0
10/31/05[3]	37	40.0	10	5,676.5	48.6	44.3	31.9	14.9
11/02/05[4]	34	34.0	0		43.8	37.2	22.1	8.8

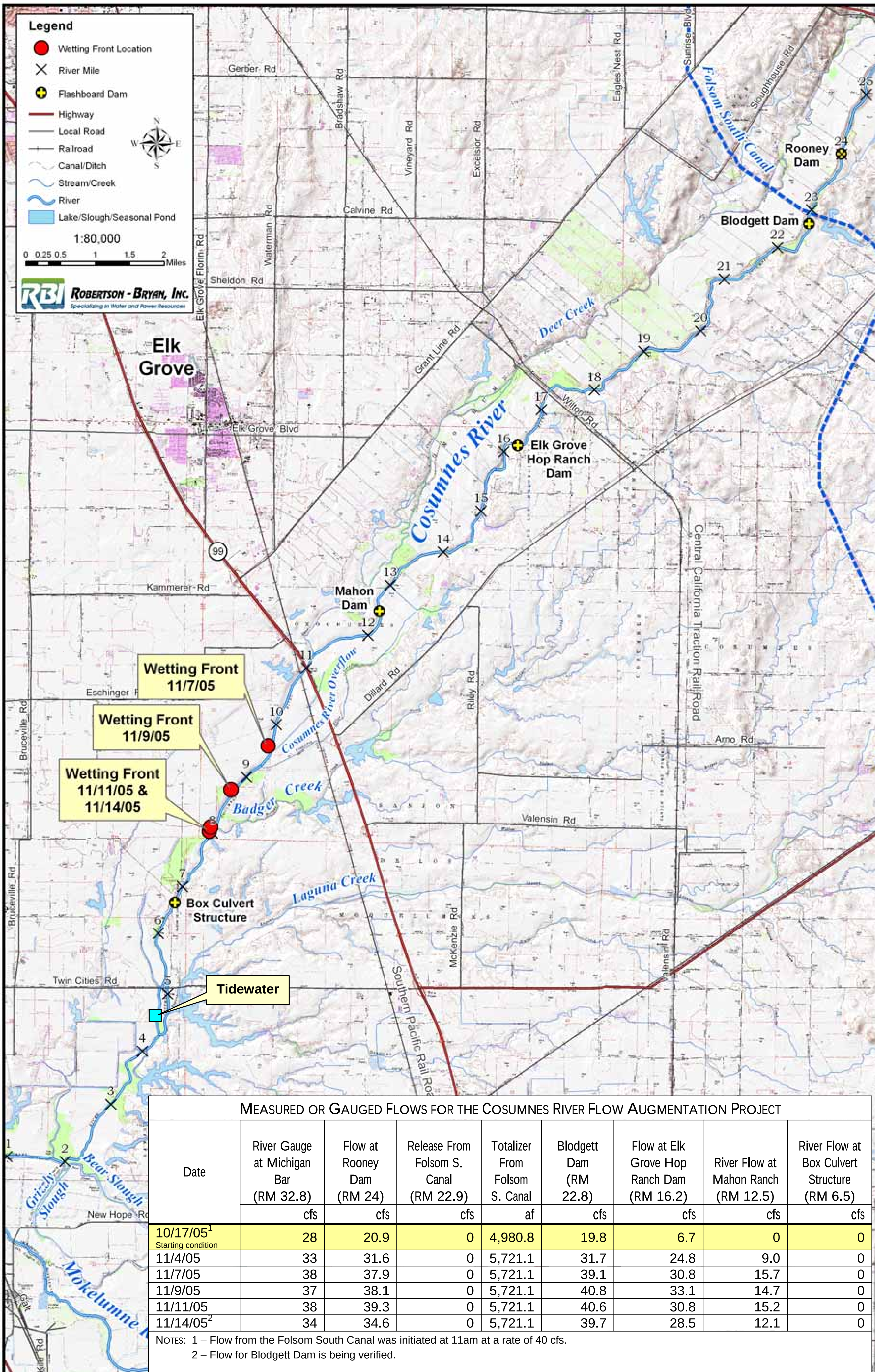
NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flows reduced to 10 cfs at 8:45am, river disconnected from tidewater during the weekend, 10/29/05-10/30/05.
3 – Connection to tidewater at 11.34 cfs, as a result of increased flows caused by precipitation in the upper watershed. No salmon have been observed migrating into the Cosumnes River.
4 – Flow from Folsom South Canal was shut off at 10:10 am.



MEASURED OR GAUGED FLOWS FOR THE COSUMNES RIVER FLOW AUGMENTATION PROJECT

Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
10/28/05[2]	29	22.4	10	5,611.0	38.2	36.7	23.6	8.0
10/31/05[3]	37	40.0	10	5,676.5	48.6	44.3	31.9	14.9
11/2/05[4]	34	34.0	0	5,721.1	43.8	37.2	22.1	8.8
11/4/05	33	31.6	0	5,721.1	31.7	24.8	9.0	0
11/7/05	38	37.9	0	5,721.1	39.1	30.8	15.7	0

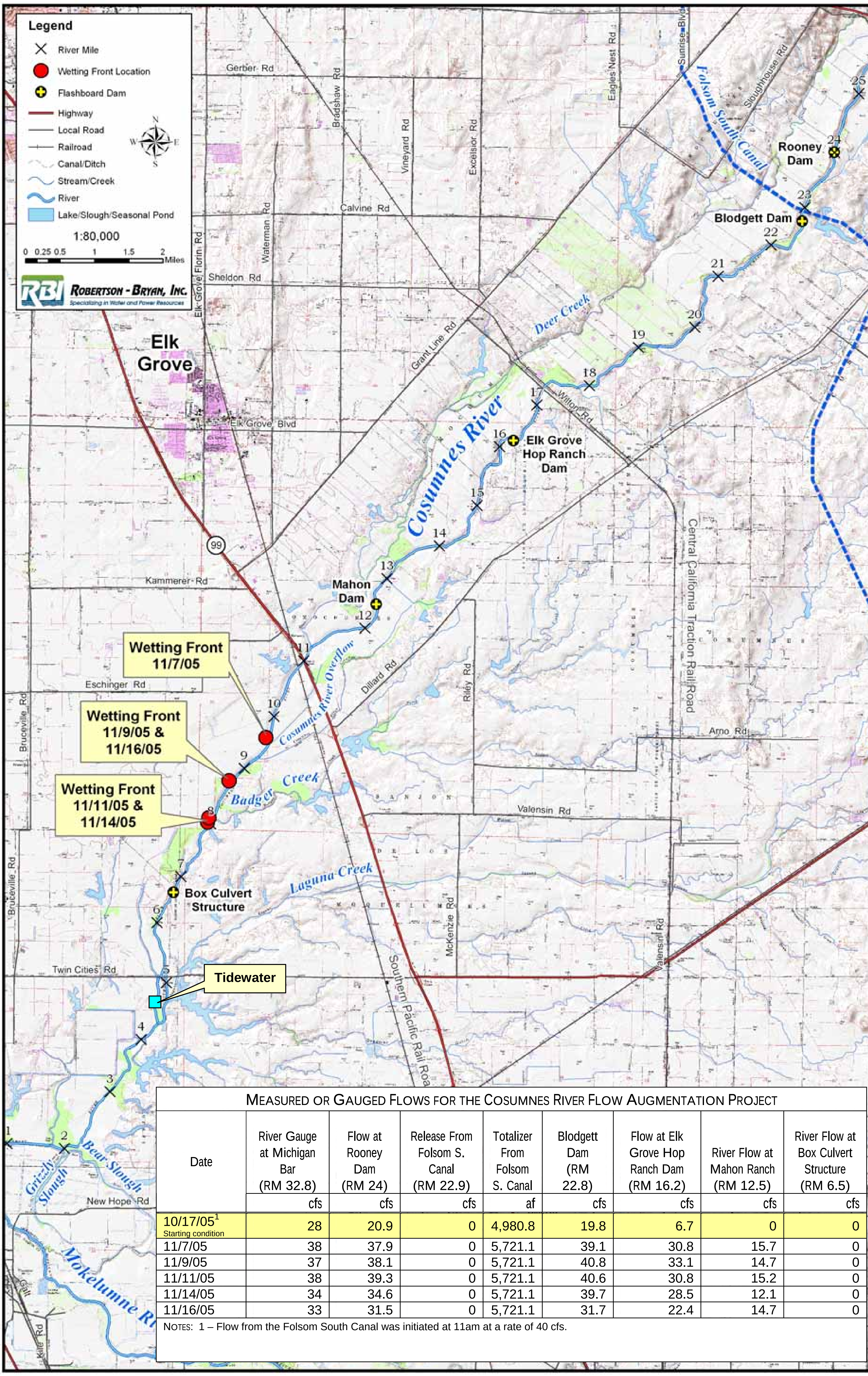
NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flows reduced to 10 cfs at 8:45am, river disconnected from tidewater during the weekend, 10/29/05-10/30/05.
3 – Connection to tidewater at 11.34 cfs, as a result of increased flows caused by precipitation in the upper watershed. No salmon have been observed migrating into the Cosumnes River.
4 – Flow from Folsom South Canal was shut off at 10:10 am.



MEASURED OR GAUGED FLOWS FOR THE COSUMNES RIVER FLOW AUGMENTATION PROJECT

Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
11/4/05	33	31.6	0	5,721.1	31.7	24.8	9.0	0
11/7/05	38	37.9	0	5,721.1	39.1	30.8	15.7	0
11/9/05	37	38.1	0	5,721.1	40.8	33.1	14.7	0
11/11/05	38	39.3	0	5,721.1	40.6	30.8	15.2	0
11/14/05[2]	34	34.6	0	5,721.1	39.7	28.5	12.1	0

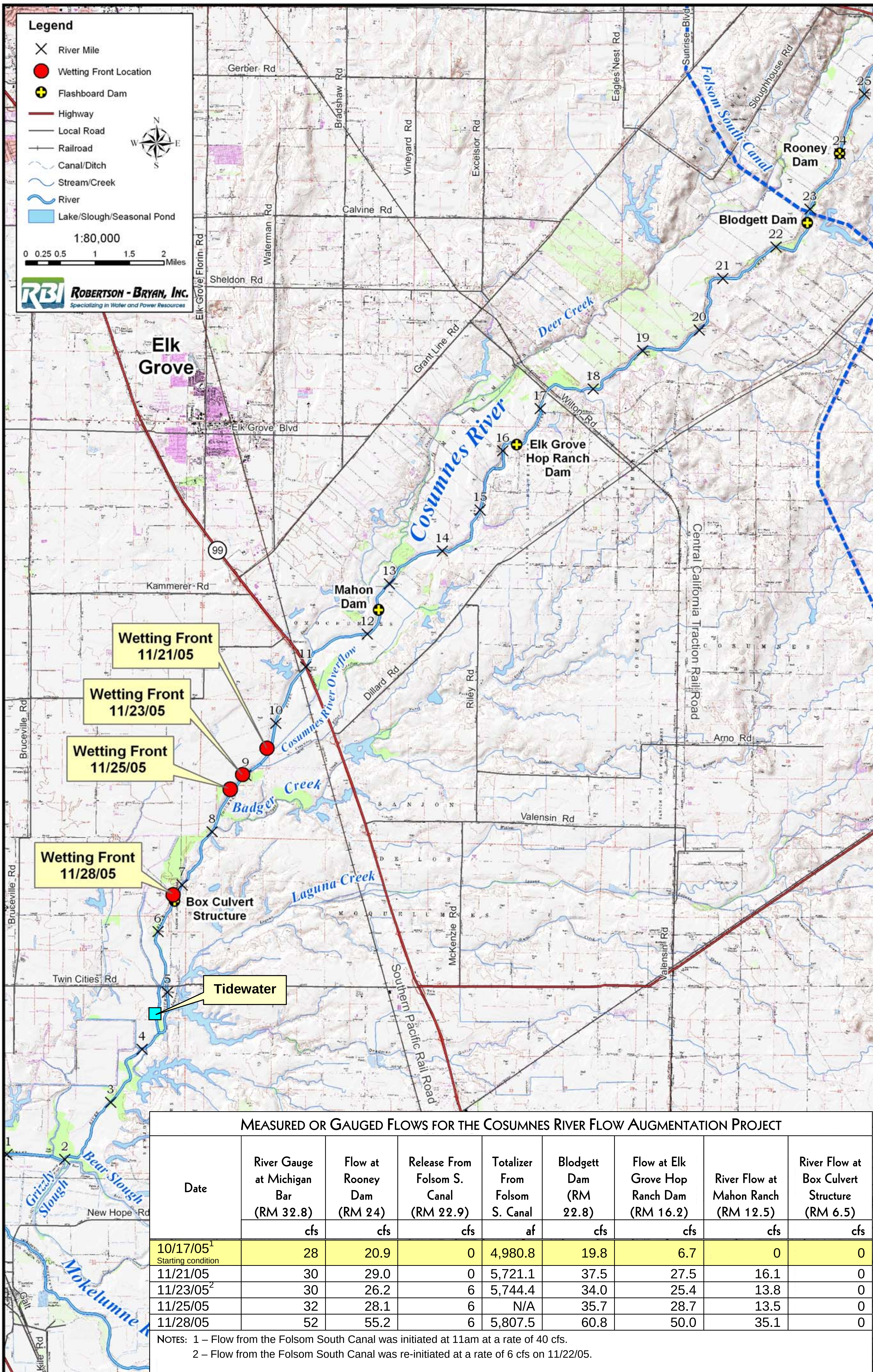
NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flow for Blodgett Dam is being verified.



Measured or Gauged Flows for the Cosumnes River Flow Augmentation Project

Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
11/7/05	38	37.9	0	5,721.1	39.1	30.8	15.7	0
11/9/05	37	38.1	0	5,721.1	40.8	33.1	14.7	0
11/11/05	38	39.3	0	5,721.1	40.6	30.8	15.2	0
11/14/05	34	34.6	0	5,721.1	39.7	28.5	12.1	0
11/16/05	33	31.5	0	5,721.1	31.7	22.4	14.7	0

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.



MEASURED OR GAUGED FLOWS FOR THE COSUMNES RIVER FLOW AUGMENTATION PROJECT

Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
11/21/05	30	29.0	0	5,721.1	37.5	27.5	16.1	0
11/23/05[2]	30	26.2	6	5,744.4	34.0	25.4	13.8	0
11/25/05	32	28.1	6	N/A	35.7	28.7	13.5	0
11/28/05	52	55.2	6	5,807.5	60.8	50.0	35.1	0

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flow from the Folsom South Canal was re-initiated at a rate of 6 cfs on 11/22/05.

Correspondence

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Friday, August 12, 2005 2:01 PM
To: Larry Rodriguez
Subject: NEPA info

Here is the information I referenced regarding Categorical Exclusions (CE). The problem with this approach is that the proposed action has to qualify under one of our previously approved catagories. We have developed a variety of CEs for normal planning activities, research/data collection but only for non-manipulative studies, minor consruction, O&M, etc, but none of them really apply to pre-wetting. The next step we can try is the mini-EA if we can demonstrate that all the criteria on the attached checklist are possible, but there is no CE that applies.

This is a farily abbreviated process, but will take some time to write, review and finalize. There will also be ESA to complete. I assume that we could get by with an informal consultation with a finding of not likely to adversely effect. This requires concurrance from the Services before we can take the action. They can require up to 30 working days to review and issue their concurrance letter. Finally, I think you are aware that the project proponent will be responsible for preparing the environmental documents. All the agency folks plates are already full, particularlly with the end of our fiscal year comming up.

Hope this helps....we can visit again next week.

David B. Robinson
Bureau of Reclamation
Central California Area Office
7794 Folsom Dam Road (CC-413)
Folsom, CA 95630-1799
(916) 989-7179 - voice
(916) 989-7208 - fax
drobinson@mp.usbr.gov

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Monday, August 29, 2005 11:31 AM
To: Larry Rodriguez
Cc: Paul Fujitani; Robert Schroeder; Shawn Oliver
Subject: RE: NEPA info

First, let me give you my understanding of where we are in the process right now. I think the fish agencies are basically ok with the proposal, but with some qualifiers. The first is that the Service is willing to dedicate some supply so long as it is banked b2. The behind the scenes issue is that we have never had the potential for having water in the bank, nor have we sorted through how we would implement banking. There continues to be discussion between Reclamation and the Service directed towards the issues. It is also my understanding that DFG had some lingering concerns over trans-basin movement of water. I have only secondhand knowledge of this concern, but it seems that the one way to deal with it would be in an analysis suitable for inclusion in an environmental document.

Regarding the environmental documentation hoops, Reclamation does not have a CE that applies to the proposed action. I am not aware of what the Service may have in place, or what they perceive to be their need for environmental documentation. CEs are generally for administrative types of actions or for routine ongoing operations where there has been a history demonstrating no impacts. In the case of this action, it seems clear that there are some potentially significant environmental issues that would need addressed. That bumps us into the EA realm. It is possible, although challenging, for you to complete an EA by the time you expect to start the action. It also presumes that there are no unresolved controversies or impacts that can not be mitigated though agreed to modifications to the project description. A common problem early in process like yours is that the project description is not of sufficient detail to fully describe and analyze the effects, nor does it articulate the measures needed to avoid all the potential impacts. Related to this is that the EA needs to meet the needs of the agenciesthat would use it and be consistent with the Federal authorities used to take the action. Assuming you are successful in getting a commitment of b2 water, then the purpose and need and project description in the EA would need to emphasize the fisheries aspects of the action given our reliance on 3406 (b)(2) as our authority to take the action.

Another key aspect is the potential for effects to listed species. We will need to comply with the section 7 of the ESA consultation requirements irrespective of the level of NEPA required. Key to having the section 7 go quickly will be an ability to make a determination of "no effect." This is for all species, not just the aquatic, and will depend on the reach of potential impacts (direct, indirect, and cumulative). If there are effects that are positive, are small, or the are completely discountable, we would still have to make a finding of "not likely to adversely effect" which requires concurrence from both of the Services. The Services generally require at least 30 days to complete their analyses and issue a concurrence letter. One way or another, a definitive analyses of effects to all potential listed species is needed.

I do not know how far you are in your processes or to what extent you have documentation and analyses available, but you can see that there is a lot of additional process needed before we could take any kind of action. I also do not know if there is a CEQA obligation for the water district that would also be needed to deliver the water from the Folsom South Canal to the river.

Regarding your section 215 water question, this term came to be used after section 215 of Reclamation Reform Act of October 12, 1982 (Public Law 97-293) defined temporary supplies of water as: "(1) an unusually large water supply not otherwise storable for project purposes; or (2) infrequent and otherwise unmanaged flood flows of short duration." The term excess water is often used to describe situations where there is more water in the system needed to meet all environmental, regulatory, and water user downstream demands. The two do not always match.

I hope this helps give you a better picture of what I see as the remaining challenges to using b2 water for your proposed project. I recognize that having a firm supply would help justify committing to the effort needed to button up the environmental documentation, but regardless of source, you will need to help Reclamation jump through all the above hoops before we would authorize use of our facilities. My personal opinion is that you have a better than 50/50 chance of there being b2 water to use, but it will take a focused effort to complete the environmental due diligence in the time remaining. Give me a call if you want to discuss the issues further.

David B. Robinson
Bureau of Reclamation
Central California Area Office
7794 Folsom Dam Road (CC-413)
Folsom, CA 95630-1799
(916) 989-7179 - voice
(916) 989-7208 - fax
drobinson@mp.usbr.gov

From: Larry Rodriguez
Sent: Tuesday, October 11, 2005 3:05 PM
To: David Robinson; Campbell Ingram (campbell_ingram@fws.gov)
Subject: Cosumnes River Flow Aug Proj. CAT-EX

David /.Campbell

Attached is the CEQA categorical exemption that was adopted today by the Southeast Sacramento County Agricultural Water Authority.

Would you please send me a copy of the exemptions that your respective agencies prepared and adopted.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Thursday, October 13, 2005 9:50 AM
To: David Robinson; Dave Lawson; James Taylor
Subject: Flow Release Schedule for Cosumnes River

Dave, et al

Attached is a memo describing our revised flow schedule and communications protocols.

Please contact me if have any questions.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Friday, October 14, 2005 10:01 AM
To: Campbell_Ingram@fws.gov; roger_guinee@fws.gov; David Jones; David Lawson; James Taylor; Margaret Gidding; Larry Rodriguez
Cc: Mike Finnegan; Ronald MILLIGAN; Richard Johnson; Robert Schroeder
Subject: Cosumnes Project a go

We are go for a 10 am start next Monday with the following proviso.....check you e-mail first thing Monday am. A discussion with State Board personnel is scheduled for this afternoon. It is expected to be information sharing and there are not expected to be any showstopper issues. However, if something unexpected comes up, I will notify all by e-mail this weekend, and follow-up with a phone call by 8 am Monday morning.

The Project Proponents have also canceled their plan to have media present during the initial release. Additional plans will follow. Thanks to all for your patience and support in making this happen. I'll be following up with some of you on your specific questions, but meatime, let me know if you have any questions.......

David B. Robinson
Bureau of Reclamation
Central California Area Office
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Folsom, CA 95630-1799
(916) 989-7179 - voice
(916) 989-7208 - fax
drobinson@mp.usbr.gov

From: Jeffrey Mount [mailto:mount@geology.ucdavis.edu]
Sent: Monday, October 17, 2005 9:46 PM
To: Jan Fleckenstein; Bill Fleenor; Gregory Pasternack; G.Schladow; crg2@ice.ucdavis.edu
Cc: Wendy Trowbridge; Anthony Saracino; Dylan Ahearn; Peter Moyle; Mike Eaton; Keith Whitener; Larry Rodriguez; Michael L.Anderson; Ramona Swenson; Randy Dahlgren; Evan Buckland
Subject: Thanks

To all:

Today was one of those days in applied research that makes the effort worthwhile. About 9 years ago, Rich Reiner, then the project ecologist on the Cosumnes River Preserve, came to UC Davis to ask if a partnership could be developed to look at the causes and the cures for the decline of fall flows and salmon on the Cosumnes River. Graham Fogg and his students, Jan Fleckenstein and Rich Niswonger, along with Michael Anderson from engineering, took on the task of describing the complex interaction between surface water and groundwater in the Cosumnes and prescribing what flows might be necessary to restore flows for fall run chinook salmon while not hurting groundwater resources. Wendy Trowbridge, Carson Jeffres and others helped with the calibration work for this effort. Keith Whitener had done a lot of the preliminary work, along with Trevor Ford and others, to show that salmon escapement roughly coincided with declines in fall flow conditions, thus building the case for restoring fall flows. Mike Eaton, with the help of Larry Rodriguez, Anthony Saracino and others did the heavy political lifting with the locals and the Bureau of Reclamation. So many more to mention, with apologies to all who are left out.

The bottom line, as picture 1 and 2 show, the Bureau released B2 Environmental Water into the Cosumnes at around 10:00 a.m. this morning. 40 cfs added to the low flows of the Cosumnes will help reduce infiltration capacities, possibly charge perched, local aquifers, and wet up the bed before the first rains fall on the watershed, hopefully opening up the river to chinook salmon.

This triumph of persistence and will is owed to many people. Specifically Mike, Larry, Graham, Jan, Rich N., Rich R., Keith, Carson, Wendy, and a bunch of others. It is a unique experiment: unprecedented in California and beyond. Thanks to everyone who worked on this. What seemed so simple at the start was tough, but worth it to do. Please forward to those I have left out. Again, thanks to all. What a treat.

Jeff

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Tuesday, October 18, 2005 11:15 AM
To: Larry Rodriguez
Subject: good start

I'm glad all went well yesterday. I do have to bring up that the volume of press present was surprising and unexpected. Please convey to the other project proponents that any other outreach that involves access to Reclamation facilities or representations of the facts involving our role/involvement must be coordinated with me/us first. (especially if Leo is going to be taking the credit for "negotiating the deal").

The starting reading on the totalizer was 498080.8

Please have your monitoring crews regularly record the time, date, and reading on the totalizer as part of their routine monitoring. The gauge is located on the bottom of the flow meter which is in the vault adjacent to the waste way valve. The locks on the vault and gate providing access to the river are now the same as the main gate key. Be sure your crews lock the vault/gate when not in use.

When you come up for air, we can discuss a more comprehensive tour for the fish agency folks. We look forward to your first progress update.

From: Larry Rodriguez
Sent: Thursday, October 20, 2005 11:09 AM
To: David Robinson; Dave Lawson; James Taylor
Cc: Brook Edwards; Stuart Robertson
Subject: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

After reviewing the progression of the wetting front on the Cosumnes River, we are anticipating the need to change the rate of release from the Folsom South Canal to the Cosumnes River.

The exact change will be dependant on Reclamation's schedule. Please let us know the date and time that you will be available and RBI will provide you with the target release rate. Our desire is to have this change made at your soonest convenience, but by Tuesday Oct 25 at the latest.

As all project materials indicate, releases to the Cosumnes River will be adaptively managed based antecedent conditions, progression of the wetting front, and rates of channel losses. Not all of these factors are known at this time, hence the demonstration project. Therefore, Reclamation may be called upon to effect changes to the release on a frequent basis, and in some cases with short notice. Please understand that this is the nature of this project.

Please respond to this email with Reclamation's schedule meeting this request.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Thursday, October 20, 2005 5:43 PM
To: Anthony Saracino; 'Bob Caikoski'; Bruce Oppenheim (bruce.oppenheim@noaa.gov); Campbell Ingram (campbell_ingram@fws.gov); Cesar Blanco; Dave Lawson; David Robinson; David Hu (david_hu@fws.gov); niederbergerh@saccounty.net; James Taylor; Jeffery Mount (mount@geology.ucdavis.edu); Keith Whitener; Michael R. Eaton; Graham Fogg Ph.D; Ronald R. Lowry; Trevor Kennedy; Carson Jeffres
Cc: Brook Edwards (brook@robertson-bryan.com); stuart@robertson-bryan.com; Tina K. Lunt
Subject: Cosumnes River Flow Augmentation Report 1

All,

Attached is a brief report of the progression of flows on the Cosumnes River resulting from the additional 40 cfs being released from the Folsom South Canal.

RBI will provide this report every couple of days. If you know of anybody else that would like to receive this data please forward it, or provide me their email and I will include them in the future.

If you have any questions please contact me at the email or phone number listed below.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Brook Edwards
Sent: Monday, October 24, 2005 1:43 PM
To: Larry Rodriguez; 'Anthony Saracino'; 'Bob Caikoski'; 'Bruce Oppenheim (bruce.oppenheim@noaa.gov)'; 'Campbell Ingram (campbell_ingram@fws.gov)'; 'Cesar Blanco'; 'Dave Lawson'; 'David Robinson'; 'David Hu (david_hu@fws.gov)'; 'niederbergerh@saccounty.net'; 'James Taylor'; 'Jeffery Mount (mount@geology.ucdavis.edu)'; 'Keith Whitener'; 'Michael R. Eaton'; 'Graham Fogg Ph.D'; 'Ronald R. Lowry'; 'Trevor Kennedy'; 'Carson Jeffres'
Cc: Brook Edwards; Stuart Robertson; 'Tina K. Lunt'
Subject: Cosumnes River Flow Augmentation Report for 10/21/05

All,

Attached is a brief report of the progression of flows on the Cosumnes River. Flows were shut offin the afternoon of October 20th to survey the canal outlet and river channel for erosion. No erosion problems were found. Flows were re-initiated at 11am on October 21st at a rate of 28-30 cfs.

If you have any questions please contact Larry or me at the email or phone numbers listed below.

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Brook Edwards
Sent: Monday, October 24, 2005 5:02 PM
To: Larry Rodriguez; 'David Lawson'; 'David Robinson'; 'James Taylor'
Cc: Stuart Robertson
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

After reviewing the progression of the wetting front on the Cosumnes River, we need to change the rate of release from the Folsom South Canal to the Cosumnes River. The river has connected to tide-water and we need the flows to be reduced to 20 cfs. We would appreciate it if this could be done as soon as possible.

Please respond to this email with Reclamation's schedule meeting this request.

Thanks,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Larry Rodriguez
Sent: Tuesday, October 25, 2005 1:19 PM
To: David Robinson
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

See response below.

Larry J. Rodriguez
Robertson-Bryan, Inc.
-----Original Message-----
From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Tuesday, October 25, 2005 7:46 AM
To: David Lawson; James Taylor; Brook Edwards; Larry Rodriguez
Cc: Stuart Robertson
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

Order recieved. Will implement asap and expect that it will be done by around 8 am today.

You guys have let the one thing the Fish Agency folks were most concerned about happen.
I spoke with Nick Hindmen this morning, He does not feel that this a big deal. We are adaptively managing flows to maximize extent of wetted channel, without intentionally creating a connection that would support upstream migration. I informed him that we were cutting back flows to eliminate any possible opportunity for upstream migration. He was comfortable with that. He understood that the reason for the pilot project is help determine how the system will respond, that every year is expected to be different, and that the primary purpose is to refine project operations based on expected system responses and varying annual conditions. That is what we are now doing.

Have any fish gotten up in the system?
Survey crews have not seen any evidence of upstream migration. We also don't believe that rate of flow entering tide water (>8 cfs) is enough to create attraction.

How long befor a cut is manifested at the mouth?
Based on our observations over the past several days, it appears the change in release made this morning will manifest itself at Twin Cities Road by tomorrow morning. This response time is much quicker then all previous studies have indicated. This is probably due to several factors. First, a portion of the channel was already flowing and is not experiencing the magnitude of loss (seepage) that would normally be expected. And second, the portion of the channel that was dry is not experiencing expected loss rates.

What do you expect 20 cfs to result in and why?
We expect that a 10 cfs reduction in flow will eliminate any connect to tide water. Specifically, we don't "expect" to see flow passing Twin Cities Road. This is based on

our observation of 10 cfs at the box culvert, consequently a 10 cfs reduction should almost eliminate flow at that point (several miles above Twin Cities Road).

What are you plans now?,disconnect, maintain connection at a low flow, something else??
We are sticking to our original plan to not maintain a connection that allows for upstream migration prior to a "natural" conenction. That's why we asked for a reduction in the canal release. We will monitor current conditions and request changes as needed. Once rainfall generates sufficient natural flow we will request that releases be shut off. If after that point, natural flows do not maintain connection we will request additional releases to maintain connection. All of this is according to our original project plan.

Are you soliciting input from the fish agencies?
I have spoken with FWS.

I'm in meetings this morning,but expect that I will have another 8 messages from the fish guys/management when I return asking me what your plans are.
Please feel free to forward all 8 emails to me and I will respond appropriately.

>>> "Brook Edwards" <brook@robertson-bryan.com> 10/24/2005 5:02:23 PM
>>>
Gentlemen,

After reviewing the progression of the wetting front on the Cosumnes
River, we need to change the rate of release from the Folsom South
Canal
to the Cosumnes River. The river has connected to tide-water and we
need the flows to be reduced to 20 cfs. We would appreciate it if
this
could be done as soon as possible.

Please respond to this email with Reclamation's schedule meeting this
request.

Thanks,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Brook Edwards
Sent: Thursday, October 27, 2005 4:30 PM
To: Brook Edwards; Larry Rodriguez; 'David Lawson'; 'David Robinson'; 'James Taylor'
Cc: Stuart Robertson
Subject: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

After reviewing flows on the Cosumnes River, we need to change the rate of release from the Folsom South Canal to the Cosumnes River. Currently, the connection to tidewater is very weak and is flowing at about 2.5 cfs. We would appreciate it if you could schedule a reduction in flow to 10 cfs within the next 3 days.

Please respond to this email with Reclamation's schedule meeting this request.

Thanks,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Brook Edwards
Sent: Tuesday, November 01, 2005 3:25 PM
To: 'James Taylor'; 'David Lawson'; 'David Robinson'; Larry Rodriguez; 'mfinnegan@mp.usbr.gov'; 'rshroeder@mp.usbr.gov'; 'pfujitani@mp.usbr.gov'; 'twashburn@mp.usbr.gov'; 'roger_guinee@fws.gov'; 'derrek_hilts@fws.gov'; 'nick_hindman@fws.gov'
Cc: Stuart Robertson
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

All,

After reviewing flows on the Cosumnes River, we would appreciate it if you could schedule to shut off the flow from the Folsom South Canal in anticipation of upcoming precipitation.

Please respond to this email with Reclamation's schedule meeting this request.

Thanks,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Larry Rodriguez <larry@robertson-bryan.com>
Date: Thu, 3 Nov 2005 10:08:11 -0800
To: Sylvia Wright <swright@ucdavis.edu>
Conversation: Cosumnes Project new Coverage
Subject: Cosumnes Project new Coverage

Sylvia,

I am trying to run down all of the media coverage for the Cosumnes River Flow Augmentation Project. So far I have found the Sac Bee Article, Sac Bee Editorial, the Davis Enterprise article, and I know there was a KVIE/UCD spot. Can you give me more info on the KVIE/UCD spot and any other media coverage that I don't know about. I am compiling a summary of media coverage for the SSCAWA and others.

Also, I would like to get a copy of photos that were taken that day, if you can make them available.

Hope all is well and thanks for getting all the great coverage of this project.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com <mailto:larry@robertson-bryan.com>
9888 Kent Street, Elk Grove CA 95624

From: Sylvia Wright [mailto:swright@ucdavis.edu]
Sent: Thursday, November 03, 2005 3:46 PM
To: Larry Rodriguez
Subject: Re: Cosumnes Project new Coverage

In external media were these stories; I have full text of all but the Ch. 3 story (I have a dvd of the Ch. 3 story but it has not been transcribed):

10/21/05 Editorial: A river, reborn: Cosumnes gets a new lease on life The Sacramento Bee
10/19/05 River resource KCRA Channel 3 (NBC)
10/19/05 Salmon run restored: Creative flow helps UCD researchers lead way Davis Enterprise
10/18/05 A watershed deal: Increased flows on Cosumnes River will recharge groundwater, aid salmon run The Sacramento Bee

In internal media (that is, from my office) were the UC Davis NewsWatch story on KVIE (1 minute, 30 secs) and a story in the campus newspaper, Dateline UC Davis.

The Dateline story is online: http://www.dateline.ucdavis.edu/dl_detail.lasso?id=8493
The NewsWatch story may be online; let me check. Will send URL if so.

It was satisfying to work on this project. Thank you for all the hard work you did to make it happen.

Sylvia

....

SYLVIA WRIGHT
Public information officer
for environmental science & policy

News Service
University of California, Davis

Office (530) 752-7704
Cell (530) 219-8849
E-mail: swright@ucdavis.edu
Office location: 334 Mrak Hall
News home page: <http://www.news.ucdavis.edu/>

From: Larry Rodriguez
Sent: Tuesday, November 08, 2005 5:52 PM
To: David Robinson; Trevor Kennedy; James Taylor; David Lawson
Cc: Stuart Robertson; Brook Edwards; Nick_Hindman@fws.gov
Subject: New Release Procedures for Cosumnes River

All,

After evaluating the Cosumnes River's responses to flow releases, the background flow of the river, and projected weather conditions, we would like to request the following changes in operating procedures.

Our original project design was based on having a constant controllable flow from the canal, which translated to a constant controllable flow in the Cosumnes River just below the canal. This was based on the fact that there is typically no background flow in the river and all river flows would be derived from canal releases. Under this condition, changes to canal release would be expected to be minimal.

This year presents a quite different situation. Background flows in the river have made predicting the river's response a bit more challenging. However, based on our observations the best approach for creating a stable flow at Blodgett Dam, immediately downstream of the canal, will be to make more frequent adjustments to canal releases based on flows measured at Blodgett.

Therefore, we would like to implement the following procedure:

- Field crews measure flows at Blodgett Dam every Monday, Wednesday and Friday morning before 10:00 am. The measured flow value will be transmitted to RBI before 10:30 am. RBI will determine what, if any change needs to be made to canal releases.
- Reclamation be available to make adjustments to canal releases every Monday, Wednesday, and Friday after 12:00 pm. RBI will contact Reclamation with required release changes prior by 11:00 pm.
- Implement this procedure beginning Friday, November 11.

The objective is to maintain a flow at Blodgett of 40 cfs, which we estimate will push water to about the Box Culvert. In some cases, there will be no need to change releases from the canal, in other cases there may be a need to change the release by only a few cfs to 10s of cfs. The 40 cfs target will be maintained until natural flows connect the river to tidewater. Given the dry weather pattern ahead of us, that will be weeks away.

After we get a "natural" connection, we will reevaluate our target flow at Blodgett, with the goal of maintaining a barrier free migration corridor. The amount of canal release will depend on natural flow conditions.

I intentionally did not send this out to the larger ops email group, because I wanted to make sure that we could work out the kinks of implementing this procedure before we go too "public". However, we welcome input from all interested parties and other Reclamation or agency reps not included in this email.

Thank you,

Larry J. Rodriguez

Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Friday, November 11, 2005 10:48 AM
To: Keith Whitener; Trevor Kennedy; tccannon@comcast.net; Cesar Blanco; Nick Hindman (nick_hindman@fws.gov)
Cc: David Robinson
Subject: Cosumnes Flow Releases

Folks,

I've discussed this with some of you and some of you have brought this up independently.

If dry conditions continue in the Cosumnes River watershed, do we want to release water from the canal to force a connection to tidewater and attract salmon into the river?

This type of action is not part of the typical operations plan, because we surmised that if natural flows were not sufficient to create a connection then the flows in the river would be really low and conditions for salmon would be unacceptable. However, this year is not typical. We have had flow in an extended portion of the river all summer. Meaning, conditions for salmon spawning may be acceptable. I defer to Trevor, in particular, to determine whether this is the case.

It would seem like a reasonable use of this year's water to create an attraction flow for salmon, rather then risking a zero run year. However, the water is being provided from Reclamation and the B2 Program. Therefore, I am not in a position to ask Reclamation to make this adjustment to the operations plan. I believe that the request should come from FWS and AFRP. I am willing to help in whatever manner I can.

We have only used 740 ac-ft of the available 5,000 ac-ft. Currently there are no releases being made from the canal and the flow past the canal is just less than 40 cfs. The wetting front is located about 1.5 miles downstream of Hwy 99. The seven day forecast (NOAA) calls for temps in the 70s and no precipitation.

Please let me know how you would like to proceed.

Larry J. Rodriguez

Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Tuesday, November 15, 2005 2:56 PM
To: Keith Whitener; Trevor Kennedy; Cesar Blanco; David_Hu@r1.fws.gov; Jeffery Mount (mount@geology.ucdavis.edu); Peter B. Moyle; Anthony Saracino; Tom
Cc: David Thomas; Brook Edwards; Michael Bryan
Subject: Cosumnes Flow Release Strategy - Conference call

All,

To coordinate our request to change the Cosumnes River Flow Augmentation Project, I am requesting a **conference call for this Thursday at 9:00 am.**
Please let me know your availability to participate.

As you all know, we are considering changing the operation of the flow augmentation project from a "pre-wetting" program to a "salmon attraction" program. This change is contemplated because of the sustained dry weather pattern we are experiencing (which is jeopardizing this year's salmon run), our availability of water for this proposed use, the favorable ambient condition of the main spawning reach of the river, and to broaden our experimental design to address additional questions regarding salmon behavior on the Cosumnes River.

The B2 Water Program management group will be discussing this issue at their regular Thursday meeting. I am anticipating that USFWS and Reclamation will want to discuss this request with us after that meeting, potentially as early as this Thursday afternoon or Friday. To ensure that "our side" is on the same page, I am requesting the above conference call. To facilitate our coordination RBI, with assistance from Trevor Kennedy, is preparing a brief memo addressing the following issues:

- Original project operations
- Reasons for changing operations
- Hypotheses that will to evaluated through this new "experiment."

Our experience tell us that USFWS will want to know what benefit will be derived from this program and use of the B2 water. A clear and coordinated response to that question will strengthen our case and, more importantly, will facilitate a quick response. Ideally, we would like to begin attraction release before Thanksgiving.

Please provide a response regarding your availability for the conference call or if you have any other questions.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Friday, November 18, 2005 9:27 AM
To: David Robinson; jwhite@dfg.ca.gov; nick_hindman@fsw.gov; Derrick_Hilts@fws.gov; roger_guinee@fws.gov; Paul Fujitani; Thuy Washburn; cesar_blanco@r1.fws.gov; <"Keith Whitener"
Subject: RE: Cosumnes conference #

All,

To help facilitate this morning's conference call, attached is a memo outlining the conditions on the Cosumnes River and proposed operational changes being requested by The Nature Conservancy, Fisheries Foundation and Southeast Sacramento County Agricultural Water Agency.

Thank you,

Larry J. Rodriguez
Robertson-Bryan, Inc.

From: Larry Rodriguez
Sent: Monday, November 21, 2005 11:24 AM
To: 'James Taylor'; 'David Lawson'; 'David Robinson'; 'mfinnegan@mp.usbr.gov'; 'rshroeder@mp.usbr.gov'; 'pfujitani@mp.usbr.gov'; 'twashburn@mp.usbr.gov'; 'roger_guinee@fws.gov'; 'derrek_hilts@fws.gov'; 'nick_hindman@fws.gov'
Cc: Stuart Robertson; Brook Edwards; Trevor Kennedy; Cesar Blanco; kwhitener@tnc.org
Subject: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

We would like to request that releases from Folsom South Canal to the Cosumnes River be reinitiated at a rate of 5-8 cfs, closer to 8 cfs if possible. We will be trying to maintain 40 cfs just below the canal, within the infrastructure capabilities.

Our goal is to try to move the wetting front a few more miles downstream. The front has been creeping back upstream as a results of slightly declining flows at Michigan Bar (currently at 30 cfs) and dry conditions in the lower river channel. This supplemental release should move the wetting front back to about 2 mile upstream of tidewater.

Thank you,

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Cesar_Blanco@fws.gov [mailto:Cesar_Blanco@fws.gov]
Sent: Monday, November 21, 2005 3:31 PM
To: Tom
Cc: andrew_hamilton@fws.gov; Gary Bobker; Randy Brown; Michael Bryan; Campbell_Ingram@fws.gov; cosumnes; Cosumnes_Fish_Forum@delta.dfg.ca.gov; CSBA-Jack (E-mail); Dan B. Odenweller; David_Hu@r1.fws.gov; DeltaKeep@aol.com; demko@dcs-chico.com; Doug@fishfirst.com; Douglas W. Lovell; elizabeth.a.campbell@noaa.gov; Ed Pert; Erwin Van Nieuwenhuyse; Felix E Smith; Zeke Grader; Gary Adams; Gary Adams; Gonzalo Castillo; idrury@dfg.ca.gov; John Beuttler; Gerald Meral; Joe Merz; John Nelson; John C Baker; John_Icanberry@fws.gov; Jim White; Kenneth Lentz; KPerry@dfg.ca.gov; kwhitener@tnc.org; Lester Snow; Leo Winternitz; meaton@tnc.org; Marty Gingras; MHEALEY@dfg.ca.gov; mount@geology.ucdavis.edu; Matt Weiser; Peter B. Moyle; Dick Shannon; Fris, Rebecca; Whitey Rasmussen (E-mail); rstork@friendsoftheriver.org; Guillen, Sergio@CalWater; Spaar, Stephani; stripermike@earthlink.net; Red Bartley (E-mail); Tina Swanson; tfrink@water.ca.gov; Tom Philp
Subject: Re: Fw: Cosumnes Flow Release Strategy - Conference call

Tom,

I think it is important for everyone to understand that the b2 releases were never meant to serve as supplemental surface flows. The intent of the "COSUMNES RIVER FLOW AUGMENTATION PROJECT 2005 PILOT PROJECT OPERATION PLAN" was to use water from the Folsom South Canal to pre-wet the channel bed so that when natural rain-fall occurred the connection to the spawning reaches would occur sooner. There was never any agreement that we would use this water for supplemental surface flow. In fact it was my understanding that b2 managers explicitly stated that the water was not to be used for supplementing surface flow. This decision, however, does not affect the originally stated purpose of the Pilot Study and that is to pre-wet the channel bed and hope for rain.

Cesar Cadena Blanco, Ph.D.
Habitat Restoration Coordinator
U.S. Fish and Wildlife Service
Anadromous Fish Restoration Program
4001 N. Wilson Way
Stockton, CA 95205
(209) 946-6400 x. 315
(209)403-1457 (cell)
(209)946-6355 (FAX)
http://www.delta.dfg.ca.gov/afrp/

From: Brook Edwards
Sent: Wednesday, November 30, 2005 10:31 AM
To: Larry Rodriguez; 'James Taylor'; 'David Lawson'; 'David Robinson'; 'mfinnegan@mp.usbr.gov'; 'rshroeder@mp.usbr.gov'; 'pfujitani@mp.usbr.gov'; 'twashburn@mp.usbr.gov'; 'roger_guinee@fws.gov'; 'derrek_hilts@fws.gov'; 'nick_hindman@fws.gov'
Cc: Stuart Robertson; 'Trevor Kennedy'; 'Cesar Blanco'; 'kwhitener@tnc.org'
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

We would like to request that releases from Folsom South Canal to the Cosumnes River be shut off.

Thank you,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Larry Rodriguez
Sent: Friday, December 16, 2005 1:48 PM
To: 'nick_hindman@fws.gov'; David Robinson
Subject: Cosumnes River Project for next year.

Nick & Dave,

The flow augmentation program is coming to a close and I think that we can call this a successful experiment. When we finally received enough precipitation to increase the natural river flow the river was able to establish a connection to tidewater at about 50-55 cfs (measured at Michigan Bar). This connection was strong enough that we also saw fish moving into the river. Compare this to our original estimate of needing a minimum of 110 cfs flow spike or more than 65 cfs for a sustained period (+7 days) to create connection.

Given the wet conditions in the river, prior to the start of the project, we have released less than 1,000 af into the river. Looking forward to next, I am unsure whether our permanent water supply from the County will be available by next October. Therefore, I would like to start the ball rolling on trying to secure water from the B2 Program next year. The simplest approach might be to allow us to retain the unused portion of water, slightly more then 4,000 af, for next year.

I have sent this email to just you two, to seek some input on the best approach to making this request.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Nick_Hindman@fws.gov [mailto:Nick_Hindman@fws.gov]
Sent: Monday, December 19, 2005 3:15 PM
To: Larry Rodriguez
Cc: David Robinson
Subject: Re: Cosumnes River Project for next year.

Larry and Dave,

I agree that this year's pilot project on the Cosumnes was worthwhile and I hope it proves to be successful. That said, the B2IT group was very clear that this was a one-time pilot effort using 5 TAF of banked b2 water. In all likelyhood the remaining 4 TAF of banked water earmarked for the Cosumnes study will spill if/when Folsom goes into flood control releases.

You're welcome to pitch the idea of another Cosumnes effort in 2006 to B2IT, but I wouldn't be too optimistic.

Nick Hindman
Fishery Biologist
USF&WS, Sacramento CA
(916) 414-6543

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Tuesday, December 20, 2005 8:00 AM
To: Larry Rodriguez
Subject: Re: Cosumnes River Project for next year.

Nick responded as I expected, hoever, you might try a couple of strategies. First try and get the project daylígheted in some of the annual science conferences/reviews. I know that when the EWA Science Review Panel looked at past EWA actions, the one they thought was one of the more beneficial actions taken was bypassing power production at Folsom to provide cold water. To the extent you can get independent reviewers to laud the merits of the project, the easier it would be to get the Service to dedicate some water in the future. Meantime, we should have some conversations about how we would account for the Aerojet water and what it will take to utilize that supply for your purposes. I know that ball is really in the County's court, but the sooner we get a group on the same page, the sooner you might have a more reliable supply. It is going to require quite a bit of analysis and discussion to come up with a proposal for use that Reclamation can live with.

From: Larry Rodriguez
Sent: Tuesday, December 20, 2005 8:28 AM
To: David Robinson
Subject: RE: Cosumnes River Project for next year.

Thanks for you input Dave.

I put some thouhght into our approach with FWS with others.

As for the long-term supply I am trying to get the county to re-work their management strategy to avoid an excahnge agreement. They will be supplying more then 40 cfs to the American River on a daily basis, so if we can manage that with all the other user, then we can simply divert wants needed on the Cosumnes (Oct-Dec) and in the remainder of the year the other users can take all the Aeroject discharge. I think that are coming round to the idea. I'll try to get something set up to explore this option from all sides.

Have a Merry Christmas and Best in the New Year.

Larry J. Rodriguez
Robertson-Bryan, Inc.

MANAGING SURFACE WATER-GROUNDWATER TO RESTORE FALL FLOWS IN THE COSUMNES RIVER

Title	Managing Surface Water-Groundwater to Restore Fall Flows in the Cosumnes River
Publication Type	Journal Article
Year of Publication	2004
Authors	Fleckenstein J, Anderson M, Fogg G, Mount JF
Journal	ASCE Journal of Water Resources Planning and Management
Volume	130
Issue	4
Date Published	06/04
ISSN	0733-9496/2004/4-301-310
Abstract	Declining fall flows are limiting the ability of the Cosumnes River to support large fall runs of Chinook salmon. Management scenarios linking surface water and groundwater alternatives to provide sufficient fall flows are examined using groundwater flow and channel routing models. Results show that groundwater overdraft in the basin has converted the river to a predominantly losing stream, practically eliminating base flows. Management alternatives to increase net recharge (for example, pumping reductions) were examined along with surface water augmentation options. Using a minimum depth standard for fish passage, average surface water flow deficits were computed for the migration period of Chinook salmon. Groundwater deficits were evaluated by comparing simulated current groundwater conditions with conditions under various scenarios. Increases in net recharge on the order of 200 to 300 million m3/year would be required to reconnect the regional aquifer with the channel and in turn reestablish perennial base flows. Options that combine surface water augmentation with groundwater management are most likely to ensure sufficient river flows in the short term and to support long-term restoration of regional groundwater levels.
URL	http://baydelta.ucdavis.edu/files/crg/reports/Fleckenstein_WRPM_2004.pdf

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., *Governor*

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April 30, 2014

Report to the Governor's Drought Task Force – Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring

The Department of Water Resources (DWR) prepared the attached groundwater report as required by Governor's January 17, 2014 Emergency Drought Proclamation (Order Action Number 11). The proclamation required that DWR describe basins with potential water shortages and gaps in groundwater monitoring. Preparing the report entailed compiling and evaluating all available data, including information presented in California Water Plan Update 2013.

A follow-up groundwater report will be provided by November 30, 2014, as required by Governor's April 25, 2014 Executive Order (Order Action Number 11) that addresses areas where the drought has significant impacts to groundwater resources. DWR will conduct intensive outreach, provide technical assistance to local agencies in order to increase groundwater monitoring, and collect and analyze groundwater data. The focus of this report will be to identify groundwater basins with water shortages, gaps in groundwater monitoring, and provide the latest information on land subsidence and agricultural land fallowing.

Groundwater is a key priority for the Governor. The January 2014 California Water Action Plan developed by the Natural Resources Agency, California Environmental Protection Agency, and Department of Food and Agriculture identifies the critical need to improve groundwater management in the State. The Governor's 2014-15 budget proposes $618.7 million for funding actions in the Water Action Plan, including measures for drought response and to support improved groundwater management. The Water Action Plan expresses the Governor's commitment to work with local governments and agencies, Native American tribes, and the Legislature to identify and provide additional tools, resources, guidance, and the authority local managers need to sustainably manage groundwater resources. Recognizing that the State should protect groundwater basins that are at risk of permanent damage when a local agency is unable or unwilling to do so, the Governor's proposed budget provides resources to the State Water Resources Control Board to act as a backstop until an adequate local groundwater management plan is put in place.

In the next few months, DWR will continue to collaborate with the Governor's Office and other State agencies to develop the framework for a statewide sustainable groundwater management program, and DWR will take a lead role in implementing the program to fulfill the Governor's vision.

William A. Croyle, PE
Drought Manager

Attachment - Public Update for Drought Response Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring, dated April 2014

State of California

The Resources Agency

Department of Water Resources

Public Update for Drought Response
Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring

April 30, 2014

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Executive Summary

Year 2013 closed as the driest in recorded history for many areas of California. On January 17, 2014, Governor Brown signed a Proclamation of a State of Emergency in response to the drought. This Public Update addresses Order #11 of the Governor's Proclamation and provides information regarding groundwater basins with potential water shortages and gaps in groundwater monitoring.

Groundwater is a vital resource in California providing close to 60 percent of the state's water supply in a dry year. Drought conditions typically result in an increase of groundwater well activity and pumping to compensate for water supply shortages. Increased groundwater pumping can lead to adverse conditions including dry wells, subsidence, decreased water quality, saline intrusion, and stream depletion. Evaluation of available data produced the following:

- Groundwater levels have decreased in nearly all areas of the state since spring 2013, and more notably since spring 2010.
- Since spring 2008, groundwater levels have experienced all-time historical lows (for period of record) in most areas of the state and especially in the northern portion of the San Francisco Bay Hydrologic Region, the southern San Joaquin Valley, and also for the South Lahontan and South Coast hydrologic regions.
- In many areas of the San Joaquin Valley, recent groundwater levels are more than 100 feet below previous historical lows.
- The greatest concentration of recently deepened wells is in the fractured bedrock foothill areas of Nevada, Placer, and El Dorado counties.
- The Kaweah and Kings subbasins have the greatest numbers of deepened wells in an alluvial groundwater basin.
- Thirty-six alluvial groundwater basins that have a high degree of groundwater use and reliance may possess greater potential to incur water shortages as a result of drought. The basins exist in the North Coast, Central Coast, Sacramento River, Tulare Lake, and South Coast hydrologic regions.
- Of California's 515 alluvial groundwater basins, 169 are fully or partially monitored under the California Statewide Groundwater Elevation Monitoring (CASGEM) Program.
- Forty of the 126 High and Medium priority basins are not monitored under CASGEM. There are significant CASGEM groundwater monitoring data gaps in the Sacramento, San Joaquin River, Tulare Lake, Central Coast, and South Lahontan hydrologic regions.
- Although there are 4,122 CASGEM wells and 39,429 Voluntary wells in the Water Data Library groundwater level database, gaps in groundwater monitoring persist.
- Several areas of the state lack a current groundwater management plan that addresses all related requirements of the California Water Code.

DWR is contracting with National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory for use of satellite-based radar data to measure subsidence in the Sacramento and San Joaquin valleys. NASA, the U.S. Geological Survey, and U.S. Department of Agriculture are developing an automated system for estimating fallowed agricultural acreage. For detailed information regarding groundwater and groundwater management in California, please visit DWR's Groundwater Information Center at www.water.ca.gov/groundwater. For more information regarding DWR's drought response efforts, please visit www.water.ca.gov/waterconditions.

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Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring

1.0 INTRODUCTION

Groundwater is a vital resource to residents, businesses, farms, and industries in California. It provides close to 40 percent of the state's water supply in an average year and as much as 45 percent in dry years. During extensive dry or drought years, groundwater can provide close to 60 percent of the water supply. Some communities are 100 percent reliant upon groundwater for municipal and agricultural purposes. Year 2013 closed as the driest year in recorded history for many areas of California. On January 17, 2014, in response to these drought conditions, Governor Brown signed a Proclamation of a State of Emergency (www.gov.ca.gov/news.php?id=18368).

2.0 PURPOSE

The purpose of this document is to address Order #11 of the Governor's Proclamation: *The Department of Water Resources will evaluate changing groundwater levels, land subsidence, and agricultural land fallowing as the drought persists and will provide a public update by April 30 that identifies groundwater basins with water shortages and details gaps in groundwater monitoring.*

Specifically, this Public Update (Update) provides information regarding groundwater basins with potential water shortages and addresses gaps in groundwater monitoring. The California Department of Water Resources (DWR) utilized available information from several sources to identify groundwater basins with potential water shortages and gaps in groundwater monitoring. Data were compiled and analyzed from the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, the Water Data Library (WDL) groundwater level database, the draft Bulletin 160 *California Water Plan Update 2013*, and from well completion reports (driller's logs) submitted to DWR. The focus of this Update was to analyze the available data and identify areas with potential groundwater shortages and gaps in groundwater level monitoring; water quality concerns were not investigated or directly included in the analysis. Where feasible, the most recent and available data were considered. Since spring groundwater level measurements are typically collected in March and April, and most are subsequently uploaded to the WDL database via the CASGEM Online System by July, some spring 2014 data was not yet available to include in this Update. DWR utilized groundwater level data available as of April 15, 2014. In addition, the well completion report data are likely incomplete because there is a lag time for drillers to submit the required reports to DWR. This Update can also serve as an indicator that additional groundwater information is needed to adequately address groundwater issues in the state.

This Update responds to the specific requirement in Proclamation Order #11 to provide a report on groundwater basins and groundwater monitoring. The proclamation also directs DWR to evaluate land subsidence and agricultural land fallowing. DWR is currently working with federal agencies such as the

National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration in a separate process to carry out this work by utilizing advanced technologies for monitoring drought impacts. DWR is contracting with NASA Jet Propulsion Laboratory for use of satellite-based Interferometric Synthetic Aperture Radar (InSAR) data to measure relative changes in land surface elevation in portions of the Sacramento and San Joaquin valleys from 2007 through 2014; this analysis is expected to be completed by early summer 2015. A test area along the California Aqueduct will also be evaluated using aircraft-based InSAR data; this work is expected to be completed about December 2014. NASA, the U.S. Geological Survey, and U.S. Department of Agriculture, National Agricultural Statistics Service are developing an automated system for DWR that will estimate fallowed agricultural acreage during the growing season. The system will rely on crop census data and on indices of vegetation greenness measured by satellite sensors. Monthly estimates of fallowed acreage will be reported from spring through fall 2014; the initial estimate is expected to be available at the end of April 2014.

3.0 FINDINGS

Groundwater is the primary supply of water in several areas of the state. Groundwater levels in these areas are more susceptible to impacts from drought conditions due to reductions in natural recharge, managed recharge, and subsurface inflow. Such reduced conditions typically result in an increase of groundwater well activity and pumping to compensate for water supply shortages. Although there may be active groundwater management programs, many areas do not have controls in place to restrict or stop groundwater pumping. Groundwater pumping is expected to increase as drought conditions worsen. The increased pumping can lead to adverse conditions including dry wells, subsidence, decreased water quality, saline intrusion, and stream depletion. Figure 1 depicts areas of the state that have a high degree of groundwater use and reliance, have experienced significant lowering of groundwater levels since spring 2010, and have experienced groundwater levels at all-time historical lows (for period of record) since spring 2008.

Water shortages and potential shortages have been identified in areas of alluvial groundwater basins and in areas that derive groundwater from fractured bedrock (foothill and mountainous areas). Several alluvial groundwater basin areas are already known to experience groundwater shortages, while other basins possess indicators associated with potential water shortage. There are several areas of the state experiencing decreasing groundwater levels and deepening of water wells.

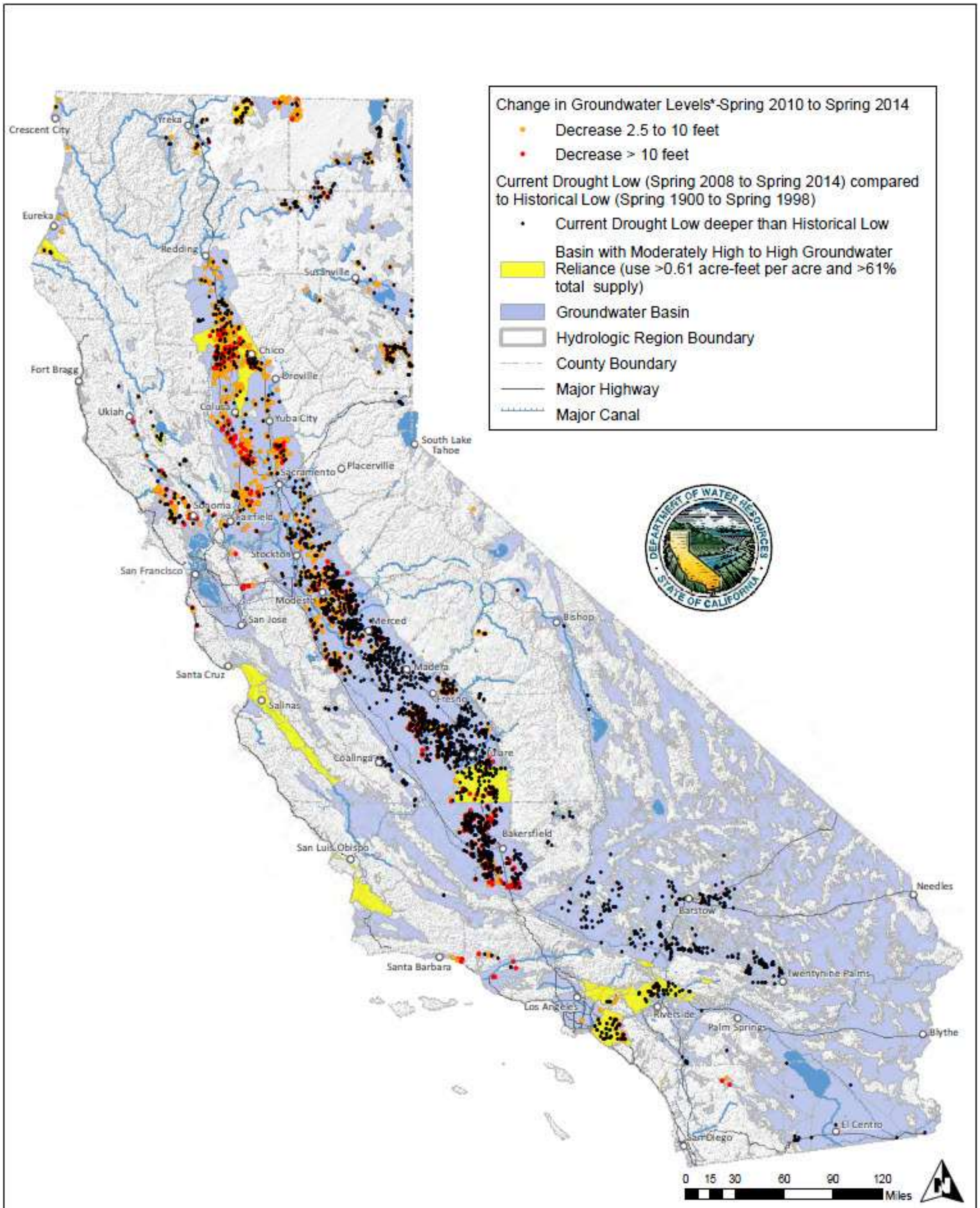
> Groundwater levels have decreased in nearly all areas of the state since spring 2013, and more notably since spring 2010. Since spring 2008, groundwater levels have experienced all-time historical lows in most areas of the state and especially in the northern portion of the San Francisco Bay Hydrologic Region, the southern San Joaquin Valley, and also for the South Lahontan and South Coast hydrologic regions – these areas exhibit groundwater levels more than 50 feet below previous historical lows experienced sometime prior to 2000. There are many areas of the San Joaquin Valley where recent groundwater levels are more than 100 feet below previous historical lows. The greatest concentration of recent well deepening activity is in the foothill areas of Nevada, Placer, and El Dorado counties. The Kaweah and Kings subbasins have the greatest numbers of deepened wells within the San Joaquin Valley. A total of 36 alluvial groundwater

> basins have a high degree of groundwater use and reliance. As such, these basins may possess greater potential to incur water shortages as a result of drought. The basins exist in five hydrologic regions: North Coast (2), Central Coast (17), Sacramento River (5), Tulare Lake (1), and South Coast (11).

Monitoring groundwater levels is critical for assessing the status of a groundwater basin over time, and is particularly important during dry years and drought conditions. There are several areas within the state that appear to lack sufficient groundwater monitoring.

> Only 169 of California's 515 alluvial groundwater basins are fully or partially monitored under the CASGEM Program. Forty of the 126 High and Medium priority basins are not monitored under CASGEM. There are significant groundwater monitoring data gaps in the Sacramento, San Joaquin River, Tulare Lake, Central Coast, and South Lahontan hydrologic regions. There are gaps on a statewide scale – basins that are not yet being monitored under the CASGEM Program, as well as gaps on the basin scale – basins with spatial data gaps. With respect to groundwater management plans, several areas of the state either lack a plan, or the existing plan has not been updated to address the requirements of the California Water Code as of 2002 (SB 1938) or 2012 (AB 359). Such areas may also lack sufficient monitoring and/or management of groundwater and are potentially subject to increased stress or impacts due to drought conditions.

Figure 1 - 2014 Drought - Potential Groundwater Shortages



*Groundwater level change determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/15/2014. Document Name: 2014_Drought_Potential_Groundwater_Shortages Updated: 04/23/2014 Data subject to change without notice.

4.0 GROUNDWATER BASINS WITH POTENTIAL WATER SHORTAGES

In California, most groundwater is found in basins filled with alluvial deposits. Figure 2 depicts 515 alluvial groundwater basins as defined in DWR's Bulletin 118 Update 2003 (Bulletin 118-03, www.water.ca.gov/groundwater/bulletin118/update2003). Close to 90 percent of the groundwater used in California is extracted from only about 126 of the 515 alluvial groundwater basins. Groundwater is also found in fractured bedrock in foothill and mountainous areas. However, the amount of groundwater found in fractured bedrock is relatively small compared with the amount found in alluvial basins. Nevertheless, fractured bedrock is the sole source of water supply for many communities in California, and for many individual residences.

Some communities rely solely on surface water, some rely solely on groundwater, and some rely on both surface water and groundwater to meet demands. The amount of groundwater use relative to the amount of surface water use varies greatly over the state. Figure 3 summarizes statewide contribution of groundwater compared to the total water use as reported in the draft *California Water Plan Update 2013* (www.waterplan.water.ca.gov/cwpu2013). Based on average annual data for years 2005 to 2010, groundwater use was near 16.5 million acre feet and accounted for about 39 percent of the total water supply in California.

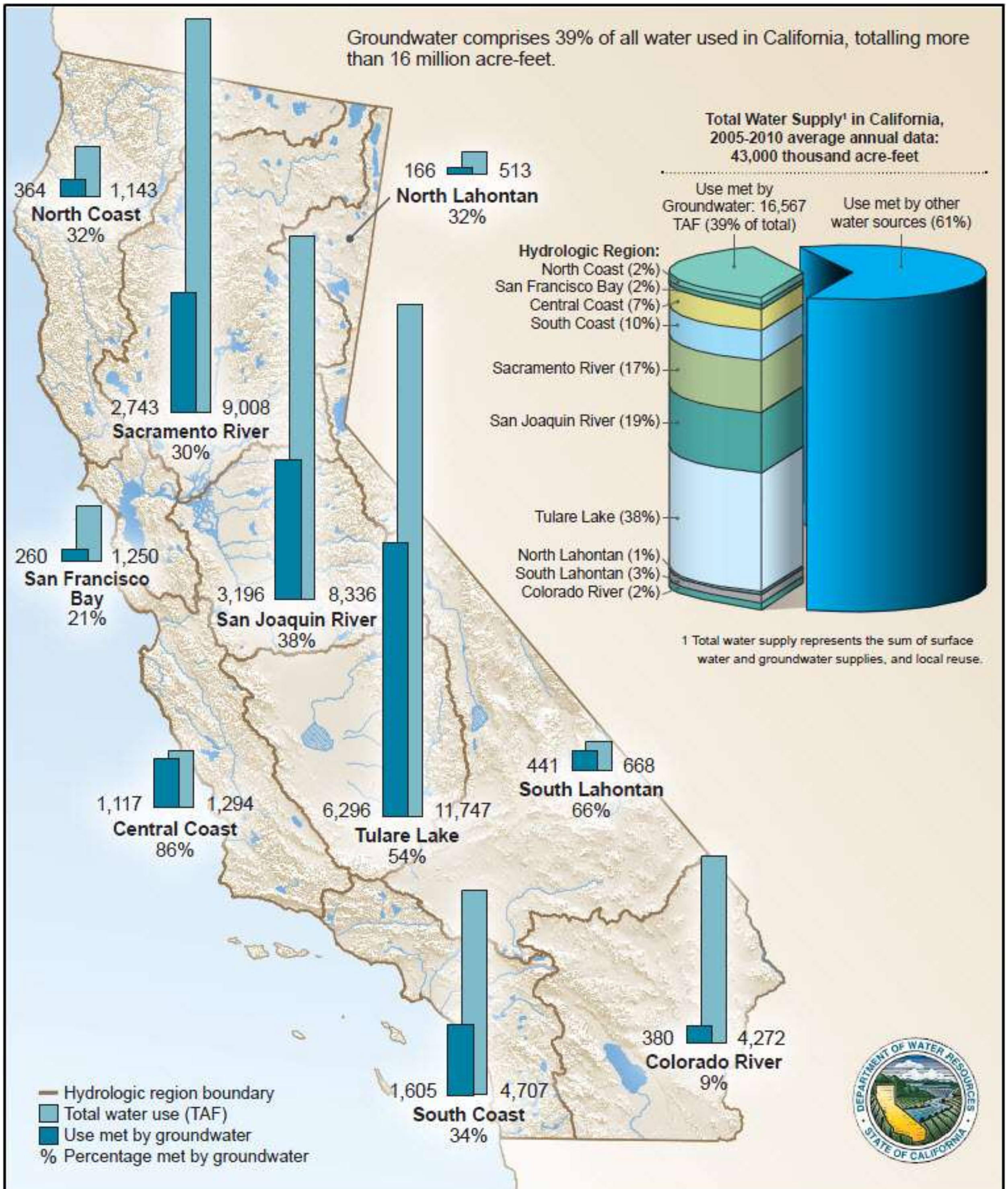
The amount of groundwater use relative to surface water use also varies over time. In years of greater precipitation and runoff, more surface water is available to replenish groundwater basins and fractured bedrock; whereas, in dry years when less surface water is available, groundwater is relied upon to meet water demands. The practice of using surface water when available and relying more heavily on groundwater when surface water becomes scarce is known as conjunctive water use or conjunctive water management. Under conjunctive water management, during wet seasons or years, surface water replenishes groundwater basins and water levels in wells typically increase. During dry seasons or dry years, more groundwater is extracted and water levels in wells typically decline.

The decline of water levels in a groundwater basin may be a sign that water use is outpacing the short-term recharge of that groundwater basin. However, in dry years the basin may be managed such that groundwater is extracted, lowering water levels until more recharge is available in the next wet year. To be able to discern whether a groundwater basin may be in shortage, groundwater levels must be analyzed over a time period that includes dry and wet years. Some groundwater basins hold vast amounts of water with decades or centuries of water supply in the basin. Even for a basin that exhibits overdraft conditions, groundwater may not be in shortage. The activity of deepening water wells is an indicator that water levels have declined to a point where a well no longer supplies adequate water. Groundwater levels at historical lows may also be an indicator that water use in the current drought is causing a greater decline in water levels than in previous dry years or droughts.

Figure 2 - Bulletin 118-03 Alluvial Groundwater Basins

Map based on groundwater basin boundaries established in *Bulletin 118 Update 2003*, Department of Water Resources

Figure 3 - Contribution to California Water Supply by Hydrologic Region



Source: *Draft California Water Plan Update 2013*, Department of Water Resources

4.1 Groundwater Well Deepening Activity

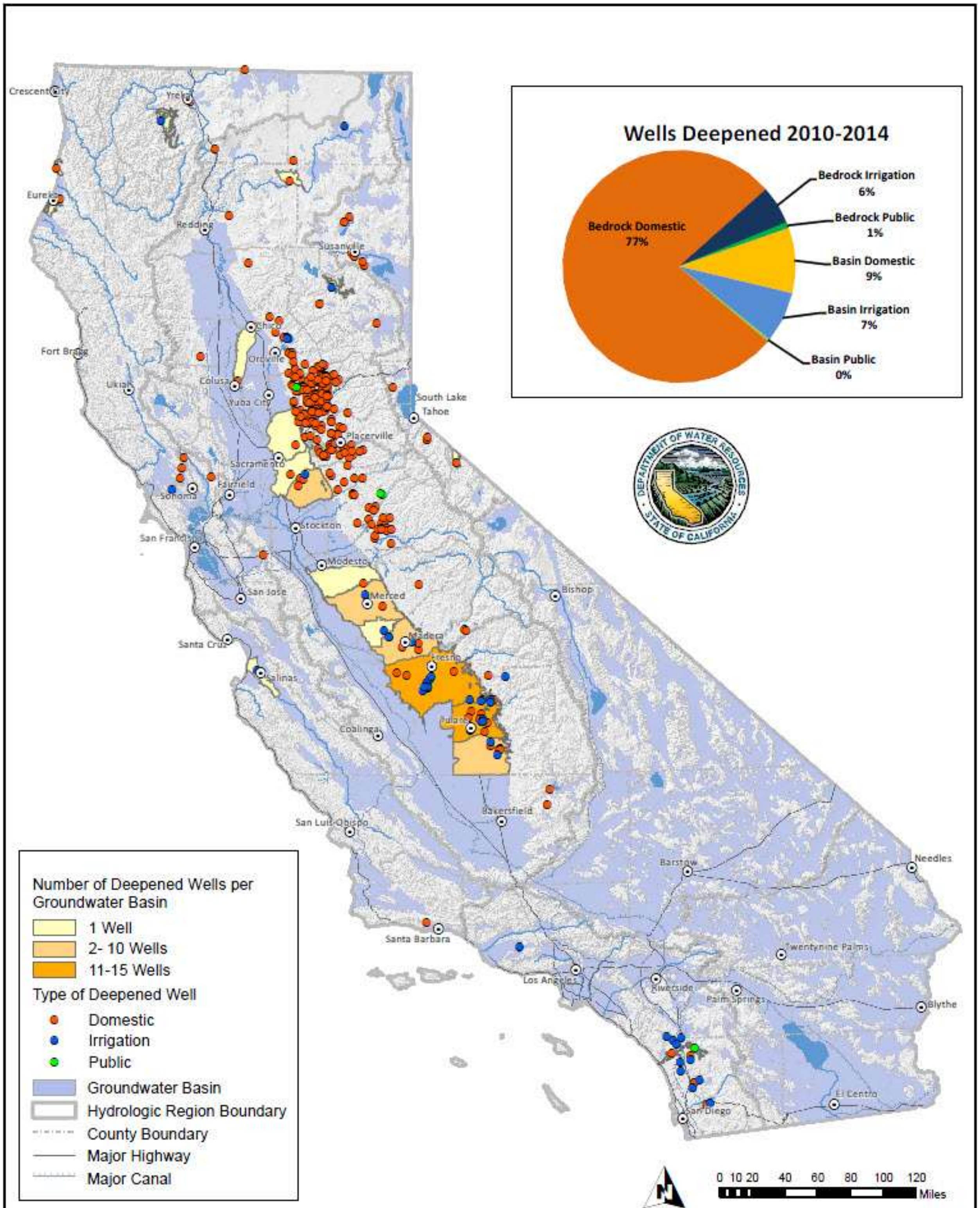
Groundwater levels typically decline during drought, and when groundwater levels decline below the level of the pump in a water well, the pump must be lowered. If groundwater levels decline to the point where the pump cannot be lowered, the yield is too small, or the well goes dry, a well owner may need to deepen the existing well or potentially drill a new well. Analysis of well completion reports (driller's logs) submitted by water well drillers can provide information about where the effects of drought may result in a water shortage.

New water wells are drilled during both wet and dry periods, including droughts. It is likely that wells are deepened primarily during dry periods when groundwater levels are declining, well yields are decreasing, or wells dry. As such, a correlation exists between the deepening of water wells and drought-related water shortages. However, there are limitations with the analysis as well completion reports do not discern if a new well is drilled to replace an existing well or if it is drilled to provide additional or new water supply.

DWR analyzed available well completion reports for water wells that were deepened from 2010 through early 2014. The analysis identified the location of each well and determined whether the well is in a defined groundwater basin or in an area of fractured bedrock. The analysis also determined whether the well is for domestic use, irrigation, or public water supply. Figure 4 depicts the locations of water wells that were deepened from 2010 through early 2014. Table 1 shows the totals for each type of water well that was deepened, by county, and whether the wells are in a groundwater basin or in an area of fractured bedrock. About 86 percent of the wells deepened are for domestic water supply, about 13 percent of the wells are for irrigation, and one (1) percent of the wells are for public water supply. About 16 percent of the wells deepened are in alluvial groundwater basins, whereas 84 percent of the wells deepened are in fractured bedrock areas. The greatest concentration of deepened wells is found in the foothill areas of Nevada, Placer, and El Dorado counties.

Table 2 shows the totals and types of water wells deepened in alluvial groundwater basins. The Kaweah and Kings subbasins have the greatest number of deepened wells. About 55 percent of the water wells deepened in groundwater basins are for domestic supply, about 43 percent of the wells are for irrigation, and two (2) percent (one well) are for public supply. The groundwater basins where water wells were deepened are highlighted on Figure 4.

Figure 4 - Water Wells Deepened 2010-2014



Data evaluated from well completion reports showing deepening received and processed by April 10, 2014. Well deepening is interpreted to indicate declining water supply in wells. Basins illustrated are interpreted to be more likely to have water shortages. Data may not be complete statewide. Data subject to change.

Table 1 - Counties with Wells Deepened from 2010 through early 2014

	Wells in Alluvial Groundwater Basins			Wells in Fractured Bedrock			Total
County	**Domestic**	**Irrigation**	**Public**	**Domestic**	**Irrigation**	**Public**	
Alameda				1			1
Alpine				3			3
Amador				6			6
Butte				12	2		14
Calaveras				11		2	13
Del Norte	1						1
El Dorado				41			41
Fresno	5	6		3	1		15
Humbolt	2						2
Kern				2			2
Lassen				8			8
Madera	4	2		1	2		9
Merced	2	1					3
Modoc		1		1			2
Mono	1						1
Monterey		1					1
Napa				2			2
Nevada				90			90
Placer	1			43			44
Plumas	1	1		1			3
Sacramento	4	1		1			6
San Diego			1	5	11		17
Santa Barbara				1			1
Shasta	1			1			2
Sierra				1			1
Siskiyou		1		3			4
Sonoma				2	1		3
Tulare	10	10		1	2		23
Tuolumne				17			17
Ventura		1					1
Yuba				16		1	17
Total	**32**	**25**	**1**	**273**	**19**	**3**	**353**

Findings of this analysis support a conclusion that water wells in areas of fractured bedrock are more vulnerable to water shortages than wells in groundwater basins. This conclusion is consistent with observations made during previous droughts in California (www.water.ca.gov/waterconditions). The findings of this analysis are based on available well completion reports submitted to DWR as of April 11, 2014 and those reports that were readily available for obtaining information on well deepening. There are likely additional records of deepened wells not included herein as well completion reports may be submitted up to 60 days after work is completed. Moreover, in some places, well owners may have decided to drill a new well rather than deepen an existing well. Consequently, the magnitude of possible shortages and the extent of the areas with possible water shortages may be greater than this analysis reflects.

Table 2 - Groundwater Basins with Wells Deepened from 2010 through early 2014

Hydrologic Region	Basin Number	Basin/Subbasin	Domestic	Irrigation	Public	Total
North Coast	1-5	Scott River Valley		1		1
	1-9	Eureka Plain	1			1
	1-27	Big Lagoon Area	1			1
Central Coast	3-4.01	Salinas Valley - 180/400 Foot Aquifer		1		1
Sacramento River	5-2	Alturas Area		1		1
	5-5	Fall River Valley	1			1
	5-9	Indian Valley		1		1
	5-21.58	Sacramento Valley - West Butte	1			1
	5-21.64	Sacramento Valley - North American	1			1
	5-21.65	Sacramento Valley - South American	1			1
	5-95	Meadow Valley	1			1
San Joaquin River	5-22.03	San Joaquin Valley - Turlock	1			1
	5-22.04	San Joaquin Valley - Merced	1	1		2
	5-22.05	San Joaquin Valley - Chowchilla		1		1
	5-22.06	San Joaquin Valley - Madera	4	1		5
	5-22.16	San Joaquin Valley - Cosumnes	3	1		4
Tulare Lake	5-22.08	San Joaquin Valley - Kings	5	7		12
	5-22.11	San Joaquin Valley - Kaweah	6	7		13
	5-22.13	San Joaquin Valley - Tule	4	2		6
North Lahontan	6-7	Antelope Valley	1			1
South Coast	4-15	Tierra Rejada		1		1
	9-7	San Luis Rey Valley			1	1
Total			**32**	**25**	**1**	**58**

4.2 Groundwater Reliance

California Water Code Section 10933 requires DWR to prioritize California's groundwater basins and subbasins (as identified in Bulletin 118-03). In January 2014, DWR released the draft CASGEM basin prioritization process and results for public review. The final basin prioritization process and results are expected to be completed by May 2014 (www.water.ca.gov/groundwater/casgem).

To identify groundwater basins with potential water shortages, DWR used the draft CASGEM basin prioritization results related to groundwater reliance. For the CASGEM basin prioritization process, analysis of groundwater reliance included consideration of the total annual volume of groundwater use, the annual volume of groundwater use per acre, and the percent to which groundwater contributes to the overall water supply for the basin.

Using the available CASGEM data, this analysis to identify potential groundwater shortages focused on 1) basins with high groundwater use (groundwater use greater than 0.61 acre-feet per acre), and 2) basins with a high groundwater reliance relative to overall supply (groundwater reliance greater than 61 percent). A total of 36 groundwater basins (Table 3) have a moderately high or a high degree of both groundwater use and groundwater reliance. As such, these basins may possess greater potential to incur water shortages as a result of drought. Figure 1 depicts the locations of these 36 basins. The basins exist in five hydrologic regions: North Coast (2), Central Coast (17), Sacramento River (5), Tulare Lake (1), and South Coast (11). These 36 basins account for a total of about 2.54 million acres of land and a population of approximately 6.18 million. Although the basins listed in Table 3 are heavily reliant on groundwater, some of the basins are less likely than others to experience water shortages because the basin is either adjudicated (Raymond, Chino, and San Gabriel Valley) or managed by a water district (Coastal Plain of Orange County) that actively monitors and controls groundwater extraction.

Table 3 - Groundwater Basins with High Groundwater Reliance

Basin Number	Basin	Subbasin	Hydrologic Region
1-3	Butte Valley		North Coast
1-10	Eel River Valley		North Coast
3-1	Soquel Valley		Central Coast
3-2	Pajaro Valley		Central Coast
3-4.01	Salinas Valley	180/400 Foot Aquifer	Central Coast
3-4.02	Salinas Valley	East Side Aquifer	Central Coast
3-4.04	Salinas Valley	Forebay Aquifer	Central Coast
3-4.05	Salinas Valley	Upper Valley Aquifer	Central Coast
3-4.09	Salinas Valley	Langley Area	Central Coast
3-7	Carmel Valley		Central Coast
3-8	Los Osos Valley		Central Coast
3-9	San Luis Obispo Valley		Central Coast
3-12	Santa Maria		Central Coast
3-37	Villa Valley		Central Coast
3-38	Cayucos Valley		Central Coast
3-39	Old Valley		Central Coast
3-40	Toro Valley		Central Coast
3-41	Morro Valley		Central Coast
3-42	Chorro Valley		Central Coast
4-13	San Gabriel Valley		South Coast
4-23	Raymond		South Coast
5-14	Scotts Valley		Sacramento River
5-15	Big Valley		Sacramento River
5-21.51	Sacramento Valley	Corning	Sacramento River
5-21.57	Sacramento Valley	Vina	Sacramento River
5-21.58	Sacramento Valley	West Butte	Sacramento River

Table 3 - Groundwater Basins with High Groundwater Reliance (Cont.)

Basin Number	Basin	Subbasin	Hydrologic Region
5-22.13	San Joaquin Valley	Tule	Tulare Lake
8-1	Coastal Plain of Orange County		South Coast
8-2.01	Upper Santa Ana Valley	Chino	South Coast
8-2.04	Upper Santa Ana Valley	Rialto-Colton	South Coast
8-2.05	Upper Santa Ana Valley	Cajon	South Coast
8-2.06	Upper Santa Ana Valley	Bunker Hill	South Coast
8-2.07	Upper Santa Ana Valley	Yucaipa	South Coast
8-7	Big Meadows Valley		South Coast
9-4	Santa Margarita Valley		South Coast
9-10	San Pasqual Valley		South Coast

Note: Groundwater Use >0.61 acre-feet per acre and Groundwater Supply >61 percent of Total Supply

4.3 Groundwater Levels

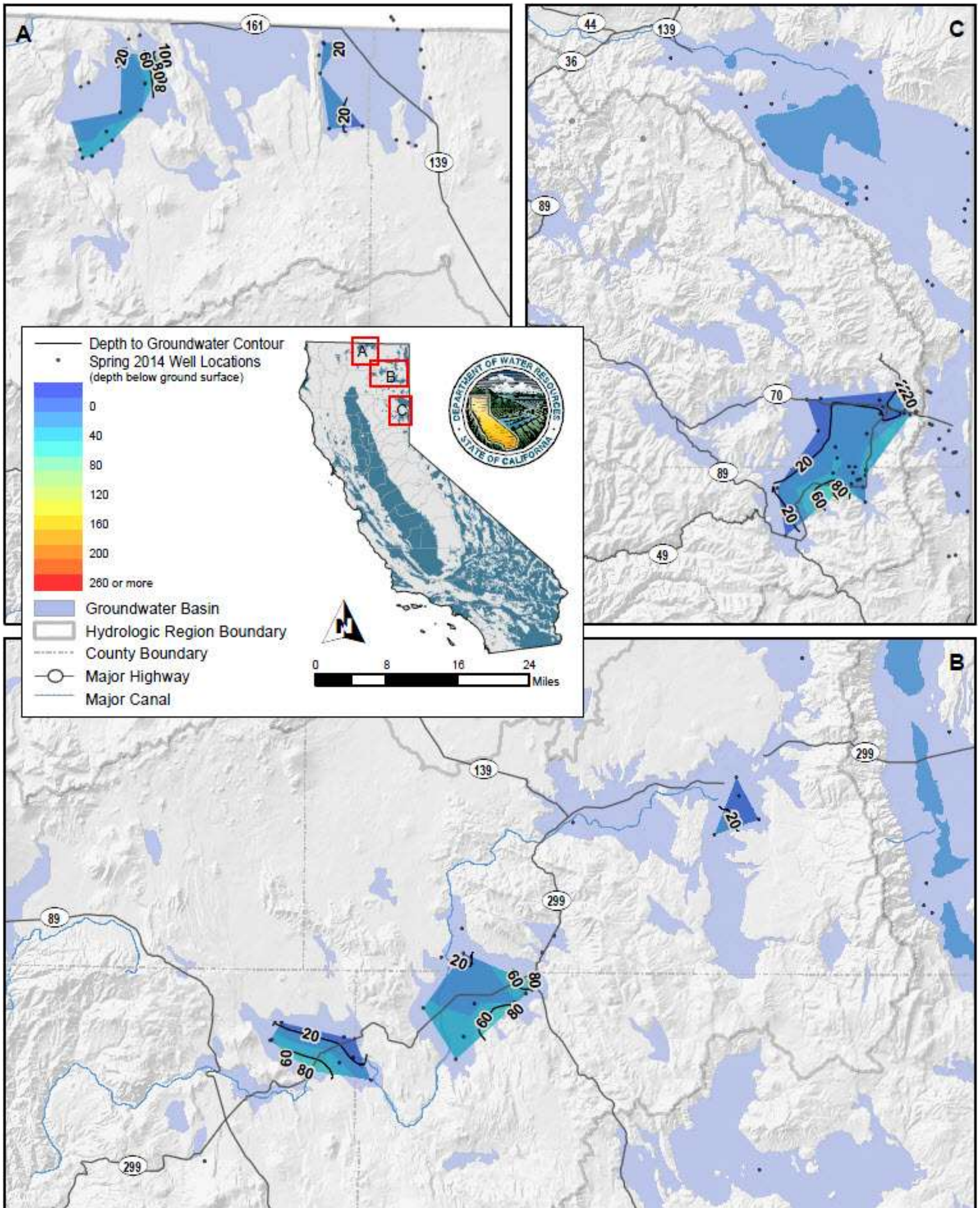
Groundwater level measurement data are often analyzed using maps and graphs to illustrate and evaluate current or past groundwater conditions, groundwater level trends, or changes in groundwater conditions between two monitoring periods. Preparation and review of groundwater level data provides important information about where groundwater shortages could exist, and where more data are needed. Areas with relatively low groundwater levels may be more vulnerable to groundwater shortages in dry years. Also, areas or regions with declining groundwater levels may be susceptible to groundwater shortages in the future.

The maps and figures developed for this Update rely on groundwater level measurements collected during the spring. In California, spring measurements typically depict the highest groundwater elevations for the year, at a time just prior to the irrigation season and after groundwater levels have had an opportunity to rebound from winter precipitation and snowmelt. Fall measurements typically reflect groundwater conditions after the irrigation season is over and prior to winter precipitation when groundwater levels in many basins are expected to be at or near their lowest levels for the year. The groundwater level maps prepared for this Update include available data as of April 15, 2014.

Depth to groundwater contour maps use lines of equal depth to depict where the top of the groundwater surface is relative to land surface. These maps are particularly useful when considering installation of dedicated groundwater monitoring wells or the design and operating costs of new production wells. Depth to groundwater information is also useful when compared to construction depths of existing domestic and production wells. The analysis of groundwater levels can help identify areas with wells that may be impacted by the continued decline of groundwater levels. Figures 5 through 8 depict spring 2014 depth to groundwater contours for selected basins in California. The areas selected were based on the density of available data and the ability to illustrate representative contours.

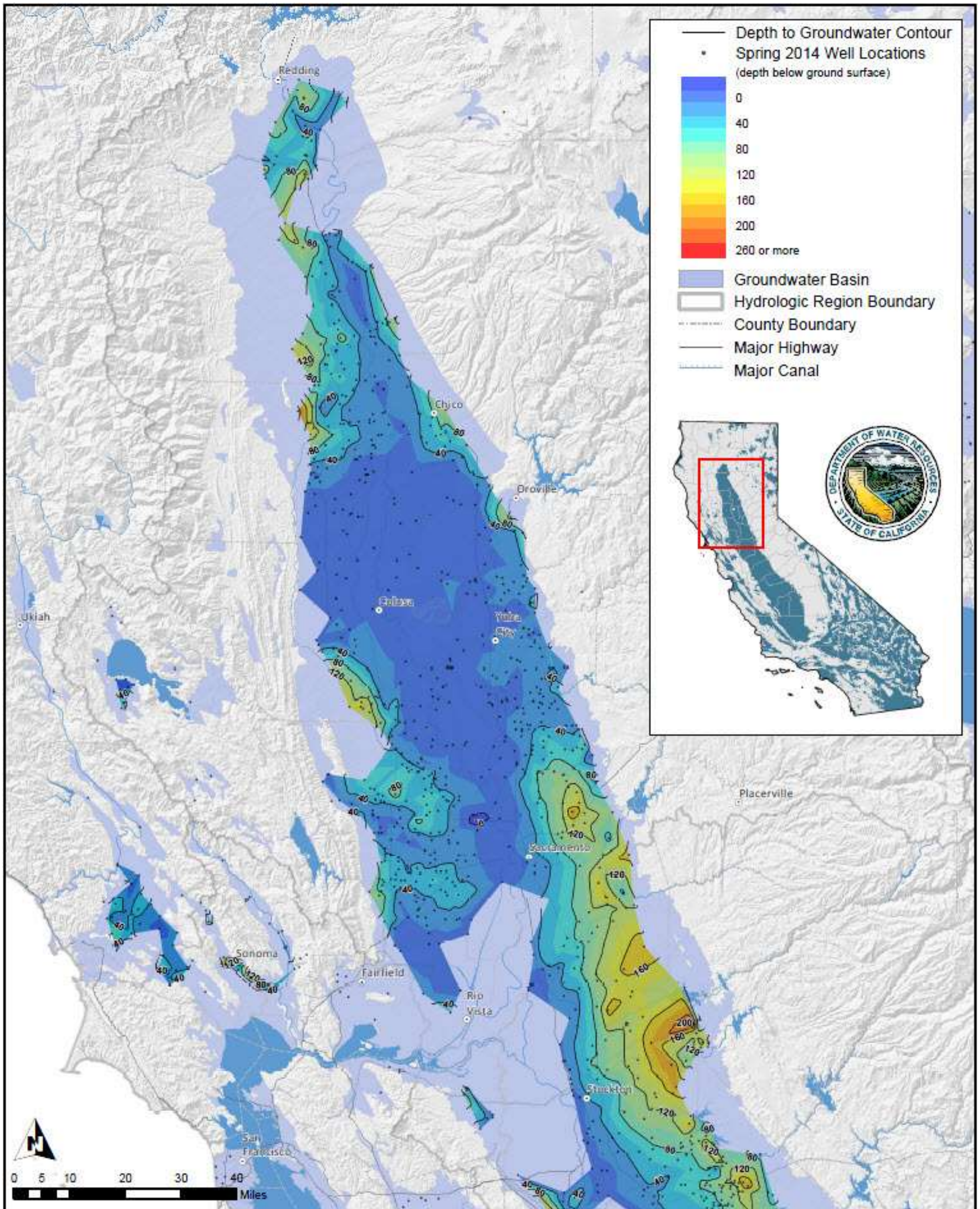
Groundwater level change maps depict the difference between groundwater levels over a specified time period. Plotting the difference between groundwater level measurements collected at different times and at discrete locations is a simple way to depict changes in groundwater levels and evaluate regional trends. Figures 9 and 10 depict change of groundwater levels at well locations from spring 2013 to spring 2014 and from spring 2010 to spring 2014, respectively. Based on the available data, groundwater levels have decreased in nearly all areas of the state since spring 2013, and more notably since spring 2010.

Figure 5 - Depth to Groundwater - Spring 2014
Selected Groundwater Basins in Northern California



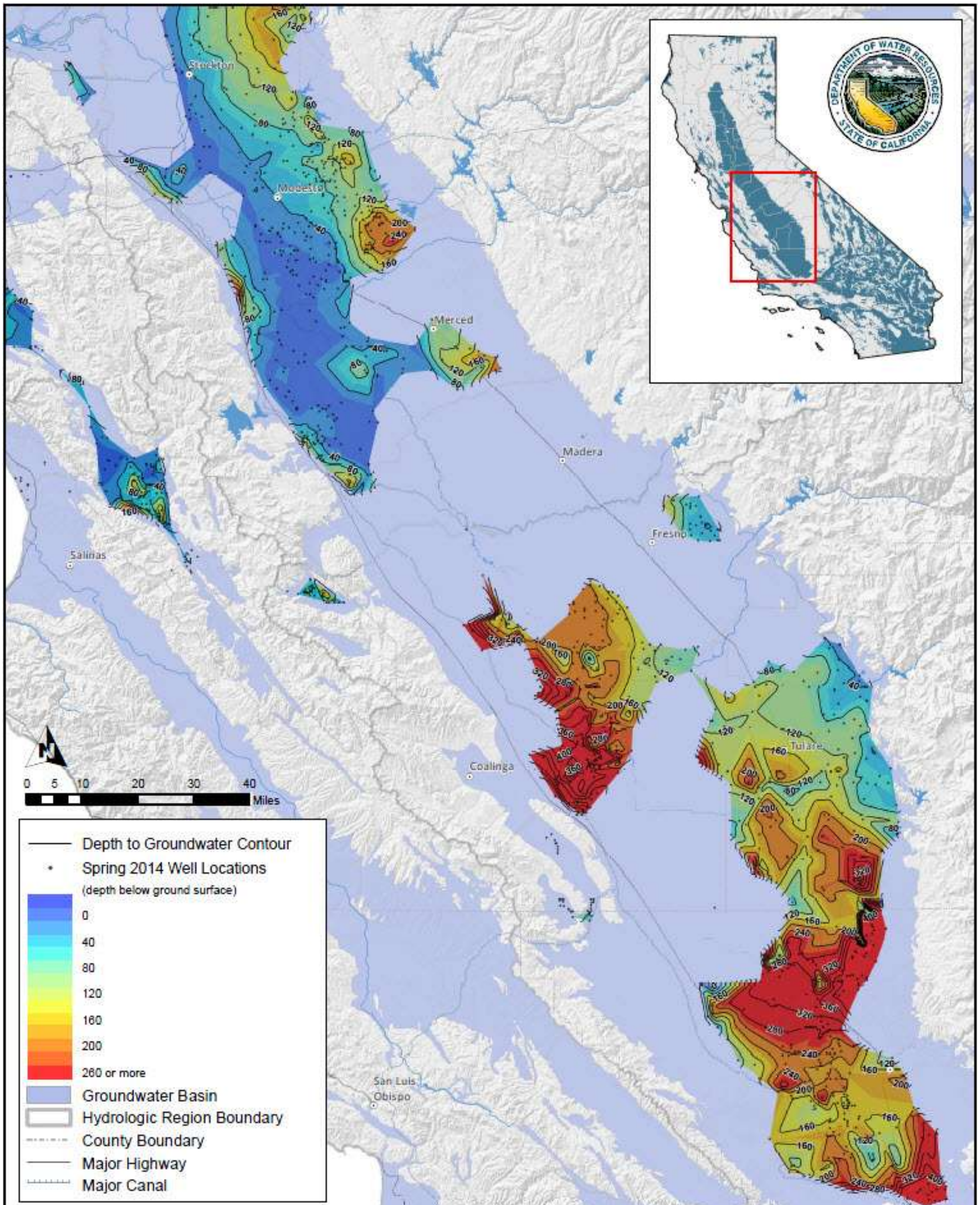
Depth to groundwater determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/15/2014. Document Name: S2014_DBGS_NorCal_20140422
Updated: 04/21/2014 Data subject to change without notice.

Figure 6 - Depth to Groundwater - Spring 2014
Selected Groundwater Basins in North Central California



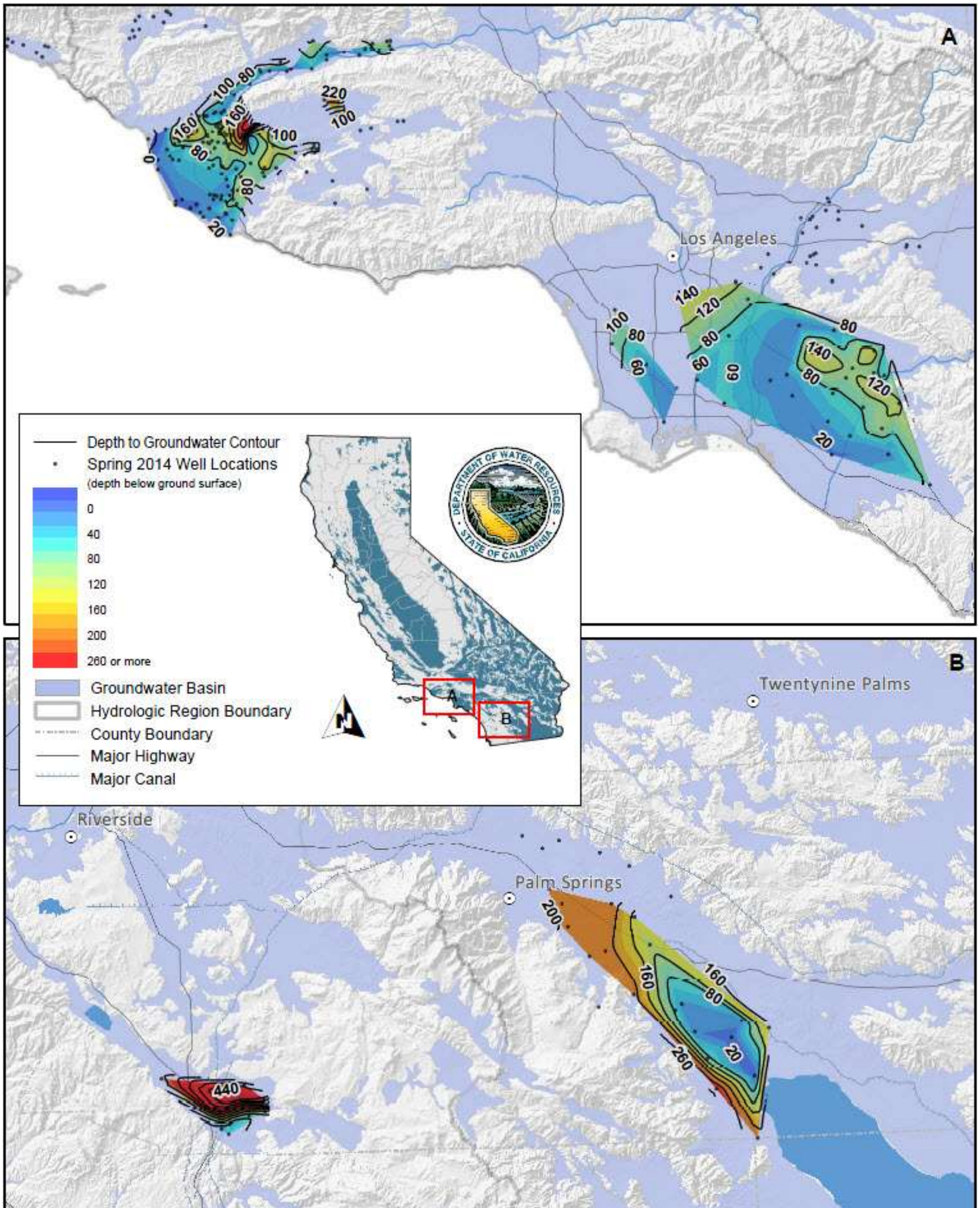
Depth to groundwater determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/16/2014. Document Name: S2014_DBGS_NorthCV_20140415
Updated: 04/21/2014 Data subject to change without notice.

Figure 7 - Depth to Groundwater - Spring 2014
Selected Groundwater Basins in South Central California



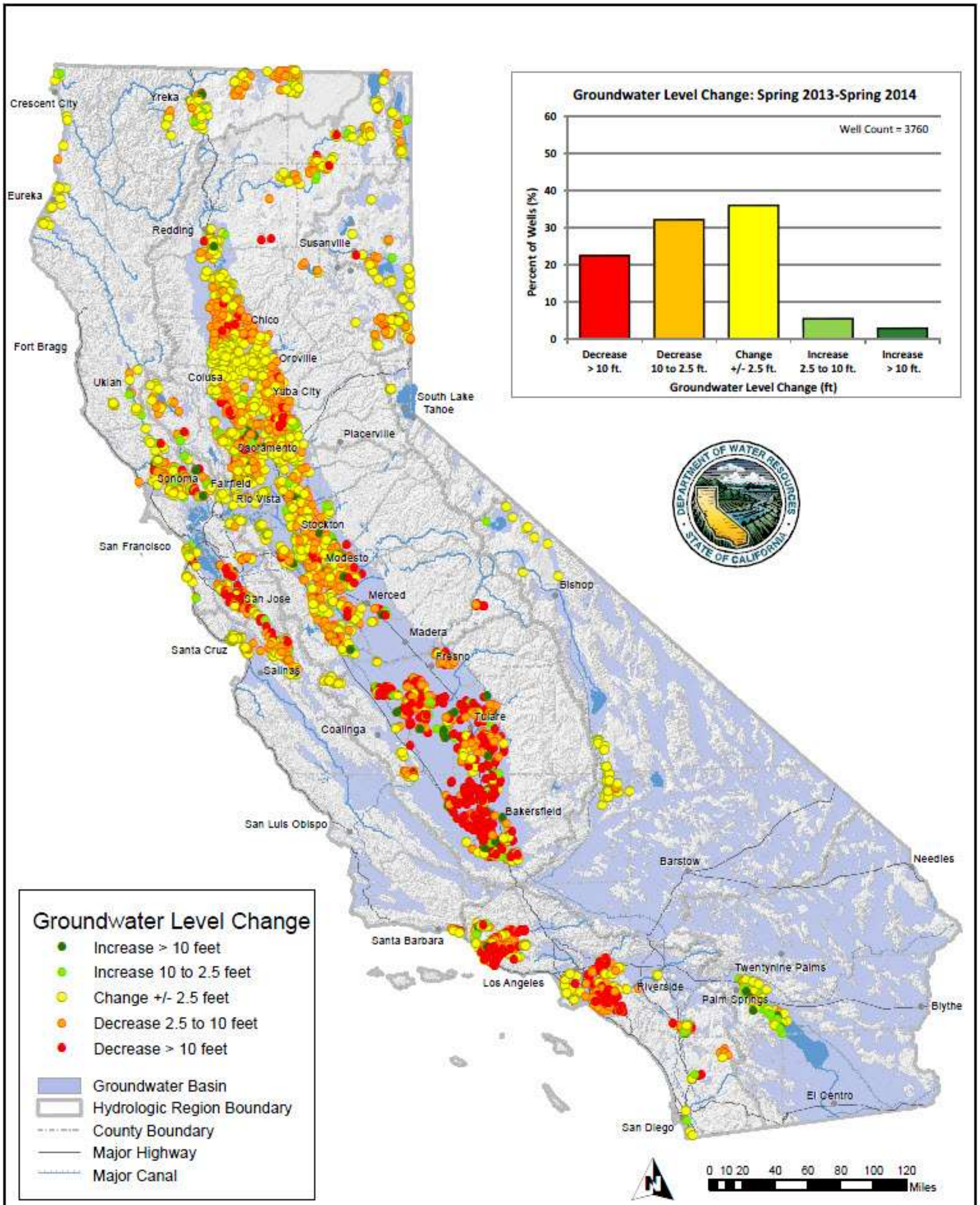
Depth to groundwater determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/16/2014. Document Name: S2014_DBGS_SouthCV_20140415
Updated: 04/21/2014 Data subject to change without notice.

Figure 8 - Depth to Groundwater - Spring 2014
Selected Groundwater Basins in Southern California



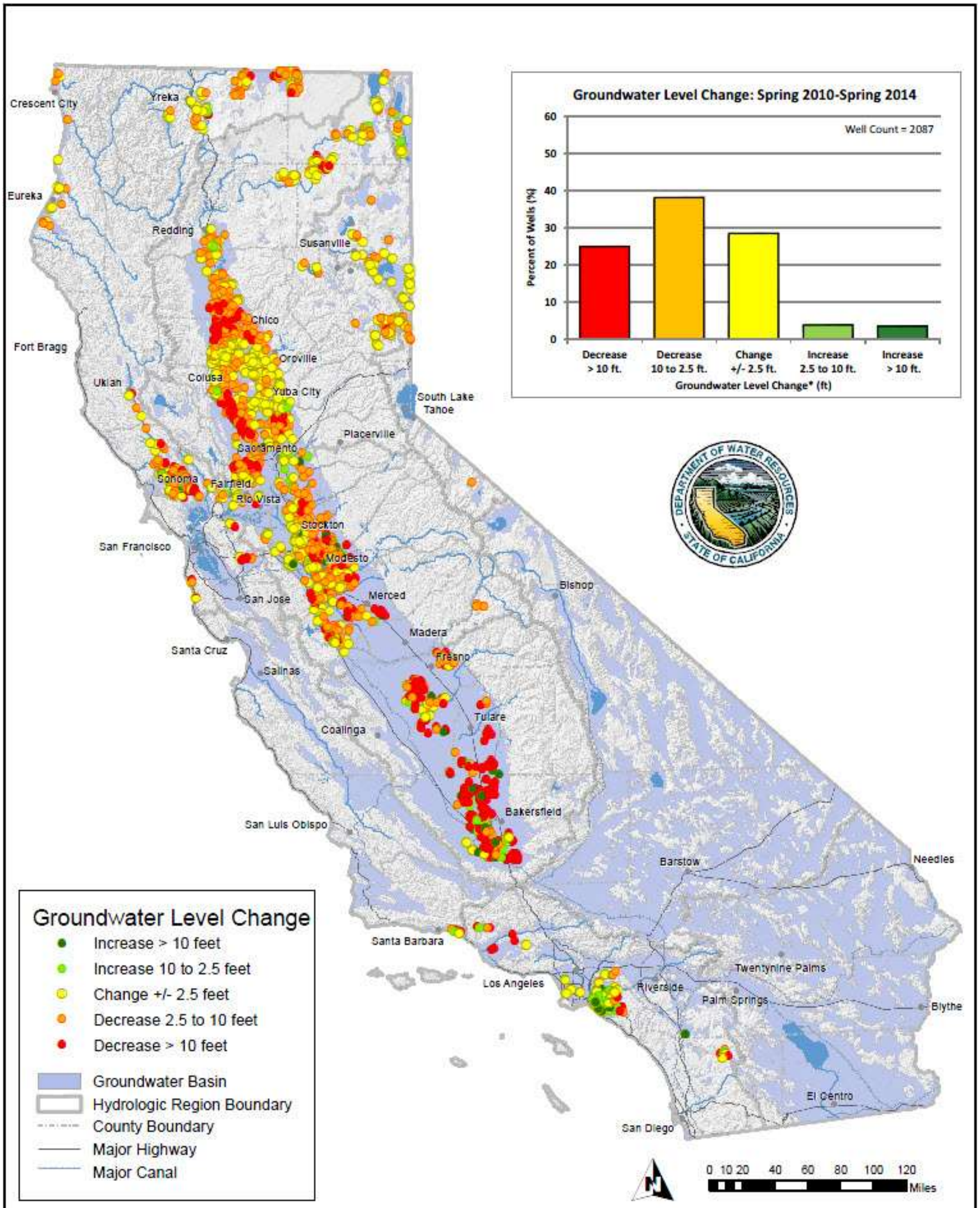
Depth to groundwater determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/16/2014. Document Name: S2014_DBGS_SoCal_20140415
Updated: 04/21/2014 Data subject to change without notice.

Figure 9 - Groundwater Level Change* - Spring 2013 to Spring 2014



*Groundwater level change determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/15/2014. Document Name: DOTMAP_S2013_S2014 Updated: 04/21/2014 Data subject to change without notice.

Figure 10 - Groundwater Level Change* - Spring 2010 to Spring 2014



*Groundwater level change determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/15/2014. Document Name: DOTMAP_S2010_S2014 Updated: 04/21/2014 Data subject to change without notice.

A more detailed method of evaluating regional differences in groundwater levels is through the use of groundwater contour change maps. Groundwater contour maps require data collected using guidelines related to the timing of data collection and the type of wells that are measured. Groundwater level change contours represent lines of equal groundwater level change. The shape, distribution, and extent of these contours also help identify the regional distribution and local magnitude of groundwater level changes. Furthermore, regional groundwater contour maps provide information about the groundwater levels where appropriate data exist and also illustrate where data is absent. Figures 11 and 12 depict regional change in groundwater levels for the Central Valley for spring 2013 to spring 2014.

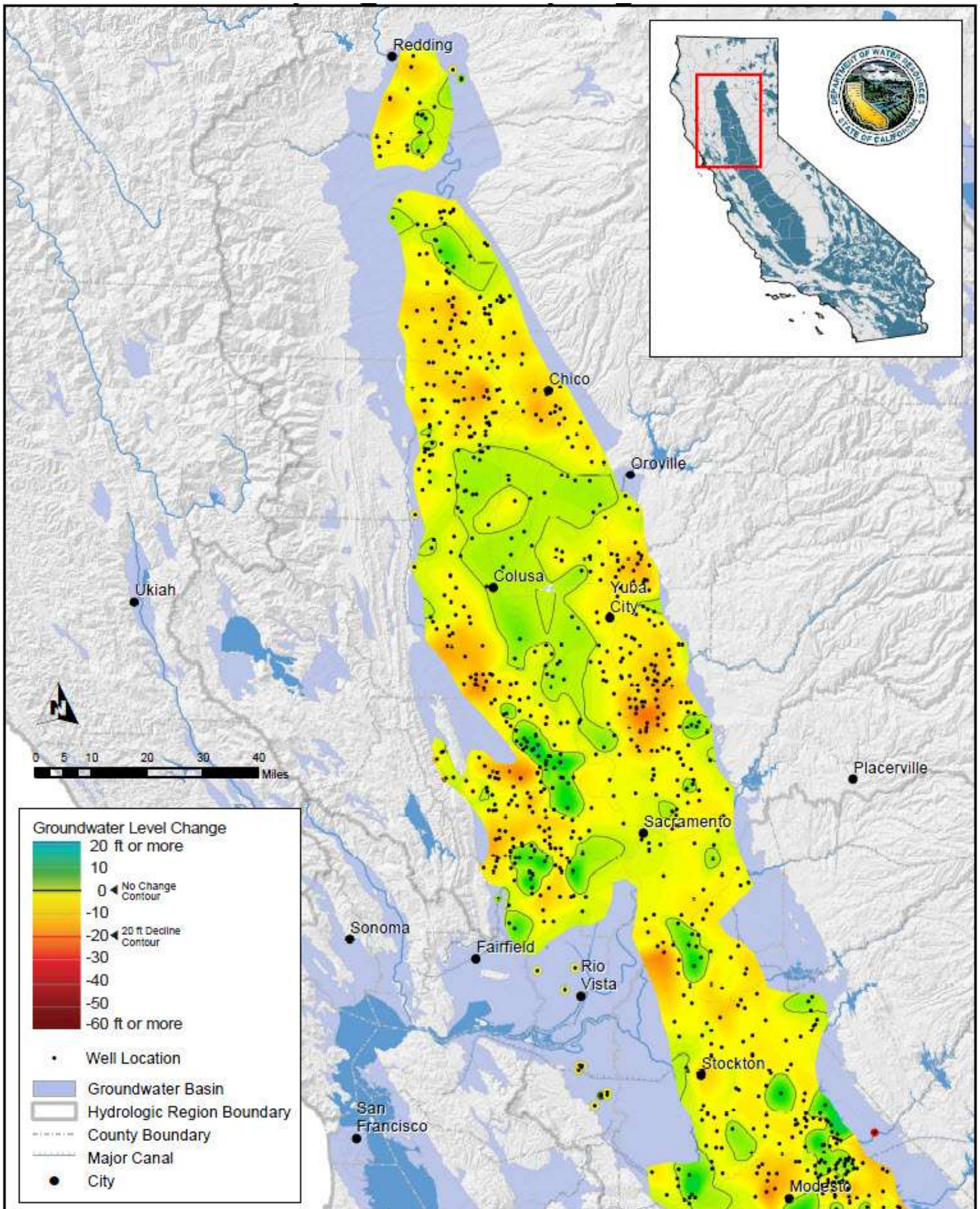
Analysis of historical groundwater levels at discrete locations was also completed to evaluate recent groundwater lows compared to former historical lows. Figure 13 depicts the comparison of historical low spring levels collected between spring 1900 to 1998 to more recent low spring levels collected between spring 2008 to 2014. Since spring 2008, groundwater levels are at all-time historical lows (for period of record) in most areas of the state and especially in the northern portion of the San Francisco Bay Hydrologic Region, the southern San Joaquin Valley, and also for the South Lahontan and South Coast hydrologic regions – these areas exhibit groundwater levels more than 50 feet below previous historical lows experienced sometime prior to 2000. There are many areas of the San Joaquin Valley where recent groundwater levels are more than 100 feet below previous historical lows.

4.4 Key Hydrographs

Hydrographs depict groundwater levels for a specific well plotted over time. These graphs allow for the analysis of seasonal and long-term groundwater level variability and trends over the time period of record. For this Update, some of the same wells and hydrographs used for the draft Bulletin 160 *California Water Plan Update 2013* (www.waterplan.water.ca.gov/cwpu2013) were updated with recent groundwater level data. Due to the highly variable nature of the aquifer systems within each groundwater basin, and the effects of annual groundwater availability, recharge, and surrounding land use practices, the hydrographs presented herein are not intended to illustrate or depict aquifer conditions over a broad region. The selected hydrographs are intended to portray how the local groundwater levels respond to changing conditions over time and how the local aquifer has responded to recent drought conditions.

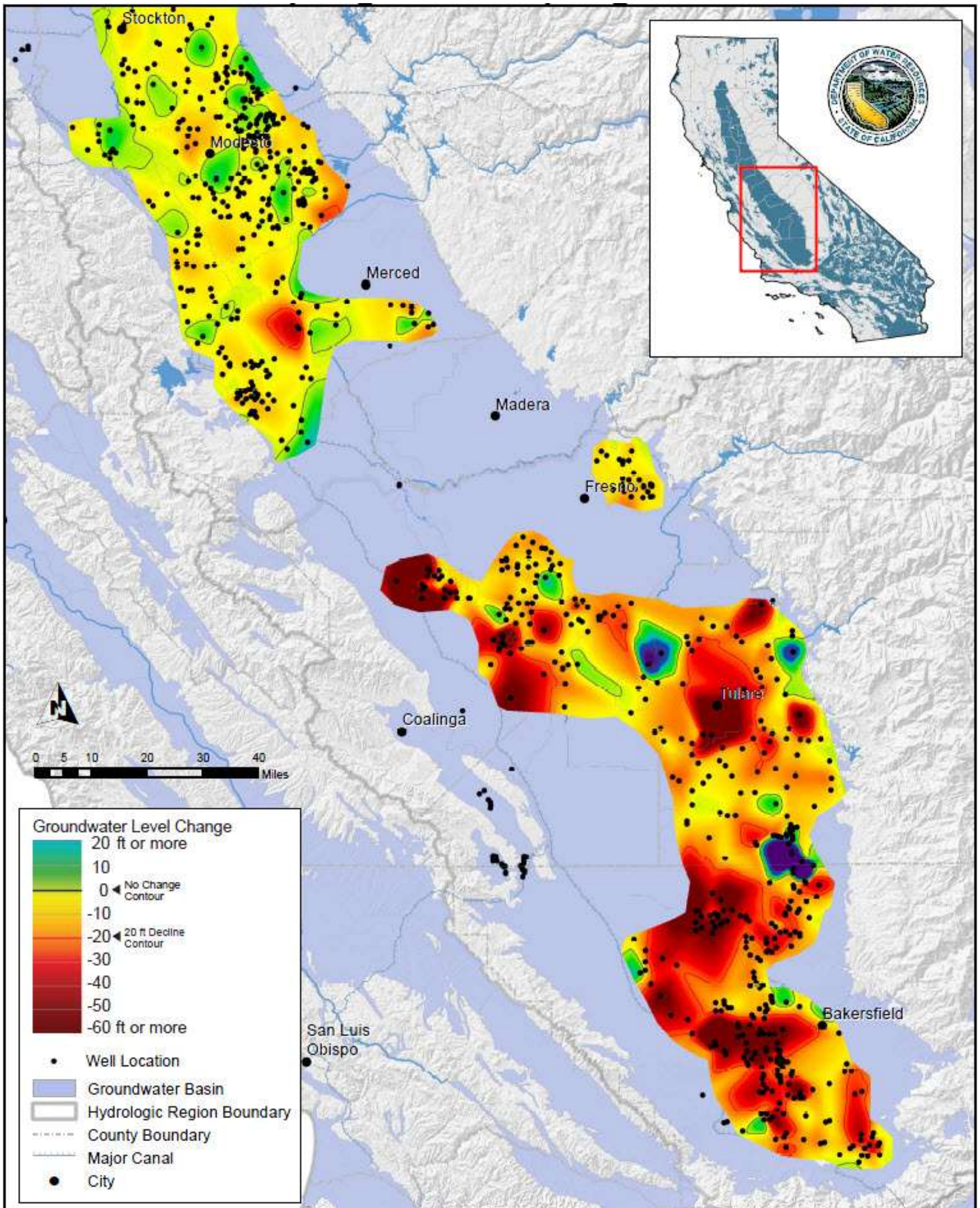
The wells selected for this analysis had spring 2013 and/or spring 2014 groundwater data available as of April 9, 2014. There are a total of 12 wells and six hydrologic regions included herein. The selection of wells is not exhaustive, yet they illustrate response to current drought conditions. The spring measurements typically indicate the previous year’s total groundwater extractions minus any recharge to the aquifer. Lower recharge due to dry conditions in 2012 and 2013 is expected to cause a reduction of groundwater in the aquifers, which is reflected in lower groundwater elevations. For each hydrologic region, the location of the wells and corresponding hydrographs are shown in Figures 14 through 19. The hydrographs are designated according to the State Well Number System (SWN), which identifies each well by its location using the Public Land Survey System of township, range, section, and tract. The following narratives correlate with the selected wells and hydrographs, grouped by hydrologic region.

Figure 11 - Groundwater Level Change – Northern Central Valley, Spring 2013 to Spring 2014



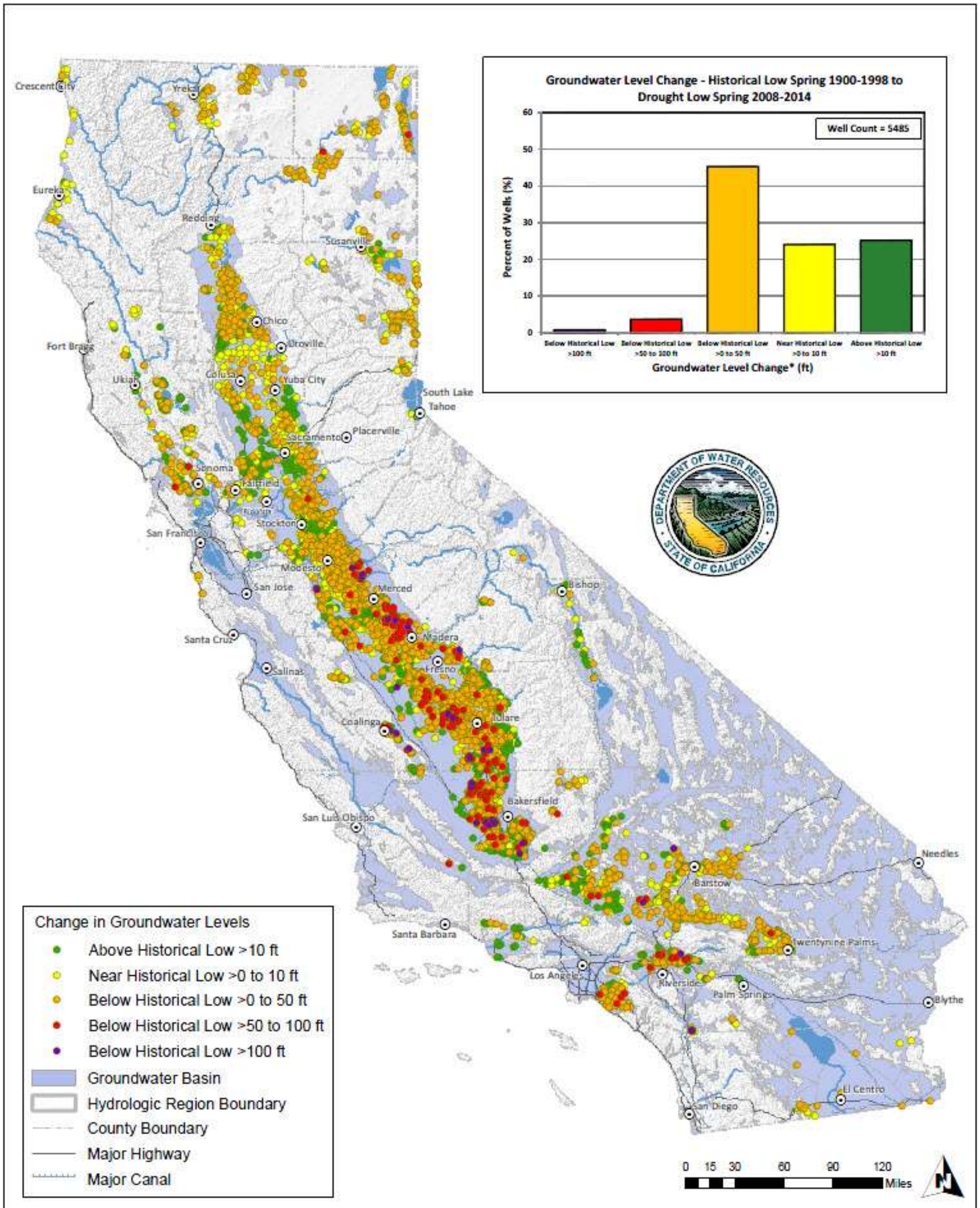
Depth to groundwater determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/16/2014. Document Name: S2013toS2014_NCV_20140416
Updated: 04/21/2014 Data subject to change without notice.

Figure 12 - Groundwater Level Change – Southern Central Valley, Spring 2013 to Spring 2014



Depth to groundwater determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/16/2014. Document Name: S2013toS2014_SCV_20140416
Updated: 04/21/2014 Data subject to change without notice.

Figure 13 - Groundwater Level Change* – Historical Low Spring 1900-1998 to Drought Low Spring 2008-2014



*Groundwater level change determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 04/15/2014. Document Name: Historical_Low_Spring_Map_Final
Updated: 04/23/2014 Data subject to change without notice.

North Coast Hydrologic Region – Figure 14

Hydrograph 48N03E34N001M is for an irrigation well in the Tule Lake Subbasin of Klamath River Valley in the northern part of the state near the Oregon border. Relatively stable water levels existed through 2008 followed by declining levels through 2013 with a slight recovery during 2010 and 2011. For this well, the groundwater levels declined nearly 17 feet from 2008 to 2013.

Hydrograph 43N06W33C001M is for an irrigation well in the Shasta Valley Basin near the town of Gazelle in northern California. Water levels generally declined with some increase during the mid-1980s and late 1990s wet year periods. From 2011 to 2013, water levels declined about seven feet.

Hydrograph 07N09W35D002M is for a domestic well in the Santa Rosa Plain Subbasin (Santa Rosa Valley) in the city of Sebastopol, north of San Francisco. Relatively stable water levels have persisted throughout the record except during the 1976-1977 drought. Recently, the water levels declined about seven feet from 2010 to 2013.

San Francisco Bay Hydrologic Region– Figure 15

Hydrograph 05N06W02N002M is for a domestic well in the Sonoma Valley Subbasin (Napa-Sonoma Valley) in the city of El Verano, northwest of Sonoma. The surrounding area is agricultural. Water levels in this well generally show a long-term decline of about two feet per year. The water levels were relatively stable from 1974 to 2000, followed by declining water levels through 2014. The water levels have declined nearly 20 feet since 2012.

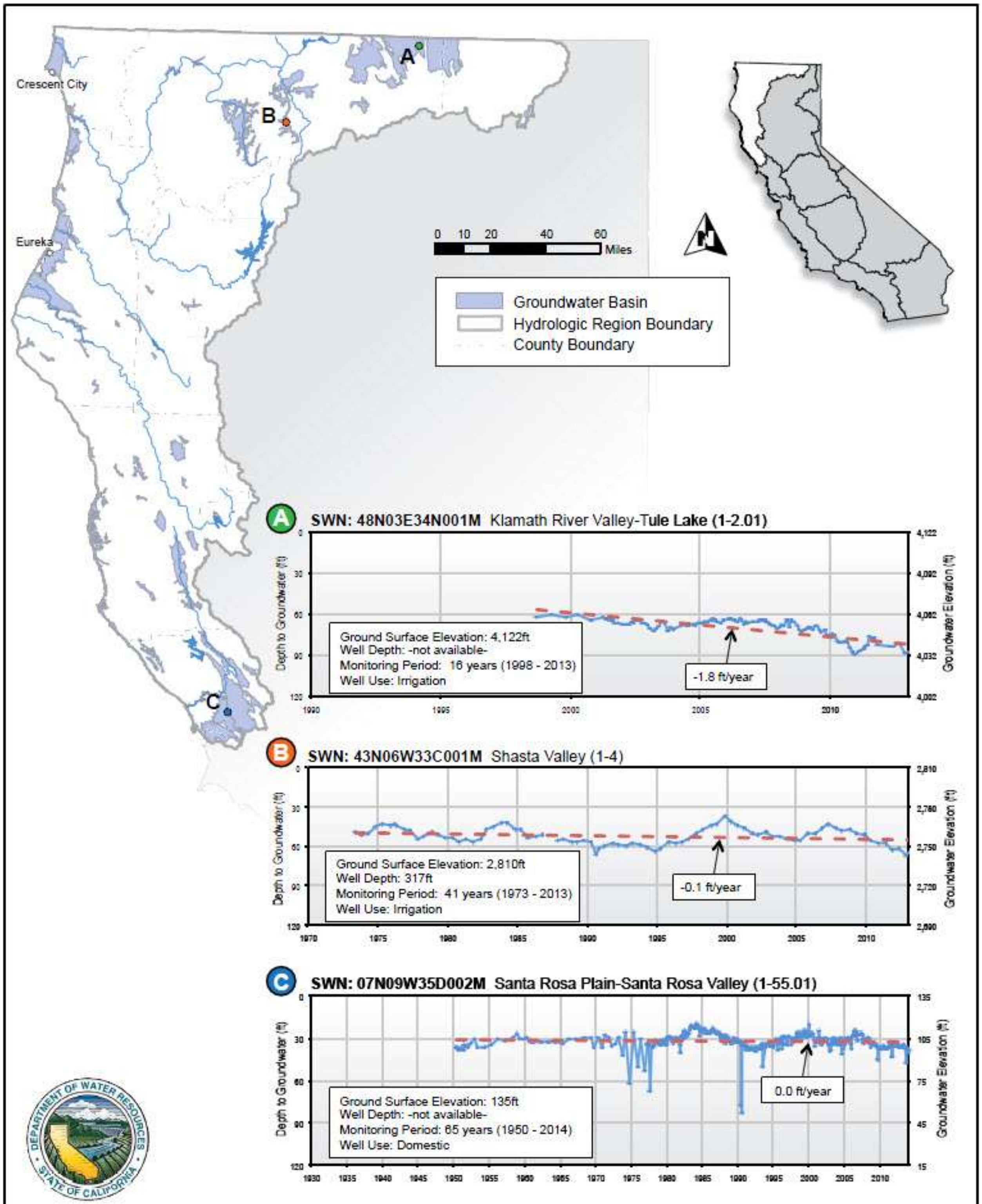
Sacramento River Hydrologic Region– Figure 16

Hydrograph 38N07E23E001M is for a domestic well in the Big Valley Basin. The Big Valley area is occupied by rural cattle ranching and hay cropping and is largely dependent on groundwater for irrigation during dry years. Water levels have fluctuated between about five to eight feet during average water years, and between about 15 to 20 feet during drought periods. Historical spring groundwater levels show gradual decline associated with the 1987-1993 drought and partial recovery after 2001. Declining water levels over time indicate that groundwater extraction is exceeding aquifer recharge in this area. Some water level recovery is noted during the 2010 and 2011 water years, yet water levels declined about 18 feet from 2012 to 2013.

Hydrograph 21N03W33A004M is for an irrigation well in the Colusa Subbasin (Sacramento Valley) in Glenn County between Orland and Willows. Water levels generally declined during the 1970s and prior to import of surface water through the Tehama-Colusa Canal. During the 1980s, groundwater levels recovered due to import and use of surface water supply and because of the 1982 to 1984 wet water years. Water levels declined again in the 2008 drought period, followed by a brief recovery during 2010 to 2011, and then returning to 2008 levels (which are notably lower than the 1977-79 drought levels).

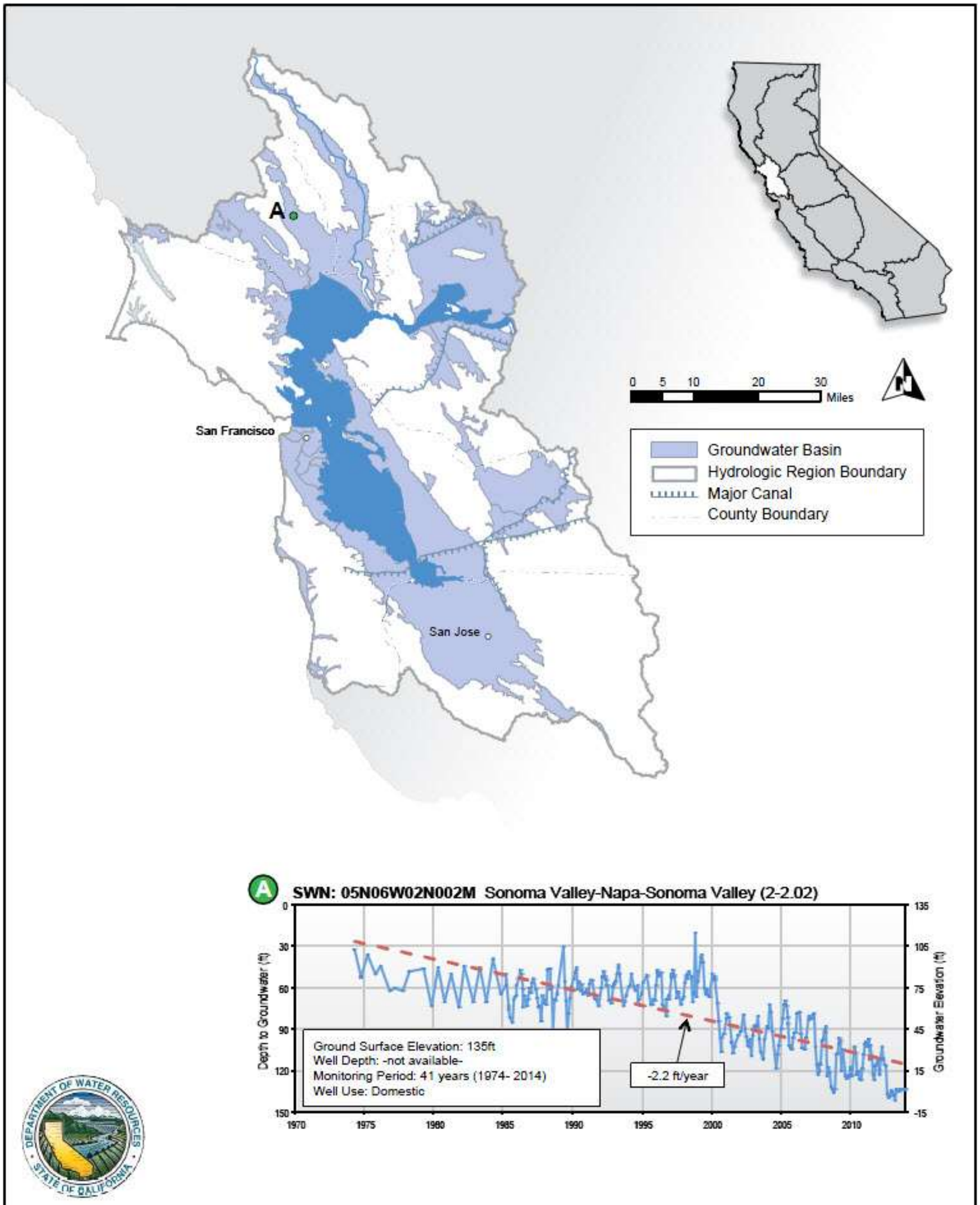
Hydrograph 15N03W01N001M is for an industrial well in the Colusa Subbasin (Sacramento Valley) in Colusa County, north of Williams. The surrounding area is agricultural. Groundwater levels generally declined until 1978 and then recovered during the 1982-1984 wet years. After the 2008-2009 drought, water levels declined to historical lows. Water levels recovered quickly during 2010 and 2011, then after returned to the trend of long-term decline.

Figure 14 - Selected Hydrographs – North Coast Hydrologic Region



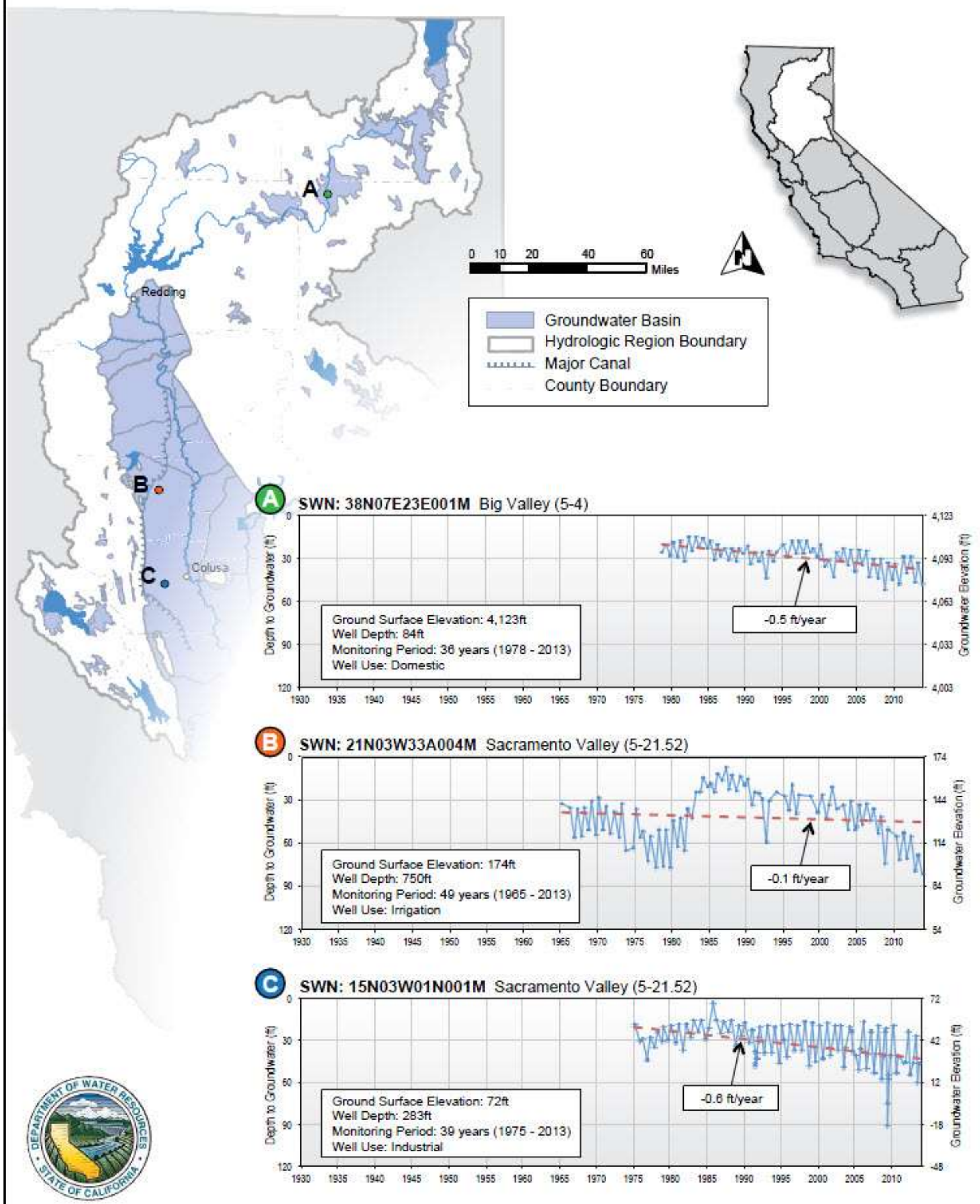
Hydrographs based on available data from the DWR Water Data Library as of April 9, 2014. Data subject to change.

Figure 15 - Selected Hydrographs – San Francisco Bay Hydrologic Region



Hydrographs based on available data from the DWR Water Data Library as of April 9, 2014. Data subject to change.

Figure 16 - Selected Hydrographs – Sacramento River Hydrologic Region



Hydrographs based on available data from the DWR Water Data Library as of April 9, 2014. Data subject to change.

San Joaquin River Hydrologic Region– Figure 17

Hydrograph 05S12E11G001M is for an irrigation well in the Turlock Subbasin (San Joaquin Valley) within the Eastside Water District, approximately 10 miles east of Turlock. The area lacks surface water and is solely dependent on groundwater. Water levels have generally declined over time. Water levels stabilized from about 1990 to 2002 likely due to utilization of efficient irrigation techniques. During 2003 and 2004, increased agricultural activity may have contributed to the declining water levels. From 2011 to 2013, the water levels declined nearly 20 feet. From 1970 to 2013, the water levels have declined a total of about 96 feet.

Hydrograph 11S10E24N001M is for an industrial well in the Delta-Mendota Subbasin (San Joaquin Valley) in western Merced County. Although water levels generally increased from 1960 to 2000, there has been a decline of almost 30 feet since 2001.

Tulare Lake Hydrologic Region– Figure 18

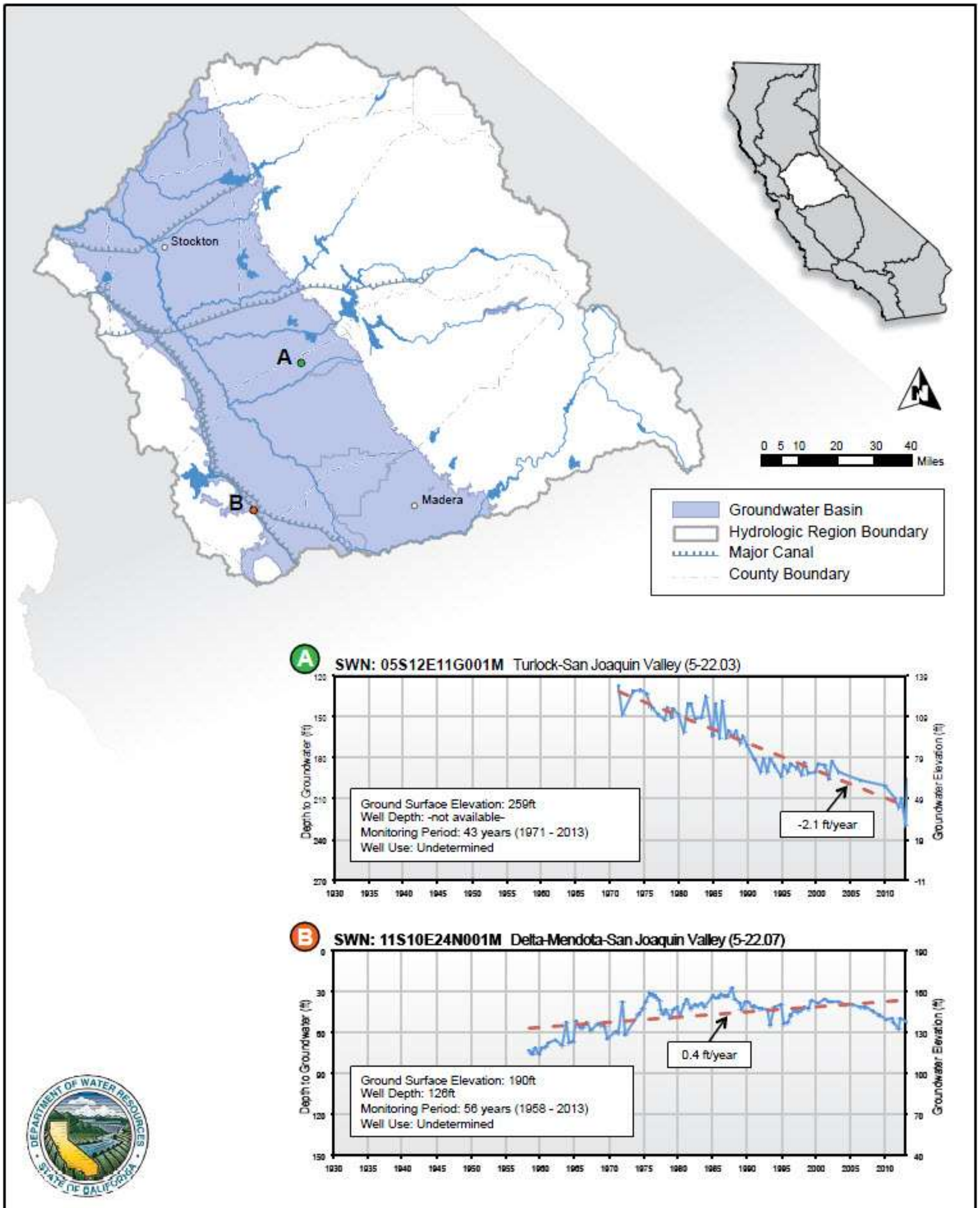
Hydrograph 25S26E16P001M is for an observation well in the Kern County Subbasin (San Joaquin Valley) near the Friant-Kern Canal in northern Kern County. Due to increased surface water deliveries from the Friant-Kern Canal and reduced demand on groundwater, water levels generally increased from the mid-1960s. Water levels declined slightly during 1977 and 1978 and then increased more than 30 feet during the wet years of the mid-1980s. From 1990 to 2006, the water levels remained relatively stable. Water levels declined in 2008 and 2009 then stabilized during the above average water years of 2010 and 2011. From 2007 to 2013, water levels declined a total of almost 60 feet.

North Lahontan Hydrologic Region– Figure 19

Hydrograph 29N12E16M002M is for a domestic well in the Honey Lake Valley Basin. Groundwater levels generally show a gradual decline over time, yet some recovery is noted after the 1976-1977 and the 1988-94 drought periods. Groundwater levels were at all-time lows after the 2008-2009 drought; about 25 feet below the water levels observed during the 1976-1977 drought and about 15 feet below the levels observed during the 1987-1992 drought. Water levels recovered and generally increased after the above average water year in 2011, and then declined again in 2012 and 2013 to near record lows.

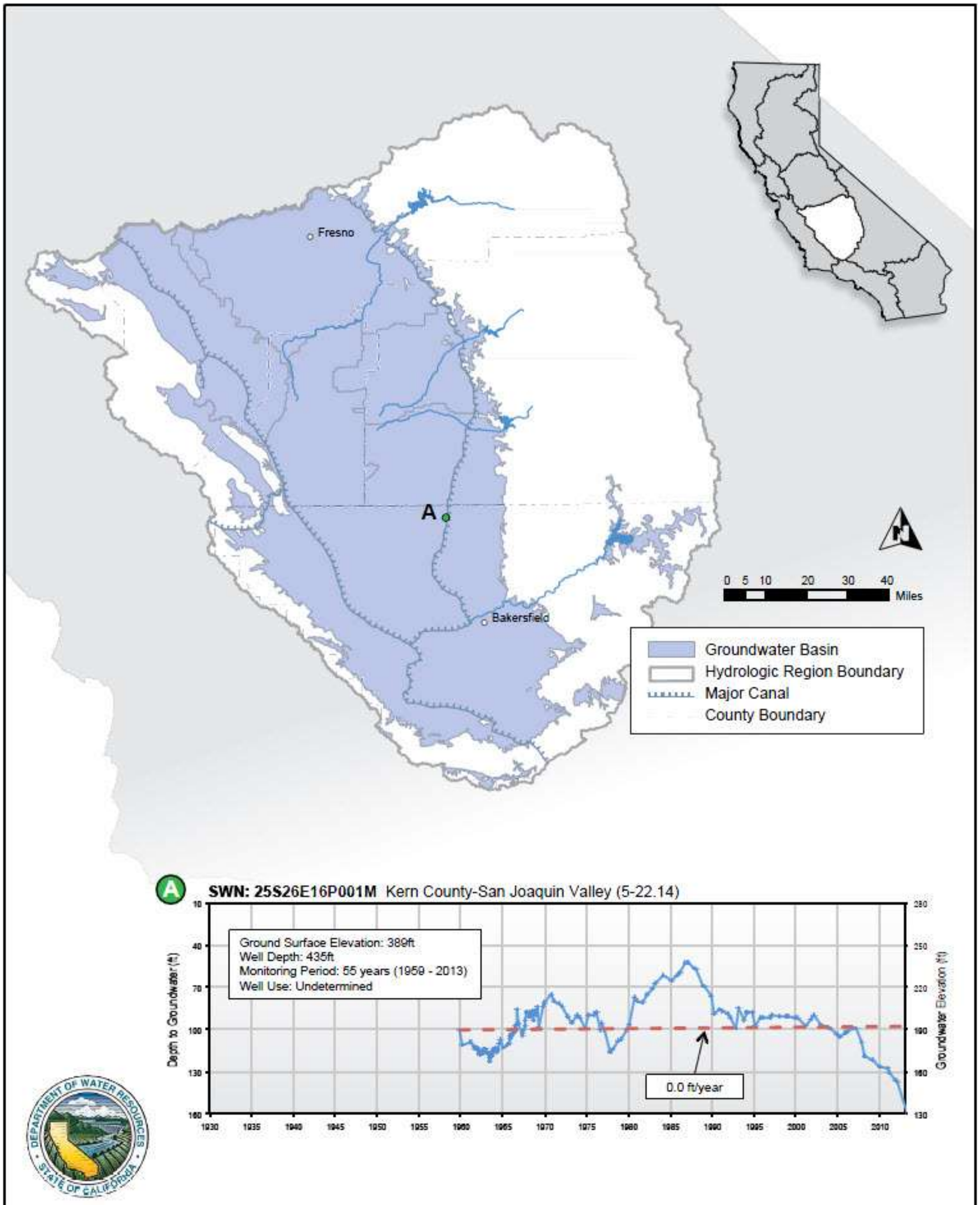
Hydrograph 17N17E29B001M is for an observation well in the Martis (Truckee) Valley Basin on the eastern edge of Truckee. Water levels were relatively stable through 2007 and then abruptly declined during the 2008-2009 drought period. Water levels recovered nearly 27 feet during the 2010 to 2011 above-average water year period, and then declined almost 30 feet during the 2012-2013 drought period.

Figure 17 - Selected Hydrographs – San Joaquin River Hydrologic Region



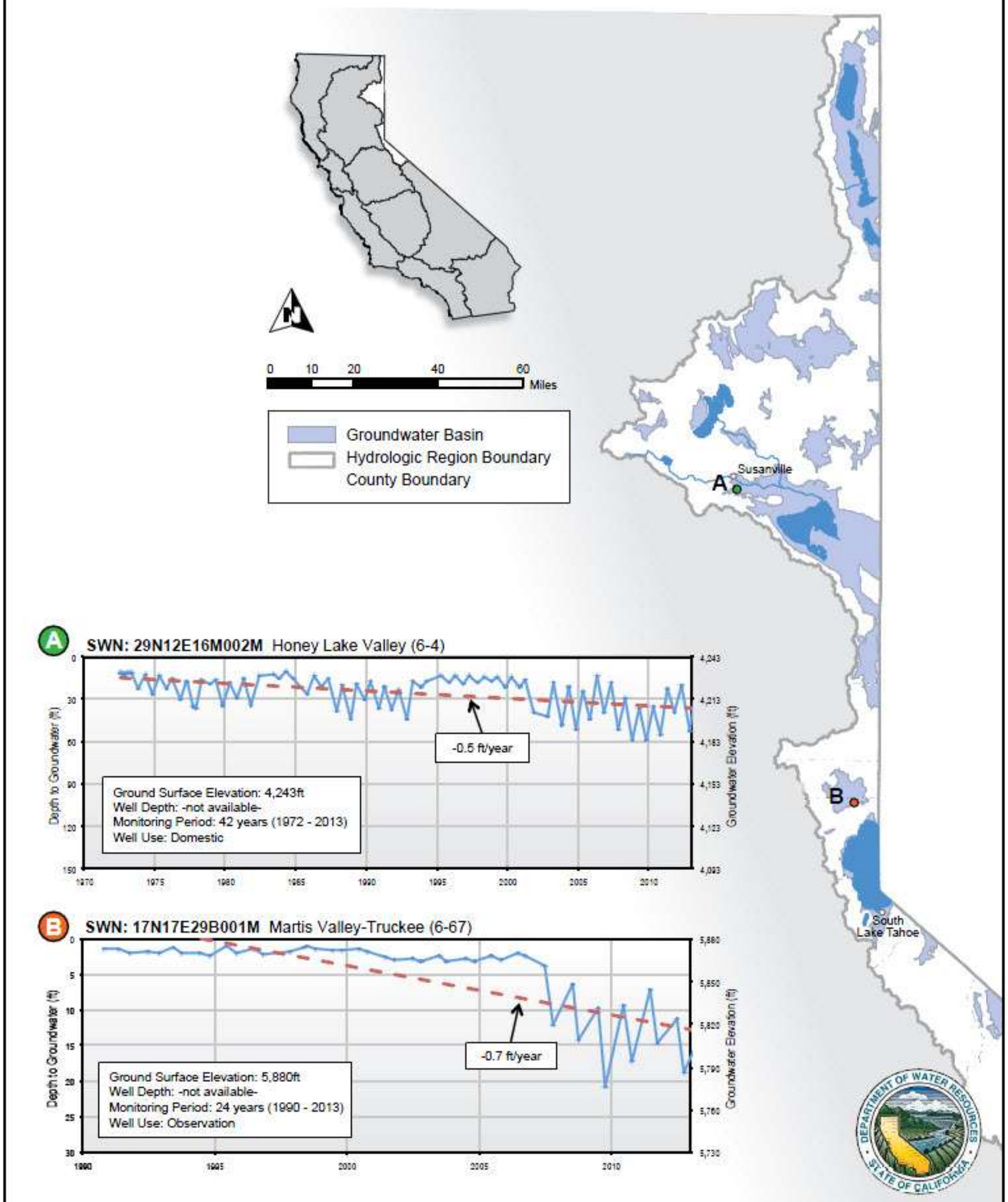
Hydrographs based on available data from the DWR Water Data Library as of April 9, 2014. Data subject to change.

Figure 18 - Selected Hydrographs – Tulare Lake Hydrologic Region



Hydrographs based on available data from the DWR Water Data Library as of April 9, 2014. Data subject to change.

Figure 19 - Selected Hydrographs – North Lahontan Hydrologic Region



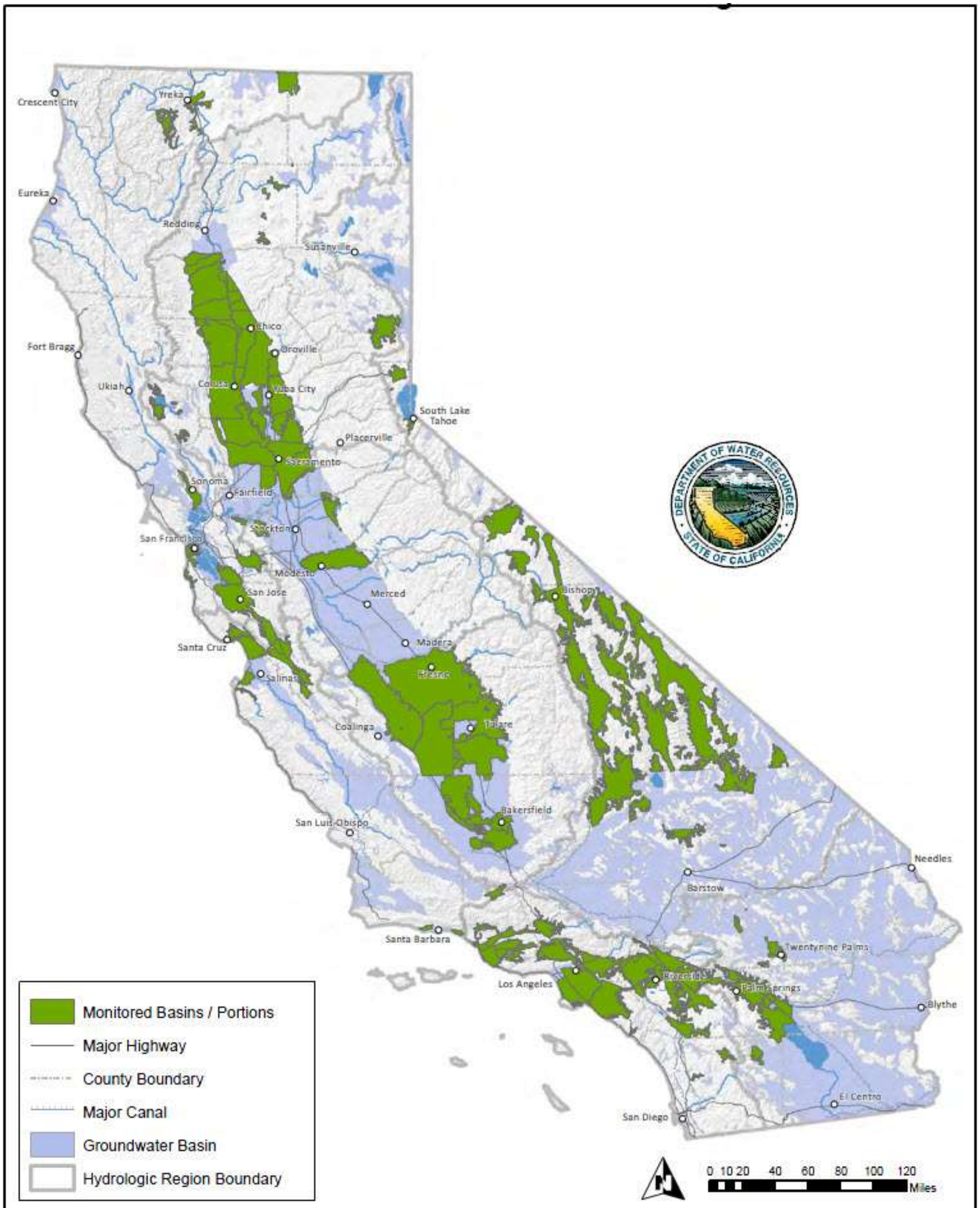
Hydrographs based on available data from the DWR Water Data Library as of April 9, 2014. Data subject to change.

5.0 GAPS IN GROUNDWATER MONITORING

A groundwater monitoring gap is an informal term indicative of insufficient data to reasonably assess and interpret groundwater conditions in an aquifer or in a basin. There are two primary gaps that can exist in groundwater monitoring data; spatial and temporal. Spatial data gaps exist where there is inadequate horizontal and/or vertical distribution of groundwater elevation data to accurately represent or assess aquifer conditions within an area of interest (groundwater basin). Sufficient vertical distribution of data is important in groundwater basins having multiple aquifer systems at various depths, and that may also be characterized by varying levels of confinement or changing groundwater elevations. A thorough understanding of a groundwater basin's hydrogeology is essential to assess whether or not the spatial distribution of monitoring wells is adequate for a basin. Groundwater elevation data collected at routine intervals can provide seasonal and long-term trends for a basin, which are essential for accurately estimating aquifer response and change in storage associated with changing hydrology, land use, total water supply, and effects of local groundwater management practices. Temporal data gaps exist when a consistent record of groundwater elevation data, recorded over regular time intervals, is not available.

Before the CASGEM Program originated in 2009, much of the available groundwater elevation data was sourced from the WDL database. This database contained information from wells monitored by DWR and numerous cooperating agencies. While the spatial coverage was adequate in some areas of the state, evaluation of groundwater levels during the 2009 drought conditions identified data gaps in groundwater level information for most basins. In addition, well construction information was not readily available to the public due to well log confidentiality, further limiting adequate analysis of groundwater conditions in some basins. Implementation of the CASGEM Program facilitated the submittal of groundwater elevation data for many areas of the state where data was previously unavailable (www.water.ca.gov/groundwater/casgem). Monitoring Entities within the CASGEM Program are required to provide well construction information (well depth and screen intervals) for their CASGEM wells, which allows the groundwater elevation data obtained from those wells to be analyzed with increased confidence (www.water.ca.gov/groundwater/casgem/entities.cfm). Monitoring Entities are also required to obtain well owner permission prior to including their wells in the CASGEM Program, as all related data is required to be publically available. Some well owners have expressed reluctance to provide permission to the Monitoring Entity to monitor their wells and publicly release the water level and well construction information. As a result, many CASGEM Monitoring Entities have not been able to readily address data gaps in their CASGEM monitoring networks. Absent the important combination of groundwater elevation data and associated well construction information, gaps will continue to exist in the CASGEM monitoring networks. Figure 20 illustrates the statewide distribution of groundwater basins monitored under the CASGEM Program as of April 8, 2014. Only 169 of the 515 alluvial groundwater basins/subbasins are fully or partially monitored under CASGEM.

Figure 20 - Groundwater Basins and Portions of Basins Monitored* under the CASGEM Program



*Groundwater basins, subbasins, and portions of basins that have CASGEM monitoring well networks or alternative monitoring programs, approved by DWR, are considered to be monitored. Based on available data, as of 4/08/2014. Updated 04/21/2014. Data subject to change without notice.

5.1 CASGEM Basin Prioritization

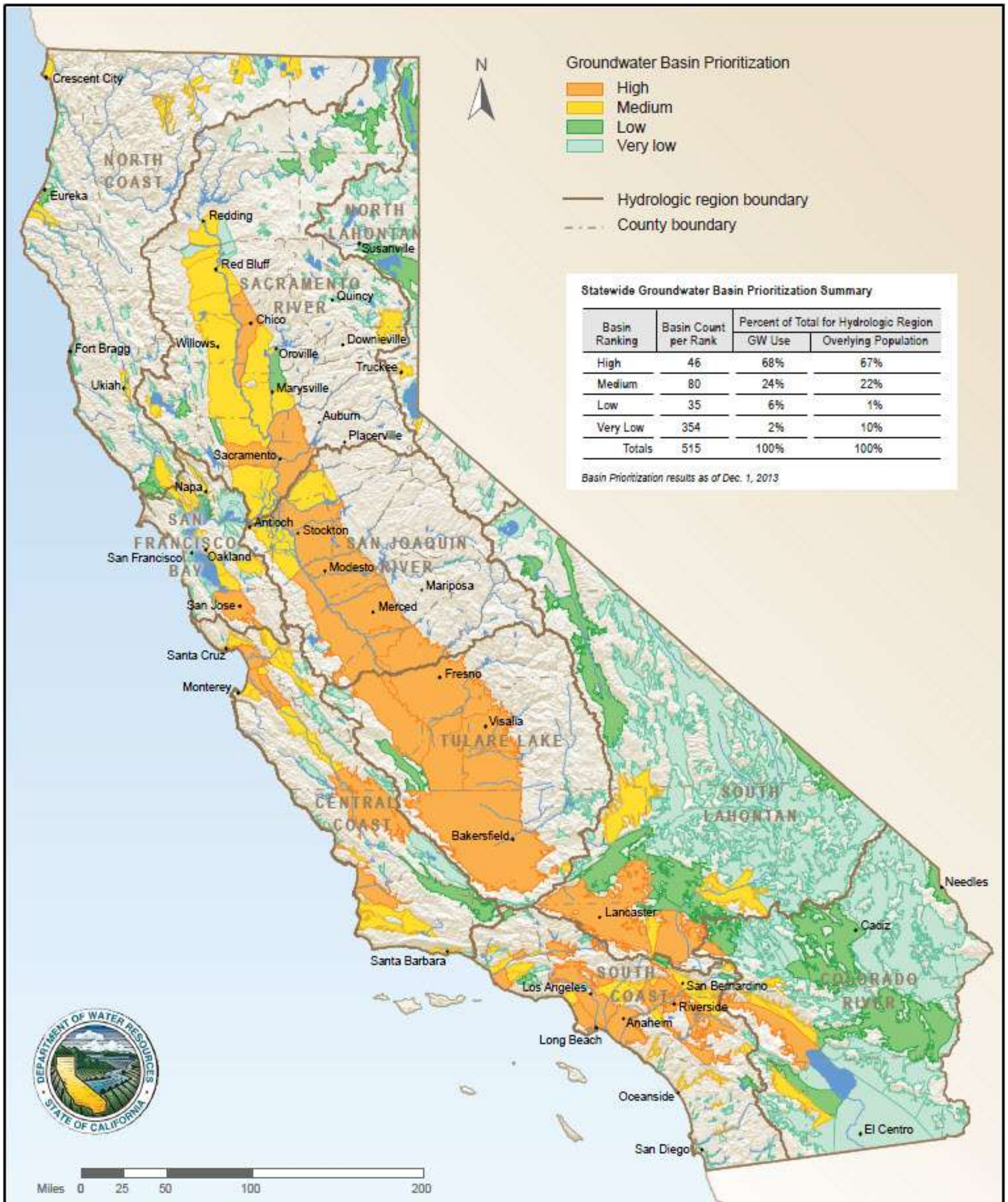
As described previously, the CASGEM basin prioritization process was developed to assess and rank the alluvial groundwater basins throughout the state. The basin prioritization process is based on an evaluation of the eight required data components specified in the California Water Code. DWR expects to finalize the draft basin prioritization process and results by May 2014.

As of December 2013, the draft basin prioritization results ranked 46 of the 515 alluvial groundwater basins as High Priority, 80 as Medium Priority, 35 as Low Priority, and 354 as Very Low Priority. Draft basin prioritization results also found that the 126 highest priority basins (High and Medium), approximately 24 percent of all of California's alluvial groundwater basins, account for close to 90 percent of California's annual groundwater use and about 90 percent of the population overlying the groundwater basins.

Figure 21 depicts the draft results of the Basin Prioritization. Many of the groundwater basins within the Central Coast and South Coast hydrologic regions, and most of the basins within the Central Valley, are ranked as either High or Medium priority. All of the groundwater basins within the Central Valley portion of the San Joaquin River and Tulare Lake hydrologic regions are ranked as High Priority. All but five of the groundwater basins in the Central Valley portion of the Sacramento River Hydrologic Region are ranked as High or Medium priority. The North Lahontan, South Lahontan, and Colorado River hydrologic regions have the lowest number of High and Medium priority groundwater basins, primarily due to the low groundwater use and population.

As of April 9, 2014, about 58 percent (73) of the High and Medium priority groundwater basins are fully monitored under the CASGEM Program. An additional 10 percent (13) of High and Medium priority basins are partially monitored under CASGEM. There are 32 percent (40) of the High and Medium priority basins not monitored under CASGEM. For 35 of the 40 unmonitored basins, there is a local agency that has indicated interest in participating in the CASGEM Program. The areas that lack participation in the CASGEM Program, and with no designated Monitoring Entity as of April 9, 2014, are considered gaps in groundwater monitoring for purposes of this Update. Figure 22 depicts the High and Medium priority basins which are currently not monitored under the CASGEM Program. There are significant monitoring gaps in the Sacramento, San Joaquin River, Central Coast, and South Lahontan hydrologic regions.

Figure 21 - Draft CASGEM Basin Prioritization



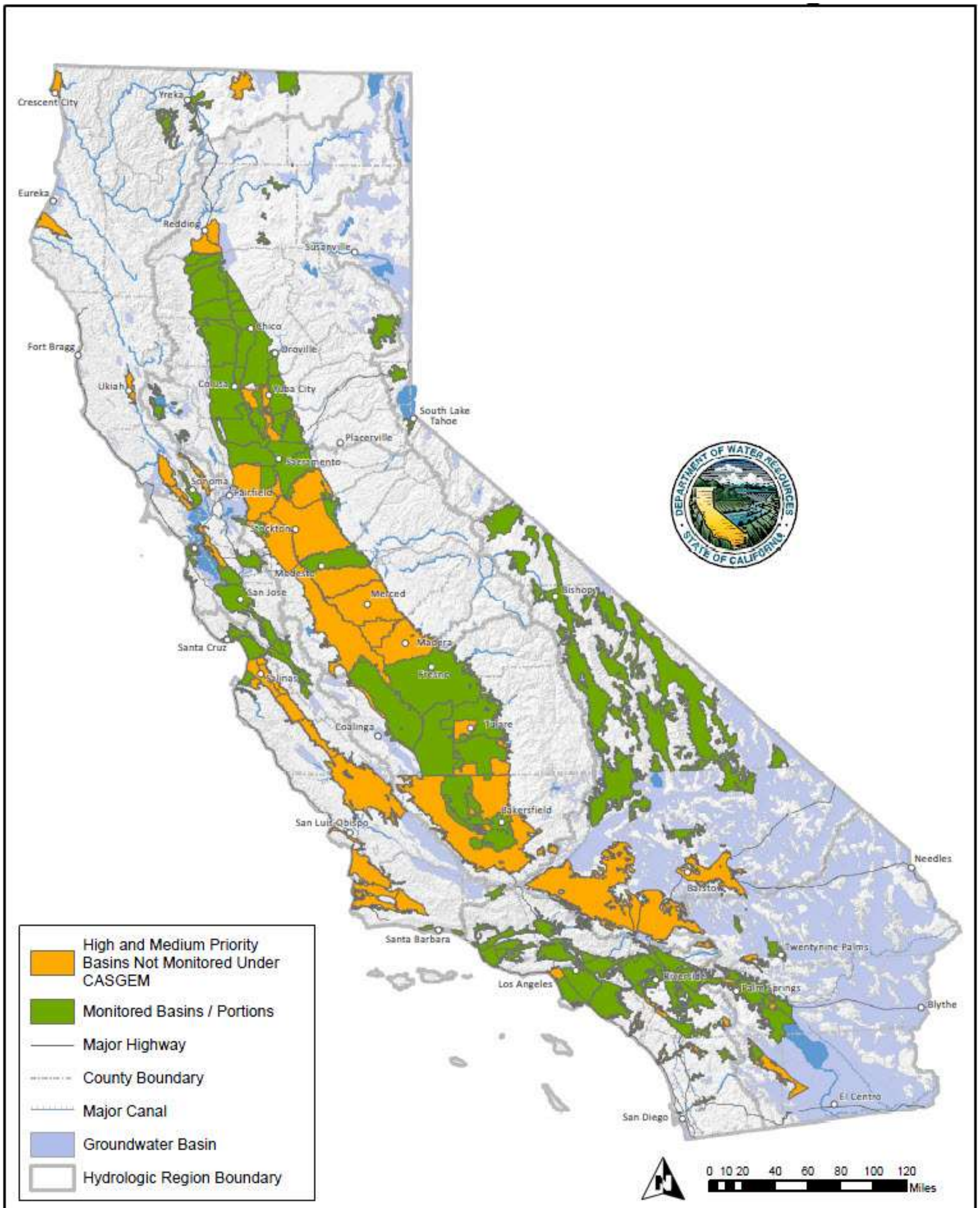
Statewide Groundwater Basin Prioritization Summary

Basin Ranking	Basin Count per Rank	Percent of Total for Hydrologic Region	
		GW Use	Overlying Population
High	46	68%	67%
Medium	80	24%	22%
Low	35	6%	1%
Very Low	354	2%	10%
Totals	515	100%	100%

Basin Prioritization results as of Dec. 1, 2013

Source: *Draft California Water Plan Update 2013*, Department of Water Resources. Information sourced from California Statewide Groundwater Elevation Monitoring Program, Draft Basin Prioritization Process and Results, December 2013.

Figure 22 - Unmonitored High and Medium Priority Basins, and Monitored* Basins under the CASGEM Program



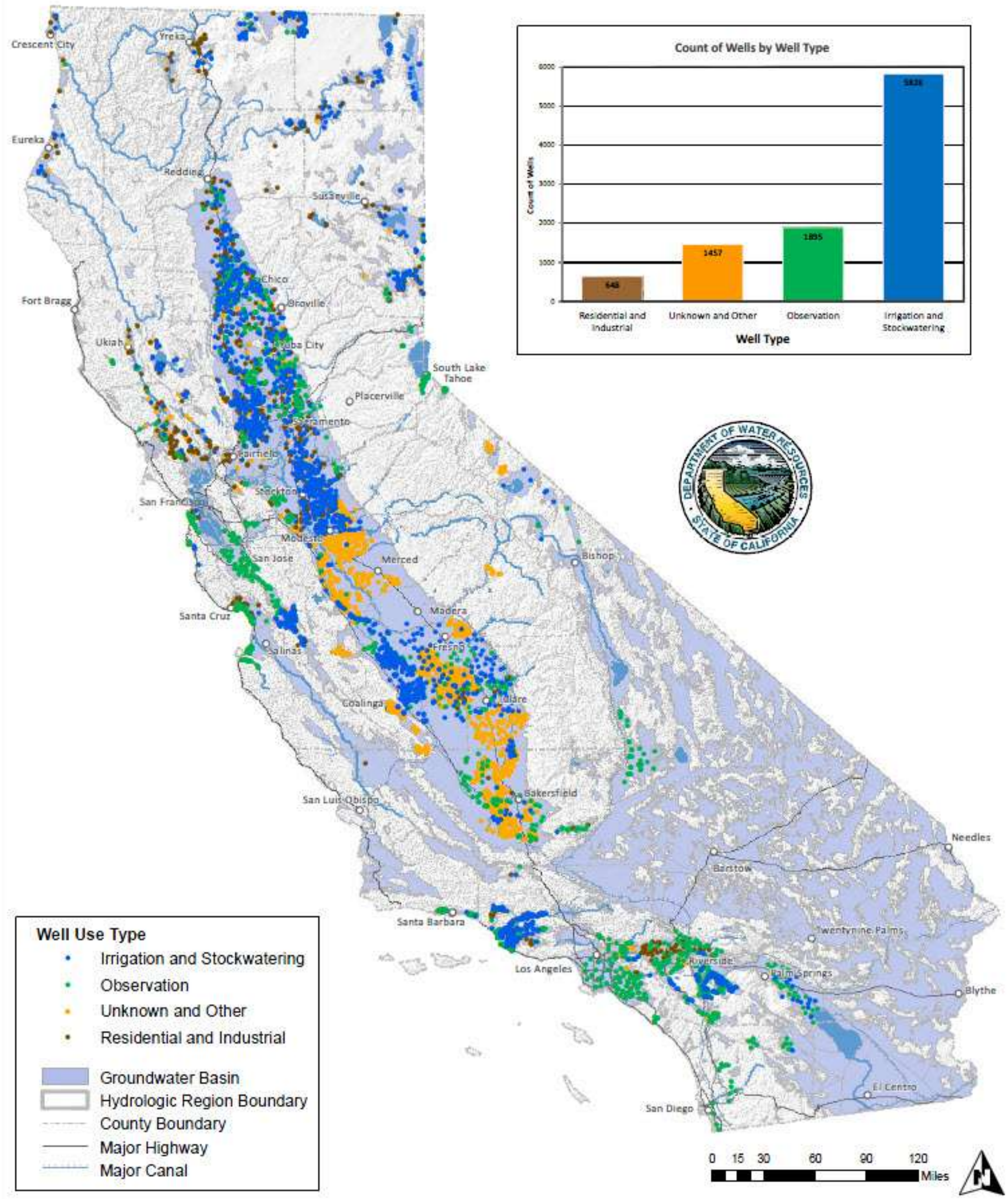
*Groundwater basins, subbasins, and portions of basins that have CASGEM monitoring well networks or alternative monitoring programs, approved by DWR, are considered to be monitored. Based on available data, as of 4/07/2014. Updated 04/22/2014. Data subject to change without notice.

5.2 Groundwater Level Monitoring Networks

After development of the CASGEM Online System, the historical data in WDL were transferred to an updated WDL groundwater level database that contains additional data fields specific to the CASGEM Program. Both the CASGEM Online System and WDL interface allow users to view the network of groundwater elevation monitoring locations throughout the state. The individual wells are classified as either "CASGEM" or "Voluntary" wells. CASGEM wells and measurements are used specifically for a CASGEM groundwater elevation monitoring network. Because CASGEM wells are required to be monitored with sufficient frequency to capture data that represents seasonal groundwater elevations within basins, they are also suitable for use in trend analyses. CASGEM wells may possess data prior to the start of the CASGEM Program due to migration of historical data to the updated WDL database, or submittal of historical data by the Monitoring Entity. Well construction information is not disclosed for "Voluntary" wells. While the groundwater elevation data that are provided for voluntary wells may be useful to observe trends in a given well, these data are less useful for conducting more extensive hydrologic analysis such as basin trends and elevation contouring, especially in groundwater basins that have multiple distinct aquifer zones. Figure 23 shows the statewide distribution of groundwater monitoring data for spring 2013. There are significant monitoring gaps in the San Joaquin River, Tulare Lake, Central Coast, and South Lahontan hydrologic regions.

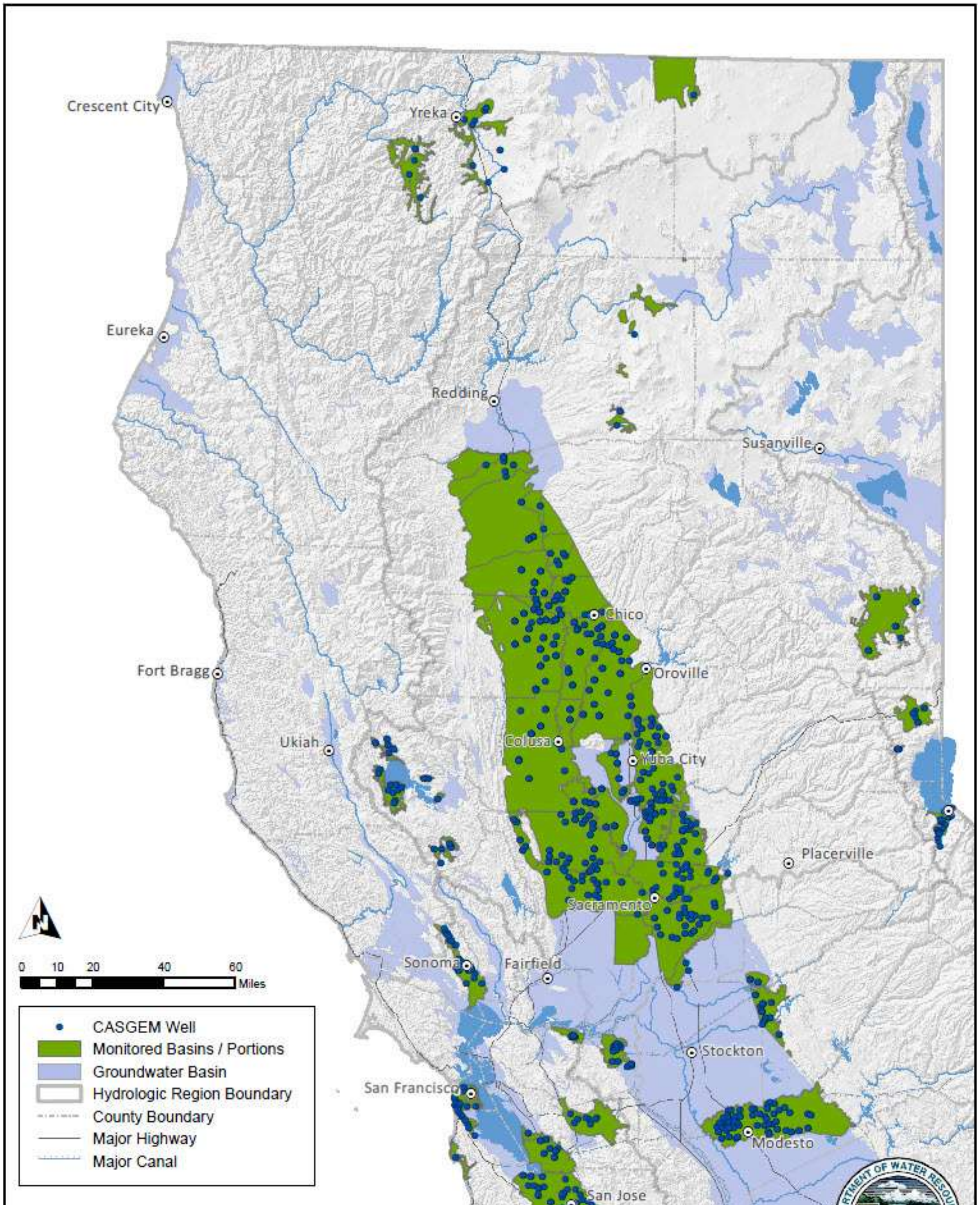
As of April 9, 2014, a total of 169 of the 515 alluvial groundwater basins have a designated Monitoring Entity under the CASGEM Program who is actively monitoring their CASGEM wells. Statewide, there are 4,122 CASGEM wells and 39,429 Voluntary wells represented in the WDL groundwater level database. Despite the monumental progress realized by implementation of the CASGEM Program during the past four years, additional work is needed to establish adequate statewide monitoring of the groundwater basins. There are gaps on a statewide scale – basins that are not yet being monitored under the CASGEM Program, as well as gaps on the basin scale – basins with spatial data gaps. DWR is working cooperatively with Monitoring Entities to improve the existing statewide CASGEM monitoring network and reduce data gaps. Figures 24 through 26 depict the existing CASGEM monitoring networks.

Figure 23 - Water Data Library Monitoring Distribution - Wells with Spring 2013 Data



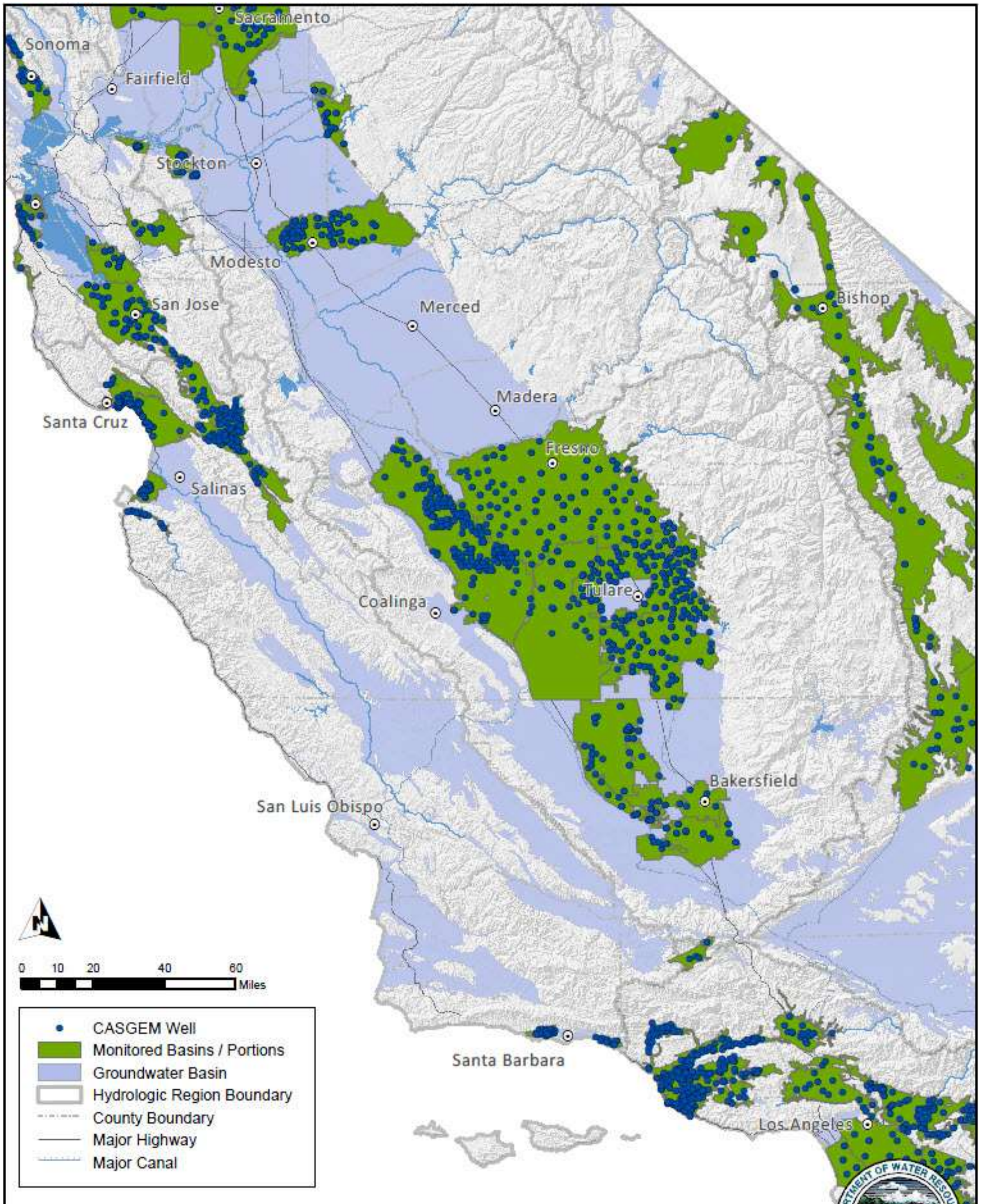
Map and chart based on available data from the DWR Water Data Library as of 03/28/2014.
Document Name: S2013_measured_wells Updated: 04/23/2014
Data subject to change without notice.

Figure 24 - Distribution of CASGEM Wells in Northern California



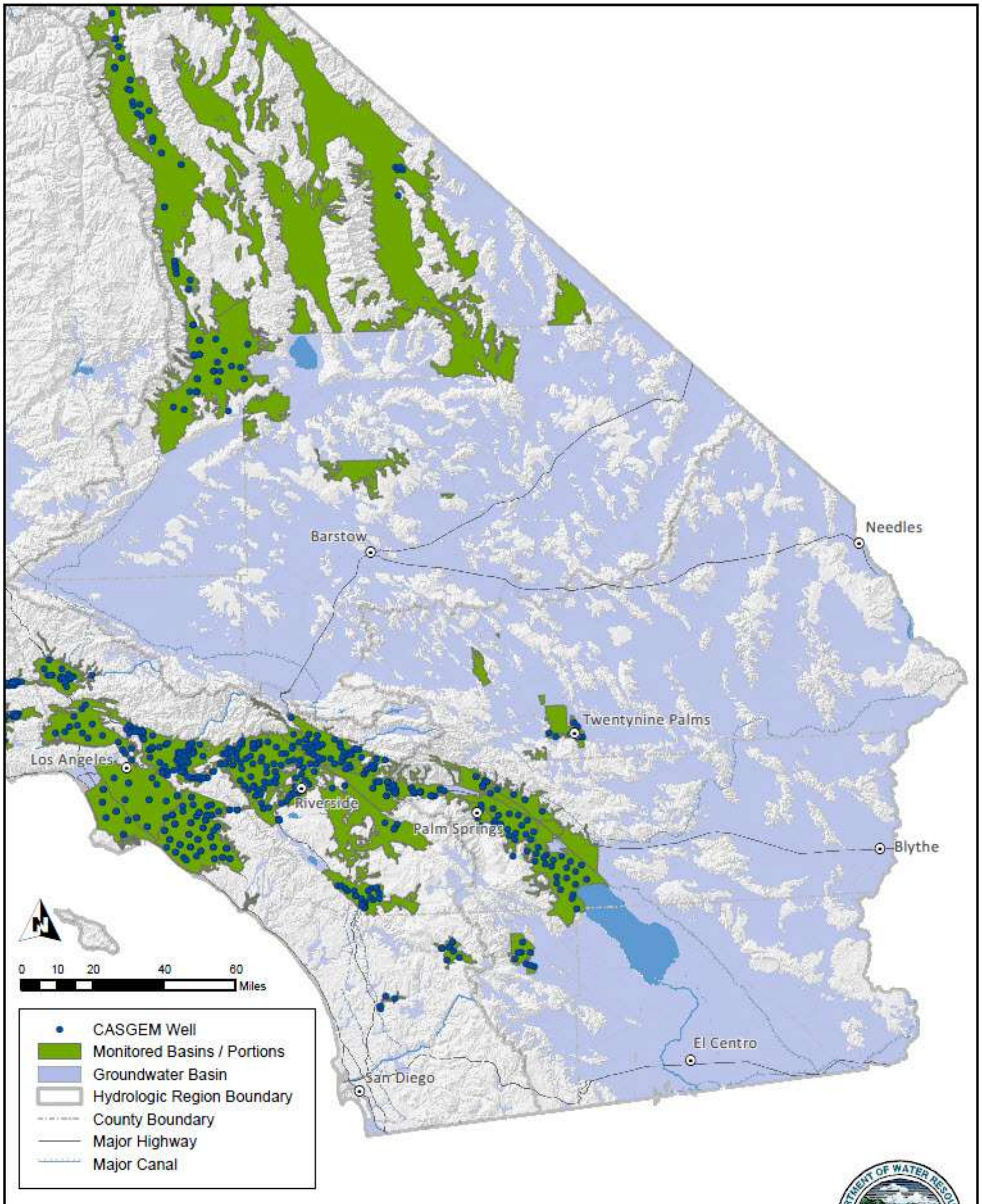
CASGEM well information is based on available data from the DWR Water Data Library as of 04/07/2014. Document Name: CASGEM_wells_NoCal_20140422
Updated: 04/23/2014 Data subject to change without notice.

Figure 25 - Distribution of CASGEM Wells in Central California



CASGEM well information is based on available data from the DWR Water Data Library as of 04/07/2014. Document Name: CASGEM_wells_CenCal_20140422
Updated: 04/23/2014 Data subject to change without notice.

Figure 26 - Distribution of CASGEM Wells in Southern California



CASGEM well information is based on available data from the DWR Water Data Library as of 04/07/2014. Document Name: CASGEM_wells_SoCal_20140422
Updated: 04/23/2014 Data subject to change without notice.

5.3 Groundwater Management

Groundwater plays a key role in meeting California's water supply needs. The effective management of groundwater basins is an essential aspect to maintaining the reliability and sustainability of this vital resource. Components that are essential to groundwater management programs include and/or address the following; basin management objectives (BMOs) with performance monitoring programs for groundwater levels, groundwater quality, land subsidence, and the interactions of groundwater and surface water to evaluate effectiveness of groundwater management activities.

Although California law does not require local agencies to adopt or implement groundwater management plans (GWMPs) or groundwater management programs, incentives exist to encourage local agencies to adopt and implement a GWMP that promotes effective groundwater management. Section 10750 et seq. of the California Water Code requires that six specific components be included in a GWMP for an agency to be eligible for State funding administered by DWR for groundwater projects. The required components include BMOs, agency cooperation, mapping recharge areas, monitoring protocols, and appropriate use of geologic and hydrologic principles for areas outside of alluvial basins.

As part of the draft Bulletin 160 *California Water Plan Update 2013*, DWR reviewed 119 GWMPs (those available as of August 2012) and determined which plans were completed in accordance with the California Water Code as of 2002 [enactment of Senate Bill (SB) 1938]. SB 1938 required that a GWMP have components relating to 1) the monitoring and management of groundwater levels within the basin, 2) groundwater quality degradation, 3) inelastic land subsidence, and 4) changes of surface flow and water quality that directly affect groundwater levels or quality, or are caused by groundwater pumping in the basin.

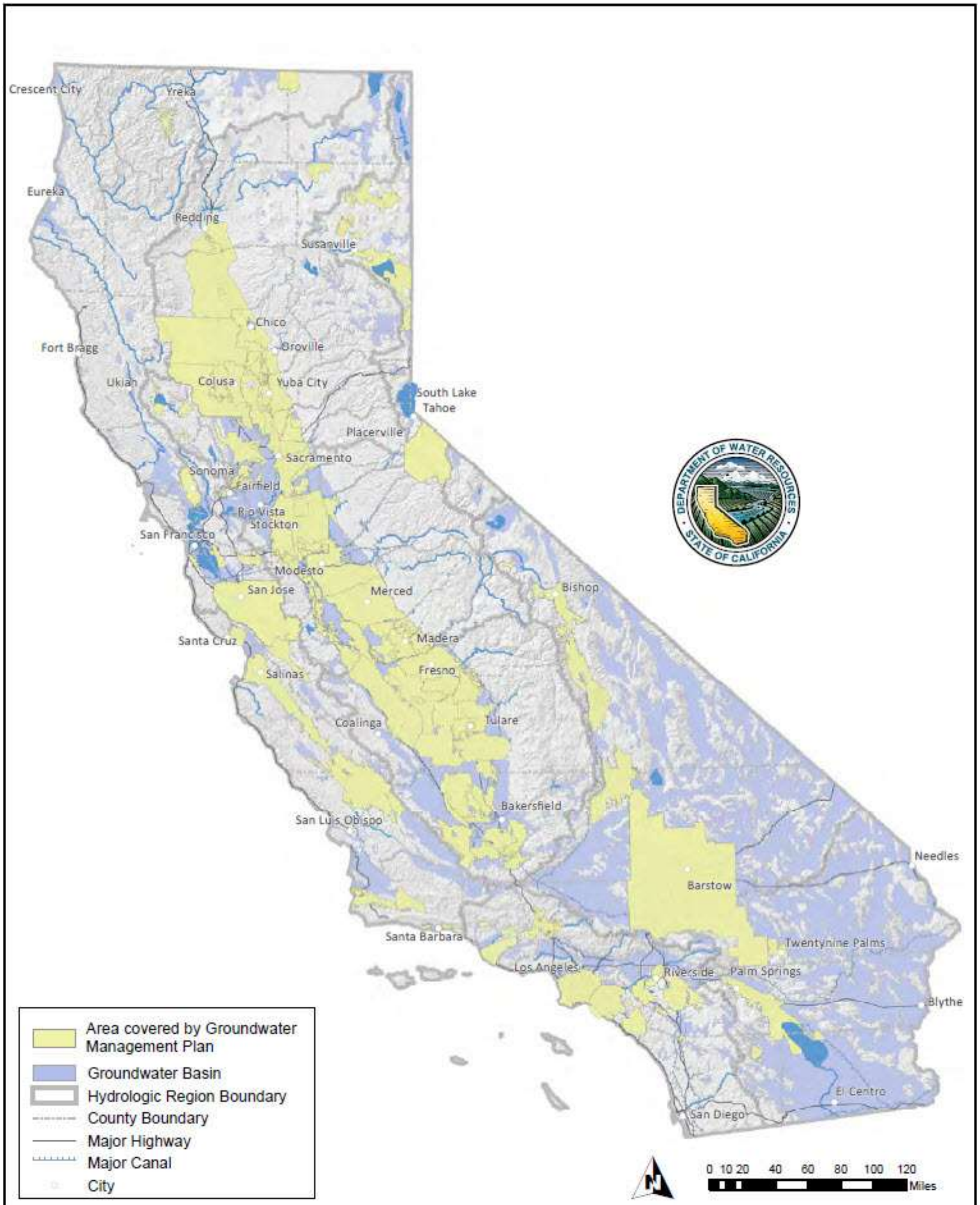
Of the 119 GWMPs, 83 were determined to meet the California Water Code requirements implemented as a result of SB 1938 in 2002. DWR also performed a detailed review of these 83 plans to assess their adherence to the required monitoring and management components. Out of the 83 plans, approximately 90 percent are implementing basin monitoring objectives and protocols for monitoring groundwater levels and groundwater water quality. About 75 percent of the plans have implemented or have provisions to implement monitoring for inelastic land subsidence. Only about 50 percent of the plans address surface water and groundwater interactions. In terms of groundwater management coverage area, about 42 percent of alluvial groundwater basins are encompassed by a GWMP. Also, about 32 percent of alluvial groundwater basins are encompassed by a GWMP determined to address water code requirements pursuant to SB 1938.

GWMPs continue to be developed and updated by the local implementing agencies. For example, plans developed prior to SB 1938 may adopt the provisions of SB 1938 and possibly the more recent additions to the California Water Code in 2012 [enactment of Assembly Bill (AB) 359] concerning groundwater recharge mapping to meet the current requirements. Typical reasons for updating plans are due to changes in basin conditions, changes in legislation, changes in water supply profiles, or increased understanding of the hydrogeology. As of March 20, 2014, the number of GWMPs available to DWR has increased from 119 to 130. A detailed review or analysis of the 11 additional plans has not been conducted. Currently, DWR does not have specific statutory direction regarding any further evaluation of GWMPs.

Figure 27 depicts the GWMP areas throughout California as of October 2013. The GWMP areas are represented as those that were implemented prior to SB 1938, those implemented after SB 1938, and those that also include groundwater recharge mapping pursuant to AB 359.

With respect to GWMPs, several areas of the state either lack a plan, or the existing plan has not been updated to address the requirements of SB 1938. In most cases, plans do not meet the groundwater recharge mapping requirements of AB 359. Reasons vary, but generally it is lack of funding or technical resources to create new or updated GWMPs to meet the necessary elements required by the California Water Code. As a result, such areas may also lack sufficient monitoring and/or management of groundwater and are potentially subject to increased stress or impacts due to drought conditions. For detailed information regarding GWMPs in California, please visit DWRs Groundwater Information Center at www.water.ca.gov/groundwater.

Figure 27 - Groundwater Management Plans



GWMP areas throughout California as of October 2013. The GWMP areas are represented as those that were implemented prior to SB 1938, those implemented after SB 1938, and those that also include groundwater recharge mapping pursuant to AB 359. Document Name: Statewide_GWMP_20140423 Updated: 04/24/2014 Data subject to change without notice.

6.0 CONCLUSION

Groundwater can serve as the primary supply, and in some cases the only option, to meet water demands in many areas of the state. Draft CASGEM basin prioritization results found that the 126 highest-priority basins (High and Medium) account for close to 90 percent of California's annual groundwater use and about 90 percent of the population overlying the groundwater basins. There are 36 alluvial basins that are highly reliant on groundwater and possess the potential for water shortages due to the stress of drought conditions. These 36 basins account for a total of about 2.54 million acres of land and a population of approximately 6.18 million. Based on the available groundwater level data, there are several areas of the state with recent groundwater levels at all-time historical lows. Groundwater levels throughout the state have generally declined since spring 2013, and more notably compared to levels observed during the last normal water year of 2010. Many basins and counties have experienced significant water well deepening activities since 2010—an activity indicative of declining groundwater levels. Key hydrographs for selected wells throughout the state provide a longer term analysis of water level trends in conjunction with recent declines caused by drought conditions.

Statewide, there are 4,122 CASGEM wells and 39,429 Voluntary wells represented in the WDL groundwater level database. Although there is a fairly robust network of monitoring wells available to assess groundwater conditions, gaps in groundwater monitoring persist. There are 40 High and Medium priority alluvial groundwater basins that are currently not monitored under the CASGEM Program, and another 13 basins that are only partially monitored. Based on monitoring data within the WDL database for 2013, there are notable gaps in groundwater level data for the San Joaquin River, Tulare Lake, Central Coast, and South Lahontan hydrologic regions. With respect to groundwater management planning, several areas of the state either lack a GWMP, or the existing plan has not been updated to address the requirements of the California Water Code as of 2002 (SB 1938) or 2012 (AB 359). Although a local agency may have an adopted GWMP, many areas do not have controls in place to restrict or stop groundwater pumping. Groundwater pumping is expected to increase as drought conditions worsen. The increased pumping can lead to adverse or severe conditions including dry wells, land subsidence, decreased water quality, saline intrusion, and stream depletion.

This Update can also serve as an indicator that additional groundwater information is needed to adequately address groundwater issues in the state. DWR is making progress to fulfill the objectives and actions included in the Governor's California Water Action Plan, and to implement the next phase of the CASGEM Program. DWR promotes sustainable groundwater management at the local and regional level through technical guidance, financial assistance, interagency coordination, groundwater monitoring, basin assessments, and advancement of integrated regional water management. For detailed information regarding groundwater and groundwater management in California, please visit DWR's Groundwater Information Center at www.water.ca.gov/groundwater. For more information regarding DWR's drought response efforts, please visit www.water.ca.gov/waterconditions.

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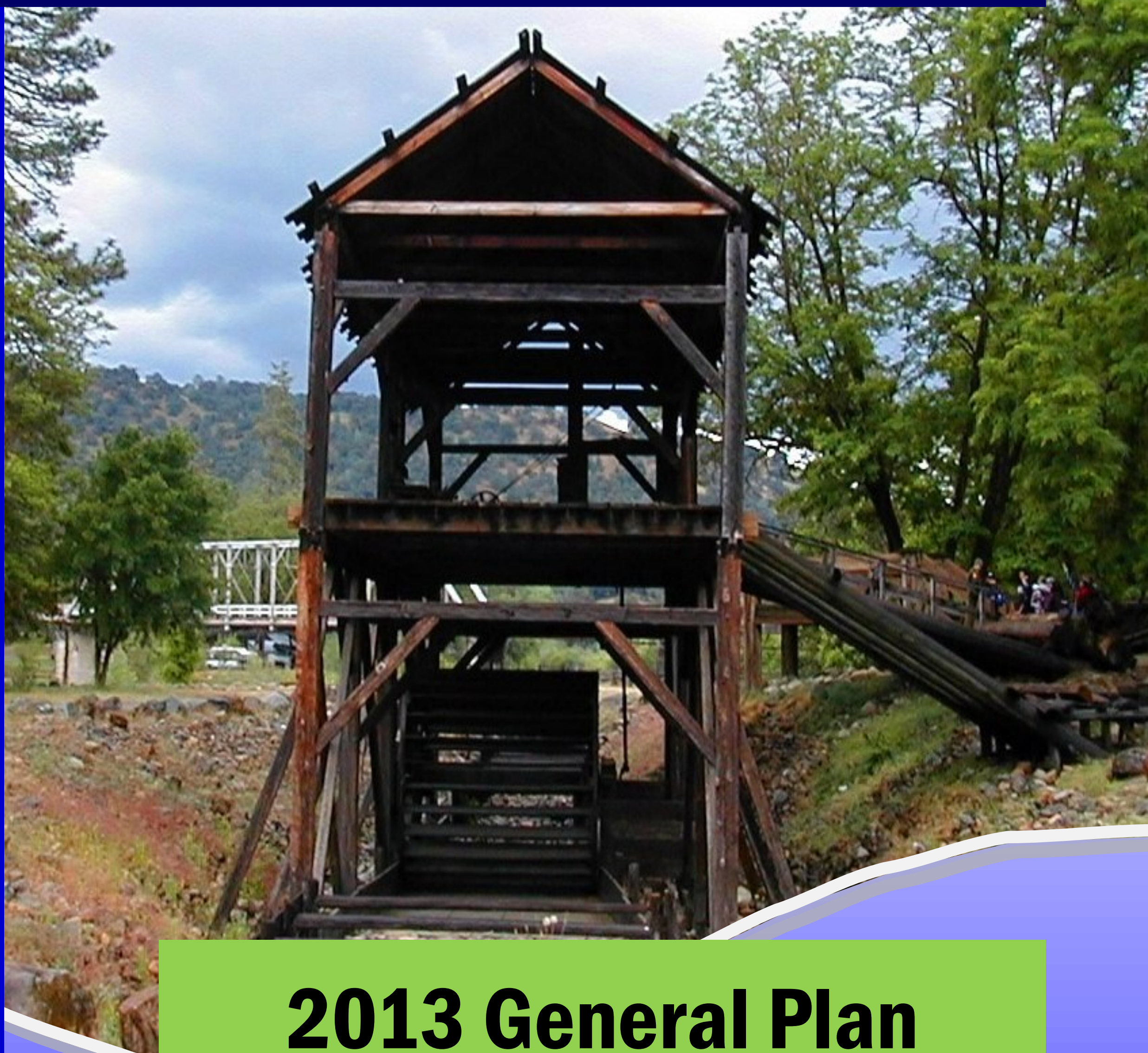
County of El Dorado



2013 General Plan Annual Progress Report

Strategic Planning For Our Future

Community Development Agency
Long Range Planning Division

June 2014

TABLE OF CONTENTS

1. PURPOSE OF THIS REPORT

An annual progress report for General Plan implementation is required to be submitted to the County Board of Supervisors, the State Office of Planning and Research (OPR), and the State Department of Housing and Community Development (HCD) that includes:

- The status of the General Plan and progress in its implementation;
- The County's progress in meeting its share of the regional housing needs;
- Local efforts to remove governmental constraints to the maintenance, improvement and development of housing; and
- The degree to which the County's approved General Plan complies with the State General Plan Guidelines and the date of the last revision to the General Plan.

This report has been prepared pursuant to Government Code Section 65400 (a), which requires that all counties shall "investigate and make recommendations to the legislative body regarding reasonable and practical means for implementing the General Plan or element of the General Plan, so that it will serve as an effective guide for orderly growth and development, preservation and conservation of open-space land and natural resources, and the efficient expenditure of public funds relating to the subjects addressed in the General Plan."

In addition, this report supports General Plan Policy 2.9.1.1 which states that the County must "monitor, on an annual basis, the rate at which the land inventory is developed, the population and employment growth of the County, and other useful indicators of the County's growth." As directed by the General Plan (Policies 2.9.1.2, 2.9.1.3 and 2.9.1.4), the results of this monitoring process are to be examined at five year intervals. If the monitoring results indicate that the distribution of growth varies significantly from the major assumptions of this Plan, the County may make appropriate adjustments to the Plan's development potential, including the adjustment of Community Region and Rural Center boundaries, as part of the five year review process. The last General Plan five-year review was completed in April 2011. The next five year review must be submitted to the State by October 1, 2016.

Further, this report also addresses compliance with County-specific monitoring requirements, such as General Plan Policy 2.9.1.5 (periodic review of Policies and Implementation Measures that may reduce environmental damage). Information from this report may be used for identification of necessary adjustments, if any, that should be made to further implement the General Plan. This report will also help identify emerging trends in housing, employment, land development, and population growth to ensure that the General Plan continues to adequately address and meet the needs of El Dorado County residents and visitors for the foreseeable future.

2. EXECUTIVE SUMMARY

The General Plan includes nine areas of review, or Elements: 1) Land Use, 2) Transportation and Circulation, 3) Housing, 4) Public Services and Utilities, 5) Public Health, Safety and Noise, 6) Conservation and Open Space, 7) Agriculture and Forestry, 8) Parks and Recreation and 9) Economic Development. Each General Plan Element includes an implementation program with a list of implementation measures that are linked to annual work schedules.

The General Plan currently has a total of 225 implementation measures which are the collective responsibility of several County departments, divisions or agencies. Overall, the County has made significant progress toward implementation of the General Plan since its adoption in 2004. Of the 225 total measures, 142 (63 percent) have been implemented, 61 (27 percent) are in progress, and 22 (10 percent) remain to be initiated and implemented. The status of each of these measures, including specific actions and timeframes associated with the implementation of each of these Elements is included in Appendix A.

This report focuses on highlighting both achievements and challenges during calendar year 2013, and the measures that are in progress and still remain to be implemented.

Major Planning Activities in 2013

Below is a highlight of significant planning activities related to General Plan implementation either completed or ongoing from the 2013 calendar year. General Plan implementation tasks are also discussed in detail under appropriate section(s) for each General Plan Element.

General Plan Housing Element Update

On October 29, 2013, the County Board of Supervisors adopted the 2013-2021 Housing Element to the Adopted General Plan. State housing element law requires local governments to update the housing element by the due date specified in statute, generally for either a five-year or eight-year planning period. The previous Housing Element was adopted on July 1, 2008 and amended on April 21, 2009.

The Housing Element is part of the County's General Plan designed to address the existing and projected housing needs of all economic segments of the community. The Housing Element serves as a framework to assess the County's housing needs and establishes the County's housing policies. It is intended to ensure that decent, safe, and affordable shelter is provided for all residents of unincorporated areas of the county.

The Housing Element update process began in January 2012 and was completed with extensive public outreach including public workshops, community meetings, interviews with community residents, surveys, and other input. In November 2013, the County received a certification of compliance from the California Department of Housing and Community Development (HCD) for its adopted 2013-2021 Housing Element.

The County's progress in meeting Housing Element goals is described in detail in the Housing Element Report (Appendix B). The Housing Element Report provides the status of accomplishing the Housing Element implementation program, along with details on the progress of meeting regional housing needs, as well as removing governmental constraints to the development of affordable housing.

Targeted General Plan and Comprehensive Zoning Ordinance Update

On November 14, 2011 the Board of Supervisors adopted Resolutions of Intention to amend selected General Plan policies and to complete a comprehensive update to the Zoning Ordinance (TGPA-ZOU project) in order to achieve the following goals:

1. Bring differences between the General Plan and other County planning ordinances and manuals into a more useful, beneficial and consistent format;
2. Create a series of changes (reform) to the current regulatory process;
3. Achieve adoption of:
    a. A Zoning Code consistent with the 2004 General Plan;
    b. Targeted General Plan amendments;
    c. A required 2013 Housing Element Update;
4. Complete a Travel Demand Model (TDM) Update

This followed a year-long process of review and consideration of changes determined necessary following recent changes in State law, changes in development patterns and market demand, and findings from the previous General Plan 5-year review. A final Travel Demand Model [Goal 4] was completed in October 2013 and the 2013 Housing Element Update was completed in November 2013 [Goal 3 (c)]. The balance of the TGPA-ZOU [Goals 1, 2, 3(a) and 3 (b)] is still in progress, with final completion tentatively scheduled for October 2014.

Sign Ordinance Update

In December of 2012, the County executed a contract with Pacific Municipal Consultants, Inc. (PMC) for the preparation of a comprehensive sign ordinance amendment and the related Environmental Impact Report (EIR). The project was initiated in January of 2013 with a presentation by PMC at a joint meeting of the Board and the Planning Commission. In June of 2013, the Board authorized the Sign Ordinance Public Draft to be released for a 60-day review period. The public draft was released on July 8, 2013 and the public comment period closed on September 10, 2013. Written comments were submitted by forty-two individuals and seven agencies. In December of 2013, staff presented to the Board a general summary of the public comments received and asked the Board for direction on several policy issues identified in the public comments. The Board's direction required revisions to the draft sign ordinance which will be presented to the Board in 2014, along with the final EIR, for approval and adoption.

Airport Land Use Compatibility Plan (ALUCP) General Plan Conformance Amendment

On June 28, 2012, the El Dorado County Transportation Commission (EDCTC), acting as the El Dorado County Airport Land Use Commission, adopted Airport Land Use Compatibility Plans (ALUCPs) for the Cameron Park, Georgetown, and Placerville airports (File No. A13-0003). The plans provide guidance and standards for land uses within the vicinity of the airports to protect public safety and to ensure safe operation of the airports in compliance with the California State Aeronautics Act (Public Utilities Code §21670 et seq.) Government Code §65302.3 requires cities and counties to amend their General Plans so that they are consistent with the policies of an adopted ALUCP. On May 7, 2013, the County initiated the process to reconcile the General Plan to the newly-approved ALUCP's. Subsequently, Resolution of Intention Number ROI 017-2014 was submitted March 4, 2014 to the Board of Supervisors to initiate the required changes. More information about Airport Land Use Compatibility Plans is available at: http://www.edctc.org/2/Airports.html.

3. GENERAL PLAN OVERVIEW

Background and History

The El Dorado County General Plan was adopted on July 19, 2004 by the Board of Supervisors and ratified by public referendum on March 15, 2005. This represents the first comprehensive General Plan update since 1996.

Prior to adoption of the 2004 General Plan, implementation of the previous 1996 General Plan was largely suspended in 1999 by a court order ("Writ of Mandate") from the Sacramento Superior Court (*El Dorado County Taxpayers for Quality Growth, et al. v. El Dorado County Board of Supervisors*) on the grounds that the 1996 General Plan Environmental Impact Report (EIR) did not adequately analyze potential environmental impacts as required by the California Environmental Quality Act (CEQA). On September 1, 2005, the County requested that the Court re-review the case after the completion of a new EIR associated with the new 2004 General Plan. The Court ruled that the County had satisfied every term of the writ and it was discharged. The Court's ruling was appealed by the plaintiffs. However, on April 18, 2006, the County entered into a settlement agreement with the plaintiffs, settling the lawsuit and allowing full implementation of the 2004 General Plan.

State General Plan Annual Progress Report Guidelines

The Governor's Office of Planning and Research (OPR) provide suggested content for the General Plan Annual Progress Report (APR). The content below is based on recommendations from the OPR's General Plan Annual Progress Report Guidance.

1. ***Introduction***

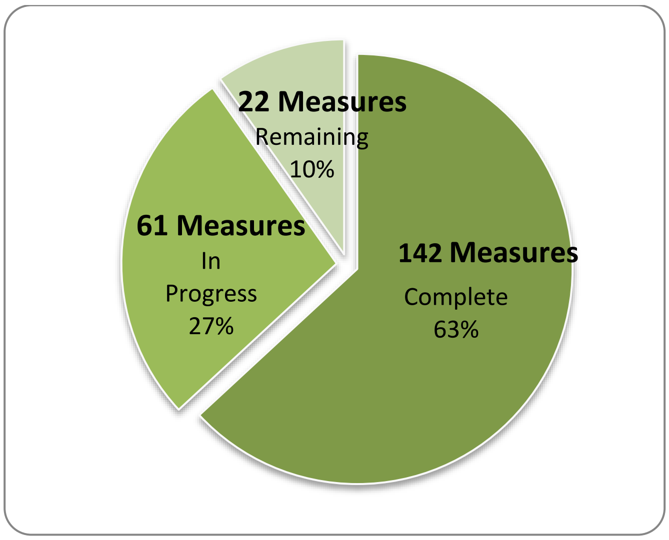
2. ***Table of Contents***

3. ***Date of presentation/acceptance by the local legislative body (agenda item or resolution)***

   The APR was presented to the Board of Supervisors on June 24, 2014. Additional details from this hearing are available on the Board of Supervisor's web site at: http://edcgov.us/BOS/

4. *Measures associated with the implementation of the General Plan with specific reference to individual element*

The Board of Supervisors approved an Implementation Plan as part of the 2004 General Plan. The Board subsequently amended the Implementation Plan on October 29, 2013 with the Housing Element update. The amended Implementation Plan contains a total of 225 implementation measures. Since full General Plan implementation began in 2006, 142 measures have been implemented or are ongoing, 61 measures are in progress, and 22 measures have not yet been addressed.



A comprehensive list of all the implementation measures, by element, with the status of each measure for calendar year 2013, is included in Appendix A.

5. *Housing Element Reporting Requirements*

Government Code Section 65400 establishes the requirement that each city or county prepare an annual report on the status of the Housing Element of its General Plan and progress in its implementation using forms and definitions adopted by the Department of Housing and Community Development (HCD).

The 2013-2021 Housing Element adopted on October 29, 2013 includes 35 Implementation Measures. The implementation status of each of these measures is provided in Table C of the 2013 Housing Element Annual Progress Report which was presented to the County Board of Supervisors in March 2014. The 2013 Housing Element Implementation Progress Report is included as Appendix B.

6. *The degree to which the General Plan complies with OPR's General Plan Guidelines*

The General Plan has been prepared using the State General Plan Guidelines (Government Code Section 65040.2), and includes the seven mandatory elements and four additional elements. The seven State-mandated elements of the General Plan include Land Use, Mobility (Transportation and Circulation), Housing, Conservation, Open Space, Noise, and Safety. The County General Plan includes the above mandatory elements plus four additional elements: Public Services and Utilities, Agriculture and Forestry, Parks and Recreation and Economic Development. The Conservation and Open Space Elements are combined together as one element. In addition, Public Health has been added to the combined Noise and Safety Element.

7. *The date of the last update to the General Plan*

The General Plan was last comprehensively updated in July, 2004. In 2013, the General Plan was amended three times, to include:

- **October 29, 2013:** The Housing Element was updated in accordance with state law (File No. A13-0007).
- **November 12, 2013:** The General Plan Land Use Designation was amended from Commercial (C) to Multi-Family Residential (MFR) for a proposed multi-family development project in the Pollock Pines area (File No. A13-0006).
- **December 3, 2013:** The General Plan Land Use Designation was amended from High Density Residential (HDR) to Commercial (C) to allow for the development of a 2,432 square foot market/deli and outdoor picnic area in the Latrobe area (File No. A13-0001).

8. *Priorities for land use decision making established by the Board of Supervisors*

The El Dorado County General Plan provides direction to monitor growth activity, on an annual basis and at five year intervals, and to make necessary adjustments to the development potential of the plan. On April 4, 2011, during the first five-year review cycle, the County assessed prior activity and determined that the basic General Plan Assumptions, Strategies, Concepts and Objectives were still generally valid, and that major adjustments would not be needed at this time. The Board further identified goals for the 2011-2016 planning cycle to better address certain land use decision making priorities including: 1) Development of housing affordable to moderate income households, 2) Creation of jobs, 3) Retention of sales tax revenue in the County, and 4) To further promote and protect agriculture and natural resource industries.

9. ***Goal, policies, objectives, standards or other place proposals that need to be added or were deleted, amended, or otherwise adjusted.***

Selected General Plan policy amendments were initiated in calendar year 2011 and are currently in process as part of the Targeted General Plan Amendment-Zoning Ordinance Update (TGPA-ZOU). More detailed information is discussed in the Executive Summary in this report. The current status of the TGPA-ZOU is available online at:

http://www.edcgov.us/Government/LongRangePlanning/LandUse/TGPA-ZOU_Main.aspx

10. ***One or more lists of the following, including reference to the specific General Plan element or policy, status (i.e. approved/denied, initiated/ongoing/ completed, etc.) and brief comment on how each advanced the implementation of the General Plan during the past year: a) Planned activities initiated, b) General Plan Amendments, c) Major development applications processed.***

A list of Implementation Measures by Element, including Mitigation Measures from the adopted Mitigation Monitoring Program, has been provided along with the status of each measure for calendar year 2013, and is included as Appendix A. Planned activities initiated, General Plan Amendments, and major development applications processed during the calendar year 2013 are included in Section 5 (Planning and Development Activities) of this report.

11. ***Additional Useful Content Relevant to General Plan Implementation or Long-Range Planning Efforts: OPR recommends that jurisdictions augment the above content by submitting additional information such as long-term planning projects, actions or measures relevant to that jurisdiction's long-term strategic plan.***

    Discussions of the County's long-term planning projects, measures and General Plan implementation actions are included under the appropriate sections of this report.

General Plan Elements

Below is a summary of each element included in the County's General Plan.

Land Use Element

The Land Use Element sets forth specific goals, objectives, policies and maps to guide the intensity, location and distribution of land uses. This element highlights planning strategies to produce a land development pattern supporting several key principles: 1) to make the most efficient and feasible use of existing infrastructure and public services, 2) to provide for new and existing development that promotes a sense of community, 3) to define those characteristics which make the County "rural" and provide strategies for preserving these characteristics, 4) to provide opportunities for positive economic growth in such areas including employment, tourism, increased retail sales and high-technology industries and 5) to provide guidelines for new development that maintains and enhances the quality of the County.

The General Plan Land Use Diagram (Land Use Map) is a graphic representation, or picture, of the County's goals, objectives and policies. The General Plan land use map delineates areas where future lower-density rural and agricultural uses are likely to continue and/or expand as well as regions where higher density growth and urban/suburban like activities are anticipated and/or will be directed.

The General Plan land use map contains three primary regions for directing various types of land uses: 1) Community Regions, bounded by an urban limit line demarcating where urban and suburban uses will be developed; 2) Rural Centers, also bounded by a similar limit line, to recognize existing defined places which provide a focus of activity and provide goods and services to surrounding rural areas; and 3) Rural Regions, which are lands not contained within the boundaries of Community Regions or Rural Centers. Rural Regions provide a land use pattern that maintains the open character of the County, preserves its natural resources, recognizes the constraints of the land and infrastructure and preserves outlying agricultural and forest/timber resources for future generations.

Under the Land Use Element, an important component of the County's strategic plan for General Plan implementation also includes an annual monitoring of "useful" growth indicators during the previous calendar year (General Plan Policies 2.9.1.1 and 2.9.1.6) including: a) population growth; b) employment capacity; c) land development activity; d) new housing starts; and e) availability of future housing.

The results of this annual monitoring can then be analyzed to determine if housing and commercial inventory is adequate to meet General Plan goals and objectives. General Plan parcel monitoring includes tracking the number of residential parcels approved since 1999. Based on the results of regular monitoring since 1999, nearly all home construction in El Dorado County can be derived from one of the following:

1. "Existing Commitments" in place as of 1999, including Specific Plans and Development Agreements for the creation of new lots;
2. Developments for which a Tentative Subdivision or Parcel Map had been approved prior to 1999;
3. Building permits issued before 1999; and
4. Legal lots existing prior to 1999.

Regular monitoring has found the following:

1. As of calendar year 2013, no new Specific Plans (SP) had been approved since before 1999;
2. Less than 1,000 new tentative residential lots ("commitments") have been approved countywide outside of SP areas since adoption of the General Plan. Out of the 1,000 lots, less than 200 new residential parcels were created between January 1999 through December 2013.

3. During the monitoring period from 1999 – 2013, there has been significant growth in various sectors of commercial, non-residential development including the following:

    - 2,436 Building Permits (with new square footage);
    - 7,253,184 square feet (new employment capacity);
    - An estimated total of 15,293 new jobs in the following economic sectors[1]:
        - Education: 195 jobs;
        - Office: 7,765 jobs;
        - Retail: 2,288 jobs;
        - Service: 1,946 jobs;
        - Medical: 404 jobs; and
        - Industrial[2] 2,695 jobs.

[1] Sources: SACOG, 2001; County of El Dorado, 2013; SACOG, 2013; BAE, 2013.

[2] Industrial jobs estimate also includes warehouse and "shell" building permits.

As directed by General Plan Policies 2.9.1.2, 2.9.1.3 and 2.9.1.4, during the five year review, if the monitoring results indicate that the distribution of growth varies significantly from the major assumptions of the General Plan, the County may make appropriate adjustments to the Plan's development potential, including:

1. Increasing or decreasing the capacity of one or more housing types (e.g. more multi-family vs. single-family; replacement of apartment lands with small lot single-family developments, etc.);

2. Changing the distribution of projected growth, including the adjustment of Community Region and Rural Center boundaries; and

3. Prioritizing infrastructure expenditures such as road improvements to direct new growth into opportunity areas.

A review of historic and forecasted population growth, new housing starts, the forecasted housing supply, and commercial square footage (employment capacity) is found in Appendix C.

During 2013, the County continued to make significant progress with implementation of the Land Use Element. The primary projects associated with implementing the planning principles of the Land Use Element are described below.

Zoning Ordinance Update (2011-Present)

Beginning on April 4, 2011, the Board of Supervisors initiated the process for a comprehensive Zoning Ordinance update in conjunction with several targeted General Plan Amendments, collectively known as the "TGPA-ZOU" project. The Zoning Ordinance update is the first comprehensive update to the Zoning Ordinance in over 30 years. The primary purposes of this update are to bring zoning regulations into conformance with the General Plan, and other State regulations, and to enhance the economic development of the County (General Plan Implementation Measures LU-A, LU-C, LU-D and LU-G). A detailed status review of applicable land use measures is shown in Appendix A.

In October 2013, the Board authorized the preparation of the Draft Environmental Impact Report (DEIR). The DEIR was released in early 2014 and the final EIR is anticipated to be completed by October 2014.

Land Development Manual Update (2010-Present)

Land Use Implementation Measure LU-E requires that the Department of Transportation and Planning Department "review and identify needed revisions to the County of El Dorado Design and Improvements Standards Manual" (DISM). The Development Services, Transportation and Environmental Management Divisions of the Community Development Agency, in conjunction with the County Surveyor's Office, the Community Economic Development Advisory Committee, and local fire district personnel, are creating a Land Development Manual (LDM), intended to replace the current Design and Improvement Standards Manual (DISM). The new LDM document is anticipated to be completed in 2015.

Meyers Community Plan Update (2012-Present)

General Plan Goal 2.10 and General Plan Implementation Measure LU-O direct the County "to coordinate the County's land use planning efforts in the Tahoe Basin with those of the Tahoe Regional Planning Agency" (TRPA).

In December 2012, TRPA updated its 25-year old 1987 Regional Plan. One of the goals of the TRPA Regional Plan Update (RPU) was to allow for local jurisdictions to act as the primary land use and permitting authority within specific areas of the Tahoe Basin. In conformity with the RPU, new Area Plans adopted after 2012 would provide more specific development objectives and standards that are adapted to the needs of each specified area with emphasis in overdeveloped areas of the region that were formerly designated as community plan areas.

In May 2012, an update to the 1993 Meyers Community Plan (MCP) was initiated, as the MCP was over 20 years old and had only minor changes since adoption. In addition to conforming the existing MCP to the 2012 TRPA Regional Plan Update, the updated MCP would provide incentives needed to: 1) encourage transfer of existing development to areas of lower environmental sensitivity, 2) concentrate land uses within less-sensitive areas, 3) rehabilitate and redevelop aging infrastructure, and 4) enhance environmental protections.

Most importantly, the new MCP will provide a planning tool to implement the Meyers community's vision, recognize the unique characteristics of the community and streamline the land development process for the community of Meyers. Finalization of the plan is anticipated by late 2014.

Transportation and Circulation Element

The Transportation and Circulation Element provides the framework for decisions in El Dorado County concerning the countywide transportation system. The system includes facilities for various transportation modes, including roads, transit, non-motorized and aviation. This element provides for coordination with the incorporated cities within the county, the El Dorado County Transportation Commission, the Sacramento Area Council of Governments, the Tahoe Regional Planning Agency, and state and federal agencies that fund and manage the county's transportation facilities. The Transportation and Circulation Element reflects the urban and rural diversity of the unincorporated areas of El Dorado County and establishes standards that guide development of the transportation system, including access to the road and highway system required by new development.

During 2013, the County continued to implement planning efforts to facilitate a safe, multi-modal road and trail network. The 2013 Capital Improvement Program (CIP) was adopted on June 24, 2013. The new Travel Demand Model (TDM) was completed in 2013. The TDM relies on existing base data (traffic counts, existing development, 2010 Census information, and the County's roadway network). It also includes a forecast of the distribution and timing of future growth within the General Plan horizon (year 2035). A peer review of the model was completed in May 2013. In June 2013, the TDM data (2010 Baseline and Draft 2035 Land use Forecast) was released to run forecast scenarios. A growth forecast was approved by the Board of Supervisors in April 2014, as the starting point for initiating the 5-year major CIP and Traffic Impact Mitigation (TIM) Fee Program updates, anticipated to be completed by late 2015.

Housing Element

The State of California identifies provision of adequate and affordable housing for every Californian as a statewide goal. This Housing Element must meet the requirements of California Government Code Sections 65583 and 65584, which require local governments to adequately plan to meet the existing and projected housing needs of all economic segments of the county. State law requires the Housing Element to contain a program which sets forth a five-year schedule of actions of the local government to implement the goals and objectives of the Housing Element. With the passage of Senate Bill 375 in 2008, Housing Element Law under Government Code Section 65588 was modified to align that time period to eight years for those governments who are located within a region covered by a regional transportation planning agency, such as the Sacramento Area Council of Governments (SACOG). Therefore, from the date of state certification in November, 2013, the County's Housing Element is valid for the planning period from 2013 to 2021. The County's progress in meeting Housing Element goals is addressed in the County's 2013 Housing

Element Implementation Annual Progress Report, which is included as Appendix B. This report provides details on the County's progress in meeting regional housing needs, as well as removing governmental constraints to the development of affordable housing.

Public Services and Utilities Element

Although the Public Services and Utilities Element is not required by State law, the subjects addressed here are critical to the County's future growth and development. Many of the public services are currently operating close to or exceeding capacity level. The purpose of the Public Services and Utilities Element is to promote a pattern of development which maximizes the use of existing services while minimizing the costs of providing new facilities and services. While implementation of the Public Services and Utilities Element has largely been completed prior to calendar year 2013, several implementation measures are still in progress as of the date of this report. A detailed status review of each measure is shown in Appendix A.

Public Health, Safety and Noise Element

The overall focus of the Public Health, Safety, and Noise Element is to provide guidelines for protecting El Dorado County residents and visitors from existing and potential health, safety or noise hazards in El Dorado County. This Element is consistent with the requirements set forth in the California Government Code Section 65302 and other applicable sections. Specifically, California Government Code Section 65302(g) requires communities to identify "any reasonable risk associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiches, and dam failure; slope instability leading to mudslides and landslides, subsidence and other geologic hazards known to the legislative body; flooding; and wildland and urban fires."

The Public Health, Safety, and Noise Element addresses community noise limitations, in accordance with Government Code Section 65302(f). Additionally, this element satisfies the State mandated requirements for the safety General Plan element.

Although implementation of the Public Health, Safety and Noise Element has largely been completed, several noise-related implementation measures remain incomplete. As comprehensive noise regulations have been incorporated into the Zoning Ordinance Update (ZOU), most of the noise-related measures will be fully implemented upon completion of the ZOU, scheduled for completion in October 2014.

Conservation and Open Space Element

The purpose of the Conservation and Open Space Element of the General Plan is to address the management, preservation, and conservation of natural resources and open space of El Dorado County. Management of the County's resources will assure the availability of those resources to future generations and the realization of their full economic potential. Pursuant to Government Code Section 65302, both a conservation and an open space element must be included in a General Plan. The General Plan combines these two elements into the Conservation and Open Space Element and as such satisfies the legal requirements for the Conservation and Open Space Elements defined in the Government Code, Sections 65302(d) and 65560, respectively.

During 2013, the County continued to make progress with implementing many measures associated with the Conservation and Open Space Element, although much implementation still remains incomplete. A detailed status review of all implementation measures within this Element is provided in Appendix A. One of the primary projects associated with implementing the Conservation and Open Space Element is the Oak Woodlands/Biological Resource Policy Updates described below.

Oak Woodlands/Biological Resource Policy Updates (2008-Present)

On May 6, 2008, the Board of Supervisors adopted the Oak Woodland Management Plan (OWMP) and its implementing ordinance, to be codified as Chapter 17.73 of the County Code (Ord. 4771. May 6, 2008). The primary purpose of this plan was to implement the Option B provisions of Policy 7.4.4.4 and Measure CO-P. These provisions established an Oak Conservation In-Lieu Fee for the purchase of conservation easements for oak woodland in areas identified as Priority Conservation Areas.

A lawsuit was filed in El Dorado Superior Court on June 6, 2008 against the Oak Woodland Management Plan. On February 2, 2010, the Court ruled to uphold the Board's action to adopt the Plan. However, on appeal, the Appellate Court over-ruled that decision, remanding the case back to Superior Court, with the direction to require the County to prepare an Environmental Impact Report for the OWMP. The OWMP was rescinded on September 4, 2012 (Resolution 123-2012) and its implementing ordinance was rescinded on September 11, 2012 (Ord. No. 4892). For the time being, only Option A of Policy 7.4.4.4 is available to mitigate impacts to oak woodlands.

On September 24, 2012, the Board of Supervisors directed the Development Services Department to prepare a General Plan amendment to amend (biological resource) Policies 7.4.2.8, 7.4.2.9, 7.4.4.4, 7.4.4.5, 7.4.5.1, and 7.4.5.2 and their related implementation measures to clarify and refine the County's policies regarding oak tree protection as well as (biological) habitat preservation. The Board further directed staff to prepare a Request for Proposals to hire a consultant to assist the County in preparing the biological policy amendments and an Environmental Impact Report (EIR).

On October 30, 2013, the Community Development Agency (CDA) conducted a Statement of Qualification (SOQ) solicitation for consultants who could provide professional services to the County necessary to consider appropriate amendments to General Plan biological policies. The County received 5 responses to the SOQ. Staff reviewed and ranked all responses received. The top 2 consultants were then interviewed by staff. As a result of this process, Dudek, an environmental consulting firm, was identified as the consultant most qualified to provide the requested services.

On March 11, 2014, the Board of Supervisors approved an agreement for services with Dudek to review the biological resource policies and implementation measures within County's General Plan and prepare an EIR.

Agriculture and Forestry Element

The Agriculture and Forestry Element addresses the conservation, management, and utilization of the County's agricultural and forest lands. Prudent management of the County's agriculture and forestry resources is needed to provide future generations with opportunities to experience both the economic benefits and rural lifestyle residents now enjoy. This current management strategy involves maintenance of large parcel sizes and the minimization of incompatible land use encroachment into these resource rich lands. The County's Implementation Plan for the Agriculture and Forestry Element is fully consistent with the requirements set forth in State law regarding the following:

1. Distribution, location and use of agricultural lands;
2. Conservation, development and utilization of natural resources; and
3. Creating and maintaining open space for managed production of agricultural resources.

During calendar year 2013, progress continued with the implementation of this Element. However, out of twelve required implementation measures, only three measures have been fully implemented, seven implementation measures were in various stages of progress and two measures remained unaddressed. A detailed status review of all implementation measures within this Element is provided in Appendix A. During 2013, key planning efforts to implement this Element included the item(s) below:

Expansion of Agricultural Districts (2009-Present)

Land Use Implementation Measure AF-J requires the completion of an inventory of agricultural lands in active production and/or lands determined by the Agricultural Commission to be suitable for agricultural production with the intent of adding these lands to the existing Agricultural Districts. The El Dorado County General Plan established Agricultural Districts to conserve, protect, and promote agricultural use. Within these districts are buffering protections, parcel size restrictions and policies supporting agricultural development. In July of 2009, the Agricultural Department began an inventory of parcels in close proximity to the existing Agricultural Districts and analyzed those parcels using the following criteria: General Plan land use designations, parcel size, soil type, elevation, present land use, current Williamson Act contracts, and slope. Between July of 2009 and June of 2010, the Agricultural Commission notified over 580 property owners and held 10 public meetings to address the 17,000 acres of proposed additions. This analysis was received by the Board of Supervisors through a Resolution in January of 2011, which directed the Development Services Department to proceed with the recommendations of the Agricultural Commission and prepare a draft revision to the Agricultural District boundaries. This revision has been incorporated into the Targeted General Plan Amendment/Zoning Ordinance Update (TGPA-ZOU) project, which is anticipated to be completed in October 2014.

Parks and Recreation Element

The Parks and Recreation Element establishes goals and policies that address the long range provision and maintenance of parks and recreation facilities needed to improve the quality of life of existing and future El Dorado County residents. The overall focus of the Parks and Recreation Element is on providing recreational opportunities and facilities on a regional scale, including trails and waterways; securing adequate funding sources; and increasing tourism and recreation-based businesses. The element also addresses the location, demand, management, and provision of parks and recreation facilities. For calendar year 2013, only two measures remained unaddressed. Eight measures have been completed and four are in various stages of progress. The status of each of the measures is included in Appendix A.

Economic Development Element

Although an economic development element is not a required element under State law, California Planning law states that “the General Plan may include any element(s) or address any . . . subject(s) which . . . relate to the physical development of the county (Government Code Section 65303).” The Economic Development Element has been included as part of the County’s General Plan in order to strengthen community development activities, enhance economic growth and reinforce the planning process as a positive part of economic development. In addition, this Element seeks to improve a local business climate by recognizing sub-regional constraints and opportunities, expanding the local tax base and enhancing employment opportunities throughout the County.

Economic Development accomplishments during 2013 are highlighted below:

- Implemented CEDAC recommendations for:
  - Development of El Dorado County Web Portal
  - Micro-grant program for community non-profits
  - Grant Consultant to assist non-profits to pursue additional funding
  - Community Vision and Identity Meetings
  - Targeted General Plan Amendment and Zoning Ordinance Update
- Collaborated with Community Development Agency to assist applicants
- Created Economic Development Incentive Policy J-7 (Feb, 2014)
- Awarded CDBG funding to provide financial and technical assistance to small businesses
- Contracted with Buxton to provide consumer analytics to local businesses
- Funded and collaborated with local Chambers of Commerce on annual Business Walks
- Partnered with Connections/HHSA to place unemployed into on-the-job training (OJT)

4. STRATEGIC PLAN FOR GENERAL PLAN IMPLEMENTATION

The Board of Supervisors adopted a (Strategic) Implementation Plan as part of the 2004 General Plan. The implementation Plan includes County activities, processes, reports, programs, assessments, plans and timeframes that are necessary to achieve the General Plan's goals and policies. Each General Plan policy includes one or more implementation measures or programs as a mechanism for its implementation.

As part of the General Plan implementation process, the County is also required by State law to implement a Mitigation Monitoring Program, or MMP. The MMP is a valuable tool to regularly review and assess the progress of specific mitigation measures incorporated into the General Plan to reduce environmental damage (*PRC Sections 21081.6 and 21081.6(b), Government Code Section 65400 and CEQA Guidelines Sections 15091.d and 15097, 15097(b)]*. In addition to State requirements, the General Plan also requires regular reviews of these same (environmental) mitigation measures (General Plan Policy 2.9.1.5). As all mitigation measures have been incorporated into the Implementation Plan, the General Plan is deemed "self-mitigating." Therefore, all mitigation measures are included on the Implementation Plan, with the status of many implementation measures directly affecting the completion of the MMP (See Appendix A).

In November, 2013, the Housing section of the Implementation Plan was amended with the Housing Element update. The amended Implementation Plan for the Housing Element is located on the County web site at:
http://www.edcgov.us/Government/LongRangePlanning/LandUse/SupportingDocuments/2013-21_HousingElement_adopted_10-29-2013.aspx

The (Strategic) Implementation Plan for the other ten Elements is provided as Appendix A. The Implementation Plan is organized into eight categories, grouped by Element including the Land Use, Transportation and Circulation, Housing, Health/Safety and Noise, Conservation and Open Space, Agriculture and Forestry, Parks and Recreation and Economic Development Elements. Each category provides program-level strategies to implement each Element. Within each Element category, specific implementation measures are described, along with references to the General Plan Policies supporting each individual measure. In many cases, implementation measures may implement multiple General Plan policies. In some instances, changes to the Zoning Ordinance or other County codes may be necessary before additional progress can be made to accomplish implementation actions. One example is the requirement to comprehensively regulate noise by adopting a Noise Ordinance (Measure HS-I) where revisions to the existing Zoning Ordinance (or a new Noise Ordinance) are necessary in order to limit noise-generating activities.

5. PLANNING AND DEVELOPMENT ACTIVITIES

Other planning and development activities in 2013 included two General Plan Amendments, several Zoning Ordinance Amendments, and eighty Discretionary Development Applications were approved.

General Plan Amendments

The County General Plan was written as a macro-level document, which also includes more specific portions, such as the Land Use Diagram ("Map"). As such, some new development projects that do not conform to the General Plan are able to request General Plan Amendments ("GPAs") that might alter specific aspects of the General Plan when such a change is found to be consistent with the General Plan strategies and objectives.

Completed in 2013

Two privately-initiated GPAs were approved during calendar year 2013:

Wood Multi-Family Project (File No. A13-0006)

On November 12, 2013, the General Plan Land Use Designation was amended from Commercial (C) to Multi-Family Residential (MFR) for a proposed multi-family development project in the Pollock Pines area.

Latrobe Market (File No. A13-0001)

On December 3, 2013, the General Plan Land Use Designation was amended from High Density Residential (HDR) to Commercial (C) to allow for the development of a 2,432 square foot market/deli and outdoor picnic area in the Latrobe area.

Zoning Ordinance Amendments

The Zoning Ordinance is the primary tool for administering the General Plan. While the General Plan identifies broad land use designations, the Zoning Ordinance identifies parcel-specific uses and development standards. As mandated by the State, the Zoning Ordinance must be consistent with the General Plan. For consistency purposes, changes made to the General Plan may also require a corresponding update to the Zoning Ordinance.

Zoning Ordinance amendments processed by the County in calendar year 2013 are noted below.

Completed in 2013

Four Zoning Ordinance amendments were approved during calendar year 2013:

Privately-Initiated

Wood Multi-Family Rezone (File No. Z13-0003)

On November 12, 2013, the Board of Supervisors adopted Ordinance No. 5003 to rezone an existing mixed-use developed 0.31 acre lot from Commercial (C) to Multifamily Residential (RM) in order to allow future multi-family units. This request was also processed concurrently with General Plan Amendment A13-0006 to amend the General Plan Land Use Designation for this project.

Latrobe Market Rezone (File No. Z13-0001)

On December 3, 2013, the Board of Supervisors adopted Ordinance No. 5004, rezoning an existing parcel from Estate Residential (RE-10) to Commercial (C) to allow for the development of 2,432 square foot market, deli and outdoor picnic area. This request was also processed concurrently with General Plan Amendment A 13-0001 to amend the General Plan land use designation for this project.

<u>County-Initiated</u>

Zoning Ordinance Amendment to Regulate the Distribution of Medical Marijuana (File No. OR 13-0001)

On September 24, 2013, the Board of Supervisors adopted a Zoning Ordinance amendment to regulate the distribution of medical marijuana. The adopted ordinance amended Chapter 17.14.250 of the El Dorado County Ordinance Code prohibiting new medical marijuana distribution facilities, including dispensaries, collectives and cooperatives in all zone districts in the unincorporated areas of the County of El Dorado.

Zoning Ordinance Amendment to Regulate the Outdoor Cultivation of Medical Marijuana (File No. OR 13-0002)

On September 24, 2013, the Board of Supervisors adopted changes to Chapter 17.14.260 of the El Dorado County Ordinance Code, regulating the outdoor cultivation of medical marijuana in all zone districts in the unincorporated areas of the County of El Dorado. The Ordinance regulates the outdoor cultivation of medical marijuana by setting standards and regulations for: the maximum size area for cultivation; screening; security; residency requirements or owner authorization; environmental requirements (water quality, sewage disposal, and use of chemicals); disposal of waste material; collective cultivation on larger lots; abatement and code enforcement; administrative relief provisions and appeal process, including providing for public notice of administrative relief and appeal requests.

In-Process Zoning Ordinance Amendments Submitted in 2013

<u>Privately-Initiated</u>

Serrano Village J5 and J6 (File No. Z13-0002)

The County is currently processing a rezone request for converting an existing five-acre parcel from Planned Commercial-Planned Development (CP-PD) to Single-Family Residential-Planned Development (R1-PD). This request is part of a larger project (File No. TM 13-1511) to create 119 single-family residential lots ranging in size from 6,900 square feet to 14,123 square feet in size.

Cameron Hills Rezone (File No. Z13-0005)

The County is processing a rezone request as a "map clean up" in order to allow proposed revisions to the previously-approved lotting map for TM 08-1473.

FDL Properties Rezone (File No. Z13-0006)

The County is currently processing a rezone request for a single parcel from Planned Agricultural, 20-Acre (PA-20) to Exclusive Agricultural (AE) in order to allow participation in the County's Williamson Act program.

County-Initiated

El Dorado County Zoning Ordinance Update

On November 14, 2011, the Board of Supervisors adopted Resolutions of Intention (183-2011 and 184-2011) to undertake a comprehensive update of the county's zoning ordinance. The update, the first in over 30 years, is part of the TGPA-ZOU project and was on-going throughout 2013. As part of this comprehensive update, certain zone districts are proposed to be deleted. Three of the changing zone districts are agricultural. In March of 2012 and again in July of 2013, the County, in conjunction with the El Dorado County Farm Bureau, sent out over 3,000 letters, asking property owners, who met certain criteria, if they preferred agricultural zoning or residential zoning for their parcels. The County received over 700 requests for agricultural zoning. Web-based GIS land use maps showing the parcels that met the criteria for the "Ag Opt-In" letter and showing the parcels requesting agricultural zoning were developed by the County Surveyor's Office. The Board of Supervisors will be making a final determination on zoning changes, as part of the TGPA-ZOU project which is anticipated to be completed in October 2014.

El Dorado County Sign Ordinance Update

In August of 2012, the Board of Supervisors directed staff to contract for the preparation of a comprehensive sign ordinance amendment and the related Environmental Impact Report (EIR). A contract was executed with Pacific Municipal Consultants, Inc. (PMC) in December of 2012. The project was initiated in January of 2013 with a presentation by PMC at a joint meeting of the Board and the Planning Commission. In June of 2013, the Board authorized the Sign Ordinance Public Draft to be released for a 60-day review period. The public draft was released on July 8, 2013 and the public comment period closed on September 10, 2013. Written comments were submitted by forty-two individuals and seven agencies. In December of 2013, staff presented to the Board a general summary of the public comments received and asked the Board for direction on several policy issues identified in the public comments. The Board's direction required revisions to the draft sign ordinance which will be presented to the Board, along with the Notice to Proceed with the EIR, by July of 2014. The final EIR and updated Sign Ordinance are anticipated to be adopted by the Board by the end of 2014.

Withdrawn Zoning Amendments

Privately-Initiated

Promontory Village Lot D1 (File No. Z13-0004)

Rezone request Z13-0004 was withdrawn by the applicant on October 22, 2013, as Planning Services staff deemed that a rezone would not be required based on Sections 6.1, 6.2 and 6.3 of the Promontory Specific Plan, in order to accommodate proposed residential uses.

Discretionary Development Applications

In 2013, eighty (80) discretionary development applications were approved. A condition of approval requires consistency with the General Plan goals and objectives. Table 1 on the next page provides a summary of the total discretionary development applications received by the Development Services Division during calendar year 2013.

Table 1: Summary of Discretionary Development Applications Filed in 2013 [1, 2]

Application Types	Applications Submitted in 2013			
	New Request	Approved	Denied/ Withdrawn	Still in Process
General Plan Amendments (Privately-Initiated)	3	2	1	
Discretionary Certificates of Compliance	2	1		1
Development Agreements	2		1	1
Design Review Permits	5	5		
Tentative Parcel Maps	2	2		
Tentative Subdivision Maps	3	2		1
Special Use Permits	17	9		8
Planned Developments	5	3	1	1
Specific Plans	3			3
Rezones	6	1	1	4
Variances	3	3		
Temporary Use Permits	39	37	1	1
Williamson Act Contracts	11	2		9
Pre-Applications	14	13		1
TOTALS	114	80	5	29

Notes:

1. Table only identifies applications initiated in 2013.
2. County-initiated projects [("Gov") files, County-initiated General Plan Policy Amendments, Zoning Ordinance revisions] and administrative projects [Lot Line Adjustments and Site Plan Reviews] are not included.

6. OTHER RELATED ACTIVITIES

A. Review of: Interagency or intergovernmental coordination efforts and identify areas for improvement. This may include participation in a regional blueprint or partnerships with State or Federal programs.

The County continues ongoing discussions with City of Placerville regarding coordinating City/County housing programs and other various opportunities to streamline delivery of public services and programs. The County coordinates on a monthly basis with the El Dorado County Transportation Commission (EDCTC) by participation on the EDCTC's Technical Advisory Committee (TAC). EDCTC is the Regional Transportation Planning Agency (RTPA) for the County and the City of Placerville. The County also coordinates with the Sacramento Area Council of Governments (SACOG) by participating in monthly meetings of SACOG's Regional Planning Partnership and Planners Committee. SACOG is the federally mandated Metropolitan Planning Organization (MPO) for six counties and 22 cities in the Greater Sacramento region. Coordination efforts include providing input in the updates to the region's long-range Metropolitan Transportation Plan/Sustainable Communities Strategy, the distribution of affordable housing in the region, Regional Housing Needs Assessment (RHNA), planning efforts related to land use, transportation, and air quality. Coordination efforts with the Tahoe Regional Planning Agency (TRPA) are also ongoing. In an effort to improve interagency coordination with TRPA, the County began planning a joint workshop with TRPA in late 2013. The half-day workshop included face-to-face meetings and presentations by County and TRPA staff on each respective current and long-range planning effort. This special workshop was held in January 2014.

B. Review of: The implementation of mitigation measures from the General Plan Final Environmental Impact Report or Negative Declaration.

The review of the implementation of the mitigation measures is addressed in the "Strategic Plan for General Plan Implementation" section of this report.

C. Summarize efforts to: Promote infill development, reuse, and redevelopment particularly in underserved areas while preserving cultural and historic resources.

An integral part of the Zoning Ordinance Update is the proposed Mixed Used Development Guidelines. A draft Mixed Use Design Manual was released in March 2014 for public review. This guide was developed to provide a framework for good design that promotes economic and cultural revitalization while respecting historical foundations. The Mixed Use Design Guide takes into consideration El Dorado County's historic Gold Rush roots.

D. Summarize efforts to: Encourage efficient development patterns.

The 2004 General Plan includes vision statements, goals and objectives that encourage efficient development patterns. The development of these visions and strategies serves to provide for the underlying approach of the General Plan. This approach is the identification of distinct planning concept areas where growth will be directed as a means of providing for a more manageable land use pattern. The concepts of the Plan also recognize that differing levels of service will occur within community and rural areas.

1. Community Regions where growth will be directed and facilitated;
2. Rural Centers where growth and commercial activities will be directed to serve the larger Rural Regions; and
3. Rural Regions where resource based activities are located will be enhanced while accommodating reasonable growth.

Higher levels of infrastructure and public services of all types shall be provided within Community Regions to minimize the demands on services in Rural Regions. The Capital Improvement Plan for the County and all special districts will prioritize improvements. It is the explicit intent of the Plan, through the appropriate application of these planning concept areas, to: (1) foster a rural quality of life; (2) sustain a quality environment; (3) develop a strong diversified, sustainable local economy; (4) plan land use patterns which will determine the level of public services appropriate to the character, economy, and environment of each region;

and (5) accommodate the County's fair share of the regional growth projections while encouraging those activities that comprise the basis for the County's customs, culture, and economic stability.

In 2013 eighty (80) Discretionary Development Applications (see Table 1) were approved. Conditions of approval require a finding of consistency with General Plan Vision, Goals and Objectives supporting efficient development patterns.

E. Describe the jurisdiction's strategy for: Economic development - Depending on the needs of your jurisdiction, this analysis could include information on the ratio of jobs to dwelling units, tax revenues, demographics, census information, etc.

Under the oversight of the CAO's office, the Office of Economic Development (OED) was created to implement the County's economic development strategy. The OED's mission is to stimulate economic growth in the following areas:

1. Attraction and Retention of Employers;
2. Developing incentives for business expansion;
3. Assist in new business formation; and
4. Workforce development

In calendar year 2013, the OED accomplished several key activities to further the County's economic development goals. These details are discussed in the Economic Development Element section of this report. The 2014 objectives to develop long long-term economic development strategies are summarized below:

1) **Policy Development and Implementation -** Revise and update Incentive Policy; Review and recommend additional policies
2) **Business Retention and Expansion (BRE) -** Industry Sector Committees Business Walks; Face-to-Face Business Visits
3) **Entrepreneurship Development -** CDBG Micro-Enterprise Assistance; SEDCorp Workshops; Outreach to Home-Based Businesses

4) **Collaboration with Workforce Investment Programs -** Identify Businesses' Hiring and Training Needs thru BRE; Create "Learning Linkages" with K-12, Community College, Workforce Investment

5) **Finance Necessary Infrastructure -** Identify State and Federal Economic Development Grant Sources; Replicate Master Circulation and Funding Plan (MC&FP) for Missouri Flat for business parks

6) **Business Attraction and Recruitment**

E. Describe the jurisdiction's strategy for: Monitoring long-term growth - For example: population growth, employment growth, land use development, and the provision of adequate supporting public services and infrastructure.

General Plan Policies 2.9.1.1 and 2.9.1.2 directs that the County shall monitor on an annual basis and every 5 years, the rate at which the land inventory is developed, the population and employment growth of the County, and other useful indicators of the County's growth. If the results of this monitoring process indicate that the distribution of growth varies significantly from the major assumptions of this Plan, the County shall make appropriate adjustments to the Plan's development potential by General Plan amendment.

F. Outline department goals, objectives, and responsibilities, as they relate to land use planning.

In 2013, the County formed a new Long Range Planning team which is responsible for helping the Board of Supervisors develop plans, policies, ordinances and programs. Long range planning involves highly complex and diverse land use and transportation decisions that require a careful balancing of competing economic, social and environmental interests. The Long Range Planning mission is to serve the needs of El Dorado County's current and future residents, businesses and visitors by providing accurate information, impartial analysis and forums for stakeholder discussions to support well-informed long range planning decisions, and facilitating implementation of Board-adopted plans, policies and ordinances.

G. *Review and summarize grant administration for land use planning activities.*

In July 2013, the Board approved a new Cultural and Community Development Grant Program. The purpose of the program is to provide funds to private non-profit and public organizations whose purpose is to promote cultural, historical preservation and other promotional activities, which encourage/enhance tourism, agriculture, and economic development in the County. The notice of funding availability for FY 2013-13 was released on July 19, 2013. Total funding available was $80,000 and the maximum grant amount was $5,000. Twenty-six applications were submitted and 19 were selected for grant awards totaling $79,670. Many of the applications supported General Plan community identification goals and objectives. More information on the Cultural and Community Development Grant Program is available on the County's Economic Development web page:

http://www.edcgov.us/Government/Economic/Cultural_and_Community_Development_Grant_Program.aspx

Also in July 2013, the Board approved the release of a Request for Proposal (RFP) for grant related support services to include funding needs analysis, grant research, grant proposal development, grant administration and reporting, as well as training in preparing comprehensive grant proposals. The RFP specified a broad range of grant opportunities that support funding needs and priorities in a number of areas including: History, Arts and Culture, Public Facilities and Maintenance, Economic Development, Community Planning, Identification and Design, Transportation Infrastructure and Planning, Public Health/Mental Health, Social Services, Law Enforcement, and Technology Development. Five proposals were received and evaluated by a panel of representatives from various County departments and the Community and Economic Development Advisory Committee (CEDAC). The panel interviewed two proposers and selected Grant Management Associates (GMA) and recommended a one year contract be administered by the Economic & Business Relations Manager. The contract was being processed at the end of 2013 and was anticipated to be executed in early 2014. Economic Development funding would only be used for grant related services that support economic development and promotions programs, such as the development of Community Visioning and Implementation Plans.

H. Provide a technology review such as implementation of GIS or establishment of web sites.

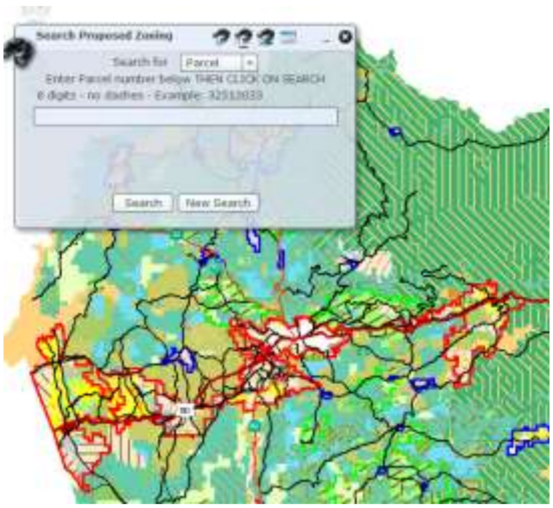
2013 Accomplishments from the County Surveyor's Office and Information Technologies (IT) Departments:

The Geographic Information Systems (GIS) Division of the County Surveyor's Office is responsible for developing, managing and delivering a wide variety of integrated data and GIS maps of parcels, roads and political jurisdictions that support County services and is available to the general public. The GIS Division has done an outstanding job as the interface between the plethora of County data and integrating it with geographical referenced information, and making this information readily accessible and available to County departments and the general public.

In 2013, the GIS Division completed migrating the road network from a shapefile environment to a spatial geo-database. It also completed migrating all separate jurisdiction files such as ZOB, CSA, AOB, Fire, School, Water, City, to a jurisdiction spatial geo-database. These GIS technology upgrades allows the GIS Program to manage single data sources and output multiple and custom views of the data. Some of the GIS Program's accomplishments in 2013 are highlighted below.

A Parcel Inquiry web-based tool was developed that links to a Draft Zoning Map for the Targeted General Plan Amendment-Zoning Ordinance Update (TGPA_ZOU).

Parcel Inquiry	*The Parcel Inquiry links to a Draft Zoning Map for the proposed TGPA-ZOU. After reading the Disclaimer, click on "OK" at the bottom. Then enter your Parcel number in the "Search Proposed Zoning" box, or click on the down arrow for "Search for" and select Address in the drop-down box, and enter your address. Then click on Search.*



The Draft Zoning Map uses a modified version of the parcel base and road data developed and maintained by the County's Surveyor's Office – GIS Division.

The interactive tool allows parcel owners to enter either their parcel number or parcel address that results in a data table which shows the current and proposed zoning for the inquired parcel adjacent to an interactive GIS map of the County that can be moved, expanded and zoomed in and out. The GIS Parcel Inquiry weblink is: http://gemp.edcgov.us/zoning_luppu/

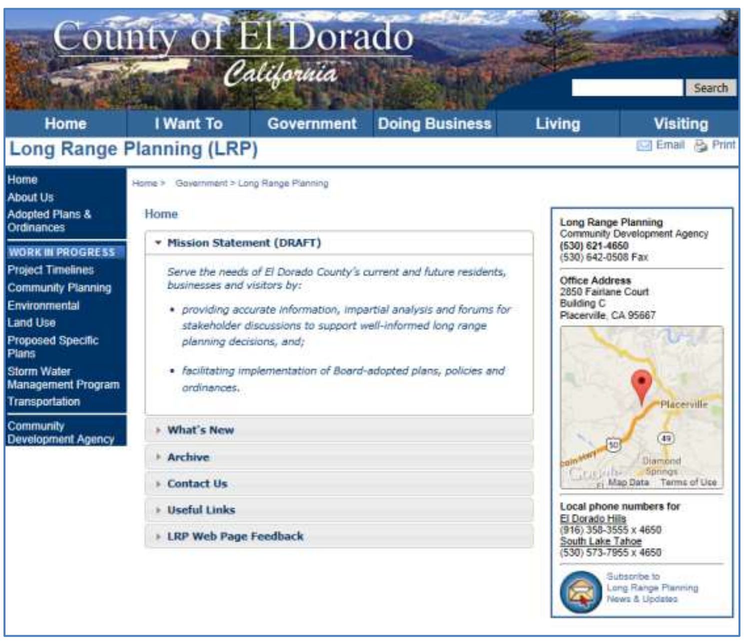
Also for the TGPA-ZOU, various web-based General Plan land use maps were developed and made available to the general public on the County's website at: http://www.edcgov.us/Government/LongRangePlanning/LandUse/TGPA-ZOU_Main.aspx

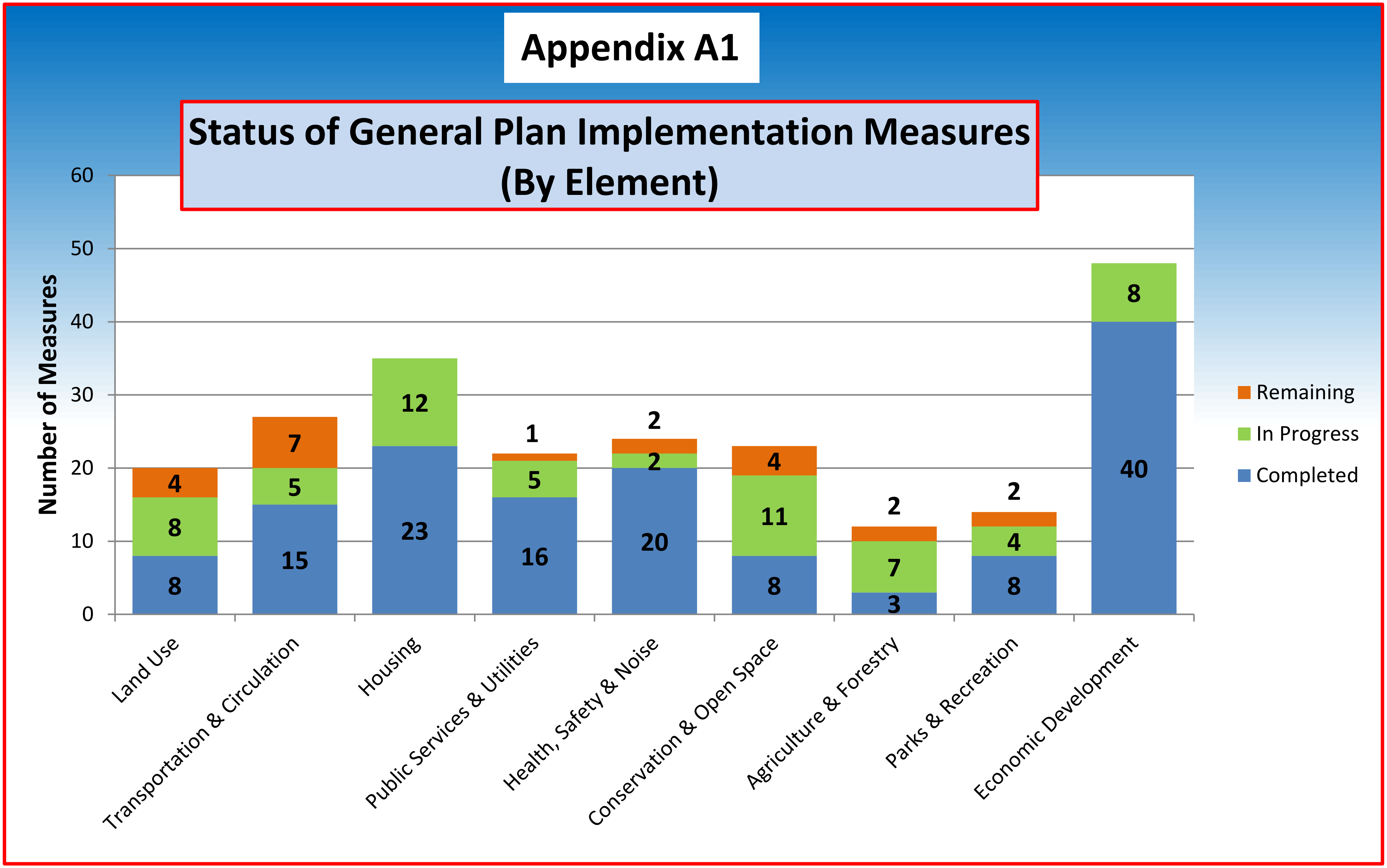
Other noteworthy GIS activities completed in 2013 include:

- Mixed-use development (MUD) / traditional neighborhood design (TND) permit report on manufacturing/commercial
- GIS layers for Phase II permits for the National Pollutant Discharge Elimination System (NPDES) storm water program for the County's West Slope area
- Development of an interactive web-based map of the County maintained bridges included in the Transportation Division's Capital Improvement Program
- Delivery of a census population density map, and a South County population map

- Review of agricultural parcels
- General Plan Housing Element map of vacant land inventory and Housing Permits for 2013
- GIS verification of the County's Parks and Trail Master Plan
- Geocoding and mapping of business license addresses
- Broadband mapping support
- Special mapping requests for various departments and external agencies (i.e., Specific Plans, Sheriff zones, etc.)

Also in 2013, development of a new Long Range Planning (LRP) web page was initiated. LRP staff coordinated with the County's Information Technologies (IT) Department in designing the layout of the new LRP web pages. Given the constraints of the County's current website structure (which is planned for upgrading in one to two years), the IT staff proposed the use of an "accordion" feature. The new web page, which utilizes the "accordion" feature, was launched in January 2014. It is located on the County's main website: www.edcogov.us under Departments. The direct link to the LRP Home Page is: http://www.edcgov.us/LongRangePlanning/




Appendix A1
Status of General Plan Implementation Measures
(By Element)
Number of Measures
60
50
40
30
20
10
0
Remaining
In Progress
Completed
Land Use
8
8
4
Transportation & Circulation
15
5
7
Housing
23
12
Public Services & Utilities
16
5
1
Health, Safety & Noise
20
2
2
Conservation & Open Space
8
11
4
Agriculture & Forestry
3
7
2
Parks & Recreation
8
4
2
Economic Development
40
8

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
1	In Progress	LU-A	Review the Zoning Ordinance (Title 17 of the El Dorado County Code) to identify revisions that provide consistency with General Plan land use designations and updated development standards.	5.3-1(b), 5.3-3(b)	Viewshed Protection: Protect views from Scenic Corridors, Reduce effects of nighttime outdoor lighting.	Ordinance update in process. Anticipated completion October 2014
2	Completed	LU-B	Incorporate General Plan consistency review for all development proposals and capital improvement projects. [Also refer to Measure LU-C for consistency review of ministerial projects.]	5.1-3(a)	Establish a General Plan conformity review for all development projects	
3	Completed	LU-C	Establish performance standards to be included in the Zoning Ordinance to allow applicants for ministerial projects to demonstrate compliance with General Plan policies and with other applicable County ordinances, policies, and regulations.	5.1-3(a)	Establish a General Plan conformity review for all development projects	See LU-B. General Plan conformity reviews are included as part of in the existing Zoning Ordinance. Standards will also be included as part of the Zoning Ordinance Update.
4	In Progress	LU-D	Revise the Zoning Ordinance to ensure that all uses permitted by right in any zoning district are compatible. Allow potentially incompatible uses subject to a discretionary review process with performance standards	5.1-3(b)	Require development projects to be located and designed in a manner that avoids adjacent incompatible land uses	To be included as part of the Zoning Ordinance Update.
5	In Progress	LU-E	Review and identify needed revisions to the County of El Dorado Design and Improvements Standards Manual.			The Development Services and Transportation Divisions are moving forward with the updating of the county "Design Manual" ("Land Development Manual") with the ongoing main focus of revising the Standard Plans to reflect the new General Plan and current engineering. A secondary effort is the rewriting of the text of the manual to include modifications to the format of the manual and the processes in which the revision and updating will take. Part of interim guidelines and included in proposed Onsite Wastewater Treatment System Ordinance, Complete Streets and mixed use development standards.

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
6	In Progress	LU-F1	Create and adopt Community Design Review standards and guidelines and identify new Community Design Review Districts. This would include working with community groups to develop standards. Identify and seat community advisory members within two years of General Plan adoption. Identify community boundaries and create and adopt standards and guidelines within five years of General Plan adoption.			Community Planning initiated in 2011. Framework for communities interested in creating community visions and plans under development.
7	In Progress	LU-F2	See body of LU-F1 above. Identify community boundaries and create and adopt standards and guidelines within five years of General Plan adoption.			Community Planning initiated in 2011. Framework for communities interested in creating community visions and plans under development.
8	In Progress	LU-G1	Establish a Historic Design Review Combining Zone District. Identify suitable areas for application of the district to develop design standards or guidelines for such districts. Begin identification of potential historic districts immediately upon General Plan adoption.			Deferred until after adoption of comprehensive Zoning Ordinance Update.
9	In Progress	LU-G2	See body of LU-G1 above. Prepare and adopt draft ordinance and standards within three years.			Deferred until after adoption of comprehensive Zoning Ordinance Update.
10	Remaining	LU-H1	Develop and implement a program that addresses preservation of community separation, as outlined in Policy 2.5.1.3. The program shall address provisions for a parcel analysis and parcel consolidation/transfer of development rights.	5.1-2	Create distinct community separators	Deferred until after adoption of the TGPA-ZOU.
11	Remaining	LU-H2	See body of LU-H1 above. Complete parcel analysis and make recommendation(s) to the Board of Supervisors within five years of General Plan adoption.	5.1-2	Create distinct community separators	Deferred until after adoption of the TGPA-ZOU.

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
12	Remaining	LU-I	Inventory potential scenic corridors and prepare a Scenic Corridor Ordinance, which should include development standards, provisions for avoidance of ridgeline development, and off-premise sign amortization.	5.3-1(b), 5.3-1 (c)	Viewshed Protection: Protect views from Scenic Corridors, Reduce effects of nighttime outdoor lighting, Extend limitations on ridgeline development within scenic corridors or identified viewing locations to include all development.	Deferred until after adoption of comprehensive Zoning Ordinance Update.
13	Remaining	LU-J	If segments of State Route 49 are identified as appropriate for State Scenic Highway status during preparation of the Scenic Corridor Ordinance, prepare documentation in support of having those segments identified as a State Scenic Highway.	5.3-1(d)	Nominate SR 49 for Scenic Highway designation	Deferred until after adoption of comprehensive Zoning Ordinance Update.
14	Completed	LU-K	Develop and maintain an inventory of vacant lands within each Community Region and Rural Center. This would include working with community groups to identify appropriate uses for such parcels, including residential development and establishment of communities			
15	Completed	LU-L1	Develop a program to monitor development, population, and employment trends and to provide periodic updates to the Board of Supervisors. Develop program within three years of General Plan adoption.			Tracking system has been developed and is maintained annually. Information provide to Board with 1- and 5-year GP monitoring reports.
16	Completed	LU-L2	See body of LU-L1 above. Give first report to the Board of Supervisors within five years of General Plan adoption.			General Plan Implementation and EIR Mitigation Monitoring Plan updates to be submitted as part of the 2014 annual report and annually thereafter.
17	Completed	LU-L3	See body of Measure LU-L1 above. Present additional reports to the Board of Supervisors every five years after first report.			

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
18	Completed	LU-M	Develop a program to monitor General Plan policies and programs and General Plan Environmental Impact Report mitigations. Provide periodic updates to the Board of Supervisors and Planning Commission.			General Plan Implementation and EIR Mitigation Monitoring Plan updates to be submitted as part of next annual report, Spring 2014 and annually thereafter.
19	Completed	LU-N	Develop procedures to be used by applicants to substantiate a request for exemption from General Plan policies due to economic viability.			
20	In Progress	LU-O	Coordinate the following with TRPA and other agencies having land use jurisdiction in the Tahoe Basin: 1) Preparation and adoption of a Community Plan for the Tahoma/Meeks Bay area, 2) Identification of additional affordable housing opportunities, 3) Modification of the County's Zoning Ordinance to be consistent with, or adopt as County Code, the TRPA Code of Ordinances and Plan Area Statements; and 4) Implementation of actions recommended in TRPA's periodic Threshold Evaluation Reports.	5.14-1	Cooperate with the TRPA in the implementation of actions recommended in the (TRPA) Threshold Evaluation Report.	Items 3 and 4 are being reviewed as part of the Zoning Ordinance Update (October 2014).
21	Completed	TC-A	Prepare and adopt a priority list of road and highway improvements for the Capital Improvement Program (CIP) based on a horizon of five years. The Board of Supervisors shall update the CIP every two years, or more frequently			
22	Completed	TC-B	Revise and adopt traffic impact fee program(s) for unincorporated areas of the county and adopt additional funding mechanisms necessary to ensure that improvements contained in the fee programs are fully funded and capable of being implemented concurrently	5.4-1(e)		
23	In Progress	TC-C	Revise and update the Design and Improvement Standards Manual (DISM).			Long Range Planning, Transportation, and Planning Services are currently in process in replacing the DISM with the Land Development Manual and Standards Plans.

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
24	Completed	TC-D	Continue to identify and pursue appropriate new funding sources for transportation improvements, road maintenance, and Transportation operations. Grant funds from regional, state, and federal agencies should be pursued and utilized			
25	In Progress	TC-E	Develop and adopt an ordinance to protect rights-of-way for future road improvements from encroachment by new development.			
26	Completed	TC-F	Develop and implement a countywide program to annually monitor county road and state highway segment and intersection conditions to ensure that acceptable Levels of Service are maintained.	5.4-1(c), 5.4-2	Expand list of roadway segments allowed to operate at LOS F.	
27	Remaining	TC-G	Work with the cities of Placerville and South Lake Tahoe to establish a system of designated truck routes through urban areas.			
28	Completed	TC-H	Work with the El Dorado County Transportation Commission, the Tahoe Regional Planning Agency, and transit providers in the county to periodically review and update the short-range transit plans in the county.			
29	Completed	TC-I	Encourage transit providers, the El Dorado County Transportation Commission, the Tahoe Transportation District, and the Tahoe Regional Planning Agency, to prepare, adopt, and implement a long-range strategic transit master plan for the County or sub-areas			
30	Remaining	TC-J	Work with the El Dorado County Transportation Commission, Tahoe Transportation District, the Tahoe Regional Planning Agency, and other agencies to identify right-of-way needs within designated transit corridors and to acquire needed rights-of-way.			

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
31	Completed	TC-K	Work with the El Dorado County Transportation Commission, Tahoe Transportation District, Tahoe Regional Planning Agency, and Sacramento Area Council of Governments Board to identify and pursue funding for transit.			
32	Completed	TC-L	Develop a funding mechanism that requires new development to pay for additional park-and-ride lots identified by transit providers or Caltrans. Work with transit providers to determine the need for additional or expanded park-and-ride lots			
33	Completed	TC-M1	Update the Bikeway Master Plan, consistent with the Bicycle Transportation Act and in coordination with the El Dorado County Transportation Commission, Sacramento Area Council of Governments, California Transportation Division, Tahoe Regional Planning			The Bicycle Transpiration Plan is typically updated every 5 years. The last update was completed in 2010 and adopted by the Board of Supervisors in November 2010. The next update will be completed in 2015. (AN)
34	Completed	TC-M2	See body of TC-M1 above. Plan Adoption: Second full fiscal year following General Plan adoption.			
35	Completed	TC-N	Continue to identify and pursue appropriate funding sources for bikeway construction. Grant funds from regional, state, and federal agencies should be pursued and utilized when compatible with the General Plan policies and long-term local funding capability			
36	Completed	TC-O	Work with other agencies to provide facilities that help link bicycles to other transportation modes, including provision of bike racks or space on buses and parking or lockers for bicycles at transportation terminals.			
37	Completed	TC-P	Use appropriate zoning in designated rail corridors to ensure preservation of rail facilities for future local rail use.			

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
38	Remaining	TC-Q	Work with the El Dorado County Transportation Commission, the Sacramento Area Council of Governments, the City of Folsom, and Sacramento Regional Transit to support improvement, development, and expansion of rail service in El Dorado County.			
39	Remaining	TC-R	Participate with the El Dorado County Transportation Commission, the El Dorado County Transit Authority, the Sacramento Area Council of Governments, the City of Folsom, and Sacramento Regional Transit to support the identification of Transit Corridors.			
40	Completed	TC-S	Develop and implement a program to ensure that the concurrency requirements contained in this Transportation and Circulation Element are being enforced.			
41	Completed	TC-T	Develop and adopt a program of guidelines for reimbursement of development for costs associated with construction of regional road improvements.			
42	In Progress	TC-U	Revise the County Design Improvement Standards Manual to allow for narrower streets and roadways. The standards should recognize the need to minimize visual impacts, preserve rural character, and ensure neighborhood quality to the maximum extent possible	5.3-2	Design new streets and improvements to minimize effects on rural character to the extent possible.	Long Range Planning, Transportation, and Planning Services are currently in process in replacing the DISM with the Land Development Manual and Standards Plans.
43	In Progress	TC-V1	Work with Sacramento County and the City of Folsom to identify potential alignments for a new arterial roadway from the west side of El Dorado Hills Business Park to U.S. Highway 50.			
44	Remaining	TC-V2	Implement a growth control mechanism for all new discretionary and ministerial development (which includes approved development that has not yet been built) that would access Latrobe Road or White Rock Road.			A cap has been placed on the El Dorado Hills Business Park to alleviate Level of Service concerns at the Latrobe Road and White Rock Intersections. The TGPA/ZOU EIR will be analyzing existing traffic impacts that will assist in determining possible options allowing for the removal of the employment cap.

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
45	Remaining	TC-V3	Identify potential rights-of-way needed for establishment of a frequent transit service operating on exclusive right-of-way to the El Dorado Hills Business Park from residential communities in El Dorado County and from the City of Folsom.	5.4-1(d)	Amend the Circulation Diagram to include a Frequent Transit Service on exclusive right-of-way to the El Dorado Hills Business Park.	A cap has been placed on the El Dorado Hills Business Park to alleviate Level of Service concerns at the Latrobe Road and White Rock Intersection. The TGPA/ZOU EIR will be analyzing existing traffic impacts that will assist in determining possible options allowing for the removal of the employment cap.
46	Remaining	TC-W	Develop a procedure to review truck routes associated with discretionary projects to ensure project-related heavy truck traffic noise impacts are minimized.	5.10-1(b)	Establish truck routes to minimize noise at noise-sensitive land uses.	
47	In Progress	TC-X	Develop and adopt a formal program to review signalized intersections that may benefit from synchronization. Include synchronization of intersections that could benefit in the Capital Improvement Program.	5.11-4	Synchronize Signalized Intersections: Implement Mitigation 5.11-2(f) for the Roadway Constrained 6-Lane "Plus" Alternative.	In 2012, the County applied for and was awarded a federal grant to synchronize three intersections on Green Valley Road at Francisco Dr, El Dorado Hills Blvd and Silva Valley Pkwy. (AN) The TIM Fee program has funding reserved for future implementation for Intelligent Transportation Systems (ITS) improvements.
48	Completed	PS-A	Establish a means, either through formal agreement or through the identification of formal contacts, for various County agencies and departments to communicate with the following non-County public service and utility providers regarding planning for the provisions of services.			This measure is addressed as part of all discretionary and ministerial development applications.
49	Completed	PS-B	Review the County Code to identify revisions that project is consistent with the long range and capital improvement plans of County and other service providers and Require and specify the nature of findings to be made by the approving body that a proposed project meets minimum standards for the provision of emergency services, including emergency water supply and conveyance and emergency access, and emergency service facilities.			
50	Completed	PS-C1	Develop and regularly update an infrastructure fee program.			TIM Fees recently updated consistent with measure; other infrastructure provided by outside agencies. See Measure ED-SS for more information.

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
51	Completed	PS-C2	See body of PS-C1 above. Adopt fees within three years of General Plan adoption.			The existing Transportation Impact Mitigation (TIM) fee program is routinely updated on an annual basis.
52	Completed	PS-D	Develop a program to improve and promote appropriate sewage disposal systems in areas that do no have public wastewater disposal service.			Implemented and Ongoing
53	Completed	PS-E	Work with the Water Agency and public water providers to establish a water resources development and management program.			
54	Completed	PS-F	Work with the Water Agency and water service providers to establish a process to review ministerial and discretionary project applications reliant upon surface or groundwater for the ability to be adequately served by the proposed water system.	5.5-3, 5.5-1(b)	Increase the likelihood that groundwater supplies are conserved and physically available to meet the needs of future development. Ensure that surface water supplies are adequate and physically available before any new development occurs.	
55	Remaining	PS-G	Encourage water purveyors to design water supply and infrastructure projects in a manner that avoids or reduces significant environmental impacts to the maximum extent feasible.	5.5-2, 5.5-4	Encourage mitigation of the environmental impact of future water supply and infrastructure projects. Encourage mitigation of the environmental impacts related to future expansion of wastewater treatment capacity.	
56	Completed	PS-H	Develop and implement a water use efficiency program for application to existing and new residential, commercial/industrial, and agricultural water users for those areas not served by a water purveyor with an existing water use efficiency program.	5.5-1 (c), 5.5-7	Support development of water conservation and recycling projects that can help reduce water demand and projected shortages. Encourage use of recycled water in new development served by public wastewater systems.	Water use efficiency is included as part of the California Energy and Plumbing Code.

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
57	Completed	PS-I	Work with the Water Agency to develop and implement a program to identify areas having groundwater limitations.			
58	Completed	PS-J	Establish a process to review discretionary permit applications reliant upon any non-public community wastewater treatment system for the ability to be adequately served by the proposed system. Process to include development of wastewater treatment stand alone systems.	5.5-8	Monitor performance of septic systems annually.	An analysis of waste water systems is reviewed by the Environmental Health Unit as part of all discretionary development applications.
59	In Progress	PS-K	Develop and implement a monitoring program for septic systems.	5.5-8	Monitor performance of septic systems annually.	A septic monitoring program is currently under review by the Environmental Management Division.
60	In Progress	PS-L	Develop and implement a countywide drainage management program.			An existing drainage program has been implemented in the Tahoe Basin. West Slope drainage management is to be included as part of the West Slope NPDES Phase II Small MS4 General Permit.
61	Completed	PS-M	Prepare a Construction and Demolition Debris Diversion Ordinance for inclusion in the County Code.	5.6-3	Adopt a Construction and Debris Diversion Ordinance.	
62	In Progress	PS-N	Establish a means, either through formal agreement or through the identification of formal contacts, to coordinate a long-term planning process with private utility providers regarding the location and types of future utility delivery facilities.	5.8-7	Encourage coordination between utilities and school districts	
63	Completed	PS-O	Develop standards for energy-efficient site development and construction.			These standards are included as part of the California Energy Code.
64	Completed	PS-P1	Establish a working group to develop and oversee implementation of minimum countywide standards for emergency response times, emergency access, emergency water supply and conveyance, and staffing ratios.			
65	Completed	PS-P2	See body of PS-P1 above. Meet standard requirements within seven years of General Plan adoption.			

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
66	Completed	PS-Q	Establish a procedure for and the conditions under which coordination of the planning efforts of the County and the school districts will take place.			
67	In Progress	PS-R	Develop program for attracting a four-year college or university to the county.			
68	In Progress	PS-S	Provide support for the development of a performing arts center.			
69	Completed	PS-T	Compile and make available information regarding typical water demands associated with rural residential development that is dependent upon groundwater. Post information on the County's internet web site and make available in hard copy.			
70	Completed	HS-A	Maintain emergency response procedures and programs, including agreements with other local, state, and federal agencies, to provide coordinated disaster response and programs to inform the public of emergency preparedness and response procedures.			
71	Completed	HS-B	Work with the local Fire Safe Councils, fire protection districts, U.S. Forest Service, and California Department of Forestry and Fire Protection to develop and implement a countywide Wildfire Safety Plan.			
72	Completed	HS-C	Develop a program to collect, maintain, and update geological, seismic, avalanche, and other geological hazard information.			The County Surveyor's office regularly receives natural hazard information from the State OES and related agencies. This information is routinely updated and shared with other agencies as needed.
73	Completed	HS-D	Develop and adopt standards to protect against seismic and geologic hazards.	5.9-2(b)	Require geologic analysis in areas prone to geological or seismic hazards.	Included as part of the California Building Code
74	Completed	HS-E	Adopt a Naturally Occurring Asbestos Disclosure Ordinance that includes the provisions in the policy described in Policy 6.3.1.2.	5.8-9(c)	Provide disclosure of Naturally Occurring Asbestos (NOA) on properties.	COMPLETE. (1) Asbestos disclosure required per EDC Ordinance Chapter 8.44, (2) asbestos reports and records must be transferred during real estate transaction per AQMD Rule 223-2.

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
75	Completed	HS-F	Develop a program to track asbestos-related information as it pertains to El Dorado County. Report results to the Board of Supervisors annually.	5.8-9(d)	Conduct annual reporting regarding asbestos.	
76	Completed	HS-G	Adopt California Building Code revisions.			
77	Completed	HS-H	Continue to participate in the Federal Flood Insurance Program, maintain flood hazard maps and other relevant floodplain data made available by other sources, and revise or update this information as new information becomes available.	5.8-6	Prohibit creation of new parcels and development of existing parcels that are entirely within dam failure inundation areas.	Measures have been included in the Flood Damage Prevention Ordinance, adopted September 23, 2008.
78	Remaining	HS-J	Establish a working group to address cross-jurisdictional noise issues.			
79	Completed	HS-L	Update airport master plans and work with appropriate Airport Land Use Commissions to update Comprehensive Land Use Plans to reflect noise levels in the year 2025.	5.10-4	Update Airport Master Plans and Comprehensive Land Use Plans	Completed as part of the Airport Land Use Compatibility Plan, adopted June 28, 2012 and administered by the EDCTC.
80	Completed	HS-M	Maintain and update the Hazardous Waste Management Plan for management of hazardous waste to protect the health, safety, and property of residents and visitors, and to minimize environmental degradation.			The Environmental Management Division operates a hazmat incident response team on a 24/7 basis.
81	Completed	HS-N	Collect and maintain information on sites known, or suspected to be contaminated by hazardous materials. The information shall include current data from the California Department of Toxic Substances Control's Hazardous Waste and Substance	5.8-4	Remediate contamination before construction of new development on suspected contaminated sites.	Updated continuously. Most recently, EM staff updated APN numbers in El Dorado Hills to mirror recent re-numbering.
82	Remaining	HS-O	Develop, implement, and update, as necessary, a plan for the storage, transport, and disposal of hazardous materials used at County-operated facilities.			
83	Completed	HS-P	Enhance and maintain the Air Quality Management District's air quality public education program.			

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
84	Completed	HS-Q	Develop a program to encourage use of mechanisms to reduce peak hour vehicle trips consistent with Policy 6.7.2.2.	5.4-2	Implement 1996 General Plan Alternative Mitigation Measures 5.4-1(a), 5.4-1(b) or 5.4-1(d).	Ongoing. District developing Electric Vehicle Incentive Program (Drive Clean!) with EDCTC CMAQ and District funds to reduce emissions and peak hour congestion.
85	Completed	HS-R	Identify fleet vehicles that could successfully be replaced with more fuel efficient or alternative fuel vehicles. When those fleet vehicles are due for replacement, thoroughly investigate their replacement with such vehicles.			An alternate fuel vehicle replacement program is ongoing.
86	Completed	HS-S	Develop and implement an incentive program to encourage homeowners to replace high-pollution emitting non-EPA-certified wood stoves.	5.11-2 (e)	Develop incentive program to encourage uses of newer cleaner-burning EPA certified wood stoves.	
87	Completed	HS-T	Adopt and/or update air quality regulations regarding agricultural and fuel reduction burning, construction emissions, mobile source emissions, fugitive dust, and volatile organic emissions.	5.11-1	Use updated recommendations to analyze and mitigate potential air qualify impacts.	
88	Completed	HS-U	Monitor existing, ongoing studies related to effects of air pollution on vegetation.			
89	Completed	HS-V	Amend prescriptive standard for the Fugitive Dust Prevention and Control Plan and Contingent Asbestos Hazard Dust Mitigation Plan.	5.8-9(b)	Strengthen Naturally Occurring Asbestos (NOA) and dust protection standards.	
90	Completed	HS-W1	Survey and prioritize safety improvements on County roads. Develop financing programs for making necessary improvements. Complete survey within three years of General Plan adoption.			The Transportation Division has an annual road safety analysis and financing program in place.
91	Completed	HS-W2	See body of Measure HS-W1 above. Develop financing programs within eight years of General Plan adoption.			

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
92	In Progress	HS-I	To provide a comprehensive approach to noise control, adopt a Noise Ordinance.	5.10-1(a), 5.10-3	Limit noise-generating construction activities. Protect noise-sensitive land uses from unacceptable noise levels caused by stationary noise sources.	This measure is to be completed as part of the TGPA-ZOU project.
93	In Progress	HS-K	Review the Zoning Ordinance and identify changes that would accomplish the following: an airport combining zone district for each of the Safety Zones as defined in the comprehensive land use plans for each of the County's public airports;			To be included as part of the Zoning Ordinance Update.
94	In Progress	CO-A	Review the Zoning Ordinance to identify revisions that: (A) incorporate tree canopy coverage and preservation standards outlined in Policy 7.4.4.4; (B) identify standards for use of native plants in landscaping; (C) Establish a Historic Design Control Combining Zone District; (D) Develop Buffer standards for new nonmining uses adjacent to existing mining operations; (E) Develop standards for minimizing erosion and sedimentation associated with earthwork and grading.	5.9-4(b), 5.9-6(b), 5.9-6 (c), 5.12-1(b), 5.12-1(g), 5.13-1(d), 5.13-1(e)	Restrict development or disturbance on steep slopes. Establish buffers between new development and mining operations. Require 20-acre minimum parcel sizes. Minimize erosion and maximize retention of natural vegetation. Develop and implement an oak tree preservation ordinance. Define Historic Design Control Districts. Prohibit significant alteration or destruction of NRHP/CRHR-listed properties.	Items B-E have been incorporated into the TGPA-ZOU project. Item A will be under review as part of the 2014 Biological Resource Policy Updates.
95	In Progress	CO-C	In coordination with the Resource Conservation Districts, develop a roadside maintenance program that addresses roadside drainage, the protection of adjacent surface waters, and vegetation control.			
96	Completed	CO-D	Develop an agricultural permit program that includes standards for agricultural operations comparable to those in the Grading Ordinance and that considers other issues important to the protection of agricultural lands.	5.9-4(b)	Apply erosion control measures to agricultural grading.	The Agriculture Department has implemented the Ag Grading Permit process and has required the use of the adopted Best Management Practices (BMPs). The program is working as intended.

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
97	Completed	CO-E1	Request that the California Geological Survey conduct a non-metallic mineral survey for the County. Manage resources appropriately given the results of the survey. Request survey by state within two years of General Plan adoption.			Study was completed in 2005
98	Complete	CO-E2	See body of Measure CO-E1 above. Amend General Plan upon completion of survey by state.			
99	Completed	CO-G	Create guidelines for development projects that may affect surface water resources. The guidelines should include: definition(s) of surface water resources; criteria for determining the presence of surface water resources; buffer standards; and mitigation			
100	Completed	CO-H	Prepare and adopt an ordinance revision to permit the use of domestic gray water for irrigation purposes.	5.5-8	Monitor performance of septic systems annually.	This measure is addressed in the 2013 Plumbing Code.
101	Completed	CO-I	Evaluate alternatives to the use of salt for snow removal on County roads.			Research for various alternatives to salt for snow removal is ongoing.
102	Completed	CO-J	Develop and implement a program to perform water quality analysis and monitoring of the County's recreational waters.			
103	In Progress	CO-K	Work cooperatively with the State Department of Fish and Game and U.S. Fish and Wildlife Service to implement the gabbro soils rare plant ecological preserve and recovery program and to develop a long-term preserve strategy.	5.12-2(b)	Establish and manage ecological preserves	Ongoing cooperative effort with Pine Hill Preserve Management Team (local, state & federal).
104	In Progress	CO-L	Develop guidelines for the preparation of biological study reports.			Measure will be under review through the Biological Resources Policy Updates - 2014
105	In Progress	CO-M1	Develop and implement an Integrated Natural Resources Management Program (INRMP) consistent with Policy 7.4.2.8			Measure will be under review through the Biological Resources Policy updates; contract to Board of Supervisors March, 2014
106	In Progress	CO-M2	See body of Measure CO-M1 above. Within three years of General Plan adoption, develop framework for acquisition strategy and monitoring program and begin acquisition.			Measure will be under review through the Biological Resources Policy updates; contract to Board of Supervisors March, 2014

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No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
107	In Progress	CO-N	Review and update the Important Biological Corridor (-IBC) land use Overlay District.	5.12-3(b)	Apply -IBC Overlay to lands identified as having high wildlife habitat values.	Measure will be under review through the Biological Resources Policy updates; contract to Board of Supervisors March, 2014.
108	In Progress	CO-O	Prepare and adopt a riparian setback ordinance.			Interim guidelines adopted by PC. To be incorporated into Zoning Ordinance Update.
109	In Progress	CO-P	Develop and adopt an Oak Resources Management Plan.	5.12-1(f)	Require mitigation for loss of woodland habitat.	Existing OWMP Rescinded September 4, 2012. New OWMP to be considered as part of the 2014 Biological Resources Policy updates.
110	Remaining	CO-Q	Develop and adopt a Cultural Resources Preservation Ordinance.	5.3-1(c)	Adopt a Cultural Resources Ordinance.	Deferred until after adoption of comprehensive Zoning Ordinance Update.
111	In Progress	CO-R	Maintain a confidential cultural resources database of prehistoric and historic resources, including the location and condition of pioneer cemetery sites. Information may be made available consistent with state and federal law.	5.12-1(d)	Develop and implement an Integrated Natural Resources Management Plan.	An existing cultural resources database is in place. However, an Integrated Natural Resources Management Plan (INRMP) has not yet been developed. Creation of an INRMP will be under review as part of the 2014 Biological Resources Policy updates.
112	Remaining	CO-S	Investigate becoming a Certified Local Government through the State Office of Historic Preservation.			
113	Remaining	CO-T1	Work with the State Department of Parks and Recreation to identify the view shed of Marshall Gold State Historic Park (Coloma) and establish guidelines for development within that view shed. Identify view shed within four years of General Plan adoption.			
114	Remaining	CO-T2	See body of Measure CO-T1 above. Adopt standards within six years of General Plan adoption.			
115	Completed	CO-B	Coordinate with the Resource Conservation Districts to address erosion control issues.			
116	In Progress	CO-U	Fully develop requirements for Biological Studies to be prepared in support of Policy 7.4.1.6. Fully develop guidelines for Important Habitat mitigation. Mitigation proposals are to be included in biological resources studies.	5.12-1(e)	Adopt a No-Net-Loss Policy and Mitigation Program for important habitat.	Included as part of the INRMP. See Measures CO-L and CO-M. Measure will be under review through the 2014 Biological Resources Policy Updates

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
117	In Progress	AF-A	Review the Zoning Ordinance (Title 17 of the El Dorado County Code) to identify revisions that accomplish items A-F	5.2-1 (a - f)	Reduce potential conversion of important farmland, grazing land, land currently in agricultural production or from conflict that may result in cancellation of a Williamson Act Contract.	To be included as part of the Zoning Ordinance Update (ZOU)
118	Completed	AF-B	Develop and implement a procedure for processing requests to apply the Agricultural District (-A) overlay.			Dept. of Agriculture staff utilize a formal procedure for applying the Agricultural District (-A) Overlay to development projects.
119	In Progress	AF-C	Develop and implement a procedure for evaluating the suitability of land for forest production uses, a process to review and update The Procedure for Evaluating the Suitability of Land for Agricultural Use (1993); and to implement recommendations.			Agricultural Department staff is in the process to expand soils of local importance for vineyards used to evaluate parcels. Completion of the process is anticipated by January 2015.
120	In Progress	AF-D	Develop and implement new programs to ensure the long-term conservation, enhancement, and use of viable agricultural lands, including grazing lands.	5.2-2	Limit extent of ranch marketing activities, wineries and other nonagricultural uses within agricultural designations.	The Board adopted one aspect of long term conservation, enhancement and use - the Winery Ordinance. (AF-D to be implemented through the TGPA & ZOU)
121	In Progress	AF-E	Develop and implement a method to identify and officially recognize rangelands currently used for grazing or suitable for sustained grazing of domestic livestock.			Staff have identified 4 criteria to use for analysis - Soil type, slope, current use, parcel size (Through the ZOU, grazing WACs are being rezoned Agricultural Grazing)
122	In Progress	AF-F1	Establish a threshold of significance for the loss of agricultural land, a procedure for evaluating a project's contribution to the loss, and means to mitigate losses so that the established threshold is not exceeded. Establish threshold within five years.	5.2-1 (c)	Identify Acceptable Mitigation for Loss of Agricultural Land.	Measure will be under review through the Biological Resources Policy Updates - 2014
123	Remaining	AF-F2	See body of Measure AF-F1 above. Establish procedure for review and mitigation within eight years of General Plan adoption.	5.2-1 (c)	Identify Acceptable Mitigation for Loss of Agricultural Land.	
124	Completed	AF-G	Develop a procedure for the Agricultural Commission to review and provide recommendations regarding discretionary and capital improvement projects that may affect agricultural, grazing, and forestry lands.			

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
125	Remaining	AF-H	Develop a program to coordinate with the Water Agency and water purveyors to develop and secure a long-term supply of agricultural water and allocate water from increased efficiencies to agricultural use.			
126	Completed	AF-I	Develop a program to enhance long-term fiscal stability of agricultural operations, including use of conservation easements, Williamson Act contracts, land trusts, and transfer of development rights.	5.2-2	Limit extent of ranch marketing activities, wineries and other nonagricultural uses within agricultural designations.	The County has developed several programs to enhance the long term fiscal stability of agricultural operations, including Williamson Act Contracts. The County is reviewing additional activities and programs for economic enhancement of agricultural operations including conservation easements, land trusts and development right transfers.
127	In Progress	AF-J	Complete an inventory of agricultural lands in active production and/or lands determined by the Agricultural Commission to be suitable for agricultural production. Following inventory, perform suitability review and amend Agricultural District boundaries.	5.2-3	Incorporate productive and suitable agricultural land into Agricultural Districts.	The Agricultural District analysis and expansion is part of the TGPA-ZOU project.
128	In Progress	AF-K	Develop Agricultural Best Management Practices (BMPs) for adoption by the Board of Supervisors and use by agricultural operations in complying with General Plan policies 7.1.2.1, 7.1.2.7, 7.3.3.4, and 7.4.2.2.	5.9-4(c), 5.12-4(b)	Apply erosion control measures to agricultural grading. Implement multiple Policies to reduce impacts on sensitive habitats.	Agricultural Best Management Practices (BMP's) have been completed with approximately 20 BMP's posted on the Agricultural Department website.
129	Completed	PR-A	Prepare and implement a Parks Master Plan and Parks and Recreation Capital Improvement Program.			A final Parks and Trails Master Plan and CIP was approved on March 27, 2012
130	In Progress	PR-B	Develop and implement a program to identify and pursue alternative methods to fund and/or support the acquisition and operation of parks and recreation facilities, including raw land.			Alternate funding programs for park acquisition and operations are being developed.
131	Completed	PR-C	Update the Bikeway Master Plan and Hiking and Equestrian Trails Master Plan. Both plans shall contain provisions for regular plan monitoring and updating.			A hiking and equestrian trails plan was approved as part of the completed Parks and Trails Master Plan, approved on March 27, 2012.
132	Remaining	PR-D	Plan for and develop interpretive centers for historical trails and sites.			

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
133	Completed	PR-E	Maintain and implement the El Dorado County River Management Plan (Environmental Stewardship & Planning 2001) for management of recreational activities on the South Fork of the American River.			A River Management Plan has been developed for the South Fork American River.
134	Completed	PR-F	Develop a program to facilitate the formation of independent recreation districts.			
135	Completed	PR-G	Work with independent recreation districts to support efforts to provide parks and recreation facilities.			Coordination between EDHSCD, CPCSD & GDRD on going as part of subdivision review process
136	In Progress	PR-H	Develop and implement a parks and recreation fee program that addresses the following: A. For projects subject to Quimby Act requirements; B. For projects not subject to Quimby Act; C. Coordination with local parks and recreation providers	5.7-5	Provide funding mechanisms for new park development.	This is included in the Master Plan. A Nexus study has been included in the current budget but a contract has not been executed.
137	Completed	PR-I	Develop and implement a program to encourage major recreational event sponsors to hold events in El Dorado County.			El Dorado County Board of Supervisors created the Economic Development/Parks Division of the Chief Administrative Office in 2013. The Park Division is working with Economic Development to increase recreational tourism to the County. The County has partnered with the City of South Lake Tahoe to develop a Master Plan for the East Slope of El Dorado County which is also focused on tourism.
138	In Progress	PR-J1	Establish a working group or formal contacts to coordinate the actions of resource-based recreation providers in the county, including the Airports, Parks and Grounds of the County General Services Department.			The County is in the process of establishing a working group of resource-based recreation providers to address planning and project review issues.
139	In Progress	PR-J2	See body of PR-J1 above. Develop plan to address planning and project review within three years thereafter. Coordination will be ongoing.			The County is in the process of establishing a working group of resource-based recreation providers to address planning and project review issues.
140	Completed	PR-K	Identify federal and state lands that could be transferred to County ownership and develop a program to facilitate said transfer.			County accepted an easement from the US Forest Service on the Rubicon Trail August 14, 2012

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
141	Completed	PR-L	Accept private sector donations of land, easements, structures, materials, and funds for the development and maintenance of parks and recreation facilities.			
142	Remaining	PR-M	Identify a suitable location and work with the El Dorado County Fair to move the fairgrounds from its existing site.			
143	Completed	ED- A	Economic Development Providers Network Annual Report: Prepare an action plan to implement the objectives of the Economic Development Element. Prepare an annual report on the status of accomplishment toward the objectives for the past year.			
144	Completed	ED- B	Actively participate in the Economic Development Providers Network.			
145	Completed	ED- C	Sponsor, via the Economic Development Providers Network, seminars and workshops for El Dorado County's businesses, targeted industry organizations, and government decision makers.			
146	Completed	ED- D	Establish and maintain liaison with local and regional business organizations to improve coordination of efforts relating to business issues.			
147	Completed	ED- E	Convene periodic broadly based community forums to discuss El Dorado County's economic issues and concerns in conjunction with business, educational, agricultural, environmental, and other interested organizations.			
148	Completed	ED- F	Work with local businesses to gather feedback from problem solving activities for immediate action and/or inclusion in Annual Economic Plans.			
149	Completed	ED- G	Support County business and local government efforts to develop regional, State, National, and international markets for the County's products, services, and attractors.			

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
150	Completed	ED- H	Through the Economic Development Providers Network, provide periodic training workshops for business and public agency participants to develop understanding of business owners' needs.			
151	Completed	ED- I	Establish regulatory assistance services for the public, including businesses, to clarify government regulatory processes, to assist in coordinating regulatory functions, and to provide information regarding vacant land and facilitate locational assistance			A variety of regulatory assistance services are provided to the public by the Office of Economic Development.
152	Completed	ED- J	As part of the annual budget review process, County departments shall identify potential changes in fees, improved regulatory processes, and appropriate staffing allocations and organization to match forecasted work load which minimize delays			
153	Completed	ED- K	Assess the impact on large and small businesses of regulatory issues and recommend cost saving changes to permit processing procedures.			
154	Completed	ED- L	Provide the Economic Development Providers Network [or subsequent organization] with an opportunity to review, on a periodic basis, County government structure for consistency with efficient and cost effective regulation of business.			
155	Completed	ED- M	Expedite permitting services as an incentive to encourage upgrading of unoccupied developed and underutilized commercial and industrial sites and/or structures. The County should encourage the use of unoccupied developed and/or underutilized County owned			In 2012, the Chief Administrative Office began a program to allowing applicant businesses the opportunity to meet with County permitting agencies in a single time and location, with those agencies expediting permits in significantly shorter time. In February 2014, the BOS adopted policy J-7 making economic development incentives available for businesses expanding in the County.

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
156	Completed	ED- N	Review existing County regulations and procedures to eliminate unneeded, inconsistent, and redundant legal requirements.			
157	Completed	ED- O	Use the final Environmental Impact Report (EIR) for the General Plan as a first tier EIR. Future environmental documents for site specific projects, development code regulations, and specific zoning may rely upon and tier off of this EIR.			
158	In Progress	ED- P	Revise the Zoning Ordinance so that classes of permitted uses for commercial, industrial, and research and development uses on lands so designated on the General Plan Land Use Maps, and/or that have been pre-planned through planned developments, specific			To be included as part of the Zoning Ordinance Update.
159	Completed	ED- Q	Regulations shall include a means to accomplish regulatory needs with the least interference and/or barriers to business. Interested parties should be invited to participate in the development and review of new regulations.			
160	In Progress	ED- R	Prepare an overview statement for proposed laws or administrative regulations including: (a) the purpose of the law and/or regulation; and (b) the relationship between stated purposes and other adopted laws and/or regulations of the County.			To be included as part of the Zoning Ordinance Update.
161	Completed	ED- S	All proposed development regulations or ordinances shall demonstrate a public benefit where proposed regulations or ordinances will result in private or public costs.			
162	Completed	ED- T	Assemble and maintain a library of economic data to be available for use in economic impact studies and/or industry case studies.			The Office of Economic Development maintains various sources of economic data available for use in economic impact and/or industry case studies.

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
163	Completed	ED- U	Make available to the business community and other community interest groups including individuals, publications on economic and demographic information for El Dorado County's incorporated and unincorporated areas.			The County has developed economic and demographic reports and data for use by local businesses and other interested community groups.
164	Completed	ED- V	Create a Target Industry Committee representing a cross-section of community interests including local business interests to develop selection criteria for determining desirable target industries that are harmonious with the local custom, culture, and over			
165	Completed	ED- W	Prepare a report once every two years which describes the El Dorado County economy, identifies important demographic and industry trends, identifies leading economic indicators, and identifies and ranks targeted industries to help guide business recruitment			
166	Completed	ED- X	Provide information to educate the business community on environmental issues and to educate the environmental community on the local and regional economy.			
167	Completed	ED- Y	Identify environmental issues to be considered by the Economic Development Providers Network.			
168	Completed	ED- Z	Identify and attract selected targeted industries that are consistent with the County's goal of balancing economic vitality and environmental protection.			
169	Completed	ED-AA	Develop an action plan for each targeted industry to encourage retention and expansion of businesses including special needs of each targeted industry and location assistance for expansion or relocation.			The State Employment Development Department (EDD), in partnership with the Office of Economic Development, is developing an updated strategic plan to address special needs of targeted industries within El Dorado County.

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
170	Completed	ED-BB	The Economic Development Providers Network shall establish a system for annually inventorying existing industries and businesses in order to provide early warning of businesses that are at risk and are considering moving or expanding out of the County.			The State Employment Development Department (EDD), in partnership with the Office of Economic Development, will meet with private sector employers to identify business climate issues and solutions and assist at-risk businesses.
171	Completed	ED-CC	Annually dedicate and budget County staff to implement programs under General Plan Objective 10.1.5 and/or coordinate County efforts with the private sector and Economic Development Providers Network.			
172	Completed	ED-DD	The County shall monitor land availability through five-year reviews of the General Plan to assure a sufficient supply of commercial and industrial designated lands.			A five-year review was completed in 2011. The next 5-year review is scheduled for completion in 2016.
173	Completed	ED-EE	Develop a comprehensive regional economic development program to attract industry to the County at a rate higher than the Sacramento Area Council of Governments (SACOG) and/or County employment forecasts.			The County has developed a program for business attraction activities including a partnership with the State Employment Development Department (EDD).
174	Completed	ED-FF	The Economic Development Providers Network shall conduct meetings and interviews with existing companies in each of the identified growth industries focusing on service needs and local government's ability to address those needs.			In February, 2014, the Board of Supervisors adopted Policy J-7, outlining several new and existing financial incentives for business expansion in the County, and EDD staff will be scheduling regular meetings with private sector employers to identify business climate issues and solutions.
175	Completed	ED-GG	The Economic Development Providers Network shall conduct economic base studies to identify trends in industry and to identify those industries which are well positioned in the local, regional, State, National, or international markets			The Office of Economic Development oversees a program to conduct economic base studies and identify industry trends.
176	In Progress	ED-HH	Develop an information system on significant potential vacancies in office, commercial, and industrial space to facilitate the movement of business from one facility to another.			Relevant enhancements to the County Economic Development webpage have been planned and budgeted for 2014-2015 fiscal year.

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
177	In Progress	ED-II	The Zoning Ordinance shall provide for agriculture dependent commercial and industrial uses on lands within Rural Regions.			To be completed as part of the Zoning Ordinance Update.
178	In Progress	ED-JJ	The Zoning Ordinance shall allow the sales and marketing of products grown in El Dorado County and crafts made in El Dorado County in areas designated for agricultural use.			To be completed as part of the TGPA-ZOU.
179	In Progress	ED-KK	Designate sufficient lands of a size and at locations to accommodate needed retail and commercial development.			To be completed as part of the TGPA-ZOU.
180	Completed	ED-LL	Annually assign and budget County staff to implement Policy 10.1.6.1 and/or coordinate efforts with the Economic Development Providers Network.			
181	Completed	ED-MM	Work with the cities of Placerville and South Lake Tahoe to establish a uniform small business licensing application, forms, and instructions for all cities and the County.			
182	Completed	ED-NN	Work with the cities of Placerville and South Lake Tahoe to review the business license fees in the cities and County to provide an equitable structure for business with ten or less employees. [Should be completed concurrently with Measure ED-J.]			
183	Completed	ED-OO	Provide information on small business assistance programs, the agencies regulating small businesses, and distribute small business resources directories.			The Office of Economic Development provides a variety of informational tools to assist small businesses.
184	In Progress	ED-PP	Establish land use regulations that permit by right satellite work centers, home work place alternatives, and home occupations as a means of reducing commutes on U.S. Highway 50.			Part of the TGPA-ZOU Project 2014
185	In Progress	ED-QQ	Establish standards in the Zoning Ordinance that provide compatible home businesses that complement residential uses in the Community Regions, Rural Centers, and Rural Regions.			Part of the TGPA-ZOU Project 2014

Appendix A2 - 2013 General Plan Implementation Measures Progress Report

No.	Status	Implementation Measure	Measure Text*	EIR Mitigation Impact Number(s)	Associated Mitigation Requirement(s)* (If any)	Notes
186	Completed	ED-RR	Work with developers of Conditions, Covenants, and Restrictions (CC&Rs) to prevent the creation of CC&Rs that preclude home occupations or work-at-home activities.			
187	Completed	ED-SS	Review existing County impact fees and consider adopting fees necessary to assure that new development pays its fair share of public facility and services costs.			
188	Completed	ED-TT	When a project directly or indirectly affects existing public services and/or infrastructure, it shall provide for and finance improvements consistent with the degree of impact to public services and/or infrastructure directly or indirectly			
189	Completed	ED-UU	As part of its annual review of its Capital Improvement Programs, the County should include a Section 65401 review which lists all capital projects sponsored by other jurisdictions during the following year and makes a finding relative to the consistency			
190	Completed	ED-VV	As part of an effort to maintain high quality services and implement the General Plan, the County should maintain an effective liaison and improve cooperation with the cities and special districts serving the County.			

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Housing Element Implementation
(CCR Title 25 §6202)

Jurisdiction County of El Dorado

Reporting Period 1/1/2013 - 12/31/2013

Table A

Annual Building Activity Report Summary - New Construction
Very Low-, Low-, and Mixed-Income Multifamily Projects

Housing Development Information									Housing with Financial Assistance and/or Deed Restrictions		Housing without Financial Assistance or Deed Restrictions
1	2	3	4				5	5a	6	7	8
Project Identifier (may be APN No., project name or address)	Unit Category	Tenure R=Renter O=Owner	Affordability by Household Incomes				Total Units per Project	Est. # Infill Units*	Assistance Programs for Each Development	Deed Restricted Units	Note below the number of units determined to be affordable without financial or deed restrictions and attach an explanation how the jurisdiction determined the units were affordable. Refer to instructions.
			Very Low-Income	Low-Income	Moderate-Income	Above Moderate-Income			See Instructions	See Instructions	
Chrisman	SU	O		1			1		Fee Offset	1	Fee Waivers - Deed Restriction
White	SU	O		1			1		Fee Offset	1	Fee Waivers - Deed Restriction
DeCantillon	SU	O		1			1		Fee Offset	1	Fee Waivers - Deed Restriction
Tomblin Butler	SF	O		1			1		HOME	1	First Time Homebuyer
Stefan	SF	O	1				1		HOME	1	First Time Homebuyer
Laird	SF	O	1				1		HOME	1	First Time Homebuyer
Polte	SF	O		1			1		HOME	1	First Time Homebuyer
Moyer	SF	O		1			1		HOME	1	First Time Homebuyer
Lang	SF	O	1				1		HOME	1	First Time Homebuyer
LaCalle	SF	O		1			1		HOME	1	First Time Homebuyer
Browning	SF	O		1			1		CDBG	1	Housing Rehabilitation
Trailside Terrace	MF	R	39		1		40	40	HOME	39	HOME / TCAC
Second Dwelling Units	SU	R		5			5	5	Other	5	Deed Restricted//NOR
CHF Homebuyer Assistance Programs	SF	O			4		4		Other		Income Restricted Program
Hardship Mobile Homes	MH	O		16			16		Other	16	Deed Restricted//NOR
(9) Total of **Moderate and Above Moderate** from Table A3 ► ►					2						
(10) Total by income Table A/A3 ► ►			42	29	7		76	45			
(11) Total **Extremely Low-Income** Units*											

* Note: These fields are voluntary

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Table A2
Annual Building Activity Report Summary - Units Rehabilitated, Preserved and Acquired pursuant to GC Section 65583.1(c)(1)

Please note: Units may only be credited to the table below when a jurisdiction has included a program it its housing element to rehabilitate, preserve or acquire units to accommodate a portion of its RHNA which meet the specific criteria as outlined in GC Section 65583.1(c)(1)

Activity Type	Affordability by Household Incomes				(4) The Description should adequately document how each unit complies with subsection (c)(7) of Government Code Section 65583.1
	Extremely Low-Income*	Very Low-Income	Low-Income	TOTAL UNITS	
(1) Rehabilitation Activity				0	20 year affordability
(2) Preservation of Units At-Risk				0	55 year affordability - Multifamily
(3) Acquisition of Units				0	40 year affordability
(5) Total Units by Income	0	0	0	0	

* Note: This field is voluntary

Table A3
Annual building Activity Report Summary for Above Moderate-Income Units (not including those units reported on Table A)

	1. Single Family	2. 2 - 4 Units	3. 5+ Units	4. Second Unit	5. Mobile Homes	6. Total	7. Number of infill units*
No. of Units Permitted for **Moderate**					**2**	2	**County does not meet Urban definition**
No. of Units Permitted for **Above Moderate**	685				0	685	

* Note: This field is voluntary

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Table B

Regional Housing Needs Allocation Progress

Permitted Units Issued by Affordability

Enter Calendar Year starting with the first year of the RHNA allocation period. See Example.				2006-07	2008	2009	2010	2011	2012	2013		Total Units to Date (all years)	Total Remaining RHNA by Income Level
Income Level		RHNA Allocation by Income Level	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8			
Very Low	Deed Restricted	2,413		103		39	9	1	5	12		169	2,243
	Non-deed restricted				1							1	
Low	Deed Restricted	1,596			2	21	32	26	103	60		244	1,347
	Non-deed restricted								5			5	
Moderate	Deed Restricted	1,512		2	1		2	36				41	1,466
	Non-deed restricted					1			2	2		5	
Above Moderate		2,523		1297	351	178	126	117	124	685		2,878	-355
Total RHNA by COG. Enter allocation number:		8,044											
Total Units ► ► ►				1,402	355	239	169	180	239	759		3,343	
Remaining Need for RHNA Period ► ► ► ► ►													4,701

Note: units serving extremely low-income households are included in the very low-income permitted units totals.

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Table C

Program Implementation Status

	Program Description (By Housing Element Program Names)	**Housing Programs Progress Report - Government Code Section 65583.** Describe progress of all programs including local efforts to remove governmental constraints to the maintenance, improvement, and development of housing as identified in the housing element.		
	Name of Program	**Objective**	**Timeframe in H.E.**	**Status of Program Implementation**
1	Review land use patterns	Identify areas for future housing	Ongoing	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
2	Review adequate sites for affordable Housing	Identify areas for future affordable housing without need to fund major infrastructure	One Year	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
3	Review and update Capital Improvement Program	Revised facility plans; extension of services to underserved areas of the County	Annually	Completed and ongoing. Reviewed annually with update of Capital Improvement Program. Carried forward as Measure in 2013-2021 Housing Element Update.
4	Develop incentive based policy for affordable housing development	Provide incentives to encourage development of affordable housing	Two Years	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
5	Track and record second dwelling units and hardship mobile homes	Ensure opportunities to access affordable housing	One Year	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
6	Amend Zoning Ordinance and Design and Improvement Standards Manual	Provide more flexibility for affordable housing	One Year	In Progress. Carried forward as Measure in 2013-2021 Housing Element Update. County has undertaken a Comprehensive Zoning Ordinance Update to address greater flexibility as incentives for the development of housing affordable to very-low to moderate income households.
7	Adopt Density Bonus Ordinance for Affordable Housing	Promote benefits of program to development community	One Year	Completed March 2009
8	Work with Tahoe Regional Planning Agency (TRPA) on Tahoe Regional Plan	Facilitate the construction of more affordable and workforce housing	Ongoing	MOU adopted and County is working to work cooperatively with TRPA and the Meyers Community Advisory Counsel (MCAC), formerly known as the Meyers Roundtable. Carried forward as Measure in 2013-2021 Housing Element Update.
9	Establish a Housing Trust Fund	Establish flexible, locally controlled source of funds dedicated to meeting local affordable housing needs for low income households	Two Years	The County administers a dedicated Predevelopment revolving loan fund for affordable projects with Board approval and also administers a CalHFA Housing Enabled by Local Partnerships (HELP) revolving loan program to assist in the acquisition and construction of affordable housing development. Carried forward as Measure in 2013-2021 Housing Element Update.

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10	Review residential development processing procedures annually	Identify additional opportunities to further streamline the procedures for affordable housing projects while maintaining adequate levels of public review	One Year	Board-appointed Advisory Committee has established a Regulatory Reform Team who meet weekly and report to the Board of Supervisors with recommendations to reduce constraints to affordable housing. Carried forward as Measure in 2013-2021 Housing Element Update.
11	Adopt infill ordinance	Assist developers with incentives to addressing barriers to infill development	Two Years	In progress. Carried forward as Measure in 2013-2021 Housing Element Update.
12	Investigate land banking	Land banking as method to provide sites for affordable housing	Two Years	In progress. Carried forward as Measure in 2013-2021 Housing Element Update.
13	Support a legislative platform for affordable housing	To facilitate the development of affordable housing, especially in the Tahoe Basin	Ongoing	In progress. Carried forward as Measure in 2013-2021 Housing Element Update.
14	Interdepartmental working group	Ensure cooperation between departments, CAO and Board of Supervisors in the implementation of Housing Element	Ongoing	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
15	Track workforce housing	Track the approval and status of employee housing, including farm worker housing	Three Years	Program to track workforce housing in place. Developing method to study agricultural worker housing needs. Carried forward as Measure in 2013-2021 Housing Element Update.
16	Amend the Planned Development combining zone district	Provide adequate developer incentives to encourage inclusion of affordable housing	One Year	Included in Comprehensive Zoning Ordinance Update scheduled for adoption in 2013.
17	Implement First Time Homebuyer program	Continue to apply for funding in support of a first-time homebuyers program	Ongoing	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
18	Implement Housing Rehabilitation program through CDBG	Apply for funds in support of housing rehab and weatherization programs for low income households	Ongoing	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
19	Housing Choice Voucher Program	Continue to administer HCV program (Section 8)	Ongoing	Ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
20	Adopt Mobile Home Park Conversion ordinance	Adopt measures to encourage retention of mobile home and manufactured home housing, aid in relocation and provide compensation to owners and residents	Two Years	Draft policy complete and under review. Carried forward as Measure in 2013-2021 Housing Element Update.
21	Continue Code Enforcement efforts	Work with property owners to preserve the existing housing stock	Ongoing	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.

ANNUAL ELEMENT PROGRESS REPORT
Housing Element Implementation
(CCR Title 25 §6202)

Jurisdiction County of El Dorado

Reporting Period 1/1/2013 - 12/31/2013

22	Update list of subsidized dwellings	Track units subsidized by government funding or affordable housing developed through local regulations or incentives by income category as identified in the regional housing allocation	Annually	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
23	Review the Zoning Ordinance, policies, practices, and building codes to identify provisions that could pose constraints to the development of housing for persons with disabilities	Adopt an ordinance, pursuant to the Fair Housing Amendments Act of 1988, to establish a process for making requests for reasonable accommodations to land use and zoning decisions and procedures regulating the siting, funding, development and use of housing for people with disabilities	Three Years	Included in Comprehensive Zoning Ordinance Update. Carried forward as Measure in 2013-2021 Housing Element Update.
24	Community education on homelessness	Continue working with community and local organizations to build upon Continuum of Care Strategy and develop 10-year plan to end homelessness	Ongoing	Continue to meeting with Continuum of Care (CoC) stakeholders to address long-term homeless and transitional housing needs in the community. Carried forward as Measure in 2013-2021 Housing Element Update.
25	Define zoning for emergency shelters, transitional housing, etc. by right	As part of the Zoning Ordinance update, clearly define zone districts within which emergency shelters or transitional housing may be established by right	One Year	Completed. County currently considers shelters as Community Care Facilities allowed by right in three of four Commercial zones. SRO housing is currently allowed by right on parcels zoned for residential multi-family (RM). Carried forward as Measure in 2013-2021 Housing Element Update.
26	Improve energy and water use efficiency in existing homes and new construction	Support of the Environmental Vision for El Dorado County, Resolution 29-2008 for positive environmental change	One Year	Energy & Home Weatherization Program ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
27	Permit Mixed Use Development	Amend Zoning Ordinance to permit mixed use development within Commercial zones by right, subject to standards that encourages compact urban form, access to non-auto transit, and energy efficiency	One Year	Phase I approved. Phase II in progress. Carried forward as Measure in 2013-2021 Housing Element Update.
28	Agricultural employee housing	As part of the Zoning Ordinance update, comply with Health and Safety Code Section 17021.6 and encourage agricultural employee housing	One Year	Completed and additional measures in progress as part of the Comprehensive Zoning Ordinance Update. Carried forward as Measure in 2013-2021 Housing Element Update.

ANNUAL ELEMENT PROGRESS REPORT
Housing Element Implementation
(CCR Title 25 §6202)

Jurisdiction County of El Dorado

Reporting Period 1/1/2013 - 12/31/2013

29	Continue Housing Rehab Loan program	Continue to make rehabilitation loans to qualifying very low and low income households	Ongoing	Complete and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
30	Economic analysis for all 50+ unit residential developments	Ensure that appropriate public services and facilities fees are levied to provide public facilities and services to the project	One Year	Model study for analysis of potential fiscal impacts has been initiated. Evaluation of a funding program for economic analysis of affordable housing projects in progress. Analysis of individual projects is ongoing as needed. Carried forward as Measure in 2013-2021 Housing Element Update.
31	Update TIM Fee Program	Analyze anticipated lower trip generation and traffic benefits of a variety of housing types	Annually	In progress. Continue to offer fee offset program for qualified affordable housing units. Age Restricted Unit incentives approved and effective in April 2012. The Board of Supervisors authorized an update of the County's travel demand model to help guide the County through updating Traffic Impact Mitigation Fees and future land use planning, among other uses. Carried forward as Measure in 2013-2021 Housing Element Update.
32	Retain and rehab existing rental housing stock	Explore options including a proactive rental inspection enforcement program to address maintenance and Code Enforcement issues related to multifamily and single family rental residences	Two Years	In progress. CDBG funded exterior housing conditions study completed. Code Enforcement activity is ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
33	Fair Housing	Continue to refer people who suspect discrimination in housing to the appropriate agency or organization for help. Continue to distribute fair housing information as a part of its housing programs	Two Years	Completed and ongoing. Carried forward as Measure in 2013-2021 Housing Element Update.
34	Work with owners to preserve subsidized housing units	Identify funding sources to preserve at-risk units and identify qualified entities who are interested in purchasing government-subsidized multifamily housing projects	Ongoing	Ongoing. Strategy developed by HUD and USDA Rural Development is in place and administered by County to assist organizations in preserving subsidized housing units. Carried forward as Measure in 2013-2021 Housing Element Update.
35	Housing Conditions Study	Survey of housing conditions to determine the amount of housing in need of rehabilitation or replacement within older, established unincorporated neighborhoods	Two Years	Completed. CDBG funded exterior housing conditions study completed. Code Enforcement activity is ongoing.

ANNUAL ELEMENT PROGRESS REPORT
Housing Element Implementation
(CCR Title 25 §6202)

Jurisdiction County of El Dorado

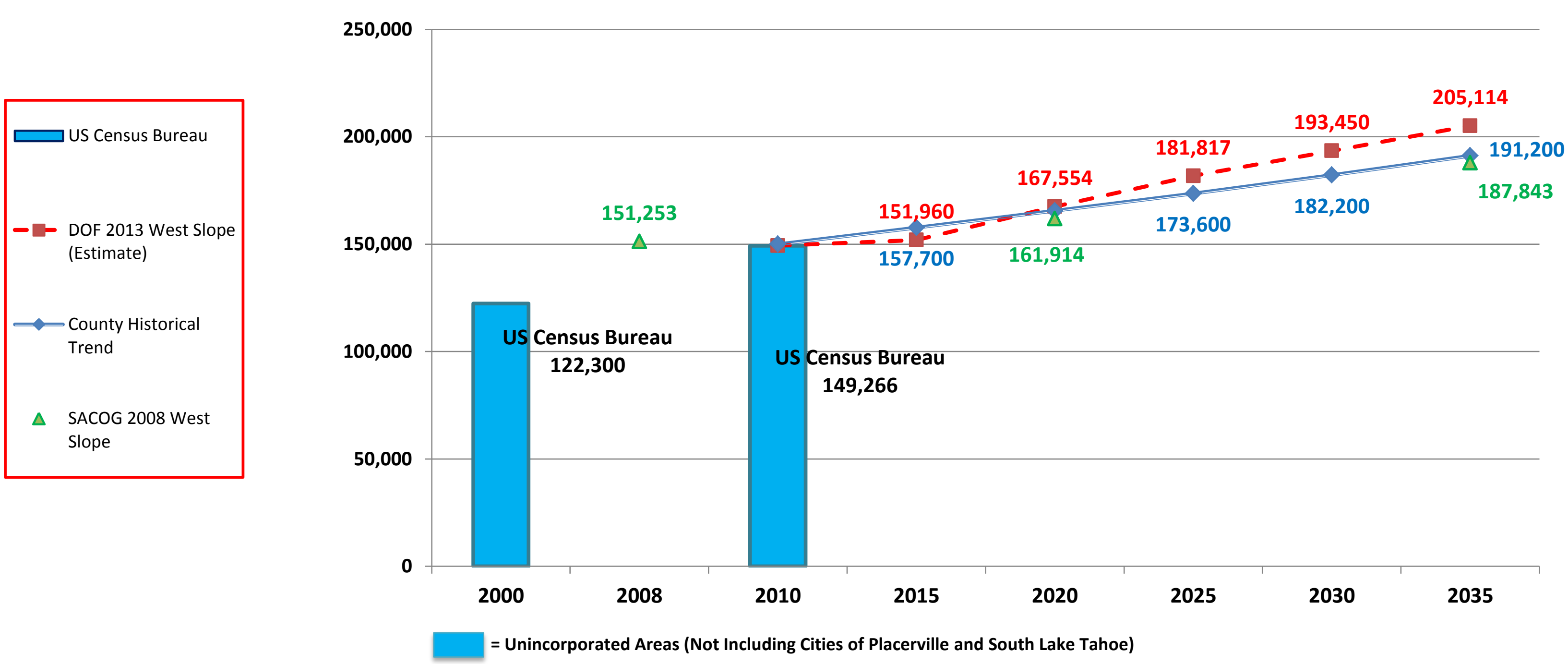
Reporting Period 1/1/2013 - 12/31/2013

General Comments:

El Dorado County's Housing Element Update for planning period 2013-2021 has been certified by the California Department of Housing and Community Development (HCD).

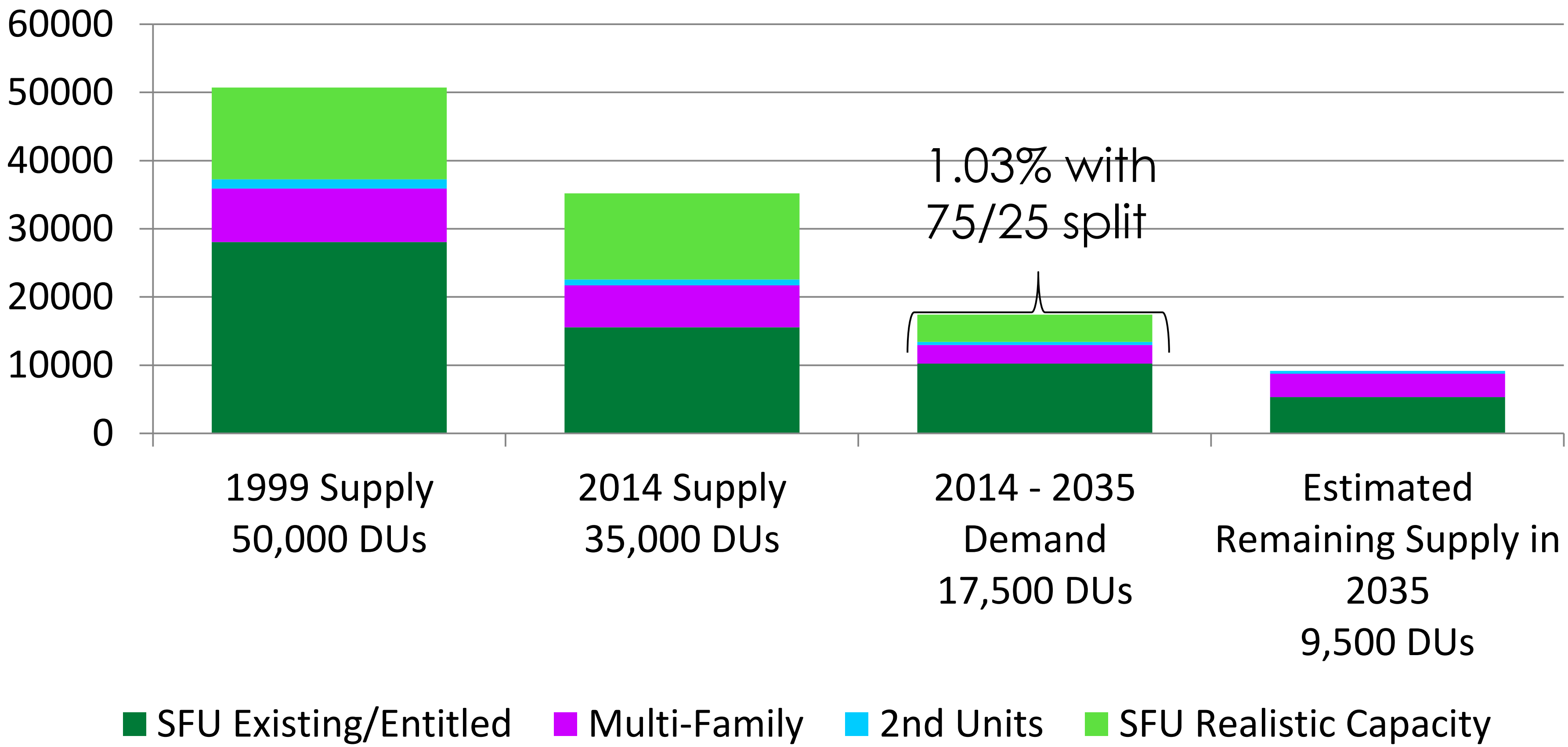
State Housing and Community Development Assistant Deputy Director Glen Campora confirmed state approval in a November 13 letter noting, "The Department is pleased to find the adopted housing element in full compliance with State housing element law (Government Code, Article 1 0.6)."

El Dorado County Population Data and Forecasts Through 2035
(Excluding Tahoe Basin and City of Placerville)

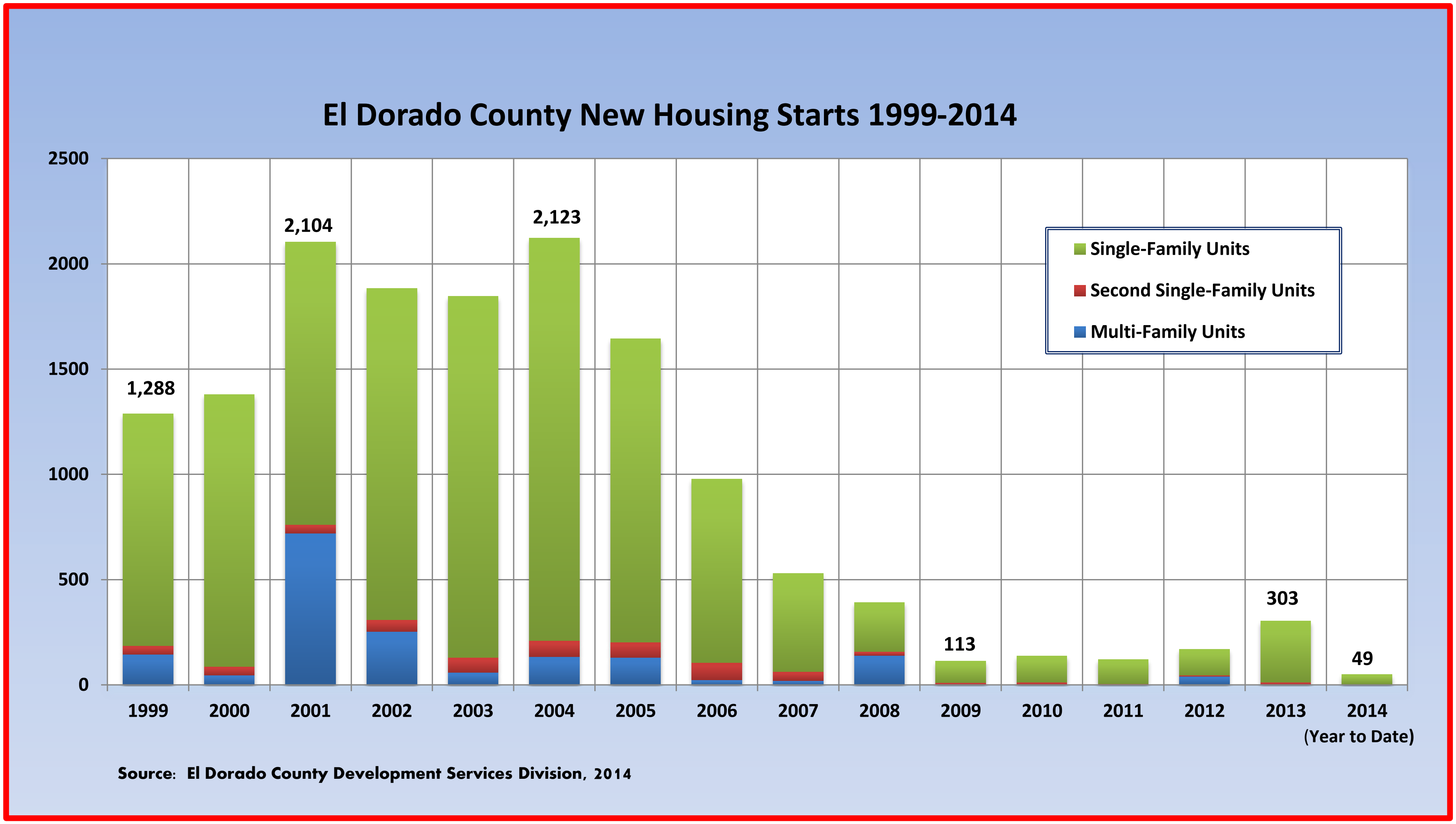


Sources:
1. CA Department of Finance (DOF) 2013. Population data From the cities of South Lake Tahoe and Placerville was manually deducted.
2. SACOG 2008 Regional Forecast
3. US Census Bureau- Dicennial Census 2000, 2010

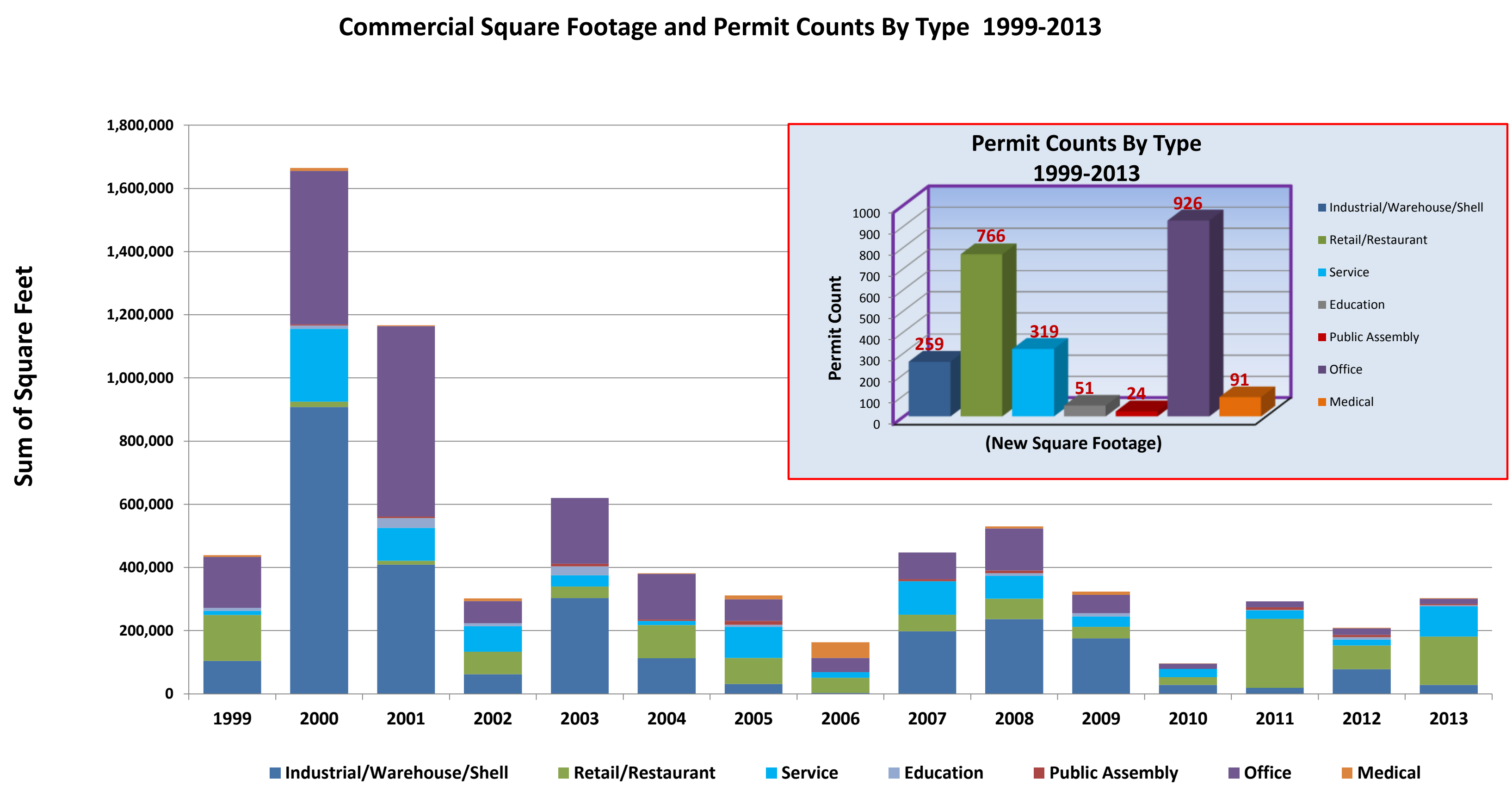
WEST SLOPE HOUSING SUPPLY (1999, 2014 & 2035) ***WITH 20-YEAR DEMAND FORECAST (2014-2035)*** WITHOUT LAND USE CHANGES



DU = Dwelling Units, SFU = Single Family Unit


El Dorado County New Housing Starts 1999-2014
2500
2000
1500
1000
500
0
1,288
2,104
2,123
113
303
49
Single-Family Units
Second Single-Family Units
Multi-Family Units
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
(Year to Date)
Source: El Dorado County Development Services Division, 2014

291112 Part 2



Source: El Dorado County Buiilding Safety Services Unit, 2013

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El Dorado County Ordinance - Chapter 15.32 - Private Sewage Disposal System

El Dorado County Resolution No. 259-99 - Design Standards for the Site Evaluation and Design of Sewage Disposal Systems
Dated November 24, 1999

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EL DORADO COUNTY ORDINANCE:
CHAPTER 15.32 - PRIVATE SEWAGE DISPOSAL SYSTEMS

Section 2 - Design Procedures

A. GENERAL REQUIREMENTS

1. Soil and Groundwater Determination (Test Pits)

(a) Soil depth must be four (4) feet below the bottom of the trench.

(b) **Groundwater must be a minimum of four (4) feet below the bottom of the trench.** Unless mitigated by an approved special design system (as per section C-L).

2. Test Data Report - Test data report shall include the following:

Current assessors parcel number of property.
•(b) The person who performed the test, his address, zip code, phone number, title, registration number, and signature.
•(c) Weather conditions, time, and temperature at time of test.
•(d) The number of bedrooms in the existing or proposed structure(s), or number of fixture units if other than single family dwelling.
•(e) The location of test holes on a plot map. Include the contours or direction of slope of the land; location of lakes or streams, outcrops, existing or proposed structures or wells; location and approximate height of road cuts, if any, and location and type of surface vegetation.
•(f) Depth and soil profiles of each hole.

•(g) All percolation rate measurements taken and stabilized percolation rate. Report the percolation measurements and rates as minutes per inch (the minutes required for the water to drop one (1) inch in a six (6) inch hole).
•(h) **Percolation rates in excess of sixty (60) minutes per inch for standard leach lines and thirty (30) minutes per inch for non-standard leach lines shall require "Special Design".**
•(i) Describe soil profile in the leach field area - including roots, clay lenses, rock type and amount, texture, moisture, depth to groundwater, and other unusual aspects.
•(j) Soil description as per the soil survey of El Dorado County area, USDA.

. STANDARD SYSTEMS

1. Criteria for standard systems:

(a) Percolation rates between 5 and 30 min./in. with any depth of leach lines.

(b) Percolation rates between 30 and 60 min./in. for 3' x 3' leach lines.

Site evaluation criteria, design (including sizing), installation, and construction shall be in accordance with Section 1: General Provisions; Section 2-1: General Requirements; and Section 3: Construction and Materials.

C. SPECIAL DESIGN SYSTEM REQUIREMENTS

1. A special design system is any Department approved system that is not a standard system.

Conditions requiring special design include:

(**a) Percolation rates greater than 60 min./in.** for standard leach lines, greater than 30 min./in. for non-standard leach lines, or rates less than 5 min./in.
(b) Systems requiring a subsurface drain
(c) Off site systems requiring legal easement
(d) Capping Fill Systems
(e) Pressurized Distribution Systems
(f) Pump Systems
(g) Steep Slope Systems
(h) Sand Filter Systems
(i) Mound Systems
0) Package or Plant Systems
(k) All alternative or experimental systems

G. STEEP SLOPE SYSTEMS

1. A steep slope system is a system installed on sites with slopes greater than thirty (30) percent.

2. A steep slope system shall meet the following requirements:

(a) Steep slope systems are always special design systems.

(b) The designer must address distance from trench side wall to soil surface (side wall break out distance) and it must be a minimum of twenty four (24) inches to flow line as measured on the downhill side.

(c) Steep slope systems will not be approved on unstable land forms.

G. LEACH LINE CONSTRUCTION

1. Design Requirements

(a) Leach lines shall not be installed on a slope greater than thirty (30) percent without special engineering.
(b) Leach lines may be used under asphalt or concrete paving with special engineering.
(c) Gravel-less trench construction may be utilized instead of drain rock in the disposal trench. The design, manufacturing, and materials used shall be durable and acceptable to the Department. Sizing for gravel-less disposal trenches shall be done using one of the following options:
(1) Absorption area calculated using side wall and bottom area.
(2) Absorption area calculated using side wall area with a 25% reduction. NOTE: Side wall area for gravel-less chambers shall be calculated from the top of the ribs to the bottom of the trench.

Definition of Public Water System:

EL DORADO COUNTY
ENVIRONMENTAL MANAGEMENT
ENVIRONMENTAL HEALTH DIVISION
2850 Fairlane Ct., Bldg. C, Placerville, CA 95667 - (530) 621-5300
3368 Lake Tahoe Blvd., #303, So. Lake Tahoe, CA 96150 - (530)573-3450

DECLARATION of Small Water System status

Definitions of Small Water Systems, as defined in the California Health and Safety Code (CH&SC), Division 104, Part 12, Chapter 4 (California Safe Drinking Water Act), Article 1:

> Section 116275(h), a **Public** water system is "a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections; or regularly serves at least 25 individuals daily at least 60 days out of the year";

Definition of Community Water System:

County of El Dorado
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Sampling Requirements for Community Water Systems using a Groundwater Source

Definition of Community: **Serves at least 15 service connections used by yearlong residents OR regularly serves at least 25 yearlong residents.**
ref. 64400.10

Definitions for Public & Community Water Systems

Available at:
http://www.edcgov.us/Government/EMD/EnvironmentalHealth/Definitions_for_Small_Water_Systems.aspx

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Definitions for Small Water Systems

El Dorado County Environmental Health Division oversees the Small Water System program. The objective of the Small Water System program is to ensure that all systems operating in the County are in compliance with the California Safe Drinking Water Act and related regulations. The Environmental Health Division issues permits, monitors water quality data, and conducts routine inspections to verify compliance.

The following definitions are referenced from the California Health and Safety Code, Section 116275:

Public Water System is one in which the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections OR regularly serves at least 25 individuals daily at least 60 days out of the year.

- Community Water System is a public water system that has 15 or more service connections used by year-long residents OR regularly serves at least 25 year-long residents of the area served by the system.
- Noncommunity Water System is a public water system that is not a community water system.
- NonTransient-Noncommunity Water System is a public water system that is not a community water system that regularly serves at least 25 of the same persons during six months of the year.
- Transient Noncommunity Water System is a noncommunity water system that does NOT regularly serve at least 25 of the same persons during six months of the year.

State Small Water System (NOT a Public Water System) is a system for the provision of piped water to the public for human consumption that serves at least five, but not more than 14, service connections and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year.

EL DORADO COUNTY
ENVIRONMENTAL MANAGEMENT
ENVIRONMENTAL HEALTH DIVISION
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Procedure for New Sewage Disposal System Approval:

The following general procedure will apply to all sewage disposal systems, both standard and special design:

I. Application for building permit will be taken at the Building Division - Permit Center.

II. The application will be sent to the Planning Division for approval.

III. The application will then be sent to the Environmental Health Division for approval.

IV. Prior to approval by the Environmental Health Division, all of the following data must be provided:

A. If the dwelling is served by an individual well or spring, the ORIGINAL well production report is required, accompanied by a plot plan signed by a licensed well driller.

- If the well was drilled after May 10, 1990, a separate well permit is required and must be finaled before this office can approve the Building Permit Application.

B. The percolation rate must be established by a percolation test performed on the parcel either by an individual percolation test, an accepted subdivision percolation rate, or by a percolation test performed for a parcel map. A registered civil engineer, geologist or registered environmental health specialist must do this test.

- If the percolation rate is less than 5 min./in., greater than 30 min./in., for deep trenches or greater than 60 min. /in., a special design sewage disposal system is required.
- **Ground slopes in the sewage disposal and replacement area shall not be greater than 30 percent**

Environmental Health

Septic System Minimum Setback Requirements

To protect water supply sources, surface water, and the proper function of a septic system, it is important to meet certain setbacks. Please refer to the following tables.

Leach Lines

From ephemeral (seasonal) stream/swale	50 feet
From flowing stream	100 feet
From well, spring, lake, or pond	100 feet
From lake or reservoir used for drinking water	200 feet
From trees	5 feet
From lot lines, roads, driveways, or buildings	10 feet
From a cut or fill (e.g., pool)	Four (4) times the cut or fill height
Shall not be placed under asphalt, concrete, or under areas subject to vehicular traffic	
Shall not be placed in fill material	

Septic Tank

From house	5 feet
From any building	5 feet
From trees	5 feet
From lot lines, roads, or driveways	5 feet
From streams, springs, lakes, or reservoirs	50 feet
From well or spring used for domestic purposes	100 feet
Shall not be installed in areas subject to high groundwater tables	

Well

Minimum horizontal separation distance between well and:	
Any sewer line (sanitary, industrial, or storm; main or lateral)	50 feet
Watertight septic tank or subsurface sewage leaching field	100 feet
Cesspool or seepage pit	150 feet
Animal or fowl enclosure	100 feet
The above horizontal separation distances are generally considered adequate. Wells should be located outside areas of flooding. The top of the well casing shall terminate above grade and above known levels of flooding caused by drainage or runoff from surrounding land. Area drainage should be directed away from the well, and if necessary, the area around the well shall be built up so that the drainage moves away from the well.	

FINAL DRAFT OF PROPOSED WELL CONSTRUCTION & WATER SUPPLY STANDARDS ORDINANCE updated August 14, 2014

WELL CONSTRUCTION AND WATER SUPPLY STANDARDS ORDINANCE [Chapter 8.39]

FINAL DRAFT OF PROPOSED WELL CONSTRUCTION & WATER SUPPLY STANDARDS ORDINANCE updated August 14, 2014

FINAL DRAFT OF PROPOSED WELL CONSTRUCTION & WATER SUPPLY STANDARDS ORDINANCE updated August 14, 2014

8.39.010 Purpose.

It is the purpose of this chapter to protect the health, safety, and general welfare of the people of the County of El Dorado by ensuring that groundwater of the County will not be polluted or contaminated. To this end, minimum requirements are contained in this chapter for construction, reconstruction, repair, and destruction of water wells, cathodic protection wells, soil borings, monitoring wells, and geothermal heat exchange wells. Further, reliable and safe water supplies for new construction and land developments are defined.

8.39.020 Definitions.

A. As Defined in Other Documents. Except as otherwise required by the context of this chapter, the terms used in this chapter shall have the same meaning as in Chapter 10 of Division 7 of the California Water Code and the California Division of Water Resources Bulletins 74-81, 74-90, and subsequent supplements or revisions.

B. Tense or Gender. Words used in the present tense include the future as well as the present. Words used in the masculine gender include the feminine and neuter. The singular number includes the plural, and the plural the singular.

C. Section headings, when contained in this chapter, shall not be deemed to govern, limit, modify, or in any manner affect the scope, meaning, or intent of the provisions of any section.

FINAL DRAFT OF PROPOSED WELL CONSTRUCTION & WATER SUPPLY STANDARDS ORDINANCE updated August 14, 2014

1. "Abandoned well" means a well that has not been used for a period of one (1) year unless the owner demonstrates intention to use the well again by obtaining an inactive well permit.

2. “Active well” means a well that has a pump installed and is in use.

3. "Annular space" means the space between two well casings or between the casing and the wall of the drilled hole.

4. “Approved water supply” means any of the following: (a) a Public water system operating under permit issued by California State Division of Health Services or County of El Dorado Division of Environmental Management; (b) a State Small water system operating under permit issued by the Division; (c) drilled water wells that meet the requirements of this ordinance; or (c) springs constructed by approved methods to exclude surface water contamination and meet the requirements of this ordinance.

5. "Board" means the County of El Dorado Building Appeals Board.

6. “BOS” means the County of El Dorado Board of Supervisors.

7. "Cathodic protection well" means any artificial excavation in excess of fifty feet (50') deep constructed by any method for the purpose of installing equipment or facilities for the protection electrically of metallic equipment in contact with the ground, commonly referred to as cathodic protection.

8. "Contamination" means an impairment of the quality of the waters of the State such that it creates a hazard to the public health through poisoning, the spread of disease, hazardous materials, or other substances. "Contamination" includes any equivalent effect resulting from the release of contaminants, whether or not waters of the State are affected.

9. “Destroyed well” means a well that has been properly filled so that it cannot produce water and eliminates potential physical hazards that may exist. Destruction of wells ensures that the groundwater supply is protected and preserved for future use.

10. “Director” means County of El Dorado Division Director of Environmental Management or their authorized representative.

11. “Division” means the Environmental Management Division of the County of El Dorado Community Development Agency.

12. “Domestic water supply” is water used for indoor and outdoor household purposes— all the things you do at home: drinking, preparing food, bathing, washing clothes and dishes, brushing your teeth, watering the yard and garden, and even washing the dog.

13. "Enforcement agency" means the County of El Dorado Environmental Management Division.

FINAL DRAFT OF PROPOSED WELL CONSTRUCTION & WATER SUPPLY STANDARDS ORDINANCE updated August 14, 2014

14. “Geothermal heat exchange well” means any uncased artificial excavation, by any method, that uses the heat exchange capacity of the earth for heating and cooling, in which excavation the ambient ground temperature is 30 degrees Celsius (86 degrees Fahrenheit) or less, and which excavation uses a closed loop fluid system to prevent the discharge or escape of its fluid into surrounding aquifers or other geologic formations. Geothermal heat exchange wells include ground source heat pump wells.

15. “Inactive well” means a well that has not been used for a period of one (1) year but that owner demonstrates intention to use in the future by obtaining an inactive well permit and maintaining the well as required in Section 8.39.160.

16. “Irrigation Well” means a well that is used to water crops. Irrigation wells are not used for drinking water collection.

17. "Monitoring well" (also called observation well) means any artificial excavation by any method for the purpose of monitoring fluctuations in groundwater levels, quality of underground waters, or the concentration of contaminants in underground water.

18. “Onsite wastewater treatment system" means a system of septic tank and subsurface dispersal system handling the waste from any structure not served by a community sewerage system.

19. “Person” means any individual, organization, partnership, business, association, corporation, or governmental agency to the extent authorized by law.

20. "Pollution" means an alteration of the quality of the waters of the State by waste to a degree which unreasonably affects (1) the waters for beneficial uses, or (2) facilities which serve these beneficial uses. "Pollution" may include contamination.

21. “Potable or safe water” means water that complies with maximum contaminant levels for primary drinking water standards of the constituents listed in Section 8.39.510.

22. "Property line" means the surveyed line separating one piece of property from another or separating public rights-of-way from private properties.

23. “Public water system” means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. Public water systems can be either <u>Community</u> (a public water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents of the area served by the system); <u>Non-community</u> (a public water system that is not a community water system);

FINAL DRAFT OF PROPOSED WELL CONSTRUCTION & WATER SUPPLY STANDARDS ORDINANCE updated August 14, 2014

or Non-transient non-community (a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year). (This includes systems regulated under Cal Code (California Health and Safety Code).

24. "Repair" or "reconstruction" means deepening or cleaning out of the well shaft, and can include the replacement and/or resealing of a well casing.

25. “Reliable water supply” means a water supply that has had an approved well production test to verify that the supply can meet minimum production requirements.

26. "Sewer" means a pipe carrying waste from any structure or a pipe that is a part of any community sewerage system.

27. “Slope” means the rise or fall of land as shown on a topographic map.

28. “Soil boring” (also called exploratory or test well) means an uncased artificial excavation constructed by any method for the purpose of obtaining information on subsurface conditions or for the purpose of determining the presence or extent of contamination in subsurface soils or groundwater and for seismic information.

29. “Source" means surface water, groundwater well, or spring.

30. “Spring” means a subsurface stream of flowing water that emerges naturally from rock or soil, and can be an approved source if constructed by approved methods to exclude surface water contamination.

31. “Stabilized water level during pumping” means that level of water in the well that remains constant after a period of pumping at a specific rate in gallons per minute. The required period of time for such pumping varies depending on the purpose of the well while the minimum period of time required is 4 hours for an existing parcel with a single family dwelling.

32. “State small water system” means a system for the provision of piped water to the public for human consumption that serves at least five, but not more than 14, service connections and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year.

33. “"Well" or "water well" means any artificial excavation constructed by any method for the purpose of extracting water from, or injecting water into, the underground. This definition shall not include: (a) oil and gas wells, or geothermal wells constructed under the jurisdiction of the Department of Conservation, except those wells converted to use as water wells; or (b) wells used for the purpose of (1) dewatering excavations during construction, or (2) stabilizing hillsides or earth embankments.

FINAL DRAFT OF PROPOSED WELL CONSTRUCTION & WATER SUPPLY STANDARDS ORDINANCE updated August 14, 2014

PERMITS

8.39.030 Permits Required.

No person shall dig, bore, drill, deepen, modify, repair, or destroy a water well, cathodic protection well, soil boring, monitoring well, geothermal heat exchange well, or any other type of well excavation that may intersect ground water without first applying for and receiving a permit from the Division unless exempted by law.

8.39.040 Penalty for Failure to Obtain Permit.

Any person who shall commence any work for which a permit is required by this chapter without having obtained a permit shall be required, if subsequently granted a permit for this work, to pay additional fees as set by BOS resolution in Section 8.39.070.

8.39.050 Emergency Work.

The provisions of Section 8.39.030 shall not apply to emergency work required on short notice to maintain drinking water or agricultural supply systems. In such cases, the person responsible for the emergency work shall:

1. Apply for a permit within three (3) working days after commencement of emergency work;
2. Satisfy the Division that such work was urgently needed; and
3. Demonstrate that all work performed was in conformance with the technical standards.

8.39.060 Application Procedure.

Applications for permits shall be made to the Division on approved forms and shall contain all such information the enforcement agency requires to accomplish the purpose of this chapter. Applications shall include all of the following:

1. A vicinity map and clear driving directions to the property and well site.
2. Two (2) copies of an accurate site plan drawn to scale showing the proposed well location and the location of other significant features within 200 feet of the well location such as distances to property lines, septic tanks, leach lines, sewer lines, existing wells, streams or ponds, adjacent parcel development, structures, roads, driveways, easements, etc.
3. North arrow.
4. The scale used for the site plan.

5. Location and availability of alternative water source (i.e. Public water or existing well).

Note: Small parcels to be developed with an onsite wastewater treatment system may be required to provide additional design information prior to permit approval.

The signed application shall be submitted by the property owner or his representative, and will be accompanied by the required filing fee. If the Division finds that the application contains all necessary information and meets requirements for development eligibility, parcel size, and setbacks, a permit containing such conditions as are necessary to fulfill the purpose of this chapter shall be issued by the Division.

8.39.070 Fees.

Fees shall be collected by the Division for a permit to dig, bore, drill, deepen, modify, repair, or destroy a water well, cathodic protection well, soil boring, monitoring well, or geothermal heat exchange well. In addition, fees may be collected for revisions, inactivation permits, penalties, re-inspections, and appeals. The BOS sets fees by resolution.

8.39.080 Development Eligibility.

Water well Permits cannot be issued on a parcel unless both development eligibility (and parcel size) requirements are met. Parcels created by parcel map or subdivision shall be developed as designated for a domestic water supply.

Development Eligibility is also subject to County Ordinance Section 16.76.

8.39.090 Parcel Size.

Parcels are required to be a minimum of 5.0 acres to be approved for a water well permit. If parcel is less than 5.0 acres, the following exceptions may apply:

1. If parcel map or subdivision map does not designate the water supply, and parcel was created prior to May 26, 1977, a water well permit may be issued.
2. If not created by parcel map or subdivison, and parcel was in existence prior to May 26, 1977, a water well permit may be issued.
3. If parcel created by a gift deed recorded on or before October 10, 1983, a water well permit may be issued.

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4. If parcel was created after May 26, 1977 and before 2004 and the parcel is 4.5 acres a water well permit may be issued.
5.

8.39.100 Setbacks.

Consideration should be given to adequate separation from sites or areas with known or suspected soil or water pollution or contamination.

General separation guidelines are as follows:

Potential contamination source	Minimum setback distance to well (in feet)*
Sewer line (main or lateral)	50
Public drinking water main	50
Onsite wastewater treatment system (both septic tank and leach lines)	100
Animal or fowl enclosure **	100
Abandoned dump site	1000
Flooded areas and drainages	Avoid or divert away from well

*Lesser or greater separation distances may be approved by the Division based on specific site conditions.

** In cases where animal wastes constituting a nuisance as defined in County of El Dorado Solid Waste Management Ordinance, Section 8.42.020.

Notes:

- It is recommended that a well be placed 100 feet from a property line to protect the well from development of an adjacent parcel.
- If drill site is located within County of El Dorado zoning setbacks, no structure over 30” high can be constructed over the wellhead.

8.39.110 Permit Conditions.

When the Division issues a permit pursuant to this chapter, it may condition the permit in any manner necessary to carry out the purpose of this chapter. Conditions may include, but are not limited to, water quantity and quality testing methods as the Division finds necessary.

8.39.120 Persons Permitted to Work on Wells.

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All construction, reconstruction, or destruction work on wells shall be by a person who possesses an active C-57 contractor's license in accordance with the provisions of the Business and Professions Code, section 7000, et seq.

8.39.130 Proper Disposal of Drilling Fluids.

The permit shall contain a clause requiring the safe and appropriate handling and disposal of drilling fluids and other drilling materials used in connection with the permitted work. Approved site specific best management practices (BMP's) shall be implemented so that drilling fluids and soil cuttings remain on the permitted parcel unless another disposal method is approved for the site by the Division. Excavated pits dug for the disposal of drilling fluids shall be backfilled upon completion of the job. Wells drilled in the Tahoe Basin shall follow Tahoe Regional Planning Agency's BMP's for proper disposal of drilling fluids.

8.39.140 Classification of Wells.

Wells shall be classified as active, inactive, or abandoned.

8.39.150 Active well.

An active well is one that has a pump installed and is in use.

8.39.160 Inactive Well.

An inactive well is one that has not been used for a period of one (1) year but that the owner demonstrates intention to use in the future by obtaining an inactive well permit and shall meet the following criteria:

1. The well shall not allow impairment of the quality of water within the well and groundwater encountered by the well;
2. The well shall be maintained with a tamperproof watertight cover that cannot be removed without the use of equipment or tools in order to prevent unauthorized access, a safety hazard to humans and animals, and illegal disposal of wastes into the well;
3. The well shall be kept marked so as to be easily visible and located, and labeled so as to be easily identified as a well;
4. The area surrounding the well shall be kept clear of brush, debris, and waste materials.

Wells that are determined by the Division to be unsafe, improperly constructed or maintained, or pose a threat to groundwater shall be required to be destroyed.

8.39.170 Abandoned Well.

An abandoned well is required to be properly destroyed and an approved destruction permit shall be issued prior to the destruction.

As a condition of a construction or reconstruction permit, any abandoned wells on a parcel shall be destroyed in accordance with standards provided in this chapter.

8.39.180 Permit Denial.

The Division shall deny an application for a permit if, in its judgment, issuance of a permit is not in the public interest.

8.39.190 Permit Expiration.

The permittee shall complete the work authorized by the permit within one year of permit issuance. If there have been exceptional circumstances, and the permittee submits a written request prior to expiration of the permit, the Division may grant the applicant a one (1) year extension. Upon the expiration of the permit, no further work shall be done unless and until the applicant has received a new permit.

8.39.200 Voiding of Permit Application.

Permit applications that are submitted but not issued shall be voided if permit cannot be issued within one (1) year of permit submittal date.

8.39.210 Refund of Permit Fees.

Refunds for submitted permit applications may be made to the payor when requested in writing prior to the date of expiration or voiding of a permit application. Staff time spent reviewing and processing the permit may be deducted from the amount of the refund. If permit expires or is voided prior to requesting a refund, no refund shall be paid.

8.39.220 Permit Revisions.

Permit application revisions shall be submitted for review and approval as follows:

1. Change of driller: Requires an amended permit application specifying the new driller and a new site plan.
2. Change of drill site: Requires new site plan.
3. Permit extension: Requires written request explaining the exceptional circumstances as to why the well was not drilled within the initial permit period.

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8.39.230 Permit Suspension and Revocation.

The Division may suspend or revoke any permit issued pursuant to this chapter; whenever it finds that the permittee has violated any of the provisions of this chapter, or has misrepresented any material fact in his application or any supporting documents for such a permit. Prior to ordering any such suspension or revocation, the Division shall give the permittee an opportunity for a hearing thereon, after reasonable notice. The hearing shall be before the Director or their authorized representative. An appeal may be made as set forth in section 8.39.290.

No person whose permit has been suspended or revoked shall continue to perform the work for which the permit was granted until, in the case of suspension, the Director has reinstated such permit.

8.39.240 Ordered Additional Work.

Upon suspending or revoking any permit, if any work already done by the permittee has left a well in such a condition as to constitute a hazard to the quality of groundwater, the Division may order the permittee to perform any work reasonably necessary to protect groundwater from pollution or contamination. No permittee or person who has held any permit issued pursuant to this chapter shall fail to comply with any such order.

8.39.250 Well Standards.

Except as otherwise specified, the minimum standards for the construction, repair, or reconstruction, or destruction of wells shall be as set forth in State Department of Water Resources "Water Well Standards " Bulletins 74-81, 74-90, and subsequent supplements or revisions.

8.39.260 Variances.

The Director shall have the power under the following specified conditions to grant a variance from any provision of the standards referenced in Section 8.39.250 and to prescribe alternative requirements in their place if:

1. A special circumstance exists where practical difficulties or unnecessary hardship would result from the strict interpretation and enforcement of any such standard.
2. The granting of such a variance is consistent with the purposes of this chapter.

8.39.270 Special Ground Water Protection.

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The Director may designate areas where groundwater quality problems are known to exist and where a well will penetrate more than one water bearing zone. The Director may require in these designated areas special well seal(s) to prevent mixing of water from several zones. Where an applicant proposes well construction, reconstruction, or destruction work in such an area, the Division may require the applicant to provide a report with the permit application prepared by a California Registered Professional Geologist, or a California Registered Professional Engineer (as defined in the California Business and Professions Code) that identifies all strata containing poor quality water and recommends the location and specifications of the seal or seals needed to prevent the entrance of poor quality water or its migration into other water bearing zones.

8.39.280 Other Agency's Requirement.

Nothing in this chapter shall be deemed to excuse any person from compliance with the provisions of California Water Code section 13752 relating to notices and reports of completion or any other federal, state, or local reporting regulations.

8.39.290 Appeals.

Any person whose application for a permit has been denied, granted conditionally, been suspended or revoked, or whose variance request has been denied, may appeal to the County of El Dorado Building Appeals Board.

8.39.300 Violation a Misdemeanor.

Any person who violates any of the provisions of this ordinance is guilty of a misdemeanor, and upon conviction thereof is punishable by such penalties as set forth in Section 1.24.020 of this code.

8.39.310 Notice of Violation.

A notice of violation shall be issued and shall be recorded with the County Recorder whenever the Division determines that:

1. A well has not been completed in accordance with a well permit or the plans and specifications relating thereto;
2. A well has been constructed or destroyed without a required permit; or
3. An abandoned well has not been destroyed in accordance with the standards.

The owner(s) of the property, as revealed by the assessment roll, on which the violation is situated, and any other person responsible for the violation shall be notified of the recordation, if their address is available.

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If the property owner(s) or authorized agent disagrees with the determination, he may submit evidence to the Division and shall have a right to appeal an adverse decision of the Director to the Board in accordance with the provisions of section 8.39.290.

8.39.320 Decision by Board.

The Board may reverse, affirm, or modify, wholly or in part, the decision or the notice of violation; and may make such order as should be made. Such action shall be final.

8.39.330 Removal of Violation Notice.

The Division shall submit a removal of notice of violation to the County Recorder when:

1. It is determined by the Division or the Board, after review, that no violation of this chapter exists; or
2. All required and corrective work has been completed and approved by the Division.

8.39.340 Civil Enforcement.

Violations of this chapter may also be redressed in the manner hereinafter set forth by civil action. In addition to being subject to prosecution, any person who violates any of the provisions of this chapter may be made the subject of a civil action. Appropriate civil action includes, but is not limited to, injunctive relief and cost recovery.

8.39.350 Remedies Cumulative.

The remedies available to the Board to enforce this chapter are in addition to any other remedies available under ordinance or statute, and do not replace or supplant any other remedy but are cumulative thereto.

8.39.360 Severability.

If any section, subsection, paragraph, sentence, clause, or phrase of the ordinance codified in this chapter is for any reason held to be invalid or unconstitutional by a decision of a court of competent jurisdiction, it shall not affect the remaining portions of this ordinance, including any other section, subsection, sentence, clause, or phrase therein.

8.39.370 Regulations.

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The Director is authorized to make such regulations for the protection of groundwater against pollution and contamination, and for protection of public health.

8.39.380 Right of Entry and Inspection.

Representatives of the Division shall have the right to enter upon any premises at all reasonable times to make inspections and tests for the purpose of such enforcement and administration. If any such premises are occupied, he shall first present proper credentials and demand entry. If the same is unoccupied, he shall first make a reasonable effort to locate the owner or any person having charge or control of the same and demand entry. If such entry is refused, he shall have recourse to such remedies as are provided by law to secure entry.

8.39.390 Submittal of State "Well Completion Report".

The driller shall provide the Division and the State Department of Water Resources a well completion report within sixty (60) days of the completion of any well construction, reconstruction, or destruction. This report shall document that the work was completed in accordance with the standards and all additional permit conditions.

8.39.400 Confidentiality of State "Well Completion Report".

Reports made in accordance with 8.39.390 shall not be made available for inspection by the public, but shall be made available to governmental agencies for use in making studies, or to any person who obtains a written authorization from the owner of the well.

WATER WELLS

8.39.410 Inspections.

1. Upon receipt of an application, the Division may inspect the drilling site prior to issuance of a well permit. The purpose of this inspection is to determine whether site conditions exist that would preclude approval of the proposed site.
2. The Division may inspect the annular seal depth prior to sealing and at any other time that the well is under construction.
3. The Division may make a final inspection after completion of the well to determine whether the well was completed in accordance with this chapter.

8.39.420 Re-inspection Fees.

If site is not ready for a scheduled inspection and inspection cannot be completed, additional fees may be assessed in accordance with the Division's fee schedule and payable prior to a re-inspection.

8.39.430 Required Notices.

Move on notice: The well driller shall notify the Division twenty-four (24) hours prior to commencement of drilling.

Seal inspections - Self Certification:

1. Each well driller or consultant must register in order to conduct inspection of well seal or destruction by filling out the Water Well Inspector Registration Form with the Division.
2. When seal or destruction is to take place the Division will be notified of the date and time, and then registered inspector can inspect seal or destruction as appropriate.
3. To finalize the permit the well seal record must be filed with the Division. The **well permit will not be finalized if this form is not received.**

8.39.440 Should Division Fail to be Present.

If the Division grants approval to allow a seal to be poured without inspection and there is not a registered inspector available, the driller shall seal the well in accordance with the standards of this ordinance and any permit conditions. No seal shall be poured until permission to proceed has been received by scheduling seal time as required in Section 8.39.410 and waiting a minimum of 30 minutes past the scheduled seal time unless other arrangements are made with Division staff.

8.39.450 Finished Construction Specifications for Public Water Wells.

1. Provide a concrete base around the well casing that extends at least 2 feet in all directions, 4 inches thick, with the upper surface sloping away from the casing unless other construction methods are approved by the Division.

2. Wellhead shall be fitted with a sampling tap, located on the discharge line between the wellhead and the check valve.

3. Wellhead shall be fitted with a vent, either a downturned screened elbow, or other approved venting method.

4. Wellhead shall be equipped to be easily accessible for spot chlorinating.

5. Wellhead shall be protected by a locking structure, or other method of

security.

6. Public water well construction and operation shall comply with Title 22, California Code of Regulations, Chapter 16, and the California Waterworks Standards.

WATER SUPPLIES FOR BUILDING PERMITS (existing parcels)

8.39.460 Water Well Construction and Production Requirement.

Acceptable water wells are those which are constructed to the standards specified in "Water Well Standards", State of California, Department of Water Resources, Bulletins 74-81, 74-90, and subsequent supplements or revisions; and which are capable of providing to each connection a minimum of five (5) gallons per minute, either from the well itself or a combination of well and storage. Wells producing less than one (1) gallon per minute shall not be accepted as an adequate water supply.

The production capacity of a well for a single family dwelling shall be determined from a four (4) hour well production test as defined in 8.39.470. The production capacity is valid for two years from the date of testing and shall be certified with an original signature by a licensed well driller, licensed pump contractor, or other professional person approved by the Division.

8.39.470 Water Well Production Test Procedures.

The capacity of a well drilled in hard rock on existing parcels shall be determined from a well production test. For a single family dwelling, the test shall be conducted for a minimum 4 hours and until there is a stable rate of pumping for 4 hours. The test shall meet one of the following approved test methods as defined by the California Groundwater Association or by another approved method acceptable to the Division:

1. Constant Yield and Drawdown - Test-pump installed

   The Constant Yield and Drawdown Test requires that the water in storage in the well be removed until a stable pumping level is established. The duration of the test period. The yield that maintains this constant pumping level at the end of the test period is the constant yield. The test period shall continue as long as necessary to achieve a 4-hour constant yield.

2. Water Recovery - Test-pump installed

   The Water Recovery Test is performed by pumping all of the water out of the well or at least until the pump breaks suction, then waiting a specific amount of time (often determined during testing) and again pumping the well down to the level of the pump. A flow meter (or other approved test starts at this point, and a constant pumping level is maintained for the method) is installed to record the amount of water pumped out and by measuring the time between pump-downs and the amount of water pumped, a recovery rate is computed. The recovery test yield is the stable yield that is sustained for 4 hours. The test period shall continue as long as necessary to achieve a 4-hour stable recovery rate. This test is based on the assumption that the test pump is capable of over-pumping the well.

3. Air lift Test - During Drilling

   The airlift test is performed before or after the completion of the well, with the open end of the drill stem inserted into the borehole and the contained water blown out using the rig's compressor system. The compressed air lifts the water in the well to the surface where the volume of water produced is measured per unit of time in order to establish a sustained yield in gallons per minute. The 4-hour test period shall begin after the last water fracture is encountered.

For wells used for other than a single family dwelling, the Division shall determine the length of the pump testing required.

Public Water System wells are required to be pump tested for a minimum of 72 hours following criteria specified by the Division and the California State Department of Health Services, Division of Drinking Water.

Pumping discharges shall be managed in compliance with approved site specific Best Management Practices and shall not be allowed to enter a storm drain system or a watercourse.

8.39.480 Spring Construction and Production Requirement.

Springs which are constructed to the standards specified by the Division following guidelines developed by the California State Division of Health Services; and which are capable of providing to each connection a minimum of five (5) gallons per minute, either from the spring itself or a combination of spring and storage. Springs producing less than one (1) gallon per minute shall not be accepted as an adequate water supply.

The production capacity of a spring shall be determined by measuring the discharge flow rate during the driest months of the year (primarily during the Fall season). The production capacity of a spring is valid for two years from the date of testing and shall be certified by a licensed well driller, licensed pump contractor, or other professional person approved by the Division.

Springs that contribute to a flowing stream, either by surface or subterranean means, are required to obtain a permit for diversion and use from the State Water Resources Control Board.

8.39.490 Production Test Report Requirements.

Well production test reports shall include the start and end time of the test period.

Test reports shall be submitted on company letterhead and signed by the person performing the test.

8.39.500 Water Storage Requirement.

For wells or springs producing less than five (5) gallons per minute, a minimum 1000-gallon storage tank shall be installed. Additional structures on a parcel may increase the storage tank size requirement.

8.39.510 Water Quality.

A report of water quality, analyzed by a California State certified laboratory, shall be submitted to the Division on the proposed water supply prior to final of a building permit. Water quality testing conducted as part of the land development process satisfies this requirement except for current coliform testing (analyzed within one year of permit submittal).

Water supplies that do not meet State primary drinking water standards for acute health risks shall not be approved for use without installation of a certified treatment system that reduces the contaminant level to safe health standards. Initial results that exceed standards may be re-sampled by an approved third party to determine compliance.

Primary acute health risks, such as:

Total and fecal coliform	Nitrate (as NO3)
Nitrite (as nitrogen)	Nitrate plus Nitrite (sum as nitrogen)
Arsenic	

Water supplies that exceed State primary drinking water health standards (Title 22) for chronic contaminants shall have a deed restriction recorded on the parcel that the water supply is not potable without installation of a certified treatment system that reduces the contaminant level to safe health standards.

Additional water quality parameters may be required depending on the location of the parcel, susceptibility to other contaminants, and future drinking water standards.

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GEOTHERMAL HEAT EXCHANGE WELLS

8.39.520 Geothermal Heat Exchange Well Standards.

All geothermal heat exchange well installations or destructions shall conform with State Department of Water Resources "Water Well Standards" Bulletins 74-81, 74-90, and subsequent supplements or revisions for construction methods and materials.

MONITORING WELLS

8.39.700 Permits Required.

No person shall dig, bore, drill, deepen, modify, repair, or destroy a soil boring, monitoring well, or other exploratory boring without first applying for and receiving a permit from the Division unless exempted by law.

8.39.710 Persons Permitted to Work on Wells.

All construction, reconstruction, or destruction work on soil borings, monitoring wells, or other exploratory borings shall be by a person who possesses an active C-57 contractor's license in accordance with the provisions of the Business and Professions Code, section 7000, et seq.

8.39.720 Monitoring Well Standards.

All monitoring wells/soil boring/exploratory boring installations or destructions shall conform with State Department of Water Resources "Water Well Standards" Bulletins 74-81, 74-90, and subsequent supplements or revisions for construction methods and materials.

8.39.730 Pre Drilling Requirements.

Prior to drilling, a line-locating service shall be used to identify any potential drilling obstructions.

8.39.740 Temporary Containment Prior to Lab Analysis.

All equipment, drill cuttings, and well development water shall be temporarily contained in United States Department of Transportation (DOT) approved drums on site until lab analysis is complete. Drums shall be properly labeled and dated. Temporary storage time shall not exceed 90 days.

8.39.750 Finished Construction Features.

Monitoring wells shall be completed in one of two ways: 1) flush or slightly above existing grade with an in-ground type vault box with protective cover, or 2) above grade with a protective, oversized riser and lockable cover set in a 2' by 2' concrete base or pad with the surface sloping away from the well casing. Protective traffic bollards may also be required with this type of completion.

Each well shall be locked, numbered, and notched or marked on the north side for surveying and well measurements.

8.39.760 Equipment Cleaning Before and Between Uses.

All equipment used in drilling and sampling activities must be properly cleaned before and between each uses.

8.39.770 Prohibited Materials.

Chemicals, glues, and solvents shall not be used in the construction of monitoring wells/soil borings.

8.39.780 Re-inspection Fees.

If site is not ready for a scheduled inspection and inspection cannot be completed, additional fees may be assessed in accordance with the Division's fee schedule and payable prior to a re-inspection.

8.39.790 Annual Permits and Inspections.

An annual permit fee may be charged and an annual inspection may be conducted to confirm the status of the monitoring well.

8.39.800 Additional Requirements.

Other requirements may apply at the discretion of the Division.

8.39.810 Final Inspection.

A final inspection shall be scheduled with the Division at a minimum of 48 hours advance notification. If the final inspection is conducted by a certified inspector, 48 hours advanced notice to the Division is still required.

8.39.820 Initial Investigation and Report for Destructions.

Prior to destroying a monitoring well, it shall be investigated to determine the construction details, maintenance history, and current condition. A work plan including the investigation findings and destruction method shall accompany the permit application.

8.39.830 Removal and Disposal of Obstructions and Contaminants.

Wells shall be sounded immediately prior to destruction to ensure they are free of obstructions. If any chemical contaminants are observed, the Division shall be immediately notified in writing. Wells shall be cleaned to remove and properly dispose of all obstructions and contaminants.

8.39.840 Destruction of Approved Monitoring Wells.

An authorized Division representative shall determine the appropriate destruction method for a monitoring well based on the well construction and /or other administrative issues. The typically accepted monitoring well destruction methods are 1) the well may be drilled out to the true depth of the original boring and the resultant boring backfilled with approved sealing material; or 2) the well may be pressure grouted in place. During the pressure grouting procedure, a minimum of 25 pounds per square inch shall be maintained for five minutes or until pumping refusal.

In some cases, additional sealing requirements will be stipulated on the permit. Division requirements may be more stringent than California well standards.

All waste generated during destruction activities shall be properly managed: this includes, but is not limited to, all waters generated during debris removal or seal placement.

For wells constructed and maintained in accordance with California Well Standards, casing that is more than 5 feet below ground surface may be left in place. The casing shall be filled with sealing material up to 5 feet below ground surface. After sealing material has set, a 5-foot deep hole shall be excavated around the casing and the casing cut off at the bottom of the hole. The excavation shall then be filled with clean native soil.

8.39.850 Destruction of Unapproved Monitoring Wells.

For wells not constructed and maintained in accordance with California Well Standards, all material within the original borehole (casing, screen, filter pack, etc.) shall be removed. The borehole shall be completely filled with impervious sealing material.

8.39.860 Acceptable Sealing Materials.

Pressure grouting shall be completed using neat cement grout. No aggregate sealing materials may be used.

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Boreholes resulting from well drill-outs may be backfilled with neat cement grout, 10-sack sand cement grout, or hydrated high solids 20 percent bentonite slurry. No bentonite chips or pellets are allowed.

Up to 5 percent bentonite clay may be added to a cement mixture.

8.39.870 Placement Of Sealing Material By “Tremmie” Pipe.

Sealing material shall be placed by “tremmie” pipe or equivalent method in one continuous operation. A tremmie pipe must be used to place the cement sealing material if a well or boring is more than 30 feet deep or if more than 3 feet of water is present in the annular space to be sealed.

8.39.880 Placement Of Sealing Material By Free Fall Method.

Sealing material may be placed by free fall method only if the well is dry, less than 30 feet deep, and does not result in bridging or voids. Volume/fill calculation shall be completed to document successful destruction.

8.39.890 Destruction of Soil Borings.

Soil borings shall be completely filled with sealing material. Sealing material may be placed by free fall method only if the boring is dry, less than 30 feet deep, and does not result in bridging or voids. Volume/fill calculation shall be completed to document successful destruction.

8.39.900 Permit Expiration-Monitoring Wells.

The permittee shall complete the work authorized by the permit within one (1) year of permit issuance. Upon the expiration of the permit, no further work shall be done unless and until the applicant has received a new permit.

8.39.999 Conflicts

The operation of this chapter shall in no way change or diminish the application of other ordinances, County plan, policy or regulation already disallows a water well.
In any case where a provision of this chapter is found to be in conflict with a provision of any zoning, building, fire safety or health ordinance or section of the Code, the provision which establishes the higher standard for the promotion and protection of the health and safety of the people shall prevail.

Sampling Requirements for Community Water Systems using a Groundwater Source

Definition of Community: Serves at least 15 service connections used by yearlong residents OR regularly serves at least 25 yearlong residents.
ref. 64400.10

General monitoring requirements for each source:

1. Secondary standards (due every three years)

- aluminum
- bicarbonate, carbonate, and hydroxide alkalinity
- calcium
- chloride
- color
- copper
- corrosivity
- foaming agents (MBAS)
- iron
- magnesium
- manganese
- odor--threshold
- pH
- silver
- sodium
- sulfate
- specific conductance or total dissolved solids
- thiobencarb
- total hardness
- turbidity
- zinc ref 64449

2. Inorganic Chemical analyses (due every three years)

- aluminum
- antimony
- arsenic
- asbestos
- barium
- beryllium
- cadmium
- chromium
- cyanide
- mercury
- nickel
- selenium
- thallium
- fluoride

- nitrite (as nitrogen)
- nitrate and nitrite (sum as nitrogen)
- nitrate (as NO3) due every year
  ref. 64432

3. Radiological analyses (due every four years)

Gross alpha from four consecutive quarterly samples (samples can be held by the Laboratory and composited to hold costs down) ref. 64441

4. Organic Chemical analyses (due every six years)

VOC's using approved EPA methods, and including Methyl tertiary butyl ether (MTBE). Synthetic organic chemical analyses are waived unless vulnerable.
ref. 64445

5. Unregulated Chemicals

- boron and vanadium
- Additionally, if vulnerable, sampling required for chromium 6, dichlorodifluoromethane, ETBE, perchlorate, TAME, TBA, TCP ref. 64450

General Bacteriological sampling requirements:

Sampling for total coliforms is based on the known population served or the total number of service connections, whichever results in the greater number of samples (minimum is one sample per month).ref. 64423

Repeat sampling for a total coliform present sample consists of 4 repeat samples following the Sample Siting Plan.

Submission and approval of a Sample Siting Plan that follows the County guidelines is required.ref. 64422

Submission and approval of a Sample Siting Plan that follows the County guidelines is required.ref. 64422

Other requirements:

Permit application packet

Annual water quality report to consumers

Public notification as required for quality or procedural failures

Lead notice to consumers

Annual emergency notification plan

Certified Distribution System Operator for all community water systems

Certified Treatment Plant Operator for all community water systems providing treatment

****All analyses must be done by a State approved laboratory.**

Please note: the above requirements are subject to change as the State of California modifies and/or clarifies their regulations.

COMMUNITY REGION BOUNDARIES

EL DORADO COUNTY COMMUNITY DEVELOPMENT AGENCY
LONG RANGE PLANNING DIVISION

BOARD OF SUPERVISORS

February 24, 2015

INTRODUCTION

- Proposed Project Background
- Origin of Community Regions
- Project Analysis and Environmental Review Matters to Consider
- Funding Options
- Recommended Board Action

BACKGROUND

Board Hearings and Actions Related to the Camino/Pollock Pines Community Region

2009:

The Board discussed changing the Camino-Pollock Pines area from a Community Region to a Rural Center; Planning Commission held a public workshop on the proposed amendments; BOS adopted ROI 110-2009 with intent to remove the CR boundary and convert to 2-3 Rural Centers without land use changes

2011:

The BOS directed staff to integrate the previous ROI for the Camino/Pollock Pines Community Region into the TGPA-ZOU Project ROI.

2012:

The BOS authorized review via TGPA-ZOU to create 3 Rural Centers of Camino, Cedar Grove and Pollock Pines.

2013:

The BOS directed staff to continue processing the proposed CR changes under the TGPA-ZOU Project.

Board Hearings and Actions Related to the Shingle Springs and El Dorado Hills Community Regions

2013:

Board directed staff to:

Prepare Community Region White Paper. Based on the White Paper the Board:

Directed staff to return with a work plan pertaining to costs, and

Next steps and options for moving the Shingle Springs and El Dorado Hills Community Region boundary lines

2014:

The Board directed staff to prepare a ROI to contract the Community Regions of Shingle Springs and the Green Valley corridor and to prepare prioritization and funding options to implement the above ROI.

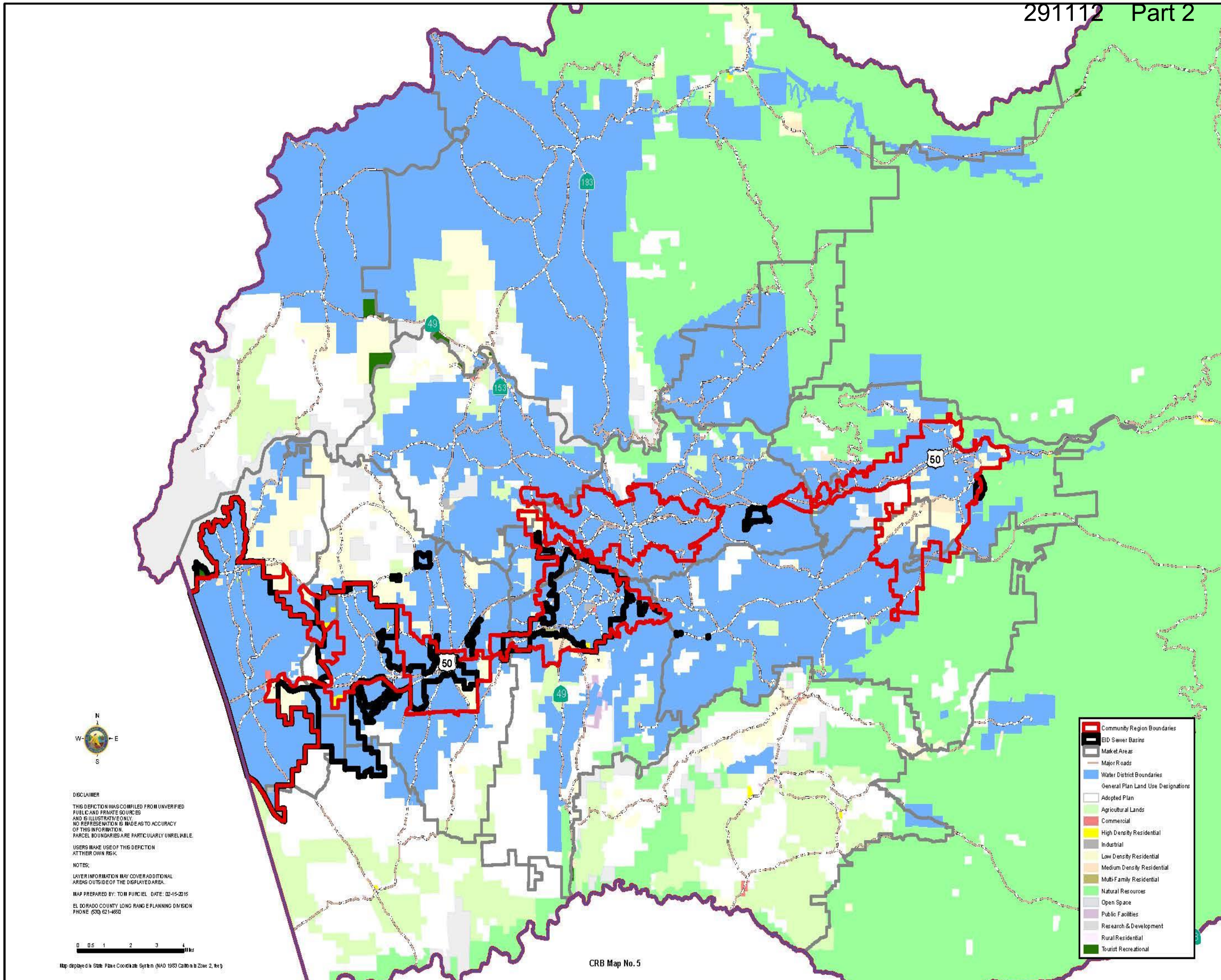
ORIGIN OF COMMUNITY REGIONS

Community Regions were first designated and adopted in the 1996 General Plan.

- Community Region boundaries guide growth to areas with:
  - adequate infrastructure;
  - adequate public services;
  - access to major transportation corridors

  (Policies 2.1.1.2 and 2.1.1.7)
- Community Region boundaries provide opportunities for continued population growth and economic expansion where adequate infrastructure and services are available;
- Community Regions allow for a mix of uses that promote alternate transportation systems.

291112 Part 2



PROJECT ANALYSIS/ENVIRONMENTAL REVIEW MATTERS TO CONSIDER

- 2004 General Plan EIR and Findings
  - Land availability to meet housing and job growth projections
  - Change of growth patterns
  - Limits on infill opportunities (e.g. new development in areas already served by infrastructure and public services)
  - Fiscal, safety and other effects including changing roadway Level of Service ("LOS") standards from E to D and reducing required response times for fire districts, sheriff, & ambulances
  - Cost of housing and infrastructure
  - Economic development and business attraction

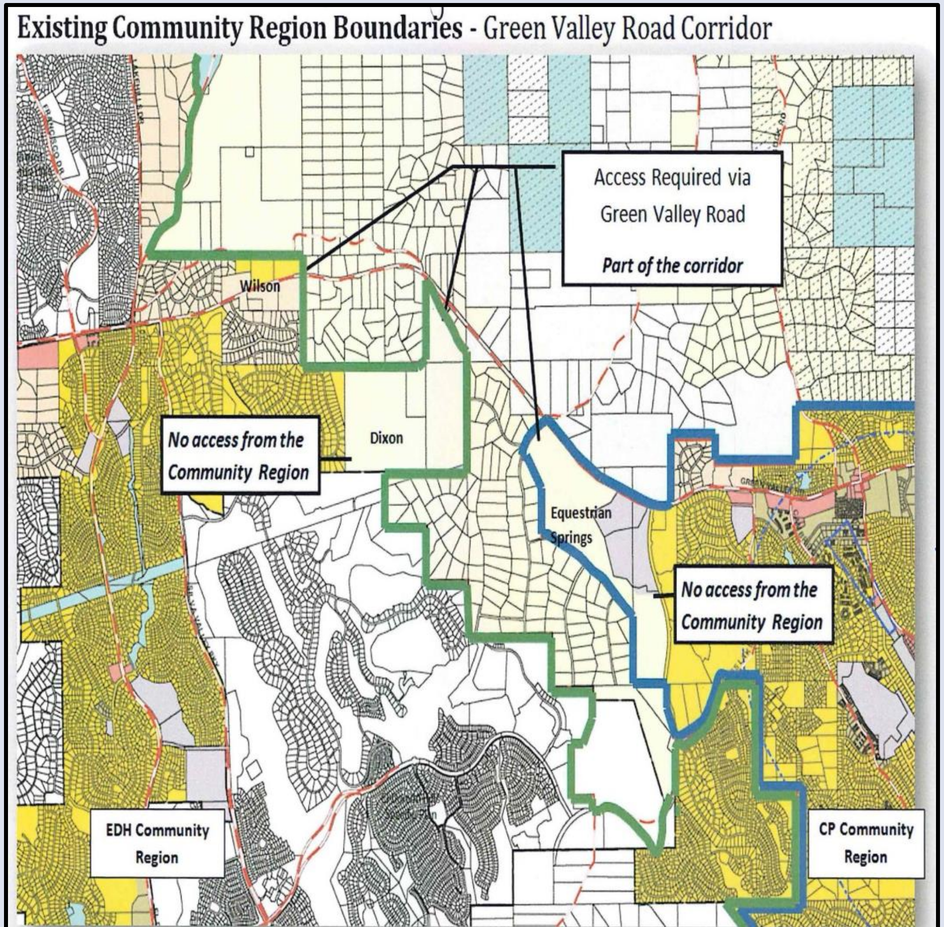
2035 GROWTH PROJECTIONS

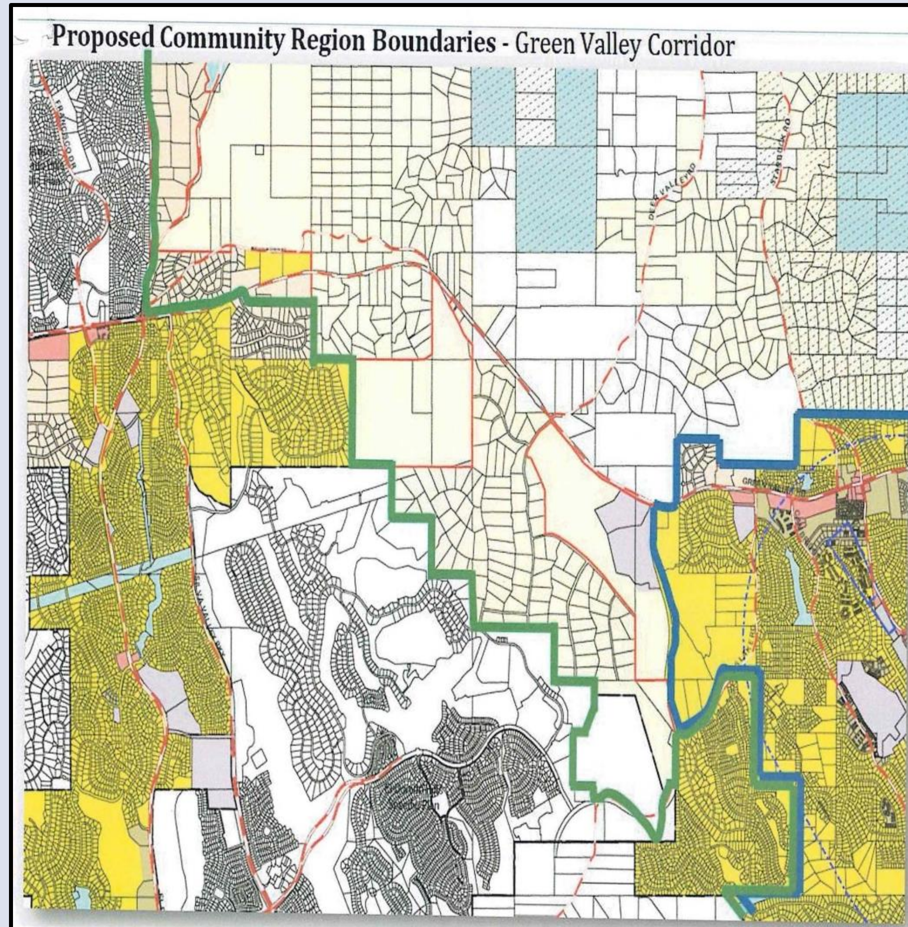
Approximately 17,500 new units over 20 years

75% Community Region* (Within EID Service Area)		25% Rural Center and Rural Region (EID, GDPUD, Other purveyors or private wells)		Total
Single Family Existing or Entitled	8,000	Single Family Existing or Entitled	4,200	**12,200**
Single Family Remaining	3,000	Single Family Remaining	0	**3,000**
Multi Family**	2,100	Multi Family**	200	**2,300**
Total CRs	13,100	**Total RC and RR**	4,400	**17,500**

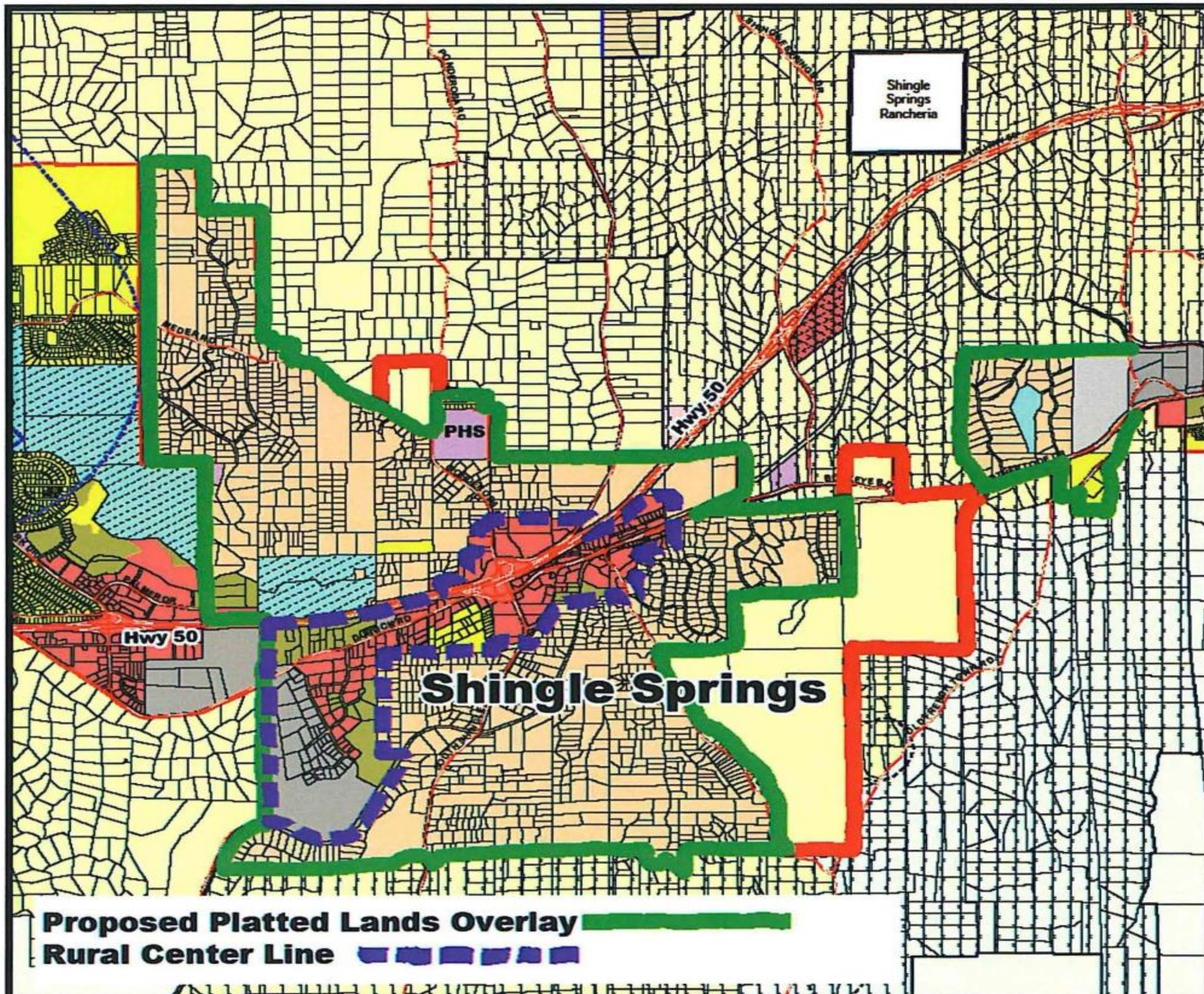
Note: All numbers are rounded
*Assumes Camino/Pollock Pines is changed to 3 Rural Centers
**Multi Family units based on 2013-2021 RHNA allocation. This number is subject to change in 2021 at next Housing Element Update

EL DORADO HILLS AND CAMERON PARK MAP





SHINGLE SPRINGS MAP



PROJECT ANALYSIS/ENVIRONMENTAL REVIEW MATTERS TO CONSIDER CONT.

- 2004 General Plan Consistency
- Housing Element
  - The County must identify, analyze and reduce or eliminate impediments to the development of housing for all income levels
  - The County must accommodate it's fare share of housing
  - 2013 Housing Element - *The State of California has declared the lack of housing is a critical problem that threatens the economic, environmental, and social quality of life in California. Any action that conflicts with the ability of the County to meet the goals of this General Plan and California Law, including but not limited to Housing Element Law, Government Code Section 65585, would be found inconsistent with State and local regulations.*
  - Possible indirect effect on parcels adjacent to Platted Lands

FUNDING OPTIONS

- CEQA costs could range from $10-20,000 in staff time to prepare a Negative Declaration, or up to $150,000 in consultant costs if an EIR is necessary
- Initial Study prepared by staff will determine ND vs EIR; analysis to date indicates an EIR may be necessary
- Three options if EIR is needed:
  - Allocate money from the General Fund contingency
  - Use General Fund money budgeted for outside legal costs that would otherwise be returned to General Fund this FY
  - Discuss funding as part of the FY 2015/16 budget (Staff's recommendation)

PROJECT PRIORITIZATION

Staff has been generally prioritizing projects based on the following:

Draft Project Prioritization Matrix

291112 Part 2

Major County-Initiated Land Use and Transportation Projects Managed by Long Range Planning Division (LRP)

		Priority: Get things done by finishing what we've started	**Priority:** Economic development	**Priority:** Set strong countywide foundation	**Priority:** Address requirements	
		Intent: Prioritize projects already initiated by Board and currently underway	Intent: Prioritize projects that directly improve economic development	Intent: Prioritize projects that address key issues affecting entire county	Intent: Prioritize projects required by General Plan, law, or other mandates	
LRP's Major County-Initiated Land Use and Transportation Projects	**Timeframe**	**Question:** Is the project currently in process?	**Question:** Does the project directly improve Economic Development?	**Question:** Does the project address an issue affecting the entire county?	**Question:** Is the project required by policy, law or other mandates?	Recommended Project Prioritization
TGPA/ZOU	Complete in June 2015	Yes	Yes	Yes	Yes	1.A
Major CIP and TIM Fee Update	Complete in early 2016	Yes	Yes	Yes	Yes	1.A
Annual CIP Update	Ongoing; next update due June 2015	Yes	Maybe	Yes	Yes	1.B
Biological Resource Policies Update	Complete in mid 2016	Yes	Yes	Yes	Maybe	1.B
Sign Ordinance Update	Complete in May 2015	Yes	Yes	Yes	No	1.B
Mid-Year CIP Update	Ongoing; next update due March 2015	Yes	Maybe	Yes	No	2
Meyers Area Plan	TBD	Yes	Yes	No	Maybe	2
General Plan 5 Year Review	Ongoing; work will begin mid 2015	Yes	Maybe	Yes	Yes	2
General Plan Implementation - Key Projects						
Update Design Improvement Standards Manual (aka Land Development Manual)	TBD	Yes	Maybe	Yes	Yes	2
Infill Ordinance	TBD	No	Maybe	Yes	Yes	3
Scenic Corridor Ordinance	TBD	No	No	Yes	Yes	3
Community Planning	TBD	No	Maybe	Maybe	Yes	3
Cultural Resource Preservation Ordinance	TBD	No	No	Yes	Yes	3
General Plan Amendment to Contract Community Region Boundary Lines	TBD	Maybe	No	Maybe	No	4
MC&FP Phase II	TBD	Maybe	Yes	No	Maybe	4

RECOMMENDED BOARD ACTION

- Endorse a final matrix or list that prioritizes all County-initiated land use and transportation projects managed by LRP and direct staff to return to the Board every six months to provide an update;
- Adopt the draft Resolution of Intention;
- Discuss funding for processing this project as part of the FY 2015/16 budget, and;
- Determine Project's priority and preferred method processing based on staff and funding availability.

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Environmental Health

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Small Water System Program

The Small Water System Program is involved with the permitting, inspection, and monitoring of 175 small public water systems. The County is the Local Primacy Agency, under contract with the State Department of Health Services, to perform the program requirements that are specified in State and Federal Regulations. The purpose of the program is to ensure that small water systems deliver safe, adequate, and dependable potable water. Environmental Health reviews new applications and changes of ownership to verify that the system will be able to meet technical, managerial, and financial capabilities.

Declaration of Small Water Systems Status

Definitions for Small Water Systems

Sampling Requirements:

- Community Water Systems using a Groundwater Source
- Community Water Systems using a Surface Water
- Non-Transient / Non-Community Water Systems Using a Groundwater Source
- Non-Community Water Systems Using a Groundwater Source
- Non-Community Water Systems Using a Surface Water Source

Instructions for Taking Water Samples

Laboratories Approved for Drinking Water Analysis

Operating Requirements:

- Bacteriological Sample Siting Plan Requirements
- Bacteriological Sample Siting Plan
- Annual Consumer Confidence Reports
    - State guidelines and templates/forms
- Water Quality Emergency Notification Plan for Small Water Systems

Fee Schedule

Coliform Bacteria Contamination-"What is coliform bacteria and why is it harmful?"

Water Quality Frequently Asked Questions

Chapter 3
Existing Water Supply and Policy

3.1 INTRODUCTION

This chapter presents an overview of existing water supplies, rights and permits, and contracts available to El Dorado County's water purveyors and others. Details were obtained from available reports and interviews with water purveyor and County personnel. This chapter also describes the various state and federal policies that regulate the use of these water sources.

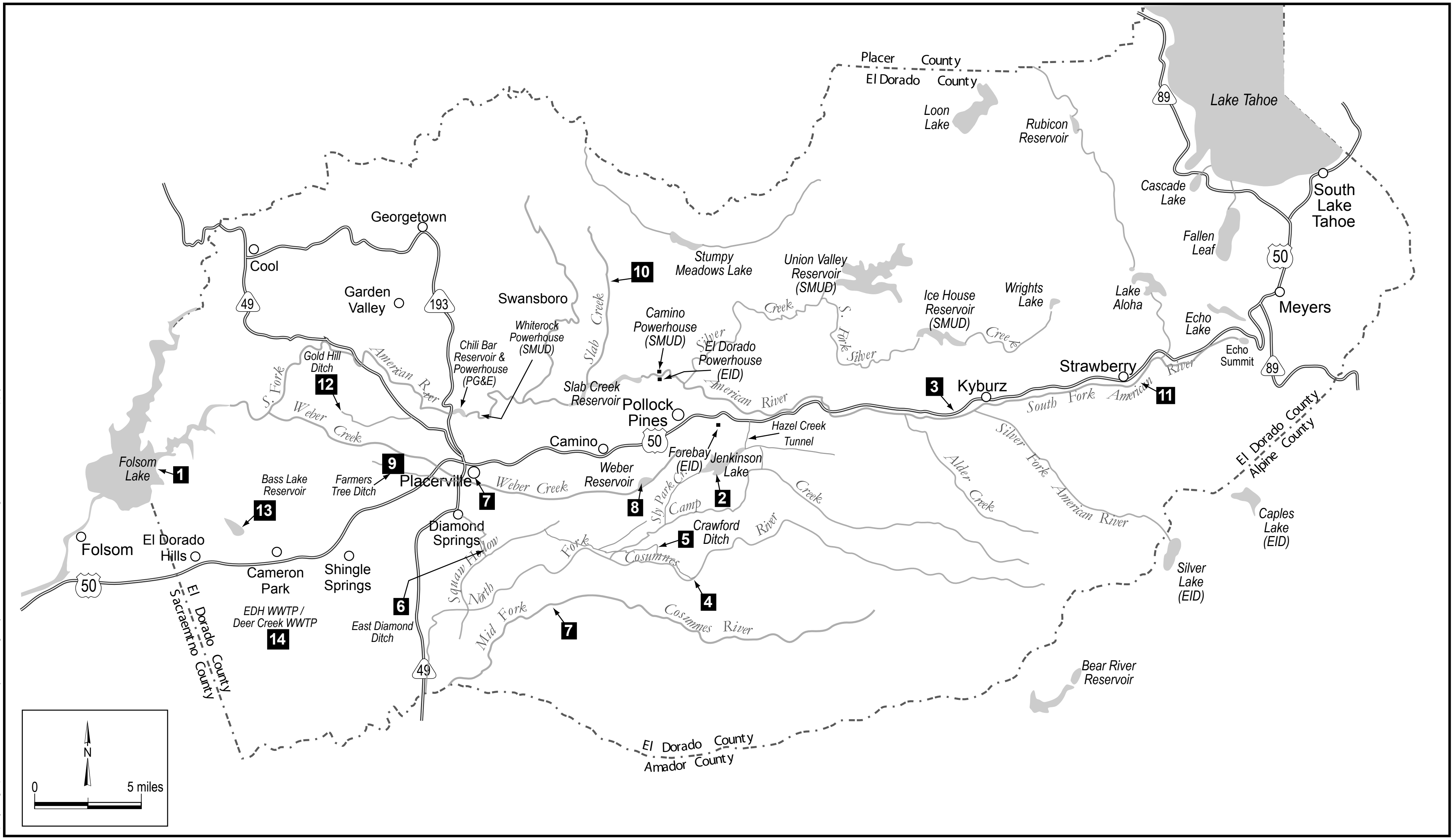
3.2 EL DORADO COUNTY WATER AGENCY

The Water Agency holds no water entitlements at this time. The Agency is working with the U.S. Bureau of Reclamation (USBR) to secure 15,000 acre-feet of water from Folsom Lake as authorized under Public Law (PL) 101-514 and then will transfer that water through contracts with El Dorado Irrigation District (EID) and Georgetown Divide Public Utility District (GDPUD). The Water Agency, in its role with the El Dorado Water and Power Authority (EDWPA), has also taken the lead in negotiating the SMUD Cooperation Agreement, which allows use of SMUD's Upper American River Project to develop a water supply of up to 40,000 AF and is currently pursuing water rights in association with this project. These supplies will be discussed in more detail in Chapter 5.

3.3 EL DORADO IRRIGATION DISTRICT

The EID water supply is by far the most complex of the systems in El Dorado County and comes from a variety of sources. The following general descriptions of these sources and the accompanying figures and tables are taken primarily from the District's draft *Water Supply Master Plan*[1] but have been reviewed and updated by EID staff for purposes of this report. The approximate location of each source is shown in **Figure 3-1**, and diversion rates, storage amounts, and other water rights information are summarized in **Table 3-1**.

1 See Appendix A (Bibliography), No. 1



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1	Folsom Lake
2	Jenkinson Lake / Camp, Park, & Hazel Creeks
3	South Fork American River / Kyburz
4	North Fork Cosumnes River / North Fork Extension
5	Clear Creek / Crawford Ditch
6	Squaw Hollow Creek / East Diamond Ditch
7	Middle Fork Cosumnes River / Outingdale
8	Weber Reservoir / Weber Dam
9	Weber Creek / Farmer's Free Ditch
10	Slab Creek / Summerfield Ditch
11	South Fork American River / Strawberry
12	Hangtown Creek / Gold Hill Dtich
13	Bass Lake Reservoir
14	Recycled Water / EDH and Deer Creek WWTPs

Figure 3-1
Location of Existing Water Supply Sources

Table 3-1
Existing EID Water Sources

Source No.	Water Source	Facility Name or Location	Contract / Agreement or Appropriator	Water Right Application Number	Water Right Permit Number	Water Right License Number	Maximum Diversion Rate	Entitlement or Storage	Notes
1	Folsom Lake	EID Raw Water Pump Station	USBR / EID Contract 14-06-200-1375A (El Dorado Hills)	13370, 13371 USBR	11315 & 6 USBR	USBR	19.5 mgd (30.2 cfs)	7,500 af/yr	a
1	Folsom Lake	EID Raw Water Pump Station	USBR / EID Contract	Included above with El Dorado Hills	Included above with El Dorado Hills	USBR	Included above	50 af/yr	a
2	Jenkinson Lake (Camp Creek, Hazel Creek, Sly Park Creek)	Sly Park Reservoir and Dam	EID 23,000 af of average annual yield	13707 & 8 5645A, 2270	10473 & 4 12258, 2631	11835 11836	500 cfs Inlet (Camp Creek and 125 cfs Outlet)	EID water right of 33,400 af/yr	b, c
2	Camp Creek	Jenkinson Lake	EID	Pre-1914	N/A	N/A	12.5 cfs	None	c
3	South Fork American River at Kyburz and Project 184 Reservoir	El Dorado Forebay Diversion to EID Main Ditch	EID	Pre-1914	N/A	N/A	40 cfs	15,080 af/yr	d
3	South Fork American River at Folsom	Project 184	EID	A005645B	Permit 21112		156 cfs up to 17,000 af/yr	Folsom Reservoir	m
4	North Fork Cosumnes River	North Fork Cosumnes Extension	EID	Pre-1914	N/A	N/A	15 cfs	5,000 af/yr	e
5	Clear Creek	Crawford Ditch	EID	Pre-1914	N/A	N/A	15 cfs	5,000 af/yr	f
6	Squaw Hollow Creek	East Diamond Ditch	EID	Pre-1914	N/A	N/A	Natural Flow	None	g
7	Middle Fork Cosumnes River	Outingdale Subdivision	EID	7478	4071	Pending	0.26 cfs	104 af/yr	
8	Weber Reservoir	Weber Dam	EID	1692	1053	2184	Natural Flow	(1,145 af/yr)	
9	Weber Creek	Farmer's Free Ditch	Missouri Flat Ditch Association & EID 1930 Agreement	Pre-1914	N/A	N/A	7 cfs	None	h
10	Slab Creek	Summerfield Ditch	EID	Pre-1914	N/A	N/A	10 cfs	None	i
11	South Fork American River	Strawberry	EID	Prescriptive Statement 10717	N/A	N/A	0.222 cfs	50 af/yr (200,000 gal storage tank)	j
11	Unnamed Spring	Strawberry	EID	15140	9467	11401	0.011 cfs	Included above with strawberry	j

Table 3-1
Existing EID Water Sources

Source No.	Water Source	Facility Name or Location	Contract / Agreement or Appropriator	Water Right Application Number	Water Right Permit Number	Water Right License Number	Maximum Diversion Rate	Entitlement or Storage	Notes
11	Unnamed Stream	Strawberry	EID	11675	6999	11400	0.026 cfs	Included above with strawberry	j
12	Hangtown Creek	Gold Hill Ditch	EID	Pre-1914	N/A	N/A	Natural Flow	None	k
13	Bass Lake Watershed	Bass Lake	EID	Statement 009304	N/A	N/A	Natural Flow	700 af existing capacity	l
14	Recycled Water	El Dorado Hills and Deer Creek Reclamation Plants	EID	N/A	N/A	N/A	EDH plant 3.0 mgd; DC plant 3.6 mgd	192 af storage at EDHWWTP	

N/A Not Applicable

[a] The combined supply of 7,550 acre-feet per year is diverted by pump from Folsom Lake to the El Dorado Hills water treatment plant with a current capacity of 19.5 mgd. This water is then treated and distributed in the El Dorado Hills service area.

[b] Reservoir capacity at full pool is 41,000 acre-feet, including dead storage of 480 acre-feet and an allowance of 1,000 acre-feet for sedimentation. The reservoir is operated as two years of storage, with treated water released through the Camino Conduit to Reservoirs 2, and through the Pleasant Oak Main to Reservoir A.

[c] In addition to the 500 cfs Camp Creek diversion, EID has rights to 12.5 cfs based upon pre-1914 water rights for diversions from Camp Creek at the Camp Creek segment of the Crawford Ditch. When Sly Park Dam was constructed, the point of diversion for these rights was moved upstream from the Camp Creek Ditch, to the diversion dam at the inlet to the Camp Creek tunnel to Jenkinson Lake.

[d] In October of 1999, the Pacific Gas & Electric Company transferred the water rights for both power generation and consumptive uses to EID for the FERC Project 184. This project includes reservoirs and associated dams, canals, a powerhouse and other facilities. The original water rights claim is dated 1856.

[e] Diversions are made between April and November each year to meet customer demands on the North Fork Extension and Camp Creek segment of the Crawford Ditch. Tail water flows can also be used to supplement the Clear Creek segment of the Crawford Ditch when available.

[f] Diversions are made year round into the Crawford Ditch from Clear Creek when available. Supplemental water is also released from Jenkinson Lake into Clear Creek for aesthetic flow purposes (by agreement with homeowners), which are recaptured at Clear Creek diversion dam to meet Crawford Ditch irrigation demands. A 0.5 cfs bypass flow below the diversion dam is now maintained as of 2005.

[g] Water is released into Squaw Hollow Creek from the end of the Crawford Ditch to supplement natural creek flows diverted to the East Diamond Ditch to serve irrigation customers.

[h] The natural flows of Weber Creek are rediverted at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to pre-1914 rights.

[i] EID historically made direct diversions from Slab Creek to the Summerfield Ditch to supply irrigation customers. Since 2003, EID has rediverted this water at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to pre-1914 rights. ,

[j] EID makes direct diversions from the South Fork American River by pump. Upgraded water treatment facilities and a 200,000-gallon water storage tank were installed in 1994 to improve water quality and supply reliability. Direct diversions are no longer made from the unnamed spring and stream because of the unreliability of the water supply and water quality.

[k] Direct diversions were historically made from Hangtown Creek into the Gold Hill Ditch at the west end of Placerville. Since 2003, EID has rediverted this water at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to pre-1914 rights.

[l] The Bass Lake storage is used to supplement the recycled water system during peak summertime demands. Potable water from EID's nearby piped system is used to fill Bass Lake as needed, but is normally scheduled when Jenkinson Lake is full and spilling.

[m] In 2001, EID received consumptive water right for 17,000 acre-feet of FERC Project 184 water to be taken at Folsom Reservoir.

- **Folsom Lake.** This water supply is based on 1968 El Dorado Hills and 1958 Lake Hills contractual entitlements with the USBR. Through current water service contracts with the USBR for Folsom water, EID is entitled to 7,550 acre-feet per year.

- **Jenkinson Lake (Sly Park Unit of the Central Valley Project)**. This project is based on a 1953 USBR contractual entitlement (Water right application numbers 13707 and 13708). EID and the USBR renewed this contract for the purchase of water from Jenkinson Lake. In late 2003, EID completed the transfer of the Sly Park Unit and acquired Jenkinson Lake from the USBR. Federal legislation authorizing the transfer was signed into law in October of 2000 by President Clinton. EID is no longer bound by the USBR contractual limits on operation of the facility and now holds the water rights.

- **South Fork American River and Project 184 Reservoirs.** These sources supply the existing FERC 184 Water Project. This supply is delivered by the El Dorado Canal and Forebay for diversion into the EID Main Ditch for subsequent treatment at the Forebay Water Treatment Plant. The water was formerly purchased under a contract with Pacific Gas & Electric (PG&E) and its predecessor Western States Gas and Electric Co. In 1999, PG&E transferred the water rights for both power generation and consumptive uses to EID.

- **North Fork Cosumnes River, Clear Creek and Squaw Hollow Creek.** EID retains pre-1914 water rights for direct diversion from North Fork Cosumnes River, Clear Creek and Squaw Hollow Creek for serving the Crawford Ditch System.

- **Middle Fork Cosumnes River**. EID holds a 1933 appropriative water right for direct diversion from the Middle Fork Cosumnes River serving the Outingdale Subdivision.

- **Weber Reservoir**. EID holds a 1920 appropriative water right for storage in Weber Reservoir.

- **Weber Creek.** EID retains a pre-1914 water right for direct diversion from Weber Creek. Since 2003, EID has rediverted this water at Folsom Lake through a temporary Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to the pre-1914 right.

- **Slab Creek**. EID retains a pre-1914 water right for direct diversion from Slab Creek. Since 2003, EID has rediverted this water at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to the pre-1914 right.

- **South Fork American River and Unnamed Spring and Stream.** EID retains prescriptive and riparian rights for direct diversion by pump from South Fork American River, as well as a 1947 appropriative water right for direct diversions from an unnamed stream and an unnamed spring.

- **Hangtown Creek**. EID retains a pre-1914 water right for direct diversion, first used by a predecessor to EID during the 1850s. Since 2003, EID has rediverted this water at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to the pre-1914 right.

- **Bass Lake Reservoir.** EID retains a pre-1914 water right for collection of the surrounding watershed, tributary to Bass Lake. Water was first used at this site in 1866.

- **Recycled Water.** Recycled water from the El Dorado Hills reclamation plant has been used for industrial purposes and golf course irrigation since 1979. Recycled water has been used from the Deer Creek reclamation plant for golf course, landscape, and road median irrigation since 1994. A noteworthy accomplishment has been the use of recycled water for residential landscape irrigation in both front and backyards in El Dorado Hills since 1998. Currently, EID supplies over 3,000 acre-feet of recycled water and plans to provide approximately 7,000 acre-feet by 2020.

- **South Fork American River and Project 184 Reservoirs**. In 1991, EID and the El Dorado County Water Agency jointly submitted an application for diversion and consumptive use of 17,000 acre-feet of water from Project 184. In 2001, EID received Water Right Permit No. 21112 allowing additional water to be diverted from Folsom Lake for consumptive purposes, subject to certain terms and conditions. In 2006, an Appellate Court affirmed a lower court decision in favor of EID, ruling that Term 91 could not be applied to restrict the use of the 17,000 acre-feet. The USBR has not yet executed a long term Warren Act Contract to allow EID to access this water.

Actual water availability is not equal to the sum of all water entitlements. Several factors influence water availability from EID’s entitlements such as use history, infrastructure constraints, and seasonal diversion and storage policies. Firm yield for EID’s water supply has been established through computer modeling and is defined as the yield that the integrated supply system can reliably deliver in 95 percent of the years, while incurring shortages in no more than 5 percent of the years. In 2006 EID adopted a supply based system firm yield of 60,550 acre-feet per year. The infrastructure constrained firm yield is 47,000 acre-feet. Safe yield is estimated by this Water Resource Plan at 58,753 acre-feet per year.

3.4 GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

GDPUD’s source of water is the Stumpy Meadows project. The reservoir, built in 1962, has a capacity of 20,000 acre-feet and a firm yield of 12,200 acre-feet. Safe yield is estimated at 10,500 acre-feet. Components of the Stumpy Meadows project include:

- **Pilot Creek –** GDPUD holds a Pre-1914 water right to divert and store water from Pilot Creek
- **Pilot Creek –** GDPUD retains a Post 1914 appropriative water right to divert and store water from Pilot Creek
- **Mutton Canyon –** GDPUD retains a Pre-1914 water right to divert water and store water from Mutton Canyon
- **Bacon Canyon –** GDPUD retains a Pre-1914 water right to divert water and store water from Bacon Canyon
- **Deep Canyon –** GDPUD retains a Pre-1914 water right to divert water and store water from Deep Canyon
- **Structure 2 –**GDPUD holds a Pre-1914 water right to divert water and store water from an un-named tributary to Pilot Creek
- **Structures 3-7 –** GDPUD holds a Post 1914 permit to divert water from five un-named tributaries to Pilot Creek
- **Otter Creek –** GDPUD holds a Post 1914 permit to divert water from Otter Creek
- **Onion Creek –** GDPUD holds a Post 1914 permit to divert water from Onion Creek

Firm yield for the GDPUD water supply was established through modeling and is defined as the yield that the integrated supply system can reliably deliver in 95 percent of the years, while incurring shortages of no more than 10 percent annually for domestic service and 50 percent for untreated water in 5 percent of the years. GDPUD has adopted a system firm yield of 12,200 acre-feet per year. Safe yield is estimated to be 10,500 acre-feet per year.

3.5 GRIZZLY FLAT COMMUNITY SERVICES DISTRICT

GFCSD's current water supply comes from Big Canyon and North Canyon, two surface water tributaries in the North Fork Cosumnes River Basin. Use of this water is allowed under a pre-1914 water right for the direct diversion of available flows from these two streams, at two points of diversions into the Eagle Ditch. The two streams are fed by seasonal rainfall and snowmelt and are also part of a spring-fed system.

At the head of the supply system, below the confluence of North Canyon and an unnamed tributary a diversion conveys water into the upper reach of GFCSD's Eagle Ditch. At the tail end of the upper reach, flow from Big Canyon is diverted into the system and the combined flow is conveyed through the lower reach of the Eagle Ditch to the District's raw water storage reservoir. An adjacent water treatment plant treats the water and releases it into the distribution system for the Grizzly Park subdivision.[3]

The firm yield of the direct diversions which could be conveyed to the water treatment plant was calculated by estimating the quantity of direct diversion, through hydraulic analysis, available to Grizzly Flats CSD, including the reservoir seepage loss, the monthly water use distribution, and evaporation loss. Based on this analysis in the 1998 Borcalli report[3], the safe yield of direct diversions conveyed to the water treatment plant was calculated to 143.5 acre-feet per year.

The District was issued two permits by the State Water Resources Control Board (SWRCB) on August 18, 1989 (Permit 20357 and Permit 20358). Permit 20357 authorizes the District to divert water from an unnamed tributary to the Steely Fork of the Cosumnes River, the total not to exceed 3 acre-feet per year from November 1 through June 15. According to the Borcalli Report (1998), this water flows from Grizzly Creek into Porters Pond for fire suppression purposes. Questions have been raised regarding contamination of this water from septic systems located near the pond. There are currently no facilities to treat this water.

Georgetown Divide Public Utility District

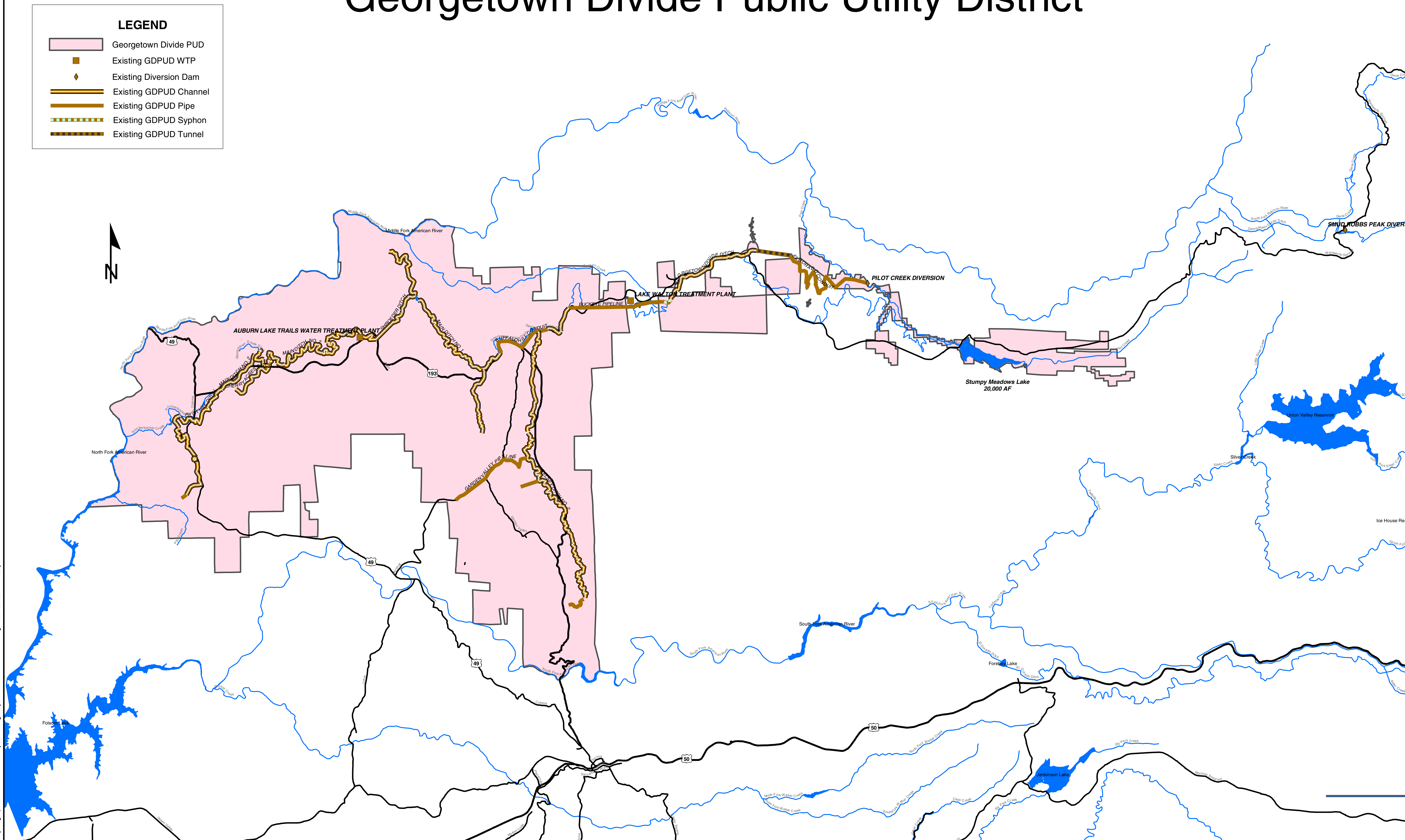

Figure 3-2
Georgetown Divide Public Utility District System Water Supply

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Grizzly Flats Community Services District

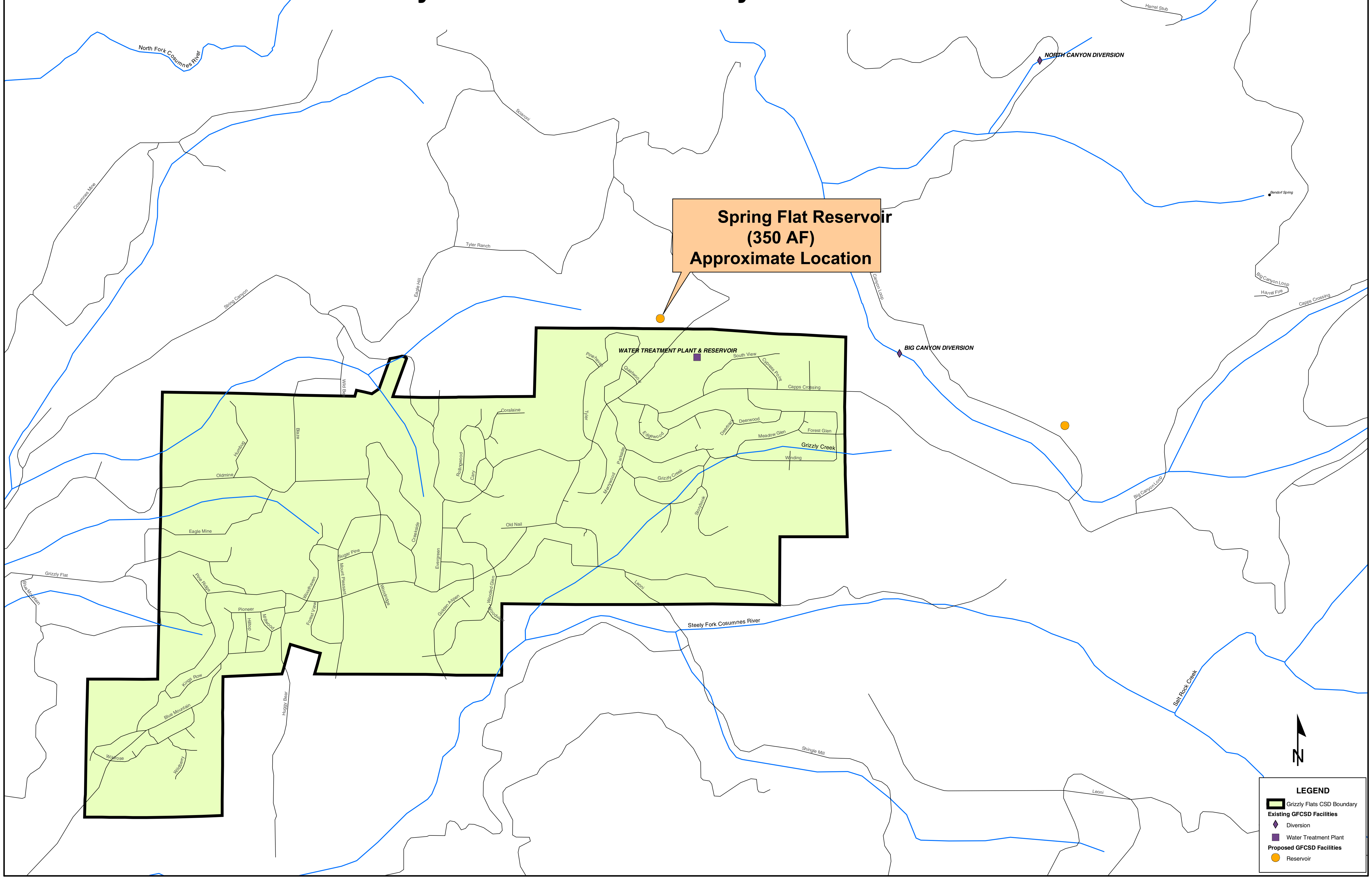

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Figure 3-3
Grizzly Flats Community Services District, Water Supply Projects

Permit 20358 authorizes GFCSD to divert water to storage from North Canyon and Big Canyon. The water appropriated under this permit is not to exceed 31 acre-feet per year and is to be collected between November 1 and June 15. This permit is understood to be for diversion to storage rather than for consumption and, therefore, is more than adequate to allow for seasonal storage in the existing raw water reservoir with its active capacity of about 15 acre-feet.

3.6 SOUTH TAHOE PUBLIC UTILITY DISTRICT

STPUD relies solely on groundwater for its water supply. Starting in 1996, the District detected methyl tertiary butyl ether (MTBE) in one of its wells. Since then, the District has removed 13 wells from service or drastically reduced their pumping rates because of numerous MTBE plumes. Litigation with various petroleum suppliers over the groundwater contamination issue was settled in the District's favor in 2002. As of 2006 the District operates 17 active wells with a nominal capacity of 13,742 gallons per minute (gpm) or 19.79 million gallons per day (mgd). The District's system includes 22 storage tanks with an operational storage capacity of 9 million gallons and 11 booster pump stations with a total maximum pumping capacity of 7,019 gpm.

3.7 TAHOE CITY PUBLIC UTILITY DISTRICT

Until 1989, approximately 60 percent of the District's needs were supplied from Lake Tahoe. The U.S. Environmental Protection Agency (EPA) Surface Water Treatment Rule and other prospective surface water regulations and the attendant costs of their implementation prompted the District to convert their water supply to groundwater. The surface water intakes in the lake are maintained as a standby source in case of emergency.

The District is primarily located in Placer County with the Rubicon System serving the area between Meeks Bay and Bliss State Park in El Dorado County. The Rubicon System supply consists of three wells, a booster pump station, and three steel reservoirs. These facilities are reported to be generally in good condition[2] with some concern expressed for site security and potential fire danger from trees close to the facilities.

The District's Rubicon System facilities include three wells with a total operating capacity of 645 gpm (for two wells; the third is N/A), three storage tanks having a total capacity of 538,000 gallons, and two booster pumps with capacities of 185 gpm each.

2 See Appendix A (Bibliography)

3.8 AGRICULTURE

As stated in the previous chapter, virtually all the agricultural water use within El Dorado County occurs on the western slope, and virtually all of the surface water for agricultural use is supplied by EID and GDPUD and is included in those purveyors' water use figures. Agricultural water use outside of the purveyor service areas is generally supplied from individually owned springs, wells and ponds, and water production and use figures are not readily available.

3.9 OTHER USERS

Water for the non-public water purveyors operating in the portion of the Lake Tahoe area within El Dorado County is supplied by groundwater and all indications are that they will continue to do so in the future. Water production capability figures supplied by purveyors that provided information are as follows:

- **Lukens Water Company:** 2,000 gpm from three active wells,
- **Tahoe Keys Homeowners Association:** 5,000 gpm from three active wells, and
- **Tahoe Swiss Village Utility, Inc.:** 150 gpm from one well.

3.10 GROUNDWATER

Groundwater is the source of supply for the purveyors in the South and West Tahoe areas and indications are that groundwater will continue to provide an adequate supply of water to those areas. Settlement of litigation related to MTBE contamination in South Tahoe will likely provide sufficient funding to treat the contaminated groundwater supplies for domestic use.

On the western slope of El Dorado County, however, groundwater occurs primarily in hard rock. In the County, as in other parts of the Sierra Nevada foothills, alluvium consisting of unconsolidated deposits of clay, silt, sand, and gravel laid down by flowing water occurs only in small areas too thin to provide a significant amount of storage. Thus the amount of usable groundwater is limited. A cooperative study entitled Georgetown Divide Water Management Study prepared by the Department of Water Resources[8] describes water supply alternatives available to the Georgetown Divide area and includes a discussion of the groundwater situation on the western slope. The following is an example from that study.

Many wells are drilled in hard crystalline rock that lies at or near the ground surface or under the thin layers of alluvium. In rock formations, water moves through and is stored in fractures in the rock mass. The width of each fracture usually decreases with depth, causing diminished water flow and storage capacity. The amount of water that can be stored and transmitted in such fractures is generally small compared to the amount that can be held and conveyed in a porous alluvial aquifer.

During the drought of 1976 and 1977, El Dorado County Division of Environmental Health initiated a water well survey canvassing residents with wells in 15 county planning areas. **Table 3-2** lists median depth and estimated production rate for wells in 15 of the planning areas.

Table 3-2
Well Characteristics in El Dorado County

County Planning Area	Number of Wells Surveyed	Median Depth (Feet)	Median Rate (gpm)
Camino-Fruitridge	57	100	5
Cool	29	200	5
El Dorado/Diamond Springs	19	150	4
Finnon	37	150	10
Garden Valley	70	150	10
Gold Hill	2	---	5-10
Kelsey	45	125	4
Latrobe	23	200	5
Lotus-Coloma	66	<100	10
Pilot Hill	21	150	7
Pleasant Valley	199	100	6
Rescue	120	125	10
Shingle Springs	42	125	4
Somerset/Fairplay/Mt. Aukum	---	---	10
Pollock Pines	10	---	8

Source:Calkins, Carla, *Water Well Survey Report*, June 1978

The survey showed that while many residential wells produced 4 to 10 gallons per minute, many had flow rates less than 1 gpm and some had gone dry. Other reports[6, 7] substantiate the limitation of groundwater as a dependable source of water for supplementing public water supply or augmenting surface water storage during droughts. In fact, the contrary may be true where users of groundwater may look to the Districts for service when their wells go dry during droughts. Surveys also indicate that groundwater quality, though satisfactory in most areas of the western slope, is often marginal. As future development occurs in areas beyond pipeline service, both quantity and quality of groundwater sources could be threatened.

3.11 CALIFORNIA WATER POLICY AND REGULATIONS

This section describes existing regional and statewide water programs being implemented by various water suppliers that are important to recognize in context of the EDCWA water supply plan. The Agency is mindful of these various programs and policies and takes these various programs into consideration when developing the water plan.

This section also presents information on the continuing regulation of both drinking water and wastewater and how these new laws affect or could potentially affect water supply planning.

3.11.1 ASSOCIATION OF CALIFORNIA WATER AGENCIES – THE ACWA BLUEPRINT

ACWA is a statewide non-profit association whose 440 public agency members are responsible for about 90 percent of the water deliveries in California. ACWA is a powerful lobbying organization for the California water community and regularly comments on bills and legislation that could potentially impact their members. ACWA's mission is to assist its members in promoting the development, management and reasonable beneficial use of good quality water at the lowest practical cost in an environmentally balanced manner. The ACWA Blueprint, published in 2005, is an informational document to further educate Californians and elected officials on priority actions needed to sustain the state water supply and economy. The three goals of the ACWA Blueprint are to:

- Find common ground among the diverse voices in the water community and to identify their biggest challenges and agree on actions needed to resolve them;
- Collectively develop a forward-looking action plan for meeting California's future water needs; and
- Create a policy-oriented document that would encourage leaders at the state and federal level to re-engage in water issues and also provide a roadmap for investing California's water future.

The ACWA Blueprint contains 12 primary action plans that their member agencies believe will ensure a safe and reliable water supply for the State. The 12 action plans are:

- Action 1: Improve existing Delta water conveyance system to increase flexibility and enhance water supply, water quality, levee stability and environmental protection in the near term,
- Action 2: Evaluate long-term threats to the Delta levee and conveyance system and pursue actions to reduce risks to the state's water supply and the environment,
- Action 3: Ensure delivery of adequate Colorado River water supplies for Southern California and defend California's water rights on the river,
- Action 4: Implement and fund the Sacramento Valley Water Management Program,
- Action 5: Develop additional groundwater and surface water storage, including proposed surface storage projects that are now under study or are determined to be feasible,
- Action 6: Support and fund efforts to expand recycled water use and implement best management practices for urban and agricultural water use efficiency,
- Action 7: Improve the quality of California's drinking water supplies to safeguard public health and enhance water quality for agriculture and the environment,
- Action 8: Work with local agencies to overcome constraints to developing seawater and brackish groundwater desalination,
- Action 9: Modernize the federal Endangered Species Act,
- Action 10: Expedite Approval Process for voluntary water transfers,
- Action 11: Clarify and expand the state's role in flood control and promote multi-benefit flood control agencies, and
- Action 12: Support Integrated Regional Planning.

EDCWA is a member agency of ACWA and seeks to promote these issues when necessary and appropriate at local and regional levels. Specifically, EDCWA and EDC purveyors are actively engaged in several action steps identified in the ACWA Blueprint. For example:

- This plan identifies new storage reservoirs and water supplies being considered in El Dorado County that will ensure a safe and reliable water supply for residents of the County,
- The El Dorado Irrigation District has supplied recycled water since the 1970’s. In the 1990’s, the system was expanded to residential irrigation and currently the construction of a seasonal storage reservoir is being studied,
- El Dorado County water purveyors employ various best management practices for urban uses. EID and EDCWA both provide irrigation management systems for the County, and
- EDCWA is currently participating in a Proposition 50 Regional Planning Water Grant with the Cosumnes, American, Bear and Yuba River group (CABY).

3.11.2 INTEGRATED REGIONAL WATER SUPPLY PLANNING

California Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act passed by the California voters in 2002 approved the issuance of a bond to add, among other things, $500 million for Integrated Resource Water Management. An IRWM plan is a planning document that identifies broadly-supported goals, objectives, strategies, actions and projects within the region. The intent of the IRWM Grant Program is to encourage integrated regional strategies for management of water resources and to provide funding, through competitive grants, for projects that protect communities from drought, protect and improve water quality and improve local water security by reducing dependence on imported water[38]. The IRWM Grant Program is administered through the DWR and SWRCB. EDCWA is working jointly with other county water suppliers and non-governmental organizations in the CABY Region to submit an implementation grant application to the IRWM grant program.

EDCWA is a participant and a supporter of the CABY IRWMP, which will provide an integrated approach to water management across the region’s four watersheds which include the Consumes, American, Bear, and Yuba, to address long-term water supply needs, protection of water quality, and enhancement of environmental and habitat resources. Based on technical knowledge and endorsed by a united community, the resulting CABY IRWMP actions and projects have significant opportunities to attract local, state and federal grants and other financial support. The CABY group used the Stockholm Environment Institute's Water Evaluation and Planning System (WEAP) model in the preparation of their regional plan. The WEAP framework analyzes climate scenarios, rather than relying upon historical hydrological patterns.

The CABY implementation proposal includes a total of 26 projects that address specific water supply, water quality, groundwater and environmental habitat issues identified in the CABY planning grant application. This proposal signifies the monumental effort of the stakeholders to bring together diverse interests within the region and integrate the individual efforts of organizations that were planning to submit separate Proposition 50 implementation applications. The IRWMP effort was funded by a Proposition 50 planning grant awarded by Department of Water Resources in January 2006 to EID, who administered the $500,000 grant for the region. The Plan was completed in 2006 and will be updated on a regular basis as additional technical analysis is completed and projects are added. This Water Resources Development and Management Plan significantly contributes to the IRWMP process in that it provides a thorough analysis of the water supply gap in El Dorado County which was addressed on a regional basis in the CABY IRWMP.

CABY Projects in El Dorado County

The CABY Implementation Proposal includes several projects in El Dorado County. These projects involve capital improvements, education and outreach programs, water efficiency/conservation studies, and environmental restoration and preservation. The projects are described below:

El Dorado Irrigation District

Junior High School Water Efficient Landscape Education Program – This program will involve students in 6th through 9th grades in water efficient landscape design through installations at their school site;

Caples Spillway Channel Stabilization - The purpose of this program is to stabilize Caples Spillway Channel and protect environmental and watershed resources. Stabilization will indirectly enhance habitat by minimizing erosion and downstream sediment deposits;

Conservation and Increased Agricultural Water Use Efficiency – The purpose of this project is to expand EID's irrigation scheduling system for commercial agriculture throughout the CABY region. By monitoring evapotranspiration rates, soil types, and moisture levels, an appropriate irrigation schedule will be developed for each grower;

Evapotranspiration Rates measured in the Cosumnes, American, Bear, and Yuba River Watersheds – This project will establish a weather station that will measure evapotranspiration rates throughout the CABY region. These rates then can be used to develop individual irrigation schedules;

Esmerelda Creek Restoration– This project proposes to restore the lower portion of Esmerelda Creek below the El Dorado Canal diversion, making the creek more hospitable for native riparian species;

Recycled Water Infrastructure Expansion – This project will expand EID's current recycled water system to meet current and future community landscape water demands. Expanding the recycled water system will enable EID to preserve more potable water;

Outingdale Water System Improvements Project – The purpose of this project is to correct a deficient water system consisting of an unreliable and damaged diversion dam, unreliable raw water intake, inadequate treatment capacity, inadequate water storage capacity, lack of emergency power, and other system deficiencies. In a joint effort with the EDCWA, this project may also analyze the feasibility of bringing a raw surface water source to the South County for agricultural purposes; and

Regional Wastewater/Recycled Water Development Project - This project involves connecting three wastewater systems (Placerville WWTP, Camino Heights WWTP, and Deer Creek WWTP) for the development of a reclaimed water supply. This project would potentially allow a recycled water supply for the City of Folsom.

El Dorado County Water Agency

Regional Water System Reliability and Conservation Project – This project involves improvements in regional ditch conveyance systems, thereby improving raw water conveyance reliability, eliminating seepage, and minimizing evaporation. Ditches within EID, GDPUD, Nevada Irrigation District and Placer County Water Agency have been identified for improvement. The project also includes lining of the GFCSD raw water reservoir and monitoring within the distribution system, and

Groundwater Response to Climate Variation – This study will explore the effect of climate variation on groundwater and private wells within the CABY region. The project will include a review of similar studies in the Sierra Nevada foothills, and a long term well monitoring program. This information will also provide a better understanding of the potential for well contamination from leach fields in the CABY region.

Georgetown Divide Resource Conservation District

Finnon Lake Dam Reconstruction Project – This project entails restoring Finnon Lake, which is in a degraded state, to 350 acre-feet. Reconstruction will enhance fish and wildlife habitat and recreational uses.

3.11.3 CALIFORNIA WATER PLAN (CWP)

The California Department of Water Resources is responsible for statewide water supply planning, prepares the State Water plan, and operates and maintains the California Water Project. The CWP provides a framework for water managers, legislators and the public to consider options and make decisions regarding California's water future. The plan, which is updated every five years, presents basic data and information on California's water resources including water supply evaluation and assessments of agricultural, urban and environmental water uses to quantify the gap between water supplies and uses. The plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects aimed at addressing the State's water needs. The goal of the CWP is to meet State Water Code requirements, develop broad support among those participating in California's water resource planning, and provide useful information for the public, water planners throughout the state, legislators and other decision-makers [39].

The EDCWA is part of the Sacramento River Region in the CWP.

3.11.4 CALFED PROGRAM

The CALFED Bay-Delta Program is a unique collaboration among 25 state and federal agencies whose mission is to improve water supplies in California and the health of the San Francisco Bay/Sacramento-San Joaquin River Delta. In 2000, CALFED drafted a 30-year plan described in its programmatic Record of Decision that set forth general goals and laid out a science-based planning process through which they are able to make better, more informed decisions on future projects and programs within their purview. Two years later, the California Bay-Delta Authority was created to oversee the program's implementation and Congress adopted the plan in 2004. CALFED emerged from the water crisis of the 1990s and was shaped by funding crises in the early 2000s. It was seen as an alternative to the costly and time-consuming legal wrangling amongst Delta interests and a way to solve conflicts in the Delta to benefit the system. CALFED has always embodied the most important ideals of government: interagency coordination, collaborative problem solving, and public involvement leading to open and transparent decision-making and accountability.

The California Bay-Delta Authority oversees the implementation of the CALFED Bay-Delta Program for the 25 state and federal agencies working cooperatively to improve the quality and reliability of California's water supplies while restoring the Bay-Delta ecosystem. The California Bay-Delta Act of 2003 established the Authority as the new governance structure and charged it with providing accountability, ensuring balanced implementation, tracking and assessing Program progress, using sound science, assuring public involvement and outreach, and coordinating and integrating related government programs.

The Bay-Delta Plan is a balanced, comprehensive approach to reduce conflicts over limited water supplies and to address the Program's four objectives through 11 major program elements:

- Water Management
- Water Storage
- Water Conveyance
- Water Use Efficiency
- Water Transfers
- Environmental Water Account
- Watershed Management
- Water Quality
- Ecosystem Restoration
- Science
- Levee Integrity

Of the many program elements, Water Storage, Conveyance, Use Efficiency and Water Management are of primary relevance with regard to EDCWA and El Dorado County western slope purveyors plans. Water Storage and Conveyance are discussed in the Project Water Supply Needs chapter of this report. Additional information on Water Use Efficiency and Water Management on the state level is provided in the following sections. Information specific to water use efficiency and management programs in El Dorado County is provided in the Chapter 9, Water Efficiency.

3.11.5 WATER USE EFFICIENCY

Through competitive processes that will fast-track water conservation and recycling projects, the CALFED Bay-Delta Program aims to generate significant water supply, water quality and ecosystem benefits in the short term by:

- Reducing water demand through "real water" conservation;
- Improving water quality by altering volume, concentration, timing and location of return flows; and
- Improving ecosystem health by increasing in-stream flows where necessary to achieve targeted benefits.

Some of the accomplishments of the program include:

- $13.3 million in water conservation grants and loans for 65 projects in 2001—including 37 urban and 28 agricultural projects. These projects were geographically diverse and were matched with over $9.1 million in local funding.
  - Urban projects range from a voucher incentive program for clothes washers to more efficient landscape water programs
  - Agricultural projects range from canal lining to buried drip irrigation

  Funded projects will collectively save 30,000 acre-feet of water, improve water quality, and save energy. These projects include:

- Two water recycling grants;

- Establishment of 60 out of 200 quantifiable objectives for agricultural water use efficiency actions (on track to develop 30 more by 2003);
- Assembly of an Independent Review Panel to assist in developing a definition of appropriate water measurement;
- Successful negotiation of a cooperative agreement with the Agricultural Water Management Council, U.S. Bureau of Reclamation and California Department of Water Resources to support locally cost-effective agricultural water conservation;
- Creation of a foundation for establishing a Water Use Efficiency Public Advisory Committee, an approach to WUE monitoring, and Urban BMP Certification;
- Development of a draft agricultural WUE milestones as part of overall assurances framework; and
- Initiation of an effective water use efficiency team with key CALFED agencies.

El Dorado County Irrigation District has received numerous grants for water efficiency projects and programs. These grants include $175,000 in USBR grant funding support for 36 water use efficiency projects between 1995 through 2006; $230,000 in DWR funding support for four (4) water use efficiency grant projects 2002 through 2006 including Prop 13 funds for a Low- Income Toilet Voucher/Rebate Project and a Large Landscape Incentive Program and Prop 50 funds for IRWMP and CII/Multi-Family Sub-metering and ET Controller Project; $128,000 in NRCW funded support for one agricultural soil moisture monitoring project; $6,000 in EDCWA funding support for two projects.

3.11.6 WATER MANAGEMENT PROGRAM

The CALFED Program encompasses an array of projects and approaches to expand water supplies and ensure efficient use of the resource. The Program has identified actions that could increase California water supplies by nearly three million acre-feet over the next 10 years, which is enough water to meet the needs of 6 million families annually. The primary goals of the program are to:

- Maximize use of available water supplies through conservation, water recycling, and water quality improvements;

- Increase the flexibility of water systems at the state, federal and local level through improvements in conveyance, storage and water project operations; and
- Develop groundwater and surface water storage projects to boost flexibility and provide additional supplies for agriculture, urban and environmental use.

3.11.7 URBAN WATER MANAGEMENT PLANNING

El Dorado County water purveyors are engaged in many activities that support the State's overall Water Management Plan goals. Conservation water recycling and conveyance improvements are discussed in Chapter 9 and surface water storage projects are discussed in the Water Supply Needs chapter of this report. In large urban areas, the California Department of Water Resources requires each water provider to prepare an Urban Water Management Plan (UWMP), which describes programs and policies to ensure a reliable water supply for their service area. All urban water suppliers in the State of California are required to prepare an UWMP and complete updates every five years on or before December 31. As defined by California Water Code Section 10631, an urban water supplier is defined as a provider that is either privately or publicly-owned, that serves at least 3,000 customers or supplies more than 3,000 acre-feet of water annual on a wholesale or retail basis. Urban water management programs typically require the following elements: description of the water supply, water supply reliability, water demand management measures, water shortage contingency plans, and water recycling and water service reliability. The UWMP includes a variety of nonstructural measures to improve operations and water use efficiency. EID, GDPUD, TCPUD, STPUD and the City of Placerville are required to prepare UWMPs. Additional information regarding El Dorado County purveyors' urban water management planning is provided in Chapter 9, Water Efficiency.

3.11.8 WATER QUALITY REGULATIONS

The Clean Water Act and Safe Drinking Water Act are the primary laws governing the use and treatment of water and wastewater. The Clean Water Act regulates the discharge of wastewaters to waters of the US to ensure protection of the biological and chemical integrity of the nation's water supplies. In California, the Porter-Cologne Water Quality Control Act is the primary regulation protecting groundwater from discharge of wastes. The Safe Drinking Water Act, enacted in 1974, sets standards for acceptable levels of constituents in finished drinking water. As such, the programs and regulations from these laws can have direct impacts on water resources managers throughout the county. This section provides brief overviews of these important laws.

Clean Water Act

Waters of the United States are regulated by the Clean Water Act (33 USC 1344). Generally, the Clean Water Act provides the basis for regulations of pollutant discharge to waters of the U.S., and established the National Pollutant Elimination System (NPDES). Specifically, it prohibits the discharge of any waste into surface waters without a permit, requires the establishment of water quality standards for contaminants, and grants authority to the U.S. Environmental Protection Agency (EPA) to implement pollution control programs. The EPA has delegated the authority to administer and enforce the Clean Water Act and the NPDES to the State of California.

Porter Cologne Water Quality Control Act

The State of California established the State Water Resources Control Board (SWRCB), under which there are nine Regional Water Quality Control Boards, through the Porter-Cologne Water Quality Control Act (Porter-Cologne). Through the enforcement of the Clean Water and Porter Cologne acts, the SWRCB determines the beneficial uses of the waters (surface and groundwater) of the state, establishes narrative and/or numerical water quality standards, and initiates policies relating to water quality. The SWRCB and more specifically, the RWQCB is authorized to prescribe Waste Discharge Requirements (WDRs) for the discharge of waste, which may impact the waters of the State. Furthermore, the development of water quality control plans, or Basin Plans, are required by Porter-Cologne to protect water quality.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) authorizes the U.S. Environmental protection (EPA) to protect the nation's drinking water supplies using three methods: (1) developing and enforcing national primary and secondary drinking water regulations; (2) promulgating underground injection regulations to protect sources of drinking water; and (3) developing groundwater protection grant programs. The SDWA permits these activities to be implemented by the states. In California, the California Department of Health Services is the state agency empowered to oversee SDWA requirements. It is important to note that the SDWA does not regulate discharges of pollutants into surface water even though these activities might eventually affect drinking water supplies. These activities are regulated by the Clean Water Act, which was previously discussed. In order to implement National Primary Standards, the EPA established Maximum Contaminant Levels or (MCLs) for each chemicals of concern. These MCLs are the maximum concentration of a chemical allowed in a public drinking water system.

3.12. EXISTING AND FUTURE REGULATORY/ INSTITUTIONAL ISSUES

3.12.1 EXISTING WATER SUPPLY PLANNING REQUIREMENTS (SENATE BILLS 610 AND 221)

SB 610 and 221 were passed to ensure land use planning agencies evaluate water supply availability when approving major urban development projects in California.

SB 610 made changes to the Urban Water Management Planning Act to require additional information in Urban Water Management Plans if groundwater is identified as a source available to the supplier. The information required includes a copy of any groundwater management plan adopted by the supplier, a copy of the adjudication order or decree for adjudicated basins, and if non-adjudicated, whether the basin has been identified as being overdrafted or projected to be overdrafted in the most current California Department of Water Resources (DWR) publication on that basin. If the basin is in overdraft, that plan must include current efforts to eliminate any long-term overdraft. A key provision in SB 610 requires that any project subject to the California Environmental Quality Act supplied with water from a public water system provide a specified water supply assessment, except as specified in the law.

SB 221 prohibits approval of subdivisions consisting of more than 500 dwelling units unless there is verification of sufficient water supplies for the project from the applicable water supplier(s). This requirement also applies to increases of 10 percent or more of service connections for public water systems with less than 500 service connections. The law defines criteria for determining "sufficient water supply" such as using normal, single-dry, and multiple-dry year hydrology and identifying the amount of water that the supplier can reasonably rely on to meet existing and future planned uses. If used for the project, rights to extract additional groundwater must be substantiated.

3.12.2 El Dorado County LAFCO Municipal Service Review

The El Dorado County LAFCO is currently preparing a municipal services review for water supply, wastewater and power as required by state law. Before the Commission can update its sphere of influence, state law requires municipal service reviews for all service agencies in the county. There are over 25 different types of services in the County and LAFCO has completed and adopted one review and has a second out for public review. The intent is to ensure that county residents have reliable service from water, power and other services in the county prior to expanding their SOI.

3.12.3 Future State and Federal Regulations

History has shown that state and federal regulations related to safe drinking water, protecting the environment and water quality continue to evolve and have generally become more complex and protective over time. New drinking water standards for protection of public health may require additional treatment processes by the water suppliers. New research in the wastewater field may create the basis for regulation of new compounds such as pharmaceuticals, personal care products and others that are not currently regulated today that will add to the complexity of reuse and recycling of treated wastewater that is an integral part of the water supply solution. It is reasonable to assume that new regulations or revised regulations with more stringent requirement or standards will continue to be implemented and enforced that will impact all water purveyors. As such, the plan of actions proposed in the water plan will need to adjust accordingly to address the new future regulations

291112 Part 2

2014 West Slope Update

Water Resources Development and Management Plan (December 2007)

El Dorado County Water Agency

Prepared by

El Dorado County Water Agency

with support from

Atkins North America, Inc.

and

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MADDAUS WATER MANAGEMENT

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October 2014 Acronyms/Abbreviations

Acronym/Abbreviation	***Definition***
acre-feet/hh	acre-feet per household
Act	El Dorado County Water Agency Act (Stats. 1959, c. 2139, p. 5084)
BMP	Best Maintenance Practices
CABY	Cosumnes, American, Bear & Yuba
CDS	Community Disposal System
CII	Commercial/Industrial Buildings
CNRA	California Natural Resources Agency
County	El Dorado County
CUWCC	California Urban Water Conservation Council
DMM	Demand Management Measures
DOF	California Department of Finance
DWR	(California) Department of Water Resources
EDCDAWM	El Dorado County Department of Agriculture Weights and Measures
EDCWA	El Dorado County Water Agency
EDH	El Dorado Hills, CA
EDWPA	El Dorado Water and Power Authority, a joint powers authority
EID	El Dorado Irrigation District
ELL	Economic Level of Leakage
EPS	Economic & Planning Systems, Inc.
Favorable Areas	Areas of the OCA that are favorable for annexation
FAR	floor-area ratio
GDPUD	Georgetown Divide Public Utility District
GFCSD	Grizzly Flat Community Services District
GPCD	gallons per capita per day
IMS	Irrigation Management Systems
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
IWRMP	EID’s Integrated Water Resources Management Plan
LAFCO	El Dorado County Local Agency Formation Commission
M&I	municipal and industrial
MWELO	DWR’s Model Water Efficient Landscape Ordinance
OCA	Other County Areas (outside Service Areas)
OWE	Office of Water Efficiency
PSUE	Public Service & Utilities Element

Acronym/Abbreviation	***Definition***
R&D	research and development
ROI	Resolution of Intention
RWA	Regional Water Authority
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SEI	Stockholm Environment Institute
Service Area	A water purveyor’s water service area
sf	square feet
STPUD	South Tahoe Public Utility District
Targeted Update	Targeted General Plan Update
TAZ	Traffic Analysis Zone
UWMP	Urban Water Management Plan
Water Agency	El Dorado County Water Agency
WRDMP	Water Resources Development and Management
WRSRR	Water Resources and Service Reliability Report
WSDU	Water Supply & Demand Update
WUCA	Water Used Conservation Analysis
WWTP	Waste Water Treatment Plant
2004 General Plan	El Dorado County 2004 adopted and voter approved General Plan

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Executive Summary

The El Dorado County Water Agency Act [Stats. 1959, c. 2139, p. 5084, and codified as Chapter 96 of the California Water Code Appendices] (Act) created the El Dorado County Water Agency (EDCWA and/or Water Agency) in 1959. Section 96-11 of the Act authorizes the Water Agency to do "…any and every lawful act necessary in order that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants" of El Dorado County (County). To enable the Water Agency to discharge this responsibility, Section 96-17 of the Act authorizes the Water Agency to make technical and other necessary investigations, measurements, data collection and make studies and analyses pertaining to water supply and uses of water in the County.

With the adoption of the voter approved 2004 General Plan following two decades of rapid growth in the county, the Water Agency began the preparation of its 2007 Water Resources Development and Management Plan (2007 WRDMP). The 2007 WRDMP examined and summarized the adequacy of existing and planned future public water supplies of the County, including its West Slope region, to meet projected future demand, based on the land use densities (also known as "build out" conditions) in the 2004 General Plan. A stated goal of the 2007 WRDMP was to coordinate water planning activities within the West Slope and to provide a blueprint for actions and facilities that could be needed to meet those projected future water needs.

Since completion of the 2007 WRDMP, new information has become available, including:

- Recent water demand and supply reports
- Changes in recent development patterns
- Changes in future proposed land use
- Recent and proposed General Plan amendments
- Changes in actual and planned water purveyor service area (Service Area) boundaries
- Ongoing conservation efforts
- Two recent severe drought events (2007-2009 and 2012-present)
- A severe recession that temporarily depressed water use
- Further findings of climate change occurring within the Sierra Nevada watersheds of the American and Cosumnes Rivers

In addition, the State has adopted:

- New water conservation requirements for urban retail water suppliers (e.g., SB X7-7)
- New codes and regulations (i.e. CalGreen Building Codes)
- Guidance provided by California Department of Water Resources and other state agencies on planning for impacts due to climate change (http://www.climatechange.ca.gov/).

These requirements and the availability of new information provide a timely opportunity to update the water demand projections in the 2007 WRDMP. Also, the potential effects of climate change warrant consideration, including important public policy issues for long-range water resources planning, and the potential for substantive impacts to water demand and supply.

ES-1 REPORT ORGANIZATION AND ASSUMPTIONS

This report, the 2014 Update, is organized by the following chapters:

- Chapter 1: Background on the 2007 Water Resources Development Master Plan
- Chapter 2: New Information Developed Since the 2007 WRDMP
- Chapter 3: Assumptions for Water Demand Projections
- Chapter 4: Demand Projections
- Chapter 5: Water Use Efficiency
- Chapter 6: Water Supply Need
- Chapter 7: Conclusions
- Chapter 8: References
- Appendices with supplemental technical information

This 2014 Update includes projections of future water demand for West Slope water purveyors, for the year 2030 and build-out conditions, which were estimated for low, medium, and high growth rate scenarios. The 2030 timeframe is used to be consistent with other contemporaneous studies and reports, such as urban water management plans, which may be compared with the projections in this analysis. Build-out conditions, in which the maximum density of land uses permitted under the 2004 General Plan have been achieved, are also included. This update does not include a new land use analysis. Projections are based on 2004 General Plan and 2007 Floor Area Ratio (FAR) General Plan Amendment housing and employee/jobs projections (included in Appendix B and Appendix C) used for the 2007 WRDMP. Urban water demand factors are from recent studies prepared by each purveyor for its service area with appropriate adjustments to account for increased economic activity allowed under the General Plan.

This 2014 Update also includes a discussion of current and potential future water conservation measures that could be implemented to further reduce projected demand. Finally, a summary of each purveyor's water supply portfolio, which vary based on water year type, and a comparison with estimated future demand is presented to identify the potential need for additional water supplies.

As a foundation for the analysis of supplies and demands, a discussion of historic population growth rates, residential and commercial development levels, agricultural water use, groundwater reliability and water use efficiency is included to provide context for the assumptions made in this 2014 Update. Specifically: (1) long term historical growth rates support future growth rate assumptions; (2) projected increases in economic activity in the County may result in higher water use per capita at buildout conditions; (3) changing agricultural crop mix will affect agricultural water use; (4) ground water reliability will influence how development outside public water supply areas will occur; and (4) additional water use efficiency could reduce the long term, new water supply needs in the County .

ES 1.1 Growth Rates

Figure ES-1 provides historical population growth within El Dorado County as compared to average statewide growth. West Slope population growth compared to the county as a whole is also provided in **Figure ES-2.** As shown in Figure ES-1, El Dorado County has grown faster than the state average since 1980. For the 1980 to 2010 period El Dorado County population growth of 2.4% outpaced the California growth rate of 1.5% while the West Slope experienced higher average annual growth of 2.6% compared to the County as a whole. Higher West Slope growth rates can be attributed to governmental limits on the construction of new homes and gaming industry job losses in the Tahoe Basin, which is included in the El Dorado County total.

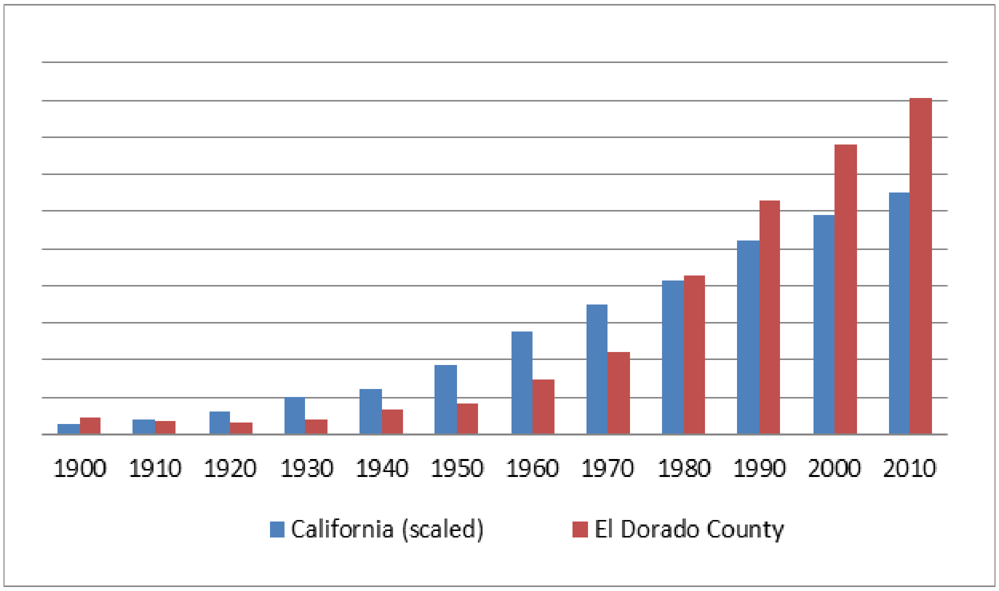

Figure ES-1 El Dorado County and California Population Growth
SOURCE: 2010 US Census (http://www.city-data.com/county/El_Dorado_County-CA.html)

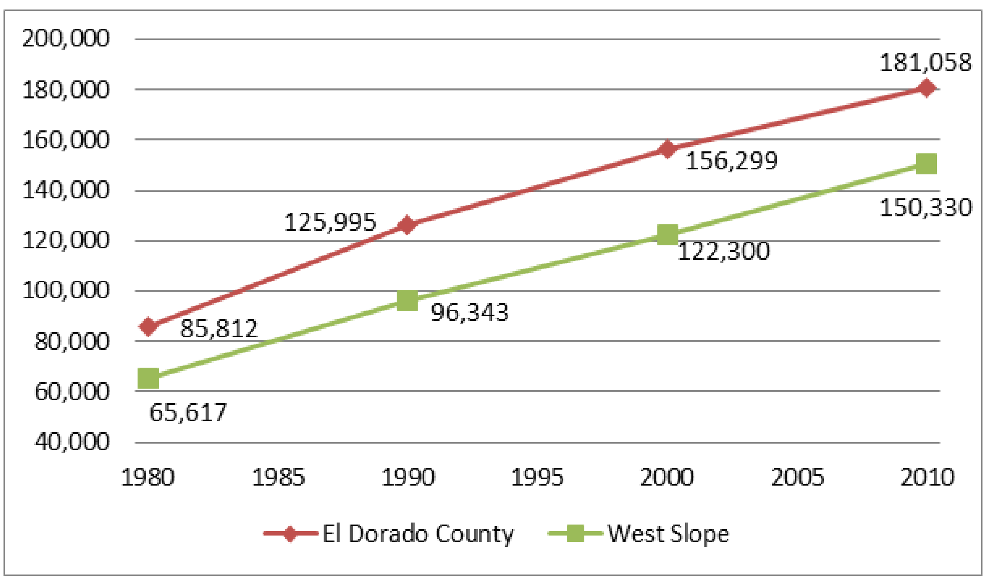

Figure ES-2 West Slope and El Dorado County Population Growth (1980-2010)
SOURCE: US Census (http://www.census.gov/population/cencounts/ca190090.txt)
West slope growth estimate: EDC (2014) bae worksheets, per Tracey Eden-Bishop, personal communication with N. Porter with El Dorado County (November 25, 2013) and EDC (2002) Land Use Forecast for Draft General Plan, Figure 4

ES 1.2 Economic Activity

According to the 2004 El Dorado County General Plan and 2007 Floor Area Ratio General Plan Amendment, more economic growth, as a percentage of residential growth, is projected under buildout conditions. Even though residential development has outpaced planned commercial development on the West Slope of the County over the past decade.

- **Baseline versus Buildout Potential:** Figure ES-3 shows the ratio of West Slope residential ("households") and commercial ("jobs") land uses in 1999 (2004 General Plan baseline year) and residential and potential commercial land uses allowed under the 2004 General Plan and the FAR General Plan Amendment at buildout. Figure ES-3 illustrates the shifting service area dynamics as water purveyors will be requested to serve more commercial water demand based on planned future development.

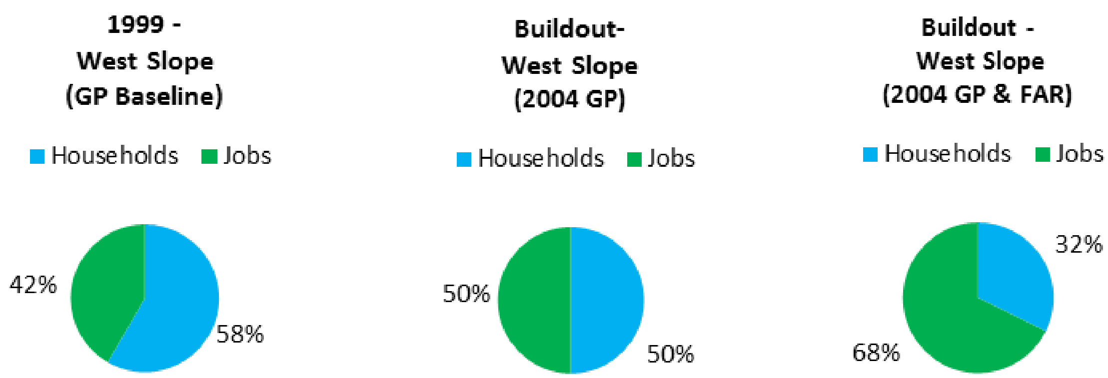

Figure ES-3 West Slope Baseline and Buildout Households versus Jobs

- **2010 versus Buildout Potential:** Estimated development levels in 2010 are represented in Figure ES-4. According to 2010 Census data and Sacramento Area Council of Governments (SACOG) 2010 housing and jobs data, West Slope housing was approximately 55% built-out in 2010 compared to 2004 General Plan buildout household projections. Commercial uses were approximately 32% built-out compared to the 2004 General Plan employee/jobs projections and 15% compared to the 2004 General Plan together with the 2007 FAR General Plan Amendment jobs projections.

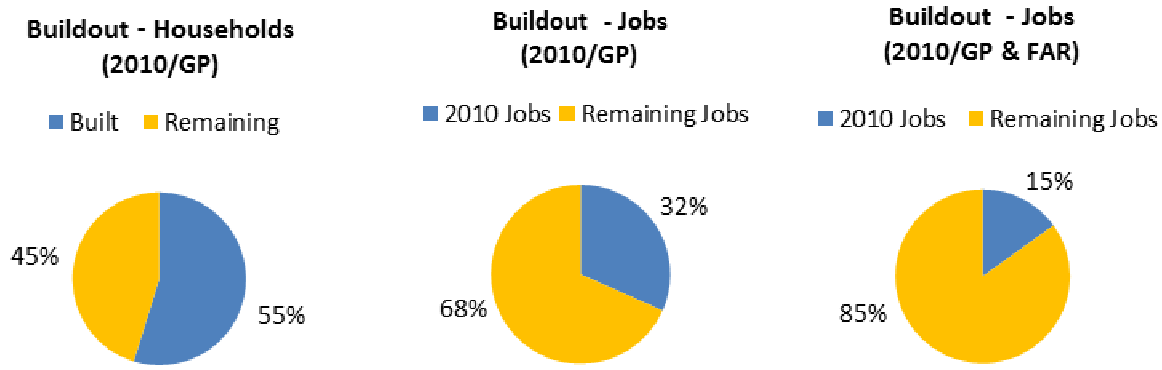

Figure ES-4 West Slope 2010 and Buildout Households and Potential Jobs
SOURCE: EDC (2014) bae March 14,2013 memorandum and worksheets, per Tracey Eden-Bishop personal communication with N. Porter with El Dorado County (November 25, 2013) and EDC (2002) Land Use Forecast for Draft General Plan, Figure 4

It is important to understand relative levels of household and commercial development over time because the State is using per capita water use as a metric in determining compliance with its SB X7-7 water conservation requirements. Urban per capita unit demand factors, a.k.a. gallons per day per capita (GPCD), are calculated by dividing gross water production (including distribution system water losses and all residential, commercial, industrial and institutional (CII) demand) by the total population over multiple years. While the urban water suppliers on the West Slope have plans in place to achieve their conservation goals in the short term (2020), GPCD will necessarily increase slowly over time as more planned economic activity develops within the County. The converse is also true. From Figures ES-3 and ES-4, between 1999 (the 2004 General Plan baseline and the approximate midpoint of the historic period used by EID and GDPUD to calculate GPCD) and 2010, residential development outpaced economic development. While other factors influenced reported water demand reductions during this period (i.e. recession, dry year conditions, rate increases, and rate restructuring), it should be noted that underlying shifts in residential and commercial land uses had the effect of adding more population, relative to jobs, in the near term.

It should be noted, the goal of SB X7-7 was not to curtail economic activity. The codification of the legislation captures the intent to allow for adjustments in GPCD. Water Code §10608.24(d)(1) specifically addresses increases in economic activity in the following manner.

> *"When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:…*
>
> *(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period."*

ES- 1.3 Agricultural Water Use

Agricultural land and water use in El Dorado County has varied over the last century based on crop mix, water availability and irrigation efficiency. Cultivated acreage in El Dorado County has long been supported with surface water supplies through both ditch systems paid for on a "miner's inch" basis and piped/ metered potable water systems. Ground water has been used to a less extent. Historically, irrigated acreage has been as high as 9,300 acres in 1975, and today there is approximately 5,300 acres under cultivation (up from 4,826 acres in 2000). The decline from 1975 is primarily a result of a decline in irrigated pasture.

El Dorado County was a major grape growing center from 1849 to 1904, with production of 60,000 gallons of wine reported in 1890. The 1890 economic depression, Prohibition, the Great Depression, and a phylloxera pest invasion in the 1930's drastically reduced vineyard acreage, with only a single vineyard reported in 1936. By 1948 there was almost 5,000 acres of deciduous orchard (primarily pears) under cultivation. After pear blight swept through the County, pear production dropped from 52,000 tons to 8,500 tons by 1965. In 1964, Apple Hill was conceived by local agricultural leaders to preserve agricultural lands from conversion to other land uses and a change in plantings to grapes and apples was set in motion. Grapes dominate the crop mix today. A shift away from grapes, however, may be underway as the effects of a new viral disease (red blotch) takes hold in the County. This outbreak could drastically reduce wine grape production, which in turn may result in a return to crops that require more potable water.

Figure ES-5 illustrates the change in County-wide crop mix since the turn of the twentieth century. Year 2000 crop mix is included because it is the baseline year for the 2004 General Plan inventory of cultivated land by water purveyor service area boundary and "Other County Areas" (OCA), which is the basis of this update.

Figure ES-5 El Dorado County Crop Mix – Percent by Acreage

SOURCE: EDC (1948-2013) Agricultural Crop and Livestock Report
Costa (2010) History of Wine Making in El Dorado County
USDI (2008)

These dynamics make projecting future agricultural water demand challenging, since water use varies widely by crop type. To demonstrate the effect of crop type on agricultural water requirements, Figure ES-6 presents three crop mix scenarios for acreage under cultivation in 2000 (baseline) and at buildout: 1) Year 2000 (baseline) crop mix; 2) 100% vineyard with no change in pasture irrigation; and 3) 100% deciduous orchard with no change in pasture irrigation. Water requirements are based on 1.3 acre-feet per acre for grapes, 2.8 acre-feet per acre for orchard and no change in pasture irrigation total from the baseline year.

Assuming 100% vineyard would tend to underestimate agricultural demand while assuming 100% deciduous orchard would overestimate demand. From ES-4, the Year 2000 (baseline) crop mix represents a balance between grapes with a lower water requirement and deciduous orchard with a higher water requirement. For this analysis, therefore, the baseline year crop mix is assumed in projecting future agricultural water demand, except that acreage in pasture irrigation is assumed to stay constant. A similar analysis is presented in Chapter 4 for each area/purveyor.

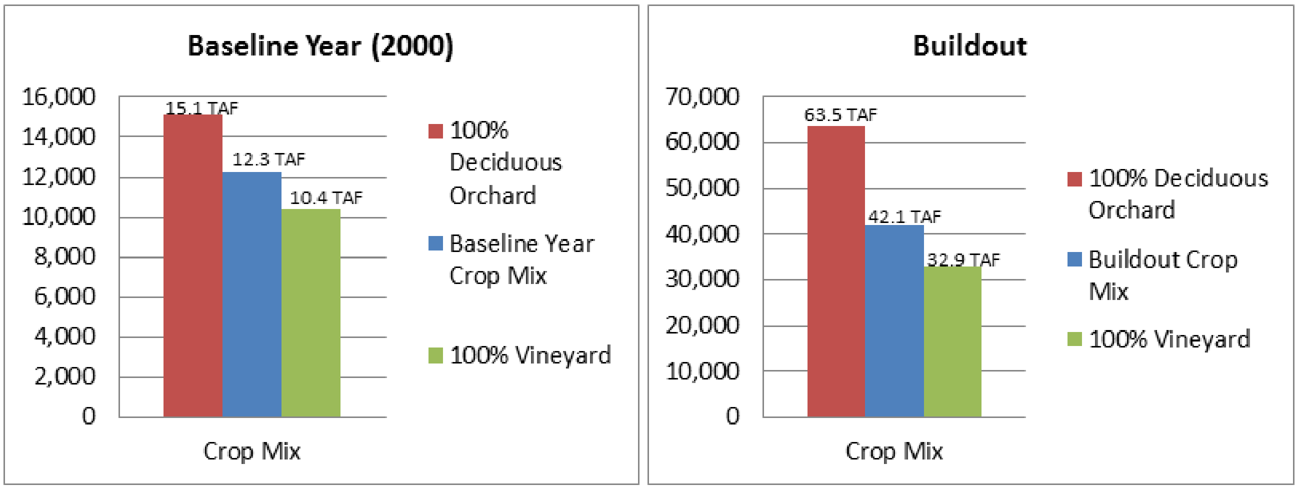

Figure ES-6 Crop Mix Water Requirement for Baseline Year and Buildout
SOURCE: EDC (2004) Appendix E (EPS 2003 and Wood Rogers 2003)
EDCWA WRDMP (2007) Table 4-7
Note: Water requirements do not include system losses, which vary by area/purveyor.

Adaptation to adverse conditions by agricultural growers in the County speaks to the region's favorable agricultural characteristics and resilience through severe economic downturns and pest and disease outbreaks. This adaptability and the following factors contribute to the potential for expanded agriculture land uses in the County:

- General Plan policies that are protective of agriculture and allow ranch marketing by right;
- High price of agricultural land elsewhere makes the County more attractive to producers;
- Crop diversification in the "Apple Hill" area, including apples, cherries, wine grapes, peaches, nectarines and Christmas trees drive ranch marketing operations that draw more than 35,000 visitors to the County each year;
- Total 2013 crop production value in El Dorado County was $57 million, representing a 20% increase from 2012 and up from $53 million in 2000. (EDCDAWM, 2000/12/13); and
- Agriculture and related activities contributed approximately $441 million to the County economy in 2013, of which ranch marketing and value-added products contributed about $222 million, up from $159 million in 2012 and the wine industry $179, up from $169 million in 2012 (EDCDAWM, 2013,2014).

Ensuring adequate water supply for agriculture is critical to a growing vibrant County economy, not only for current levels of cultivation and potential crop mix changes but for expansion of agricultural land use and a crop mix that can adapt to changing agricultural markets and biologically induced declines. El Dorado County's agricultural tourism brings visitors from the Sacramento region and from all over the state. This reflects a broader statewide benefit to supporting Apple Hill and other growers in El Dorado County with a reliable water supply.

ES-1.3 Groundwater Reliability

Groundwater is a vital source of supply for a significant portion of El Dorado County residents and growers within and outside public water purveyor service area boundaries. The Department of Water Resources' 2003 Bulletin 118 characterizes groundwater in the foothills as follows:

> *"Groundwater development in the fractured rocks of the foothills of the southern Cascades and Sierra Nevada is fraught with uncertainty. Groundwater supplies from fractured rock sources are highly variable in terms of water quantity and water quality and are an uncertain source for large-scale residential development."*

Persistent drought and climate change will continue to impact the reliability of foothill groundwater supplies. This is expected to increase demands on public water purveyors supplies through annexations of lands into public water supplier service areas, extensions of service to areas where well production is declining or where wells have failed and through transport of water by truck to existing residents that cannot economically connect to a public water supply system. Each of these scenarios is addressed in the 2014 Update.

ES-1.4 Water Use Efficiency

Water conservation has been and remains an important component of water resources management in the County. Although it is the area of origin for a significant volume of water used in the greater Sacramento region and other areas of the state, El Dorado County itself has limited developed water supplies. As a result, conservation efforts (including metering) have been a high priority since the 1976-77 drought and remain an important component of water resource management in the County. Many areas have been metered since the 1970s and water service on the West Slope of the County is metered today with very few exceptions. Irrigation management services (IMS) have been offered by EID since 1977; the program has substantially reduced agricultural water use and is responsible for saving over 2,000 acre-feet of water each year. EDCWA has been providing IMS for the remainder of the West Slope of the County since 2001. Local urban water suppliers are committed to achieving state mandated conservation and it is assumed the savings will be sustained except for increases resulting from higher levels of economic activity. Given the need for new water supplies to meet the County's needs, EDCWA is investigating options that would decrease demand even beyond State mandated conservation levels. A DWR Integrated Regional Water Management program grant has recently been approved for a County-wide Conservation Plan to identify and evaluate options for further conservation and water use efficiency.

ES-2 2014 UPDATE RESULTS

The updated analysis results in a projected total buildout demand of 149,000 AFY for the Western Slope of El Dorado County. This replaces the 2007 WRDMP projection of 182,000 AFY. The reduction is primarily due to State mandated urban water conservation and reduced agricultural demand projections. The plan to meet the SB X7-7 GPCD reduction requirements includes both implementation of water efficiency Best Management Practices (BMPs), that will reduce demand, and capital improvements that will reduce system losses. The plan to reduce urban demand to meet SB X7-7 requirements is discussed further in Chapter 5, Water Use Efficiency.

Reduced agricultural demand projections result from a reduction in the land area (to only those lands within Agricultural Districts) used to calculate future agricultural water use. Since growers in El Dorado County have already adopted efficient irrigation practices and irrigation management service programs have already been implemented, no additional water conservation is included in the agricultural water use factors used for this update.

Various metrics can be used in assessing water supply availability and adequacy. One standard, **safe yield**, defines the maximum amount of water that can be made available in any year, including the driest year(s) of record. It differs from **firm yield**, which takes into account imposed deficiencies, based on adopted policy, during periods of drought and, therefore, defines an annual quantity that can be met in most, but not all years. Based on these differences, safe yield and firm yield are typically used in water management projections for differing purposes. Safe yield, as the maximum amount of water conceivably available based on all water year types, is more commonly used in long range water supply planning as it is based primarily on water rights, physical constraints, and watershed hydrology. Alternatively, firm yield is used for shorter-term water supply management decision-making. Both are presented below. For this analysis a climate change scenario has also been prepared that suggests that firm yield could look very different in the future and could decrease to near historic hydrologic safe yield levels, confirming that safe yield should be used for long range planning purposes. Results of the climate change analysis are provided in Chapter 6.

The “Medium Growth Rate” scenario projection is used to estimate both intermediate and long term supply needs, and indicates a long term need for additional water supplies. The precise timing of that need will depend on the future West Slope growth rate. An estimated 75 percent of the urban demands in Other County Areas (OCA) not reallocated to El Dorado Irrigation District (EID) or Georgetown Divide Public Utility District (GDPUD) are assumed to be satisfied with individual wells and therefore are not considered in determining water supply need. An estimated 25 percent of that demand is assumed to require access to a public water supply at some time in the future. Agricultural demands, however, are reflected in new water supply need, as meeting this level of water demand may not be possible or sustainable with fractured rock groundwater supplies. The following tables provide an overall summary of the water supply needs based on current and projected demands including urban conservation. Table ES-1 focuses on ***short term water supply management using firm yield*** and generally indicates that all West Slope purveyors have adequate supplies to meet near term projected demand under historic hydrologic conditions and current firm yield policies. At full build-out of the 2004 General Plan, however, approximately 58,000 acre-feet per year (AFY) of additional water supplies could be needed to meet projected demand on the West Slope when considering firm yield supplies. Existing supplies, in ES-1 and ES-2, for EID include 5,600 acre-feet of recycled water (projected to be available before 2035), resulting in a reduction in the need for new surface water supplies by the same amount. Buildout wastewater treatment plant discharges of 6,800 acre-feet are projected to return to the Cosumnes River watershed for downstream uses.

Table ES-2 focuses on ***long term planning using safe yield*** and indicates new supplies are needed for all purveyors at buildout of the 2004 General Plan, with up to 69,000 AFY of additional water supply needed for the entire West Slope.

Table ES-1 West Slope Additional Surface Water Supply Need with State Mandated Urban Conservation - Considering Firm Yield Supply (acre-feet)

	Firm Yield Supply	***Urban***			***Agricultural***			***Total Demand***			***Additional Water Supply Need***	
		2012	***2030***	***Build-Out***	***2012***	***2030***	***Build-Out***	***2012***	***2030***	***Build-Out***	***2030***	***Build-Out***
El Dorado Irrigation District	69,100	40,237	51,403	79,316	7,977	9,515	19,218	48,214	60,919	98,534	—	29,434
Georgetown Divide PUD	12,200	3,001	4,120	9,581	7,121	7,621	10,349	10,122	11,741	19,930	—	7,730
Grizzly Flat CSD Total	184	153	187	313	—	—	—	153	187	313	3	129
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	**—**	**—**	**—**	***101,546***	**—**	**—**	***47,043***	**—**	**—**	***148,590***	***3***	***57,854***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.
Notes: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the “Additional Water Supply Need.” 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

Table ES-2 West Slope Additional Surface Water Supply Need with State Mandated Urban Conservation - Considering Safe Yield Supply (acre-feet)

	Safe Yield Supply	Urban			Agricultural			Total Demand			Additional Water Supply Need	
		2012	2030	Build-Out	2012	2030	Build-Out	2012	2030	Build-Out	2030	Build-Out
El Dorado Irrigation District	59,955	40,237	51,403	79,316	7,977	9,515	19,218	48,214	60,919	98,534	964	38,579
Georgetown Divide PUD	10,541	3,001	4,120	9,581	7,121	7,621	10,349	10,122	11,741	19,930	1,200	9,389
Grizzly Flat CSD Total	165	153	187	313	—	—	—	153	187	313	22	148
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	—	—	—	***101,546***	—	—	***47,043***	—	—	***148,590***	***2,187***	***68,677***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.
Note: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

The analyses in this report are based on projections of both demand and supply based on a variety of assumptions. This report was completed during a time of substantial uncertainty due to severe drought conditions and an unprecedented curtailment of water rights by the State Water Resources Control Board. In addition, the U.S. Bureau of Reclamation recently imposed severe cutbacks on its water service contracts and record cutbacks to its water right settlement contractors (which were subsequently restored to specific contract limits following late winter rains). There are also significant uncertainties with regard to the specific impacts of climate change to water supply and demand within the County given its reliance on direct runoff and diversions from the American and Cosumnes River watersheds with documented long term declines in Sierra snowpack and more variability in runoff (Department of Water Resources, 2005 California Water Plan). It also appears likely that regulatory mandates will require increased flows entering the Sacramento-San Joaquin Delta, which could impact the reliability of upstream water supplies.

These uncertainties together with the County's reliance on costly pumped supplies from Folsom Reservoir, extremely limited access to groundwater, and limited upstream storage make it imperative to consider all options for increasing water use efficiency and augmenting future water supplies for the West Slope. It is particularly important to explore opportunities to improve the reliability of water supply conditions during prolonged drought.

There are three additional considerations for the future addressed in this 2014 Update. The first is the potential for future, additional water conservation. Urban utilities throughout California are focusing their efforts on meeting the urban water conservation mandates in SB X7-7 by 2020. Conservation efforts are not likely to stop at that point, however, and it is likely that additional conservation efforts will be considered in El Dorado County in the future. Chapter 5 sets forth a number of potential programs, noting that the implementation of any of these programs will be subject to a range of feasibility measures including cost-effectiveness.

A second consideration for the future reflects that the 2014 Update is a significant update to forecasted water demands on the West Slope and that there is value in revisiting data and key assumptions in future updates as more information becomes available (for example, from upcoming updates to urban water management plans which are due July, 2016) and the impacts of future growth are experienced. We are in a time of substantial change, recognizing the emerging concerns related to climate change, the remarkable disruption of the recent prolonged economic recession which followed a time of unprecedented growth, and continued changes in State water policy.

Finally, while not a purpose of this 2014 Update, Chapter 6 notes that there may be value in a specific climate change vulnerability assessment – of both supplies and demands – for the American River Basin supported by all water users reliant on such supplies. This includes all downstream water users (including environmental uses). It is clear that there is a statewide interest in water supplies generated within the American River watershed. As noted in the 2007 report on climate change vulnerability by the California Urban Water Agencies, the combined effects of decreasing water supplies and increasing water demands are serious challenges for the future.

ES-3 KEY FINDINGS

In summary, the key findings of this Update are listed below.

- Under short term water supply management policies, all West Slope purveyors have adequate supplies to meet near term demand under historic hydrologic conditions and current firm yield policies.
- Under long term safe yield planning assumptions, new supplies are needed for all West Slope purveyors at buildout of the 2004 General Plan, with approximately 69,000 AFY of additional water supply needed for the entire West Slope.
- The climate change hydrologic regime scenario confirms safe yield is the appropriate metric for assessing long term water supply need.
- Considering unprecedented water rights curtailment in 2014 and prolonged drought conditions, it is prudent for EDCWA and West Slope purveyors to consider all options for augmenting future water supplies and achieving greater water conservation for the West Slope.
- An American River Basin climate change vulnerability assessment supported by all water users reliant on such supplies may be valuable to understanding potential basin specific impacts.
- An EDCWA Office of Water Efficiency would provide needed leadership and funding to assist water purveyors in meeting existing and potential future State mandated water use efficiency.

This report was prepared by engineering staff of the EDCWA, with support from Atkins North America, Inc. and Maddaus Water Management, Inc. The development of this report was coordinated with the primary West Slope water purveyors, El Dorado County Planning and agricultural interests. Thank you to the individuals listed in the acknowledgement section of this report whom provided various levels of peer review and/or input.

EDCWA envisions that this report will be updated in the future as additional new information becomes available, which may include any of the following:

- Urban Water Management Plans completed by July, 2016 by GDPUD and EID.
- Monitoring of conservation program progress in meeting SB X7-7 targets.
- Ability to further expand the recycled water system with seasonal storage beyond current plans.
- Additional annexations beyond what was assumed as “favorable areas” within this study.
- Changes in planned versus actual development patterns over time.
- Refined assessment of water supply reliability of existing supplies.

EDCWA and water purveyors’ web sites provide relevant reference planning documents cited in this report or made available through EDCWA along with new information over time. There is not a definitive timetable for any future update and the content of this report is based on current best available information.

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Chapter 1. Background on the 2007 Water Resources Development Master Plan

The Water Agency, as the countywide water resources planning agency, has the responsibility to insure adequate water supplies for existing and future uses in accordance with the Act and the 2004 General Plan. The 2007 WRDMP was prepared to analyze the need for and to coordinate water-planning activities within the County to meet the County's water supply needs into the future.

The 2007 WRDMP was developed in consultation with the El Dorado Irrigation District (EID), Georgetown Divide Public Utility District (GDPUD), and Grizzly Flat Community Services District (GFCSD) and incorporated the land use and housing projections developed by the County for the 2004 General Plan.

Water supply information described in the 2007 WRDMP was based on historic watershed hydrologic conditions and included information for both the "firm yield" and "safe yield" approaches, based on the following definitions:

- **Firm yield** is the annual quantity of water that can be made available in most years while imposing water deficiencies during hydrologic drought conditions.
- **Safe yield** is the maximum amount of water that can be made available in any year, including the driest year(s) of record.

Typically, West Slope water purveyors utilize a firm yield approach to short term water supply management and have adopted requirements for customers to reduce their water consumption during short term drought periods. For long range water supply planning, it is common to also consider a safe yield, which bases the maximum annual yield on water rights and watershed hydrologic conditions, including a repeat of the driest year(s) of record.

Water demand projections for residential and commercial land uses in the County were developed by Economic & Planning Systems, Inc. (EPS) in 2003 for four land use alternatives for the West Slope of the County (excluding the Tahoe Basin) that were being considered for the adoption of a 2004 update of the County General Plan. EPS also developed water demand forecasts for the Tahoe Basin based on land use data provided by the Tahoe Regional Planning Agency. In 2006, ECO:LOGIC prepared an update of the water demand forecasts for the West Slope, based on the 2004 County General Plan and the methodology described in Chapter 4 and in Appendix E of the 2007 WRDMP.

The 2007 WRDMP addressed the water supply needs of the West Slope, including areas that are outside existing public water purveyor service boundaries, where water is supplied by individual property owner wells and small privately-owned water providers from wells and springs. In the 2007 WRDMP, areas not serviced by the three West Slope water purveyors were collectively referred to as "Other County Areas" (OCA). Over time, it was anticipated that water demand within some portion of the OCA would be provided with a public water supply via annexation into the Service Area of one of these three water purveyors, which has and continues to occur. Accordingly, future water demand within some portions of the OCA was reallocated (or reassigned) to EID and GDPUD. These areas are identified as "Favorable Areas." Potential commercial demands associated with the 2007 Floor Area Ratio (FAR) General Plan Amendment are also included. Detailed information on

Favorable Areas and the FAR General Plan Amendment is provided in Sections 3.2 and 2.4, respectively.

The growth rates utilized in the 2007 WRDMP are presented in **Table 1-1**. For reference, housing and employee forecasts and projected water demands from the 2004 General Plan (used in the 2007 WRDMP) are included in Appendix B. Actual growth rates are also included in Table 1-1 and were higher than projected in areas with a public water supply.

Table 1-1 Residential Growth Rates in the 2007 WRDMP

	OCA	***EID***	***GFCSD***	***GDPUD***	***West Slope***
Projected	2.44%	2.12%	1.69%	0.99%	2.12%
2000-2010 (actual)	not available	2.44%	2.63%	1.8%	2.09%
SOURCE: EDCWA (2007), Table 4-2. (See Table 2-7 of this report for actuals)					

As part of the 2004 General Plan Update, preliminary estimates of future agricultural water demand were developed by Wood Rogers in 2003, based on mapping of all “Important Farmland” on the western slope below 3,000 feet in elevation. This preliminary analysis raised some concerns because it included farmland within urbanized areas and parcels less than 10 acres (where the viability of commercial agricultural pursuits on such small acreage was questioned). To address those concerns, the 2004 General Plan included an alternative estimate of agricultural demand developed by EPS, based on information provided by the West Slope water purveyors. Because of the considerable differences between those two demand estimates, the 2007 WRDMP included the results of a mapping exercise conducted by ECO:LOGIC that refined the extent of agricultural lands included in the preliminary analysis conducted by Wood Rogers in 2003.

The 2007 WRDMP also provided a summary of past water efficiency efforts by the water purveyors. The summary graphics showing historical water savings are presented in Chapter 5 of this update to that report.

The 2007 WRDMP estimated the additional water supply need for the West Slope at buildout to be as much as 103,518 acre-feet/year (AFY) in a critically dry year (safe yield), as shown in **Table 1-2**, and recommended that several water supply projects be initiated to assure sufficient supplies would be available to meet projected demand, even during drought periods. That estimate did not include later State mandated urban water conservation requirements, which are considered in this update.

Table 1-2 EDCWA 2007 WRDMP Additional Supply Need at Build-Out

	Safe Yield Supply (acre-feet)	*Urban Demand (acre-feet)*	*Agricultural Demand[a] (acre-feet)*	*Total Demand (acre-feet)*	*Additional Supply Need (acre-feet)*
El Dorado Irrigation District	58,753	72,831	28,324	101,155	42,402
Favorable Areas		11,040		11,040	11,040
FAR GP Amendment		12,621		12,621	12,621
EID Total		***96,492***	***28,324***	***124,816***	***66,063***
Georgetown Divide PUD	10,500	11,495	16,911	28,406	17,906
Favorable Areas		1,318		1,318	1,318
FAR GP Amendment		1,009		1,009	1,009
GDPUD Total		***13,822***	***16,911***	***30,733***	***20,233***
Grizzly Flat CSD Total	**143**	**1,066**		**1066**	**923**
Other County Areas	9,411	24,845	12,984	37,829	28,418
Less Reallocated Favorable Areas		(12,358)		(12,358)	(12,358)
FAR GP Amendment		239		239	239
Other County Areas Total		***12,726***	***12,984***	***25,710***	***16,299***
Western Slope Total	***78,807***	***124,106***	***58,219***	***182,325***	***103,518***

SOURCE: EDCWA (2007), Table ES-1

a. Values represent Year 2050 projection, not build-out

b. Further analysis of actual land use within the GFCSD boundary indicates a build-out demand of 504 acre-feet, which would result in 361 acre-feet of additional water supply need at build-out.

Note: Urban demands do not include State mandated urban water conservation considered in 2014 update.

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Chapter 2. New Information Developed Since the 2007 WRDMP

2.1 WATER CONSERVATION LEGISLATION

Senate Bill X7-7 (SB X7-7), the Water Conservation Act of 2009, set an overall goal of reducing statewide per capita urban water use by 20% by December 31, 2020 (with an interim goal of at least 10% by December 31, 2015). To measure progress, the legislation requires that urban retail water suppliers (defined by California Water Code Section 10608.12(p) as “a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.”) determine their urban baseline” per capita water use (for residential, commercial and industrial uses) based on average demand for a recent 5 or 10 year period, expressed in gallons per capita per day (GPCD). In addition, a water reduction “target” demand (as expressed in GPCD) must be estimated using one of four specified methods:

1. 80% of baseline use
2. Sum of specified performance standards
3. 95% of DWR Hydrologic Region target from the draft 20X2020 Plan
4. A flexible alternative designed to adjust to local circumstances

In their respective 2010 Urban Water Management Plans (UWMP), EID declared it will implement Alternative 1 and GDPUD will implement Alternative 3 to comply with SB X7-7.

As part of their UWMP, urban water suppliers must include a potable water use reduction plan to demonstrate how they will achieve the per capita water demand target for their urban customers. Accordingly, future estimates of water demand should account for the reduction in per capita urban water use from the baseline established by the water purveyors. For the purposes of this analysis, both the per capita baseline and target are included for information purposes.

SB X7-7 also requires agricultural water suppliers (providing service to 10,000 or more irrigated acres) to implement certain efficient water management practices (including volumetric measurement and pricing), and must prepare, adopt and periodically revise agricultural water management plans. Notably, none of the West Slope water purveyors that serve agricultural water meet the identified threshold and are not subject to the related requirements.

Because per capita demand is required and monitored by urban water suppliers subject to SB X7-7, this new metric provides an opportunity to gauge water use via a single calculated value, rather than as the sum of various water use categories (e.g., residential, commercial and industrial). This update projects future water demand for the urban water suppliers on the West Slope of the County (EID and GDPUD) based on per capita water use (with adjustments for increased economic activity), including demand from the Favorable Areas of the OCA, which is reallocated to those two water purveyors. GFCSD, with less than 3,000 retail water connections, is not subject to the requirements of SB X7-7.

2.2 RECENT WATER SUPPLY AND DEMAND REPORTS

Since development of the 2007 WRDMP, several new water supply and demand reports have been developed by West Slope water purveyors, as summarized below. These include master plans and 2010 Urban Water Management Plans (UWMP), which are required for urban water suppliers in accordance with the Urban Water Management Act (codified in the California Water Code, Division 6, Part 2.6, and §10610 through §10656). The analysis of this report incorporates information from those reports or, where different methodologies are employed, augments that information as appropriate.

2.2.1 EID 2010 Urban Water Management Plan

EID's Service Area encompasses approximately 220 square miles on the western slope of the Sierra Nevada Mountains in El Dorado County. The Service Area is bounded by Sacramento County to the west, with a small area in Sacramento County just south of Highway 50 and the Pollock Pines/Sly Park area to the east, with elevation ranges from 500 feet to more than 4,000 feet. The City of Placerville, located in the central part of the District, receives water from the District as a wholesale customer. The District also operates two satellite water systems in the Strawberry and Outingdale communities. EID's Service Area is primarily located in two major watersheds, the South Fork American River in the north and the North Fork of the Cosumnes River in the south, and is hydrologically split by the Placerville Ridge and Highway 50.

For the 2010 UWMP, water consumption data was compiled from annual consumption reports for the following EID-defined user categories:

- Single family = single-family residential and single-family dual potable (recycled water for irrigation)
- Multifamily = multifamily residential
- Commercial/Industrial = commercial/industrial
- Landscape = recreational turf (dedicated irrigation)
- Agriculture = agricultural metered irrigation, domestic irrigation, and small farm irrigation (potable water)
- Other authorized uses (metered) = ditches, City of Placerville, potable billed and unbilled, and raw water billed
- Other authorized uses (not metered) = Main ditch and potable billed ditches (potable and raw water)

Total water use was calculated as the cumulative total of system deliveries (which is driven by water demand), sales to other water agencies (e.g., the City of Placerville), and system losses, as summarized in **Table 2-1**.

Table 2-1 EID 2010 UWMP Projected Water Use (acre-feet)

Total Projected Water Use (AFY)	*2010*	*2015*	*2020*	*2025*	*2030*
Total water deliveries	27,761	42,829	45,825	52,750	61,328
Sales to other water agencies	1,155	1,200	1,215	1,275	1,330
System losses	4,764	4,892	5,227	6,003	6,962
Total	***33,680***	***48,921***	***52,267***	***60,028***	***69,620***
SOURCE: UWMP EID (2011), Table 3-9.					

2.2.2 GDPUD 2010 Urban Water Management Plan

GDPUD is located on the western slope of the Sierra Nevada foothills, approximately 45 miles northeast of Sacramento, California. It straddles a ridge that separates the drainage basin of the Middle Fork American River and the Rubicon River (tributary to the American River) on the north from that of the South Fork American River on the south. The GDPUD existing Service Area encompasses approximately 75,000 acres (112 square miles) with approximately 30,000 acres currently having some form of water service available. GDPUD water supplies originate from the Pilot Creek Watershed above Stumpy Meadows Reservoir. Stumpy Meadows Reservoir is GDPUD's sole source of supply.

GDPUD presently provides domestic water service to the unincorporated communities of Georgetown, Buckeye, Garden Valley, Kelsey, Spanish Dry Diggins, Greenwood, Cool, and Pilot Hill. Through separate facilities, portions of these same communities also receive untreated water for irrigation purposes.

Elevations in GDPUD's Service Area vary from 500 feet at the southwestern boundary to 6,100 feet at Silver Hill on the eastern boundary. The relief varies from rolling foothills in the west to steep slopes and deep canyons in the upper elevations. The community of Georgetown is located at the top of the Georgetown Divide at an elevation of 2,650 feet.

Projected total water use within the GDPUD Service Area is summarized in **Table 2-2**.

Table 2-2 GDPUD 2010 UWMP Projected Water Use (acre-feet)

Total Projected Water Use (AFY)	*2010*	*2015*	*2020*	*2025*	*2030*
Single-family	1,380.2	1,684.4	1,696.8	1,836.0	1,987.6
Multifamily	16.6	23.3	23.4	25.4	27.5
Commercial	243.7	301.7	303.3	320.8	347.3
Industrial	—	—	—	—	—
Institutional/Governmental	15.1	17.1	15.7	—	—
Landscape	—	—	—	—	—
Agriculture (untreated)[a,b]	4,280.3	5,493.7	6,707.1	7,920.5	9,133.3
Other	43.4	94.5	97.5	130.9	141.7
Total (treated & untreated)	***5,979.4***	***7,614.7***	***8,843.8***	***10,233.6***	***11,637.4***

Table 2-2 GDPUD 2010 UWMP Projected Water Use (acre-feet)

Total Projected Water Use (AFY)	*2010*	*2015*	*2020*	*2025*	*2030*

SOURCE: UWMP GDPUD (2011), Tables 10, 11, 12, and 13.

a. Agricultural (untreated) water is metered using a subsurface orifice and sold by the miner's inch.

b. Agricultural (untreated) water demand does not include carriage and ditch losses. Losses are included for the treated water. Latent demand is included in the future projected demands.

2.2.3 GFCSD Water Supply and Demand Update (2012)

Grizzly Flats Community Service District's Service Area covers approximately 1,115 acres and includes the Grizzly Park subdivisions and several larger perimeter parcels. In 2012, there were 607 metered connections in the system, down slightly from 611 connections reported in 2009. The District estimates that approximately 1,252 parcels could require water within the Service Area at future build-out of the community.

From the 2012 GFCSD Water Supply and Demand Update (WSDU), the current safe yield evaluation of the water supply indicates that approximately 165 acre-feet of water would be available for the critical dry year based on the hydrological record. Using a demand factor of 0.25 acre-feet per DU per year from the 2012 WSDU, approximately 660 meters could be served with currently available water supplies. At projected build-out, approximately 313 acre-feet of water would be required to service a total of 1,252 dwellings. To meet the safe yield criteria for the system, if additional wells are not developed, an off-stream reservoir with a minimum active storage capacity of 150 acre-feet was recommended.

The GFCSD Service Area is at approximately 50% of buildout in terms of existing parcels but is more than 90% of builtout in terms of currently available supply.

2.2.4 EID Integrated Water Resources Master Plan (2013)

EID developed the 2013 Integrated Water Resources Master Plan (2013 IWRMP) to provide a plan that optimizes the use of EID's water resources and provides a roadmap for cost effective development of future infrastructure and maintenance of existing facilities. This goal, combined with current economic conditions, limited water supply, environmental constraints, and climate change, necessitates the need for a unified project vision, which was articulated as follows (EID 2013, p. 5):

> Similar to many water agencies in California, the El Dorado Irrigation District (District) desires to maintain its current level of service while preparing for future growth in an environmentally and fiscally responsible manner, while also considering the impacts of aging infrastructure systems and the uncertainties of climate change. The District sees the Integrated Water Resources Master Plan and Wastewater Facilities Master Plan Project as being the mechanism to address future water supply, infrastructure, and replacement needs in an integrated fashion.

For the 2013 IWRMP, EID developed water use factors for land uses included in the 2004 General Plan, based on historical water demand within the District's service zones (EID 2013, p. 87). Single-family residential land uses, including high-, medium-, and low-density, and rural residential, were assigned density factors, which represent the average density for each land use category, respectively, as described in the 2004 General Plan.

Water use factors were based on EID's design standard household unit use and reflect the different demands for each of the three supply regions (eastern, western, and El Dorado Hills). EID design standards are based on historic averages with imbedded water conservation. Historic water use efficiency is discussed in detail in Chapter 5. In the higher elevation eastern region, dwelling unit water use is the lowest, while in the lower elevation El Dorado Hills region, per capita water use is the highest. This difference is primarily attributed to a longer growing season and higher evapotranspiration rates at lower elevations and more extensive landscaping for commercial land uses in the more urbanized El Dorado Hills region. This variation in demand is illustrated by the different residential water use factors for each service region, which are summarized in **Table 2-3**. For other land use types (e.g., commercial, industrial, and multifamily residential), data from EID's 2006 Consumption Report was used in combination with existing parcel data to generate use factors for each service zone.

Table 2-3 Residential Unit Demand Factors by EID Service Region

Land Use Type	***Unit Demand per Dwelling Unit (AFA)***		
	Eastern	***Western***	***El Dorado Hills***
High Density Residential	0.4	0.67	0.72
Medium Density Residential	0.45	0.95	1.53
Low Density Residential	0.99	1.35	1.07
Rural Residential	0.99	1.03	1.03
SOURCE: EID (2013), Table 4-1.			

Note: Unit demand factors do not include State mandated water conservation

The 2013 IWRMP provided growth rate estimates for each of the three different service regions, as presented in **Table 2-4**.

Table 2-4 EID Projected Growth Rates by Region

Period	***EID Service Region***		
	Eastern	***Western***[a]	***El Dorado Hills***[b]
2009–2015	0.15%	0.82%	1.19%
2016–2020	0.30%	1.65%	2.38%
Beyond 2020	0.61%	3.29%	4.75%
SOURCE: EID (2013), Table 9-2. a. Includes EID water service zones 1, 4, 5, 6, and 7. b. Includes EID water service zone 2.			

The 2013 IWRMP also provided a low- and high-growth scenario. The high-growth scenario starts with a baseline year of 2008 and reflects pre-recession demand levels. The low-growth scenario is described (EID 2013, p. 243) as follows:

> The low growth scenario was developed in consultation with District staff and considers the recent economic downturn and the impact on development in the District's service area. This lower growth scenario starts with the 2012 maximum day demand and was developed with the expectation that growth throughout the service area will be slow for two to three more years while the economy continues to recover. Then growth will ramp up in the El Dorado Hills Region as already planned and approved developments build out. Following that, the growth rate in the El Dorado Hills Region will decrease as the remaining land may be more difficult to develop (e.g., further away from the urban area and existing infrastructure). Growth in the Western Region is expected to increase in the coming years as new developments are planned, approved and constructed south of the Highway 50 corridor initially and then throughout the Western Region. Growth in the Eastern Region is expected to remain low throughout the planning period.

Projected future water demand for the entire EID Service Area is presented in **Table 2-5** for both the low-growth and high-growth scenarios. These are current projections, which may be revisited in the future as significant growth occurs.

Table 2-5 Projected Water Demand within EID Service Area

Year	*Total Water Demand (AFY)*	
	Low Growth Scenario	*High Growth Scenario*
2015	43,398	48,863
2020	45,639	52,092
2025	50,345	59,465
2030	55,136	68,375
2035	61,262	77,315
Build-Out	88,144	88,144
SOURCE: EID (2013), Table 9-1		

Note: The baseline year for the high-growth scenario is 2008 (pre-recession) and for 2012 (post- recession) for the low-growth scenario. Build-out demand is the same for both scenarios.

2.3 RECENT WATER PURVEYOR TRENDS

All the purveyors in the County experienced similar water use trends influenced by economic conditions and dry year connections.

2.3.1 El Dorado Irrigation District

As demonstrated in **Figure 2-1**, EID's service area population and number of accounts have risen

steadily over the last two decades, with a slight reduction in the population growth rate in more recent years during the severe economic recession from 2008-2011. The early 2000's drought does not seem to have affected water supply delivered; however, the dry year water conditions from 2007-2009 and 2011-2012 economic recession did combine to markedly reduce water supplied. Chart values and trends are not weather normalized. It is important to note the reduction in water production also can be attributed to conservation activities by EID.

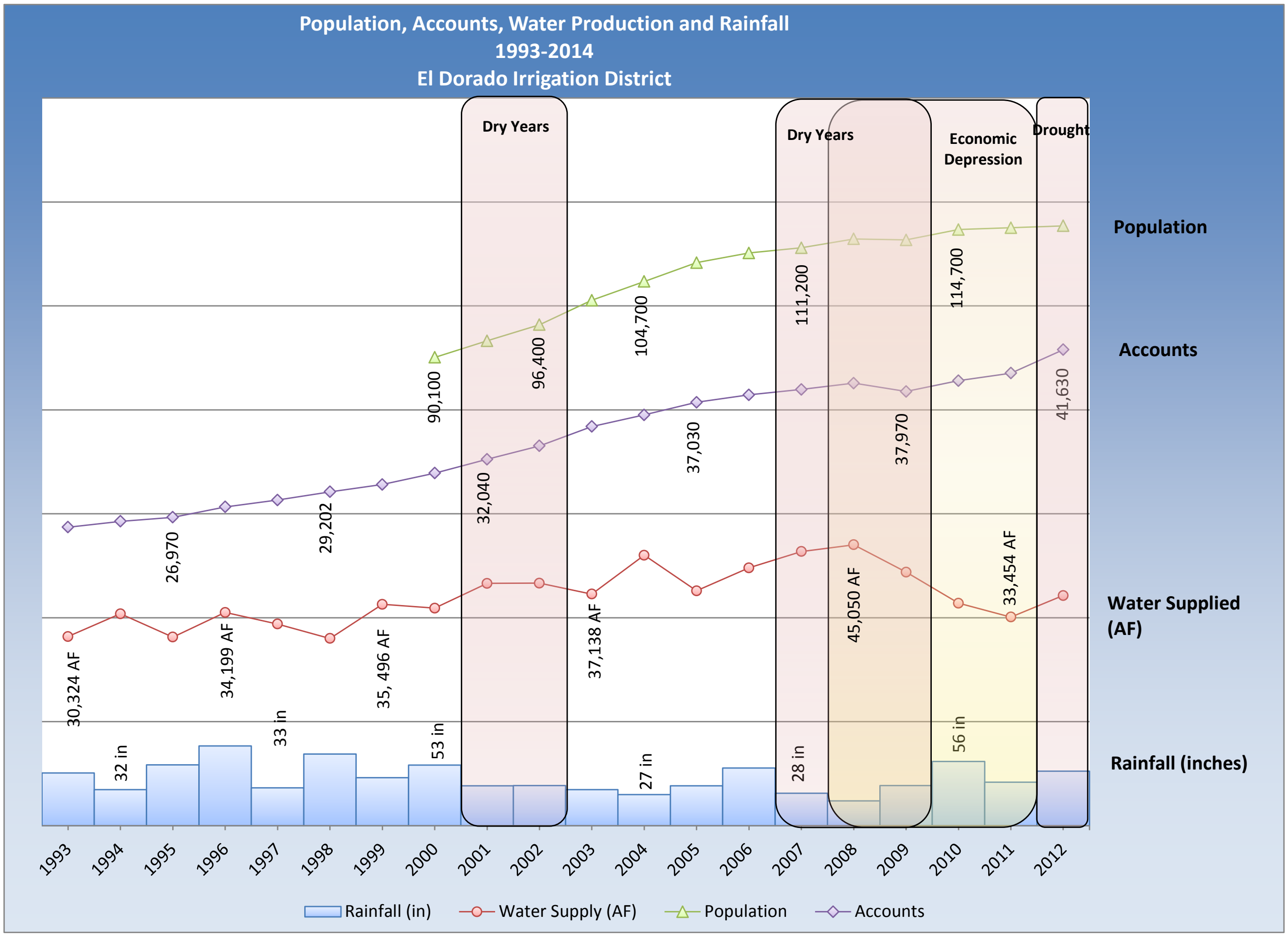

Figure 2-1 El Dorado Irrigation District Historical Water Use Trends

Source: EID (1999,2008, 2013) Comprehensive Annual Financial Report
EID (1993-2012) Diversion Reports
a. Water supplied/diverted includes agricultural demand connected to the potable water system

2.3.2 Georgetown Divide Public Utility District

As shown in **Figure 2-2**, GDPUD's service area population and number of accounts have risen steadily over the last two decades, with a slight reduction in the population growth rate in more recent years during the economic recession from 2008-2011 similar to EID's service area. The early 2000's drought does not seem to have affected water production. However, the dry year water conditions from 2007-2009 and the recent economic recession did combine to markedly reduce water production. Chart values and trends are not normalized for weather. It is important to note the reduction in water production also can be attributed to conservation activities in the GDPUD service area.

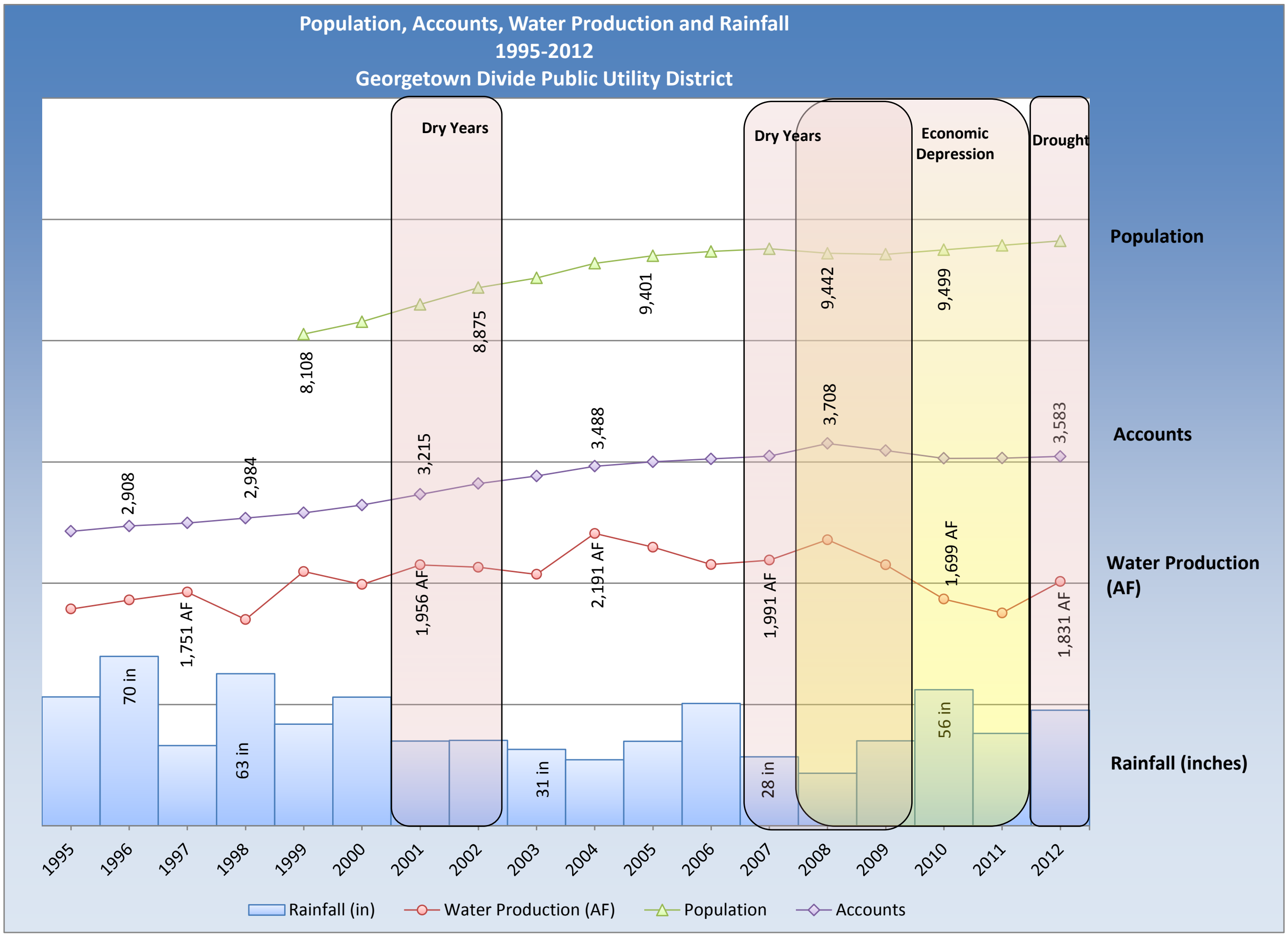

Figure 2-2 Georgetown Divide Public Utility District Historical Water Use Trends
SOURCE: GDPUD Water Supply and Demand Summaries

2.4 CHANGES IN LAND USE

The 2007 WRDMP based urban water demand estimates upon allowable land uses in the West Slope in accordance with the 2004 General Plan. Water demand estimates for the 2007 WRDMP/2004 General Plan were based on the projected number of 2004 General Plan residential dwelling units and employee projections (which were derived from the projected increase in residential population, using the region's current jobs/housing ratio). Additional potential water demand associated with the FAR General Plan Amendment was also included. Changes in land use that increase the number of dwelling units and/or the number of employees would increase water demand.

2.4.1 Economic Activity

According to the 2004 General Plan and 2007 FAR General Plan Amendment, more economic growth as a percentage of residential growth is possible under buildout conditions. In **Table 2-6**, 2004 General Plan West Slope housing and employment projections are provided for 1999, 2010 (estimated) and buildout. **Figure 2-3** presents the data in terms of percentage of households and jobs.

Table 2-6 West Slope General Plan Housing and Employee/Jobs Projections (acre-feet)		
	Households	***Employees/Jobs***
2004 General Plan Baseline Condition (1999)	42,579	30,434
2010	64,209	37,027
Buildout - 2004 General Plan	117,262	117,122
SOURCE: EDC (2004) Appendix E bae (2013) Page 4 SACOG (2012)		

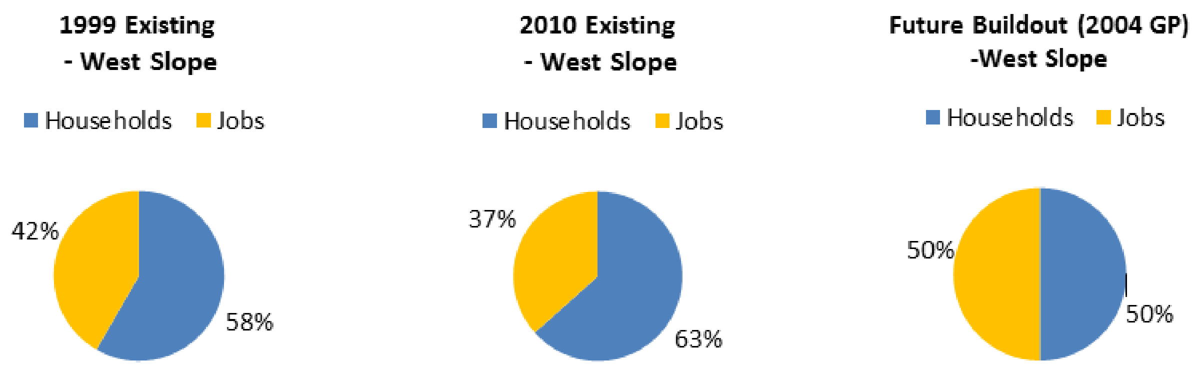

Figure 2-3 West Slope Baseline, 2010, and Buildout Households versus Jobs

In 2007, the County adopted an increase in the allowable floor-area ratio (FAR) for commercial and industrial uses from 0.25 to 0.85, and for research and development (R&D) uses from 0.25 to 0.50. FAR expresses the maximum allowable square footage of development as a percentage of lot size and thereby regulates the size (in square feet) of such development within the unincorporated portions of the County. The adopted increase in the FAR allows an increase in the size of commercial, industrial and R&D buildings than was previously allowed under the 2004 General Plan. With the potential for larger commercial, industrial and R&D buildings, future commercial development (or redevelopment) could result in more employees in the County, which would result in additional water demand.

The December, 2006 Final Environmental Impact Report (State Clearinghouse #2006052029) for the General Plan FAR Amendment (#A06-0002) estimated that an additional 13,869 acre-feet of water demand would result from the amendment under buildout conditions, within the EID and GDPUD Service Areas. Accordingly, water demands need to be adjusted to account for the subsequent increase in the FAR. **Table 2-7** is from the FAR Amendment Draft Supplemental Environmental Impact Report. **Figure 2-4** presents the data in terms of percentage of households and jobs.

The FAR General Plan Amendment more than doubles the jobs projection for the County from approximately one job to two jobs per household. This ratio is higher than surrounding communities and may not be fully achieved in the County. The unit water demand of 0.108 acre-feet per job/employee in Table 2-7 for the FAR General Plan Amendment is derived from the total water demand divided by the number of jobs from the 2004 General Plan. The total demand from the 2004 General Plan was calculated with differential unit demand factors as high as 0.22 acre-feet in the western down slope areas of EID and as low as 0.07 in the eastern upslope areas of EID. For the GDPUD Service Area, 0.18 acre-feet per job/employee was used. It is likely a majority of the higher density commercial development contemplated under the FAR General Plan Amendment will occur in the western portion of the County where unit demand is much higher than 0.108 acre-feet per employee used to calculate demand for the FAR General Plan Amendment. Although the number of jobs contemplated under the FAR General Plan might be ambitious, because low unit water demand factors were used in calculating total demand, the full amount of potential water demand identified is included in this update.

Table 2-7 West Slope Floor Area Ratio General Plan Amendment Potential Employees and Water Demand (acre-feet)

	2004 General Plan	*Water to Employee Ratio*	*General Plan FAR Amendment*
Total Employees	117,122	0.108 acre-ft/yr/employee	245,543
Total Employee Water Demand	12,649		26,518

SOURCE: EDC (2006b) Table 5.4-5

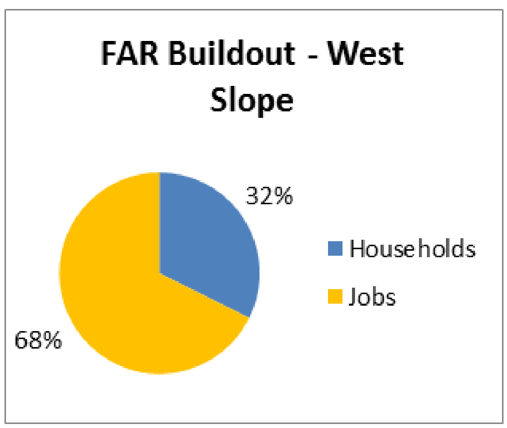

Figure 2-4 West Slope Buildout w/ FAR General Plan Amendment Households versus Jobs

The El Dorado County Planning Commission in approving the FAR General Plan Amendment Supplemental Environmental Impact Report cited the following benefits of the amendment:

- Local retention of sales tax revenue;
- FAR levels more in keeping with surrounding jurisdictions will allow the County to compete for regional employment centers;

- Increased revenue from increased property values;
- Promotes infill/compact development together with mixed use that include more transit choices; and
- Supports a jobs/housing balance and diversifies the County economic base.

2.4.2 Targeted General Plan Amendment

The County is currently working on a Targeted General Plan Update (or Targeted Update), which is proposed to include minor revisions to the land use map and General Plan policies, which are proposed to meet the following goals and objectives (El Dorado County 2013c):

a. Increases employment opportunities within El Dorado County;

b. Promotes the development of housing affordable to moderate income households;

c. Provides additional opportunities to retain retail sales and sales tax revenues within El Dorado County;

d. Protects and enhances the agricultural and natural resource industries; and

e. Is necessary to comply with changes in State or federal law.

On November 14, 2011, the County Board of Supervisors adopted a Resolution of Intention (ROI 182-2011) for a Targeted General Plan Amendment that identifies potential revisions to the General Plan, including:

- Amending Policy 2.1.1.3 to consider increasing the allowable residential density and increasing residential use as part of a mixed-use development from 16 units per acre to 20 units per acre to achieve CEQA streamlining benefits.
- Consider amending General Plan Table 2-1 and Policy 2.2.1.2 for Commercial and Industrial to allow for commercial and industrial uses in the Rural Regions.
- Consider increasing density for multifamily housing from 24 to 30 units per acre (to comply with California Government Code section 65583.2(c)(iv) and (e).

Although the Targeted Update is still a proposal, the increase in residential density for mixed use developments and multifamily housing could increase water demand associated with those uses. However, for purposes of this analysis, no increase in water demand is included for those proposed elements of the Targeted Update.

The Targeted Update is also proposed to include 21 separate amendments which have been identified (El Dorado County 2012) as promoting agricultural uses in the County, including the expansion of Agriculture District boundaries for Garden Valley-Georgetown, Coloma, Camino-Fruitridge, Gold Hill, Oak Hill, Pleasant Valley, and Fair Play-Somerset, as shown on **Figure 2-5** (Potential Expansion of El Dorado County Agricultural Districts).

Agri-tourism has continued to grow in the County over the past three decades. For example:

Apple Hill, a successful apple growers' organization located in El Dorado County, was formed over 36 years ago. It was motivated by the search for a sustainable economic use of the land, but its proximate stimulus was a visit to Oak Glen in Southern California by one of the growers, Gene Bolster. The concept of combining tourism and direct marketing was introduced. Bethell, Bolster and Ed Delfino (former El Dorado County Agricultural Commissioner) worked assiduously to promote the new marketing concept and to develop the organization…. The Apple Hill Growers Association has grown from the original 16 ranches to about 45 currently [2012], if we include Christmas tree growers and vineyards. (Source: Department of Agricultural Economics, University of California, Davis; University of California Cooperative Extension Yolo County, 2012)

Figure 2-5 Potential Expansion of El Dorado County Agricultural Districts

The importance of Agricultural Districts to the County is explained in Policy 8.1.1.1 of the 2004 General Plan:

> Agricultural Districts are intended to be created and maintained for the purposes of conserving, protecting, and encouraging the agricultural use of important agricultural lands and associated activities throughout the County; maintaining viable agricultural-based communities; and encouraging the expansion of agricultural activities and production.

In addition to many existing policies that are protective of agricultural uses, the proposal to expand Agricultural Districts underscores the County's intent to support and enhance agricultural uses, which could contribute to increased water demand from agricultural land uses. Section 3.4 provides a detailed discussion of agriculture in the County.

2.4.3 General Plan Amendments

Updates to this 2014 Report will reflect all future approved land use developments. .

2.5 MODIFICATION OF SERVICE AREA BOUNDARIES

The 2007 WRDMP purveyor water demand projections were based on purveyor Service Area boundaries that existed in 1999, which was the baseline year for the 2004 General Plan. Since 1999, the El Dorado County Local Agency Formation Commission (LAFCO) has approved 40 annexations to water purveyor's Service Areas to provide water service to an area of approximately 5,000 acres with approximately 2,900 equivalent dwelling units (EDU) (based on currently allowed land uses). A majority of these annexations have occurred in the El Dorado Hills area within the EID Service Area. Assuming the current EDU demand in El Dorado Hills of 0.77 acre-feet per EDU (EID 2013b), these annexations could generate as much as 2,200 acre-feet of demand. These annexations occurred in the Favorable Areas of the OCA. All but one of the annexations has been into the EID Service Area. A list of completed annexations with associated acreage, equivalent dwelling units and proposed land uses is provided in Appendix A to this Report.

2.6 HISTORIC GROWTH AND RECENT GROWTH PROJECTIONS

To identify an appropriate growth rate to estimate future water demand, recent growth rate projections from several sources have been reviewed and are summarized in Table 2-9. These forecasts illustrate the variability in available growth rate projections, the different time periods used for the various forecasts, and the different areas covered (Countywide, purveyor Service Area, and West Slope only). In addition, the growth rates in **Table 2-8** reflect a general decline from projections made in the previous decade (not included in the table), which reflect the national economic downturn that began in 2008. Historic 2000-2010 growth rates for areas with public water supplies (e.g. EID, GDPUD, and GFCSD) are greater than the County as a whole. Growth rates have been even higher for areas with close access to Highway 50 such as the EID Service Area. This trend is expected to continue and is reflected in the future growth rates used by the water purveyors in their planning documents.

Table 2-8 Comparison of Recent Growth Projections for El Dorado County or West Slope

Year	Title	2000–2010[a]	2015	2020	2025	2030	2035
2011	EID 2010 Urban Water Management Plan[b,d]	2.44%	0.40%	1.71%	1.57%	1.55%	
2011	GDPUD 2010 Urban Water Management Plan[b]	1.8%		1.97%		1.65%	
2012	GFCSD Water Supply and Demand Update[b,c]	2.63%	2.7%	2.68%	2.25%	2.03%	1.48%
2013	State of California Department of Finance (County-wide)						1.28%
2013	EID Integrated Water Resources Master Plan[b]	2.44%[d]	0.63%	1.29%	2.68%	2.83%	2.49
2013	2013 El Dorado County Housing Element Update (County-wide)	1.34%		1.16%	1.65%		
2013	El Dorado County Targeted Update (West Slope)	2.09%[e]					1.03%

SOURCES: bae urban economics (2013), Table 2;
EID (2011), derived from Tables 3-1 to 3-5 and Tracey Eden-Bishop, personal communication with S. Fraser (February 27, 2012);
EID (2013), forecasted growth for the entire EID service region derived from Table 9 in Appendix C;
El Dorado County (2013), Table HO-2;
GDPUD (2011), derived from Table 5;
GFCSD (2012), Table 2 and Figure 2;
CDOF (2013).

a. Estimates of historical growth included for comparative purposes where available.
b. Growth within the purveyor's Service Area.
c. Growth projection data from 1998 Borcalli and Associates report, not updated in 2012 report.
d. Based on EID data worksheets used for GPCD development (supplemented with data for 2006 to 2010) and Tracey Eden-Bishop personal communication with S. Fraser (February 27, 2012).
e. West slope growth estimate from BAE worksheets, per Tracey Eden-Bishop, personal communication with N. Porter with El Dorado County (November 25, 2013).

For the 2013 Targeted Update, growth projections to 2035 were developed by bae urban economics, which considered three potential growth rates from 2010 to 2035: *(a)* 1.28%, based on a projection from the California Department of Finance (DOF), *(b)* 0.72%, based on a projection of growth in households from the Sacramento Area Council of Governments (SACOG) (not included in Table 2-8); and *(c)* 1.03%, based on an analysis of the historic growth rate of West Slope households prepared for the County's 5-year update as required by the General Plan. The rate of 1.03% is proposed to be used for the Targeted Update, which will only include land use changes for the West Slope area. In recommending this rate, it was noted:

> As this estimate falls in the middle of the range between the DOF and SACOG residential growth rates, this growth trend has been deemed a reasonable basis to project residential growth through 2035. [bae urban economics 2013, p. 5]

Although the growth rates used in County-wide planning documents and those used in water planning reports vary considerably, the differences are consistent with historical trends. For example, in the GDPUD Service Area, average annual growth was approximately 3.1% from 1990 to 2000 (GDPUD 2011, p. 11) and 1.8% from 2000 to 2010 (per the 2010 UWMP), while a growth rate of 2.5% was reported for the EID Service Area between 1988 and 1999 (EID 2006, p. 3-2) and 2.44% from 2000 to 2010 (refer to Table 2-8). This trend (of differential growth rates) is expected to continue, as growth will likely continue to be concentrated in more urbanized areas of the County due to the availability of commercial and utility services and ongoing improvements to the street and highway network. As noted in the EID 2013 IWRMP:

> [It] is expected that the average growth rate within the District's service area will be higher [than the Countywide rate in the 2008 Housing Element Update], particularly in the El Dorado Hills and Cameron Park areas, due to their proximity to Sacramento, as well as the population density and availability of water when compared to other, more remote areas in the County. [EID 2013, p. 93]

A more detailed discussion of the growth rates used for each purveyor and its Service Area is provided in Section 3.1.2.

2.7 CLIMATE CHANGE

In the past decade, the subject of climate change continues to be a source of much discussion for the water community in California, due to the potential implications for changes in hydrologic conditions, considerable uncertainty about how to identify specific impacts to the West Slope of the County or the Mountain Counties region, and the feasibility of strategies to mitigate any such effects. Despite the inherent uncertainty in projecting water supply conditions several decades in advance, it has become increasingly clear that water resource planning can no longer solely rely on calculated estimates of average or "normal" weather conditions from the past century.

Given the long range nature of this analysis, it is prudent to consider options that assure the water resource management systems that serve the West Slope are more resilient to extreme weather conditions and can provide sufficient water to serve the land uses identified in the adopted General Plan. As many long range climate predictions suggest an increased potential for more extreme weather events in this century, this analysis addresses the potential that more extreme or prolonged drought conditions will occur during the time period until buildout conditions would be realized on the West Slope.

In 2008, with respect to the generalized impacts of climate change on water demand, the California Natural Resources Agency (CNRA) and the California Department of Water Resources (DWR) concluded:

> *Warmer temperatures will likely increase evapotranspiration rates and extend growing seasons, thereby increasing the amount of water that is needed for the irrigation of many crops, urban landscaping and environmental water needs. Reduced soil moisture and surface flows will disproportionately affect the environment and other water users that rely only on annual rainfall such as non-irrigated agriculture, livestock grazing on non-irrigated rangeland and recreation. [CNRA and DWR 2008, p. 5]*

In 2013, with respect to the potential impacts of climate change on the hydrologic cycle in the Mountain Counties, the Draft 2013 Update of the California Water Plan suggests:

> *Projected warmer temperatures are likely to contribute to changes in the hydrologic cycle. Potential changes include reduced snow accumulation, higher snow elevations,*

> *change in runoff timing, more frequent rain-on-snow events, more frequent and higher peak flows, and lower summer stream flows and groundwater levels. [DWR 2013, p. MC-2]*

To address the potential effects of climate change, in the Mountain Counties Regional Report (and elsewhere in the 2013 draft update of the California Water Plan), DWR suggests that Integrated Regional Water Management (IRWM) planning:

> *…is a framework that allows water managers to address climate change on a smaller, more regional scale… IRWM regions must identify and prioritize their specific vulnerabilities, and identify adaptation strategies that are most appropriate for sub-regions. Planning strategies to address vulnerabilities and adaptation to climate change should be both proactive and flexible, starting with proven strategies that address the region today, and adding new strategies that will be resilient to the uncertainty of climate change. [DWR 2013, p. MC-36]*

Development of the Cosumnes, American, Bear and Yuba (CABY) Integrated Regional Water Management Plan (IRWMP) has provided, and likely will continue to provide, many benefits to the West Slope from the identification and implementation of strategies and multipurpose projects that can make the region more resilient to climate extremes. However, the CABY region shares many similar attributes, including geologic conditions that provide only limited opportunities for groundwater storage. As a result, the West Slope and the Mountain Counties have little opportunity to improve water supply reliability via conjunctive use programs directly within their regions, although several IRWM regions in the Sacramento River Valley have significant groundwater storage opportunities. To expand the benefits of IRWM planning, it may be necessary to seek inter-regional solutions that reach outside of the existing IRWM planning boundaries to enhance supply reliability. Further, although it is clear that the CABY IRWMP provides many useful examples of multi-benefit approaches to water supply enhancements, EDCWA has the continuing obligation to conduct long range water supply planning for the County as envisioned by its legislative Act.

As noted above, many predictions are possible that suggest shifts in hydrologic conditions during the planning horizon for this analysis. The combination of rising temperatures, a smaller snowpack, and more frequent and potentially longer droughts could reduce the availability of both surface and groundwater supplies, as more water runs off or evaporates and less infiltrates into the ground. Reduced infiltration could reduce the reliability of groundwater wells drilled in fractured rock, which are common on the West Slope.

Current systems will likely be impacted by the loss of natural snowpack storage and the resultant changes in runoff timing. The need to preserve flood storage space in multipurpose reservoirs could limit the availability of storage for water supply purposes, as variable weather patterns could make reservoir management more difficult, and in some years, such as in 2014 with challenges by USBR to provide full contract deliveries to EID, the result is and will continue to be insufficient storage to meet projected demands in dry years. If groundwater wells become less reliable, requests for annexations into the Service Areas could increase, which would make the West Slope even more dependent on surface storage.

These conditions suggest the potential for adverse impacts to water supply reliability on the West Slope over the long term. The potential combination of (1) increased water demand, (2) changes in runoff patterns, (3) reduced availability of both surface and groundwater supplies, and (4) increased frequency of drought conditions, could require major adjustments in the conservation and management of water supplies in what could become a more extreme mix of wetter and drier water years.

The concept that future weather conditions could be more extreme must be tempered with the knowledge that even over the past century "normal" years are rare: variability in weather has always been the norm. Although planning for an average year will always be part of the task, more serious extremes must also be addressed to identify available options.

As suggested in the Mountain Counties Regional Report:

> Enough data exists currently to warrant the importance of contingency plans, mitigation (reduction) of [Greenhouse Gas] emissions, and incorporating adaptation strategies, methodologies and infrastructure improvements that benefit the region at present and into the future... Resilience to an uncertain future can be achieved by implementing adaptation measures sooner rather than later. [DWR 2013, p. MC-33]

A discussion of more specific impacts of Climate Change on water supplies is provided in Section 6.1.2, including an assumed reduction in surface water supplies and increased demands due to prolonged drought conditions.

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Chapter 3. Assumptions for Water Demand Projections

The foundation of EDCWA planning for sufficient water supplies to serve future growth in the County is based on adequate supplies and infrastructure. The basis for determining the amount of needed supplies relies on a detailed forecast of future water demand. This chapter describes the water demand projections based on four main elements:

- housing and jobs/employment forecasts for the Western Slope developed by the County of El Dorado for its 2004 General Plan and disaggregated by purveyor service area;
- reallocation of projected housing growth from portions of the OCA to adjacent water purveyors;
- application of per capita water use factors (EID and GDPUD) with adjustments for increased commercial activity and household water demand factors; and
- estimates of agricultural land use and crop water use.

Chapter 4 presents the water demand projections based on the assumptions outlined in this chapter.

3.1 HOUSING AND EMPLOYMENT FORECASTS

Urban water demand is typically based on estimates of current and projected future residential households and employment. Based on census data, the average number of persons in a household can be identified and used to convert housing units into a corresponding population estimate. These numbers are used here to project future water demand.

As discussed above, SB X7-7 set an overall goal of reducing statewide per capita urban water use by 20% by December 31, 2020. To measure progress, the legislation requires that urban retail water suppliers determine their baseline per capita water use otherwise referred to as gallons per capita day (GPCD), develop water use reduction targets (which reflect conservation), and articulate a plan to meet those targets. EID and GDPUD are both subject to the requirements of SB X7-7, and their respective UWMPs identify baseline per capita water use and the associated reduction targets. Target GPCD is used to forecast water demand for Year 2020, and Target GPCD with adjustments for increased economic activity projected in the 2004 General Plan is used to project buildout demand. Adjustments are based on the ratio of urban water demand per household projected in the 2007 WRDMP/2004 General Plan (Appendix B) for the baseline year of the 2004 General Plan and Buildout. This approach captures urban water conservation required by the State by starting with Target GPCD while also accounting for changes in land use over time by adjusting for increased economic activity.

For the GFCSD water Service Area and the portions of OCA that are not considered Favorable Areas (and are unlikely to receive water from an urban water supplier in the future), residential water and commercial demand is based on a housing and employee/jobs unit demand factor, which does not include any reductions in water demand (as those areas are not subject to the requirements of SB X7-7).

The County has estimated both current and future households and jobs in the 2004 General Plan (and those projections were incorporated into the 2007 WRDMP and are included in Appendix B). As the forecast was used for the 2007 WRDMP, and as that forecast is not proposed to be substantially altered by the Targeted General Plan Amendment, the housing and jobs forecast from the 2004 General Plan is the basis for this analysis. Potential demands resulting from the FAR General Plan Amendment are also included as a separate component of the total water demand.

3.1.1 Identification of Potential Growth Rates for this Analysis

To estimate potential future water demand, typically a growth rate is applied to baseline conditions. Growth rate projections are available from several sources, including:

- Rates used in recent County planning documents
- Rates developed by the State of California Department of Finance
- Rates used in planning reports prepared by the major water purveyors

Alternatively, new growth rates can be developed for the purposes of this analysis.

El Dorado County Planning Documents

The 2013 Housing Element, which applies to the entire County, incorporated a variable growth rate, of 1.15% until 2020 and 1.68% for the period of 2020 to 2025. A growth rate of 1.03% for the West Slope is proposed to be used for the Targeted Update (EDC 2014), based on the historic trend of growth in the County.[1]

With respect to the proposed growth rate for the Targeted Update, bae urban economics noted:

> *… a number of issues… constrained the development pattern within the County during the first half of the 2000-2011 time period for which the historic trend data was analyzed. This included legal restrictions on development due to environmental issues relating to rare plant species. In addition, the alignment for the Diamond Springs Parkway was not resolved until 2011. [bae urban economics 2013, p. 7]*

In order to test for the possible effect of changes in the development pattern due to the lifting of these constraints, County staff provided bae urban economics with data on development application activity from 2006 through the early 2013, which indicated that:

> *… the trend [in development applications] since [2006] has shown even greater interest in developing within Market Areas 1 [El Dorado Hills] and 2 [Cameron Park/Shingle Springs] than indicated by the longer term historic trend. [bae urban economics 2013, p. 7]*

The population analysis included in the County General Plan 2013 Housing Element (adopted October 13, 2013) indicates that the countywide growth rate was 3.91% from 1990-2000, and 1.34% between 2000 and 2010 (refer to Table 2-8). In the GDPUD Service Area, the average annual growth was approximately 3.1% from 1990 to 2000 and 1.8% from 2000 to 2010 (GDPUD 2011, p. 11). Growth of 2.5% has been reported for the EID Service Area between 1988 and 1999 (EID 2006, p. 3-2) and 2.44% from 2000 to 2010 (refer to Table 2-8).

Given historical growth patterns, it is uncertain whether growth in the County will be limited to 1.03% annually until 2030. As portions of the County experience different rates of growth, with this growth

[1] Tracey Eden-Bishop, personal communication with N. Porter (November 25, 2013).

concentrated in those areas served by a major water purveyor particularly in the western portion of the County, the use of a single growth rate for the entire West Slope is not appropriate for this analysis, as this methodology would not capture the variability in water demand from different West Slope areas.

Differential growth rates can be derived by pro-rating future growth based on differences in historical growth patterns. For example, for the period of 2000 to 2010, an estimate of 2.09% for West Slope growth can be derived from census data (refer to Table 2-8), historically the EID and GDPUD growth rates of 2.44% and 1.8%, respectively were 17% higher and 14% lower than the West Slope rate. Thus, future growth rates for those service providers could be estimated by adjusting a West Slope growth rate proportionally, as presented in **Table 3-1**.

Table 3-1 Potential Residential Growth Rates Based on Proposed Targeted General Plan Update (West Slope)

	Through 2035
Projected West Slope Growth	1.03%
Pro-rated growth within EID Service Area[a]	1.21%
Pro-rated growth within GDPUD Service Area[b]	0.89%

SOURCE: EDC (2014) Targeted General Plan Amendment
a. Assuming growth within the EID Service Area is 17% higher than the west slope rate.
b. Assuming growth within the GDPUD Service Area is 14% lower than the West Slope rate.

State of California Department of Finance Projections

The State of California Department of Finance (DOF) periodically generates population forecasts that incorporate future growth rates. A recent forecast for El Dorado County was 1.28 % annual growth (refer to Table 2-8). Although this rate was considered for use in the County's Targeted Update, a lower rate of 1.03% was adopted by the County.

As noted above, a single growth rate will not capture historical variability in growth, which can be generated by pro-rating future growth based on historical differences in growth. Per Table 2-8, between 2000 and 2010 County-wide growth was 1.34%, while EID growth was 2.44% (approximately 82% higher) and GDPUD growth was 1.8% (approximately 34% higher). Therefore, based on this methodology, future growth rates for those service providers can be estimated by adjusting a County-wide growth rate proportionally. If future growth in water demand were based on the DOF population projection (of 1.28%), potential future growth rates for EID and GDPUD can be derived by increasing the DOF projection for countywide growth by 82% and 34%, respectively, as shown in **Table 3-2**.

Table 3-2 Potential Residential Growth Rates Based on Department of Finance Projections (County-wide)

	2030
Projected County-wide Growth	1.28%
Pro-rated growth within EID Service Area[a]	2.33%
Pro-rated growth within GDPUD Service Area[b]	1.72%

SOURCE: CDOF(2013)

a. Assuming growth within the EID Service Area is 82% higher than the County-wide rate.

b. Assuming growth within the GDPUD Service Area is 34% higher than the County-wide rate.

When compared to historical growth rates, the rates presented in Table 3-2 appear to be generally consistent. In the GDPUD Service Area, the average annual growth was approximately 3.1% from 1990 to 2000 (GDPUD 2011, p. 11) and 1.8% from 2000 to 2010 (per Table 2-8). For EID, a growth rate of 2.5% was reported between 1988 and 1999 (EID 2006, p. 3-2) and 2.44% from 2000 to 2010 (per Table 2-8). Despite the general consistency with historical growth patterns, given ongoing economic uncertainty, the growth rates presented in Table 2-8 for EID and GDPUD may be too high.

Growth rates used in recent water purveyor planning documents (included in Table 2-8) have ranged from 0.40% to 2.83% for EID, 1.69% to 1.97% for GDPUD, and 1.48% to 2.7% for GFCSD.

As noted above, a growth rate of 1.03% is substantially less than the historic rate of growth for EID's water Service Area and is also lower than the growth rates included in recent water planning reports prepared by EID. Further, the list of pending General Plan Amendments and Specific Plan applications presented in Table 2-7, which are all concentrated in the EID service region, suggests the potential for a sizeable increase in demand within EID's water Service Area. If all of the proposed development (in Table 2-7) were approved and built as planned, the number of residences in the EID Service Area could increase by 7,289 units. Assuming an average household size of 2.64 persons (United States Census Bureau n.d.), this represents an increase of 19,243 persons within the EID Service Area, or an approximate 17% increase above the estimated 2010 population of 110,000 (EID 2011, Table 2-2). For comparative purposes, a total of 4,185 residential units were permitted in the El Dorado Hills, Cameron Park/Shingle Springs, and Diamond Springs market areas from 2000–2011 (bae urban economics 2013, Appendix A).

As discussed above, the 2013 IWRMP included estimates of future water demand for both high-growth and low-growth scenarios (which were included in Table 2-5). **Table 3-3** adds the baseline (2008) for the high growth scenario so that the average growth rates used in the 2013 IWRMP can be calculated.

Table 3-3 Projected Growth in Water Demand within EID Service Area (acre-feet)

Year	*Total Water Demand (AFY)*	
	Low Growth Scenario	*High Growth Scenario* [a]
2008a		46,767
2015	43,398	48,863
2020	45,639	52,092
2025	50,345	59,465
2030	55,136	68,375
2035	61,262	77,315
Growth through 2030 [b]	**1.61%**	**1.74%**
Growth through 2035 [b]	**1.74%**	**1.88%**

SOURCE: EID (2013) IWRMP, Table 9-1.

a. Base year demand included per EID 2013 IWRMP, Table 4-6.

b. Growth rates are calculated averages based on reported projections

The high-growth scenario starts with a baseline year of 2008 and reflects pre-recession demand levels. The low-growth scenario starts with a lower single year demand in 2012, which reflects a similar reduction in water demand experienced by many water agencies during the economic downturn, as noted in Section 2.2.4. These growth rates are lower than used in previous EID planning reports (refer to Table 2-8) and appear to incorporate the effects of a slow economic recovery. The EID rates are consistent with the historic trend of differential growth for those areas where public water supplies are available.

3.1.2 Growth Rate Projections Utilized in this Update

For the purposes of this analysis, **Table 3-4** presents the growth rates adopted for a high-, medium-, and low-growth rate scenario for each of the purveyors and OCAs and is followed by a rationale for each.

Table 3-4 Residential Growth Rate Scenarios Adopted for 2014 Update

	Low	*Medium*	*High*
El Dorado Irrigation District [a]	1.21%	1.74%	2.33%
Georgetown Divide Public Utility District [a]	.89%	1.28%	1.72%
Grizzly Flat Community Services District [b]	N/A	1.03%	N/A
Other county Areas [b]	N/A	1.03%	N/A

a. Reference Table 3-1 and 3-2

b. Growth rate adopted by EDC for the Targeted General Plan Amendment

EID

The pro-rated growth rates for EID, with 1.21% derived from the Targeted Update (in Table 3-1) and 2.33% derived from the State of California DOF (in Table 3-2), are used in this analysis as the low and high range of growth that might occur within the EID water Service Area. For comparative purposes the midpoint of these two pro-rated rates would be 1.77%.

Table 3-3 provides growth rates (aggregated from supply region growth rates) for EID's IWRMP for low- and high-growth scenarios, which range from 1.61% to 1.88%, with a midpoint of 1.74% (essentially the same as the mid-point of the two pro-rated growth rates for EID noted in the previous paragraph). For comparative purposes, the rate of 1.74% is approximately 71% of the historic growth within the EID Service Area from 2000-2010. The rate of 1.74% is used in this analysis for a medium growth scenario for the EID water Service Area including those Favorable Areas reallocated to EID.

GDPUD

The pro-rated growth rates for GDPUD of 0.89% derived from the Targeted Update (in Table 3-1) and the growth rate of 1.72% derived from the State of California DOF projection (in Table 3-2) are used in this analysis to depict the high and low ranges of growth that might occur within the GDPUD Service Area.

To identify a medium growth rate, if future growth is approximately 71% of the previous decade's growth as it was for EID, and considering growth in the GDPUD Service Area was approximately 1.8% from 2000-2010 (refer to Table 2-8), then future growth in the GDPUD water Service Area would be approximately 1.28%. Therefore, the rate of 1.28% is used in this analysis to estimate a medium growth scenario for the GDPUD water Service Area, including those Favorable Areas reallocated to GDPUD.

GFCSD

Projected growth rates (averaging 2.23% through 2035) presented in Table 2-3 for GFCSD used in its 2012 Water Supply and Demand report are high considering an actual reduction in residential connections between 2009 and 2012. This reduction resulted from poor economic conditions and the community's relatively remote location (from Placerville and the Highway 50 Corridor). The Targeted Update West Slope growth rate of 1.03% therefore, is used in this analysis to project future water demand for GFCSD.

Other County Areas

The Targeted Update long term West Slope growth rate of 1.03% is used in this analysis to project future water demand for the OCA.

3.2 REALLOCATIONS OF PROJECTED GROWTH FROM OTHER COUNTY AREAS

The 2007 WRDMP addressed the water supply needs of the West Slope, including areas that are outside existing water service boundaries, collectively referred to as OCA, where water is typically supplied by individual property owners and small privately-owned water providers from wells and springs.

Many factors will determine whether or not municipal water service will be provided to portions of the OCA that have appropriate land use or zoning designations that allow for development. From a water utility perspective, these factors include water supply availability, proximity and physical conditions to connect to an existing system, facility requirements to extend service, potential for improvements to the existing system to accommodate the added demand, and the total cost of providing service, including both capital and operating costs.

The extension of water service from a public water purveyor occurs via an annexation and such annexations are conditioned by the establishment of a “sphere of influence” for the public agency by the appropriate Local Agency Formation Commission (LAFCO). The “sphere of influence” is defined as “a plan for the probable physical boundaries and the service area of a local government agency.”[2] Spheres of influence for public agencies within the County, including the major water purveyors, have been established by the El Dorado County LAFCO.

In the 2004 General Plan, using a GIS model, housing units and related water demand in the OCA were aggregated by Traffic Analysis Zones (TAZs) established for the traffic analysis for the Environmental Impact Report. Based on the assumption that the Service Area of the water purveyors would eventually expand to the “sphere of influence” for each agency, in the 2007 WRDMP, future water demand within portions of the OCA was reallocated to EID and GDPUD. These areas were identified as having “potential” for future annexation and were depicted on Figure 5.8 (of the 2007 WRDMP). Based on this reallocation of TAZs, the 2007 WRDMP identified the potential for up to 14,910 AFY in additional demand for EID and 2,162 AFY of additional demand for GDPUD. Of these amounts 11,040 AFY and 1,318 AFY for EID and GDPUD, respectively, were identified as being provided for by the purveyor at some time in the future. Note, the 2007 WRDMP estimates of reallocated water demand did not consider the vacancy rate, which was imbedded in the 2004 General Plan housing projections, nor did they account for system losses, and thus the projections in the 2007 WRDMP were somewhat understated.

For this update, an updated map of Favorable Areas has been developed (**Figure 3-1**). It depicts the ranges of aggregated water demand for each TAZ. TAZs with new demand of more than 250 AFY (at build-out) and “island areas” (currently unserved areas surrounded entirely by the water purveyor’s existing Service Area boundary) are considered favorable for future water service from EID or GDPUD. Note that only the aggregated demand from vacant lands was included, even though additional demand could occur on already developed lands (e.g., due to failing or low-producing groundwater wells). In addition, a few adjustments were made to eliminate TAZs in the “favorable” category due to the absence of proximate water distribution facilities. A few TAZs with aggregate demand of less than 250 AFY were added as Favorable Areas, based on proximity to Highway 50, completed annexations, and TAZs where at least a portion falls within a designated Community Region (in the 2004 General Plan). Figure 3-1 also depicts areas that have been annexed into the EID and GDPUD Service Areas since 1999 (the base year for the General Plan projections). **Table 3-5** presents the number of new households that fall within the TAZs for which water demand is reallocated to EID and GDPUD based on “Favorable Area” criteria discussed above.

[2] California Government Code §56076.

Table 3-5 New Households Reallocated from Other County Areas

Estimated New Households[a] in the OCA	*New Households Reallocated to EID*	*New Households Reallocated to GDPUD*	*New Households Remaining in the OCA*
21,432	13,152	1,746	6,534
SOURCE: EDC (2004) Appendix E and GIS Model analysis.			

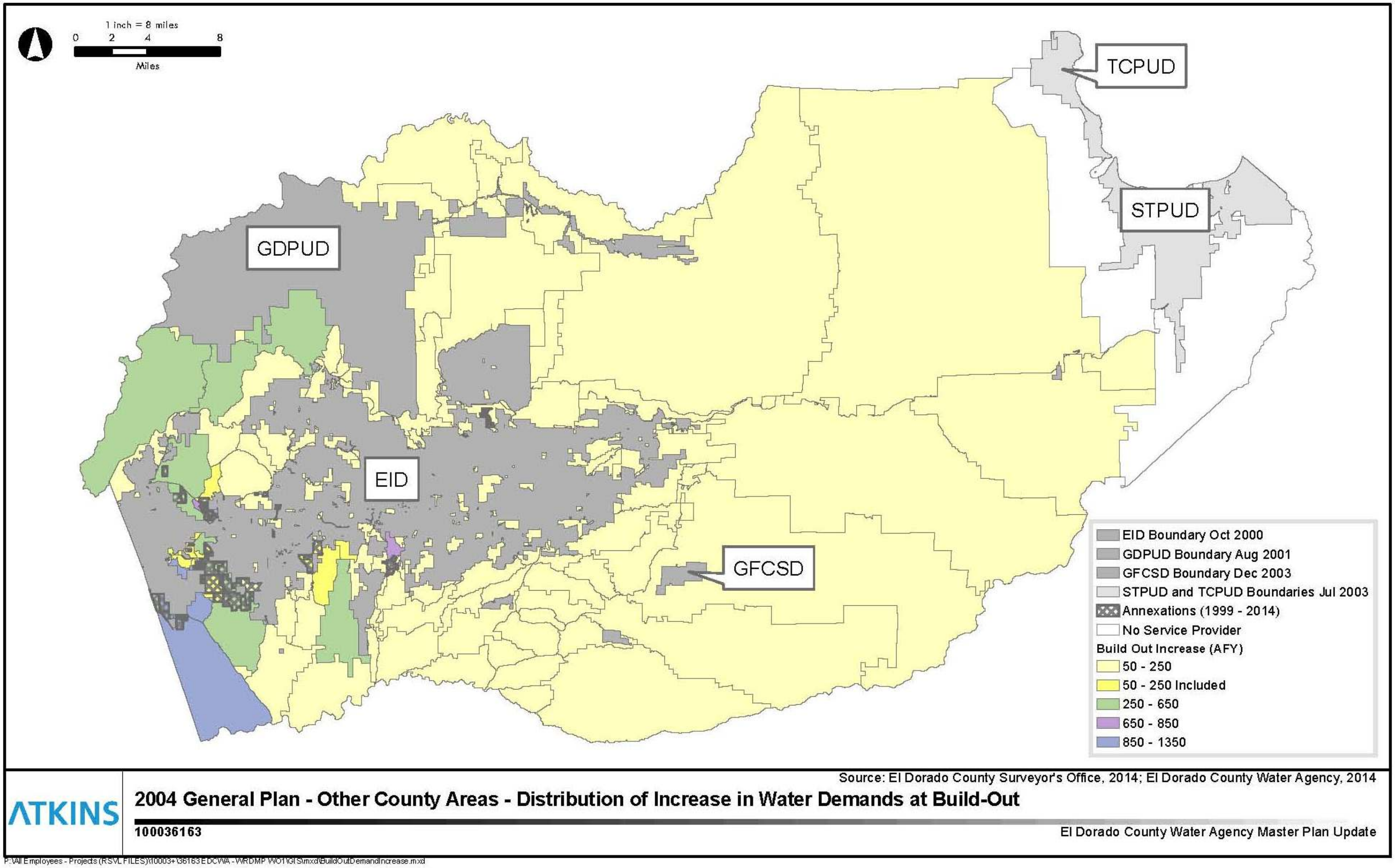


Figure 3-1 Update El Dorado County Favorable Areas

3.3 WATER DEMAND FACTORS

The water demand factors used in this analysis were based on data available from UWMPs, master plans and supplemental information from the water purveyors. In some cases, simplifying assumptions were made for purposes of this analysis and are detailed in the section for each purveyor. Purveyor specific water demand factors were used because each Service Area exhibits unique water demand and growth trends, thus making countywide water demand factors infeasible for use in this analysis.

General descriptions of the water demand categories included in this analysis are described below. The specific source and any variations from these general descriptions are noted below for the individual water purveyors.

Urban Demand: Urban demand is based on historic capita water use or GPCD determined in the 2010 UWMP for EID and GDPUD, and includes all residential, commercial and industrial water use. The capita water use factors identified in the respective UWMPs are applied to the population associated with the 2004 General Plan housing forecasts for each purveyor's Service Area and the Favorable Areas reallocated to the purveyors. Adjustments are made to the historic capita water demand factors to capture projected changes in land use (primarily increased economic activity) envisioned in the 2004 General Plan. This differs from the approach taken in the 2007 WRDMP where demand was calculated by applying residential and per-employee water demand factors to the number of households and employees projected to occur as a result of the 2004 General Plan.

For GFCSD, which is not an Urban Retail Water Supplier, household water use factors are used to estimate demand, consistent with the 2007 WRDMP.

Commercial, Office, and Industrial Demand: Unlike the 2007 WRDMP, separate commercial demand factors are not used for EID or GDPUD for this analysis. As described in the Urban Demand description above, commercial uses are captured in adjustments to the GPCD that are used to calculate urban demand. Adjustments are based on the ratio of urban water demand per household projected in the 2007 WRDMP/2004 General Plan (Appendix B) for the baseline year of the 2004 General Plan and for Buildout. This approach captures urban water conservation required by the State by starting with Target GPCD while also accounting for changes in land use over time by adjusting for increased economic activity. For GFCSD with few commercial uses within the Service Area, no demand factors for commercial uses are applied in this analysis. It is assumed that any demand associated with commercial activities is captured in residential demand. For OCA (not reallocated to the major water purveyors) employee unit demand factors are used, consistent with the 200 General Plan and 2007 WRDMP.

As discussed above, in 2007, the County adopted an increase in the allowable FAR for commercial and industrial uses from 0.25 to 0.85, and for R&D uses from 0.25 to 0.50. The adopted increase in the FAR allows an increase in the size of commercial, industrial and R&D buildings much greater than previously allowed under the 2004 General Plan. This could result in more employees in the County. As discussed in the FAR General Plan Final EIR, the projected increase in employees would generate additional water demand. The Final EIR for the General Plan Amendment A06-0002 (Dec 2006) indicates that:

> *… an additional 13,869 acre-feet of water demand at build out, occurring primarily within EID's service area, will result from the amendment.*

To the extent that water demand projections are based on the 2004 General Plan (without the 2007 FAR amendment), those commercial demands are adjusted in this analysis to account for the allowable increase in the FAR.

Other Authorized Uses and System Losses: System losses are water that is taken into the system from a purveyor's main sources, but "lost" due to leakage or used for authorized purposes but not delivered to the consumers. Authorized purposes include treatment plant and pump station operations and maintenance and sewer line flushing. Additionally, system losses may also be a result of "apparent" losses due to metering or billing system inaccuracies.

Latent Demand: Latent demand includes inactive meters and uninstalled meters, which potentially can generate immediate water demand (EPS 2003). In the 2007 WRDMP, residential water demands (actual) were projected for households and then a water factor for latent demand was added. Because the 2004 General Plan residential growth forecast is based on households rather than total residential dwelling units, latent demand is based on a standard vacancy factor of 5% (which is widely used as a standard assumption for residential vacancies). A decrease in residential vacancy rates would result in an increase in water demand. Thus, latent demand, as reflected by vacancy rates and other system requirements, must be accounted for given the water service is already committed and necessary for inclusion within potential future demand estimates. Other contractual commitments and/or operational requirements are also discussed below in the purveyor-specific discussion.

3.4 AGRICULTURAL LAND USE AND CROP WATER USE

As part of the 2004 General Plan, preliminary estimates of future agricultural water demand were developed by Wood Rogers in 2003, based on mapping of all "Important Farmland" on the western slope below 3000 feet in elevation. The 2004 General Plan included an alternative estimate of agricultural demand developed by EPS, based on information provided by the water purveyors. The 2007 WRDMP included the results of a mapping exercise conducted by ECO:LOGIC that refined the extent of agricultural lands included in the preliminary analysis conducted by Wood Rogers in 2003. Agricultural water demand projections presented in the 2007 WRDMP were based on the land use capacity of "Choice Farmland," as defined by the 2004 General Plan. These are within and outside Agricultural Districts, on parcels greater than 10 acres with a 10% allowance for roads and buildings, and outside urbanized areas and designated "Community Regions". They include a crop mix and growth rate developed in consultation with the El Dorado County Agricultural Commissioner. Note that several hundred acres of new plantings were anticipated at that time but did not materialize during the recent economic downturn.

For this update, agricultural land uses are limited to parcels greater than 10 acres within the Agricultural Districts designated in the 2004 General Plan, but not including the expansion of those Districts proposed in the Targeted General Plan Update. The exclusion of parcels as small as 1 acre from this analysis likely understates the potential for agricultural land development in the County, as currently there is considerable agricultural activity on parcels smaller than 10 acres. In addition, to be conservative, agricultural growth rate projections from the 2007 WRDMP have been reduced by half for this analysis.

Agricultural land use projections for EID, GDPUD, and OCAs are presented in **Table 3-6**. A current inventory of agricultural land use is not available, therefore, the 2004 General Plan base year of 2000 (for agricultural land uses) is used as the starting point, consistent with the 2007 WRDMP.

Table 3-6 El Dorado County Historical and Projected Future Irrigated Agricultural Land Use[d]

Location	***2000***	***2030***	***2050***	***Build-Out***
	Area (acre)	***Area (acre)***	***Area (acre)***	***Area (acre)***
El Dorado Irrigation District[a]	2,371	3,171	4,271	7,696
Georgetown Divide Public Utility District[b]	1,195	1,948	2,624	3,413
OCA: Outside Purveyor's Boundaries[c]	1,260	1,773	2,634	10,903
Total	***4,826***	***6,892***	***9,528***	***22,012[d]***

SOURCE: EDCWA (2007).

Acreage represents irrigated agriculture.

a. Assumed growth rate of approximately 2% per year for 2010-2030 and 1.5 % per year for 2030-2050 for EID.
b. Assumed growth rate of approximately 2% per year for 2000-2030; 1.5% per year for 2030-2050 for GDPUD.
c. Assumed growth rate of approximately 1.5% per year for 2000-2030; 2% per year for 2030-2050 for OCA.
d. Build-out acreage from 2007 WRDMP, Table 4-7.

The irrigation water to support the projected growth in agriculture is based upon the application of water duties (or average water use values) by crop category as presented in **Table 3-7**. These water duties are composite values based on DWR data and local agricultural community experience on properties utilizing Irrigation Management Services (IMS), initiated in 1977, operated for growers by EID and EDCWA. The IMS programs apply irrigation efficiencies for centralized irrigation systems that use soil moisture probes to monitor and manage irrigation and minimize water use. Therefore, these duties already reflect the efficiencies of agricultural irrigation best management practices such as drip irrigation. The EID and EDCWA IMS programs are discussed in more detail in Chapter 5.

Table 3-7 Agricultural Water Duties

Crop Category	***Water Use***
Deciduous orchards[a]	2.8 acre-feet/acre
Vineyards, Christmas trees, olive/citrus, and berries [a]	1.3 acre-feet/acre
Pasture Irrigation[b]	N/A
Alfalfa (Reference Crop) [c]	4.6 acre-feet/acre

SOURCE: UCDavis (2009)

a. Composite values based on DWR data and local agriculture community experience

b. Assumes no new growth in the Pasture Irrigation category.

c. Alfalfa water use provided for reference only UCDavis (2009)

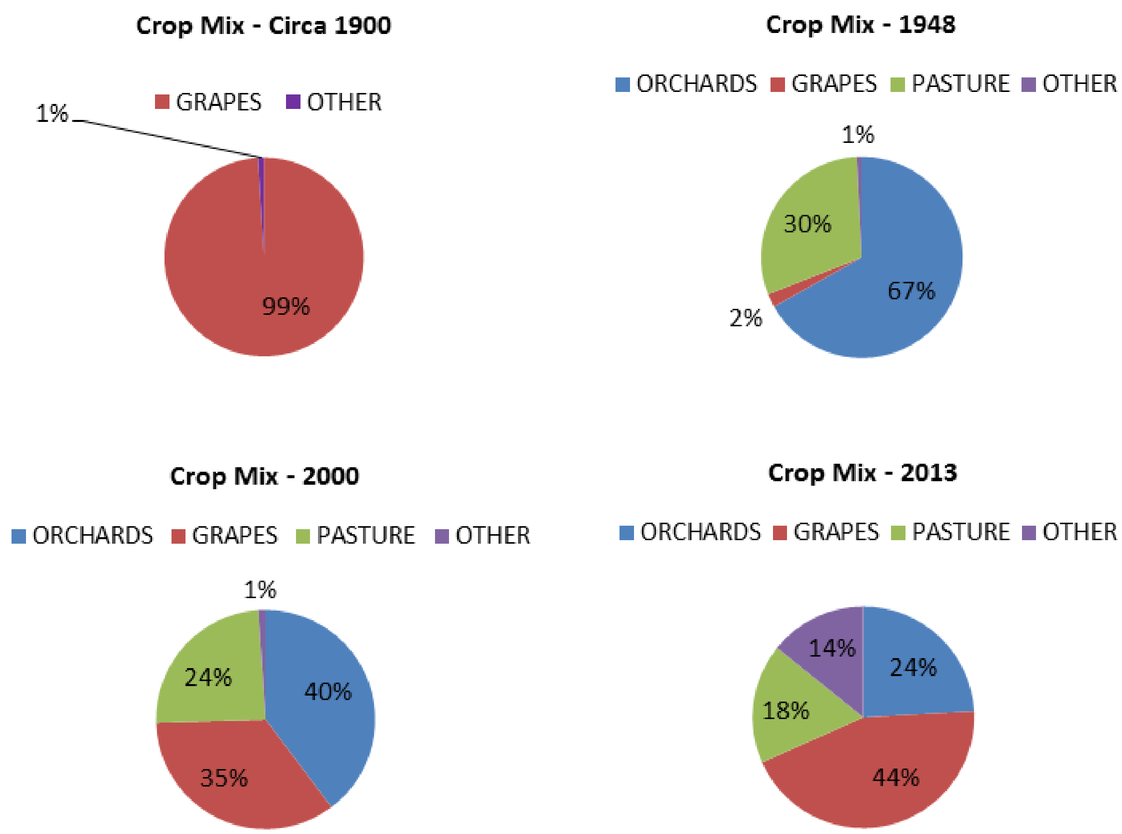
Agricultural land and water use in El Dorado County has varied over the last century based on crop mix, water availability, and irrigation efficiency. Cultivated acreage in El Dorado has been as high as 9,300 acres in 1975 and today there is approximately 5,300 acres under cultivation (up from 4,826 acres in 2000). The decline from 1975 is primarily a result of declining irrigated pasture.

Cropping patterns have been and continue to be dynamic in the County as supply and demand for certain crops and economic conditions change. For example, El Dorado County was a major grape growing center from 1849 to 1904, with production of 60,000 gallons of wine reported in 1890. But various events, including an economic depression in 1890, the Eighteenth Amendment to the US Constitution (which instituted Prohibition), the Great Depression, and a phylloxera pest invasion in the 1930's, drastically reduced vineyard acreage with only a single vineyard reported in 1936.

As grape production declined, growers in the County switched to other crops, most notably pears, with just under 5,000 acres of deciduous orchard reported under cultivation in 1948. Disease and extreme weather events, however, resulted in decline and/or loss of entire crops. For example, in 1958 the County produced approximately 52,000 tons of pears on 3,400 acres, but after pear blight swept through the County, production dropped to 8,500 tons by 1965 (Apple Hill® Growers Association 2013).

In 1964 the County Farm Advisory and Ag Commissioner met with local farmers to lay the groundwork for the formation of the Apple Hill Growers Association and the "ranch marketing" concept was born. The conversion of pear orchards to apple orchards and grapes has continued since then. In 2000, 451 acres of pears remained within the County, which further declined to 130 acres by 2010, while apple acreage remained essentially unchanged at about 840 acres. During the same period, grape production increased from 1,565 to 2,207 acres. However, a shift away from grapes may be underway as the effects of a new viral disease (red blotch) takes hold in the County. This outbreak could drastically reduce wine grape production, which in turn may result in a return to crops that require more water. These dynamics, unique to agriculture, make projecting future agricultural water demand challenging and warrant a conservative approach to ensuring there is adequate water for agriculture.

Figure 3-2 illustrates the change in countywide crop mix since the turn of the twentieth century. Year 2000 crop mix is included because it is the baseline year for the 2004 General Plan inventory of cultivated land by water purveyor service area and “Other County Areas” (OCA) which is the basis of this update.

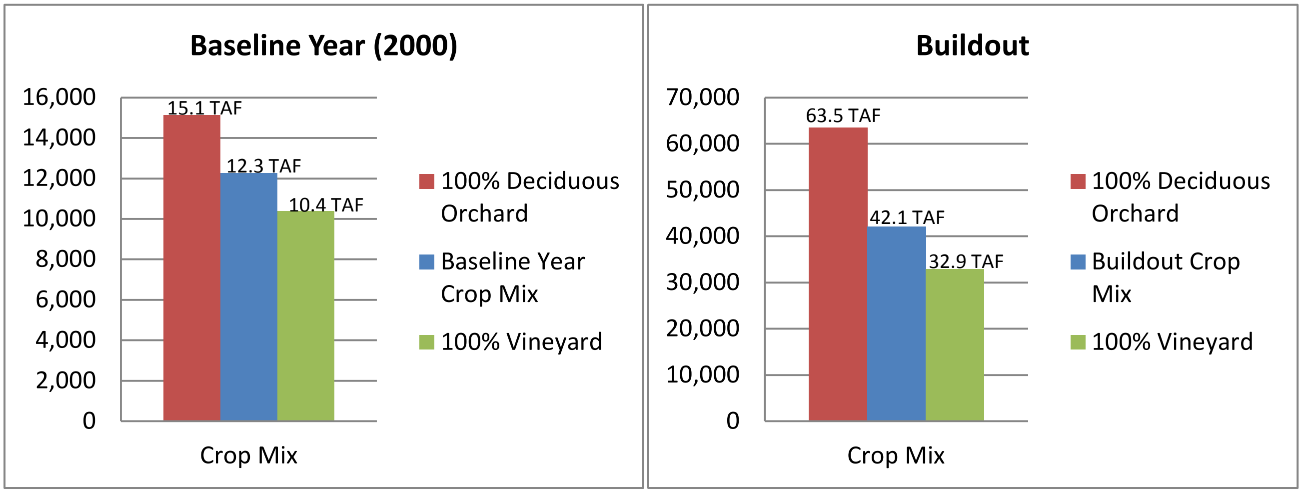


SOURCE: EDC (1948-2013) Agricultural Crop and Livestock Report
Costa (2010) A History of Wine Making in El Dorado County
USDI (2008)

Figure 3-2 El Dorado County Historical Crop Mix – Percent by Acreage

These dynamics make projecting future agricultural water demand challenging as water use varies widely by crop type. To demonstrate the effect of crop type on agricultural water requirements, Figure ES-5 presents three crop mix scenarios for acreage under cultivation in 2000 (baseline) and Buildout: 1) Year 2000 (baseline) crop mix; 2) 100% vineyard with no change in pasture irrigation; and 3) 100% deciduous orchard with no change in pasture irrigation. Water requirements are based on 1.3 acre-feet per acre for grapes, 2.8 acre-feet per acre for deciduous orchard, and no change in pasture irrigation total from the baseline year.

Assuming 100% grapes would tend to under estimate agricultural demand, and assuming 100% deciduous orchard would overestimate demand. From Figure 3-3, the Year 2000 (baseline) crop mix represents a balance between grapes with a lower water requirement and deciduous orchard with a higher water requirement. For this analysis the baseline year crop mix is assumed in projecting future agricultural water demand, except that acreage in pasture irrigation is assumed to stay constant. A similar analysis is presented in Chapter 5 for each area/purveyor.



SOURCE: EDC (2004) Appendix E (EPS 2003 and Wood Rogers 2003)
EDCWA (2007) Table 4-7

Note: Water requirement does not include system losses, which vary by area/purveyor.

Figure 3-3 Crop Mix Water Requirement for Baseline Year and Buildout

Adaptation to adverse conditions by agricultural producers in the County speaks to the region's favorable agricultural characteristics. This adaptability and the following factors contribute to the potential for expanded agricultural land uses in the County:

- General Plan policies are protective of agricultural operations in terms of adjacent compatible uses and allow ranch marketing activities by right
- The high cost of agricultural land elsewhere will make the County more attractive to producers
- Crop diversification in the "Apple Hill" area, including apples, cherries, wine grapes, peaches, nectarines, and Christmas trees fuel ranch marketing operations that draw more than 35,000 visitors to the County each year.
- Total crop production value in El Dorado County was $57 million in 2013, representing a 20% increase from 2012 and up from $53 million in 2000. (EDCDAWM, 2000/12/13).
- The Agricultural Commissioner estimates that agriculture and related activities contributed approximately $441 million to the County economy in 2013, of which ranch marketing and value-added products contributed about $222 million, up from $159 million in 2012 and the wine industry $179, up from $169 million in 2012 (EDCDAWM, 2013,2014)

For this analysis, the crop mix in 2000 (the base year for the 2007 WRDMP/2004 General Plan) for each purveyor's Service Area and the OCA is used to partially capture a potential shift back to more water intensive crops. Water use projections for each purveyor and OCA are discussed in Chapter 4.

Refer also to the 2007 WRDMP (including Section 4.5 and Table 4-7) for a more detailed discussion of the criteria used in determining the land areas considered within the Agricultural Districts and water duties used in this analysis.

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Chapter 4. Demand Projections

4.1 INTRODUCTION

As noted above in Section 2.1, recently the State of California has required that Urban Water Management Plans include an estimate of “baseline” water demand (reflecting average per capita demand over a recent five-year period), an estimate of the “target” water demand (calculated via 1 of 4 methods), and a water use reduction plan to demonstrate how the per capita target demand will be achieved. For the purposes of this update, demand associated with both the baseline and target GPCD factors are included in this analysis.

As the development of per capita water demand factors has become more common, these factors are an increasingly useful tool for planning and comparative purposes. However, the use of per capita demand factors has some limitations for long range planning. They do not capture future land use, or cover agricultural water use (which is relevant to the West Slope purveyors). Comparisons to older studies and reports are difficult because they do not include per capita residential demand factors. In addition, EDCWA has traditionally based demand projections on the number of households and employees, which is consistent with the adopted 2004 General Plan.

Given the widespread use of per capita demand factors (largely for just residential growth forecasts, but also for combined forecasts), this analysis estimates “urban” water demand (including residential, commercial and industrial uses for EID and GDPUD) based on both the 20x2020 baseline and target per capita factors developed by those agencies. For EID and GDPUD, the baseline and target factors are adjusted for use in this analysis to reflect conditions specific to each. For GFCSD and water demand in the OCA, per capita demand factors are not available and therefore this analysis relies on more traditional methods to estimate urban demand. There are advantages and disadvantages to this approach. As implementation proceeds statewide in response to SB X7-7, a more uniform technical approach may become more common. This methodology is expected to be revisited at the next update.

This update includes a range of growth projections (low, medium and high) for the major water purveyors and a single growth rate for OCA and GFCSD. For EID and GDPUD, because both the baseline and target per capita water demand factors are included for the figures that illustrate future water demand projections, “baseline” demand is illustrated only for the medium growth rate scenario for reference. Baseline demand assumes that per capita water demand is unchanged from the historical average reported in the respective UWMPs. The use of the target demand factors reflect an assumption that the reductions in demand embedded in those factors will be achieved by the respective water purveyors. The demand charts illustrate all three growth scenarios (low, medium, and high), and quantify projected demand only for the medium growth scenario. This reflects another conservative assumption that the high growth rates experienced in recent years in some areas (e.g., El Dorado Hills) are not sustainable over the long term. While growth rates tend to average out due to economic cycles, such recent dramatic changes in growth rates are largely unprecedented in the region. This is another subject that is expected to be revisited at the next update.

As discussed above in Section 3.4, agricultural water demand is based on projections of irrigated acreage by crop type and water duties for those crop types.

4.2 EL DORADO IRRIGATION DISTRICT

For the 2010 UWMP and 2013 IWRMP, EID developed water use factors for land uses included in the 2004 General Plan, based on historical water demand within EID's service zones (EID 2013, p. 87). Single-family residential land uses, including high-, medium-, and low-density, and rural residential, were assigned density factors which represent the average density for each land use category, respectively, as described in the 2004 General Plan. The water use factors were based on EID's design standard household unit use and reflected the different demands for each of the three supply regions (eastern, western, and El Dorado Hills) in the EID water Service Area, where demand varies due to differences in elevation, growing season, and the extent of irrigated landscaping in commercial land uses. For other land use types (e.g., commercial, industrial, and multifamily residential), data from EID's 2006 Consumption Report was used in combination with existing parcel data to generate use factors for each service region. Table 2-8 presents the results of the 2013 IWRMP projections for the entire EID Service Area for a low- and high-growth scenario (based on growth rates developed by EID for the 2013 IWRMP).

For the purposes of this update, urban per capita water demand factors developed in EID's 2010 UWMP are used to calculate total demand from all residential, commercial and industrial uses in the EID Service Area including demand from Favorable Areas. As a result of annexations to EID's Service Area between 1999 (the baseline year for the 2004 General Plan) and 2008 (the baseline year for the 2010 UWMP), a portion of demand from the “Favorable Areas” is reflected within EID's demand projections. The effect of the 2007 FAR General Plan Amendment, however, is not included in the EID projections. Note that this is not a defect in EID's UWMP or IWRMP. Unlike the long range planning nature of EDCWA's work, EID's water plans are used for a shorter-term 20- to 25-year planning horizon for capital and infrastructure development. These plans are updated regularly and capture changing land use conditions in a timely manner for those purposes.

EDCWA's planning for the water supply needed for the County must look beyond the 20- to 25-year planning horizon to the total build-out capacity of the 2004 General Plan that will develop over many decades. Because this analysis is a “big picture” look at water demand, the projections presented herein are for the EID water Service Area (including Favorable Areas) using aggregated growth rates (instead of different rate for each EID service region) as discussed Section 3.1.2 of this report.

4.2.1 Existing Urban Demand

Urban per capita water demand factors for the EID Service Area from the 2010 UWMP are presented in **Table 4-1**. Urban per capita water demand includes residential, commercial, industrial and commercial irrigation (turf irrigation), authorized uses and system losses, and is divided by a population estimate to derive per capita water use. Table 4-1 includes a baseline, mid-term 2015 (which is required to reflect a 10% decline in demand), and a 2020 target that reflects a 20% reduction (from the baseline) as required by SB x7-7, Method 1.

Table 4-1 El Dorado Irrigation District Baseline and Target per Capita Water Use Factors

Historic Baseline (GPCD)	*2015 Target (GPCD)*	*2020 Target (GPCD)*
281	253	225
SOURCE: EID (2011).		

Per Capita Demand Adjustments

The adopted 2004 General Plan will permit an increase in commercial land uses, in terms of both acreage and intensity, within the EID water Service Area. In addition, the 2004 General Plan will also allow an increase in housing in the more western portions of the County that will shift the concentration of population within the EID water Service Area from the higher elevation eastern region (where GPCD is the lowest) to the lower El Dorado Hills regions (where GPCD is the highest). While water use in the western portion of the County is more intense, the housing mix will also change over time to more multi-family housing as a percentage of total housing which negates any increase in demand. Based on a comparison of the base year and buildout 2004 General Plan's housing and employment/jobs projections and associated water demand projections (Appendix A) presented in **Table 4-2**, GPCD is projected to increase by approximately 8% by buildout.

Table 4-2 Projected Change in Urban Water Use per Household at Buildout (acre-feet)

Households/Type of Demand	*Baseline Year*	*Buildout*		
		Service Area	*Favorable area*	*Total*
Residential Household	28,811	72,075	13,152	85,227
Residential Demand	18,934	46,023	9,606	55,629
Commercial Demand	2,637	11,566	1,805	13,371
Total Demand	21,571	57,589	11,411	69,000
Water use per household (af/hh)				
Residential water use per household	0.66			0.65
Change due to demographic/housing mix changes				-0.68%
Residential and commercial water use per household	0.75			0.81
Total change due to demographic/housing mix and increased commercial activity				8.13%

SOURCE: EDC(2002) El Dorado County Land Use Forecast for Draft General Plan.
Note: Reference Appendix B for 2004 General Plan baseline and buildout water use. Water use does not include system losses or latent demand.

As noted above, for the 2010 UWMP, EID used all active residential accounts, with and without water usage, to determine the population within their water Service Area. Thus, the baseline gallons per capita per day demand factor presented in the UWMP does not account for a residential vacancy factor of approximately 5%. The result is an understated GPCD baseline. While not critical for EID's shorter term planning horizon, for EDCWA's long range planning purposes it is important to capture all factors that may affect future demand.

To generate updated water demand projections for EID using per capita water factors, the changes in land use patterns and residential vacancy rates must be considered when determining the ultimate need for water. Based on these factors the adjusted target demand factor for EID is 237 for the 2020 demand projection and 255 GPCD for buildout as shown in **Table 4-3**. The adjustment for increased economic activity is phased in over the planning horizon for each growth rate scenario. For comparison purposes and methodology validation later in this section, Baseline GPCD with the same adjustments as presented in **Table 4-3** is carried through this analysis.

Table 4-3 El Dorado Irrigation District Water Use Adjustments for Increased Economic Activity

	2010 UWMP GPCD	*Adjustment for Residential Vacancies*	*Adjusted GPCD for 2020 Projection*	*Adjustment for Increased Economic Activity*	*Adjusted GPCD for Buildout Projection (gpcd)*
Target	225	5.14%	237	8.13%	255

Note: Baseline GPCD would be 318 with these adjustments and is noted here for comparison purposes and methodology validation use.

4.2.2 EID Population Projection

Total urban demand for EID can be derived by multiplying the adjusted (per capita) water demand (from Table 4-3) by total residential population within the existing EID Service Area and the Favorable Areas reallocated to EID. Population estimates are derived from the number of households projected to result from buildout of the 2004 General Plan and 2.64 persons per household, as shown in **Table 4-4**. (Note for EID, an additional 500 households is included to account for a small area in Sacramento County that is within the EID Service Area). In addition a portion of the "Favorable Areas" shown in **Table 4-4** has already been annexed into EID's water Service Area. As discussed in Section 2.4 approximately 5,000 acres or 2,900 equivalent dwelling units (or household equivalents) have been annexed to EID since 1999. Although a portion of the demand from these annexations may already be reflected in current water demands, annexations do not affect total demand at buildout (based on the 2004 General Plan).

Table 4-4 El Dorado Irrigation District Buildout Population Projections

	Households[a]	*Capita/Household*[b]	*Population*
Service Area	72,508	2.64	191,421
Favorable Areas	13,152	2.64	34,721
Total	***85,660***	***2.64***	***226,142***

SOURCE: EDC (2002) County Land Use Forecast for Draft General Plan
USCB (2014) US Census Quick Facts

a. Households based on the adopted 2004 General Plan with 500 households added for Sacramento County area within EID service area. Households equal 95 percent of total dwelling units. The additional dwelling units water use is captured by applying a latent demand factor when calculating total demand.
b. Capita/Household based on US Census Bureau Quick Facts 2014, El Dorado County.

Figure 4-1 provides a chart of population growth for the EID Service and Favorable Areas based on the low, medium and high growth rates discussed in Section 3.1.2. Note the population forecast does not have a constant slope due to the composite makeup of the curves. Prior to the inflection point, the curve is an aggregate of population growth within both the Service Area and the Favorable Areas (which are assumed to be annexed to EID). After the inflection point, residential land uses within the Service Area have reached buildout (to the maximum densities allowed in the 2004 General Plan) and additional growth would only occur within the Favorable Areas. Although development may not occur exactly in this manner, the estimated total population reflects the maximum growth allowed for the land uses and densities included in the 2004 General Plan.

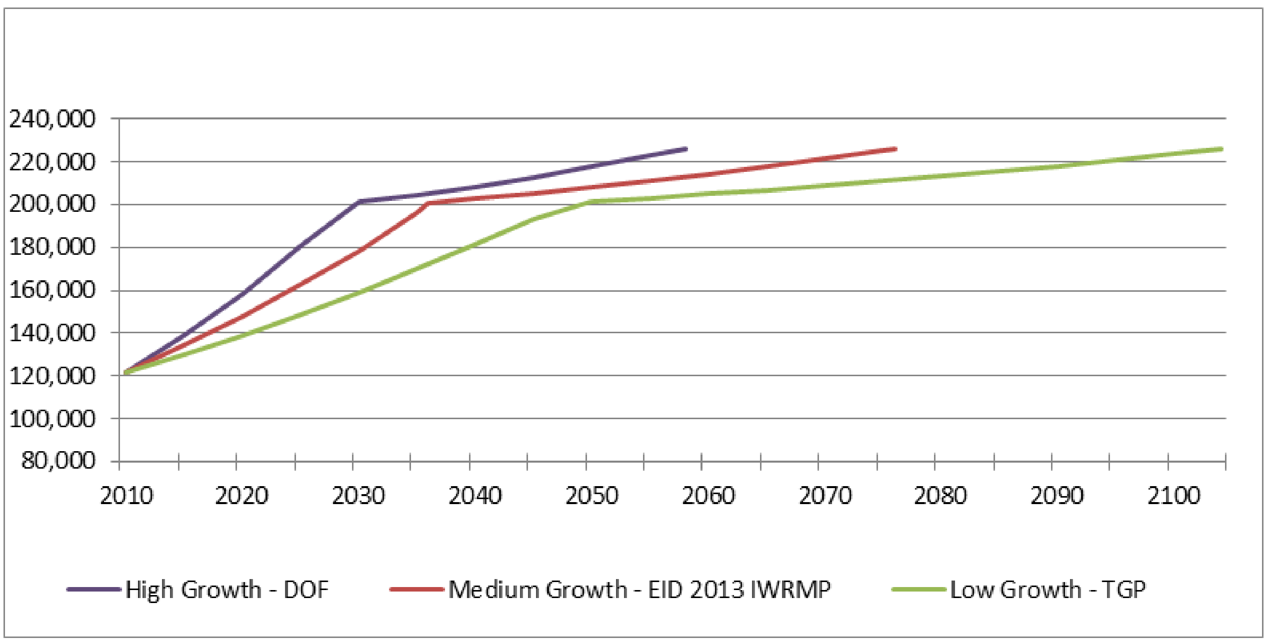


Figure 4-1 El Dorado Irrigation District Service Area and Favorable Area Population Forecast

4.2.3 EID Urban Demand Projection

In order to calculate demand associated with the population growth, the adjusted target GPCD factor from Table 4-3 are applied to population estimates to determine the Service Area and Favorable Area urban water demand shown in **Table 4-5**. The calculated Service and Favorable Areas projections have also been adjusted to include latent demand of 5%.

The Final EIR for the FAR General Plan Amendment identifies 12,621 acre-feet of additional water demand within the EID's Service Area and Favorable Areas to serve commercial needs. For this demand, system losses of 13% are included, consistent with the system loss percentage identified in the 2010 UWMP and 2013 IWRMP. For service and favorable area water demand, system losses are imbedded in the GPCD calculation.

Table 4-5 El Dorado Irrigation District Urban Buildout Demand Projections

	Baseline (acre-feet)	***Target (acre-feet)***
Service Area[a]	71,851	57,480
Favorable Areas[a]	13,033	10,426
FAR General Plan Amendment[b]	14,262	11,409
Total	***99,146***	***79,316***

a. Includes latent demand of 5%.
b. Includes 13% for system losses.
Note: Adjusted baseline GPCD (318) demand calculations are included for comparison and methodology validation purposes only.

Based on the population forecast scenarios presented in Figure 4-1, **Figure 4-2** provides the corresponding water demand projections for the high, medium and low growth scenarios discussed in Section 3.1.2. The starting point for the urban baseline demand is 42,750 acre-feet in 2010 and is shown for reference relative to the target demand. Only the medium growth scenario is shown for the baseline scenario. The starting point for the target demand scenarios is 2012 with the most current published demand information. The total (urban and ag) "potential" demand in 2012 was estimated to be 48,500 acre-feet and includes normalized active, latent and other demands as defined in the EID 2013 Water Resources and Service Reliability Report, Table 1 and

14. Urban demand for 2012 of 40,200 acre-feet is a prorated value based on relative 2012 urban and agriculture consumption data. Note that demands in 2012 are below normal as a result of the economic downturn as discussed in Section 2.3.1.

As for the population estimates, the demand forecasts do not have a constant slope, in part due to the composite makeup of the population projections (where population growth slows after build-out is reached within the Service Area). In addition, the underlying demand calculations assume gradual reductions in water demand between 2012 and 2020, as EID makes progress toward reaching its 20 percent conservation goal embodied in the target GPCD factor. In addition, the water demand estimates include a gradual increase in demand (over the entire time period needed to reach build-out conditions) associated with the increase in commercial space allowed by the FAR General Plan Amendment.

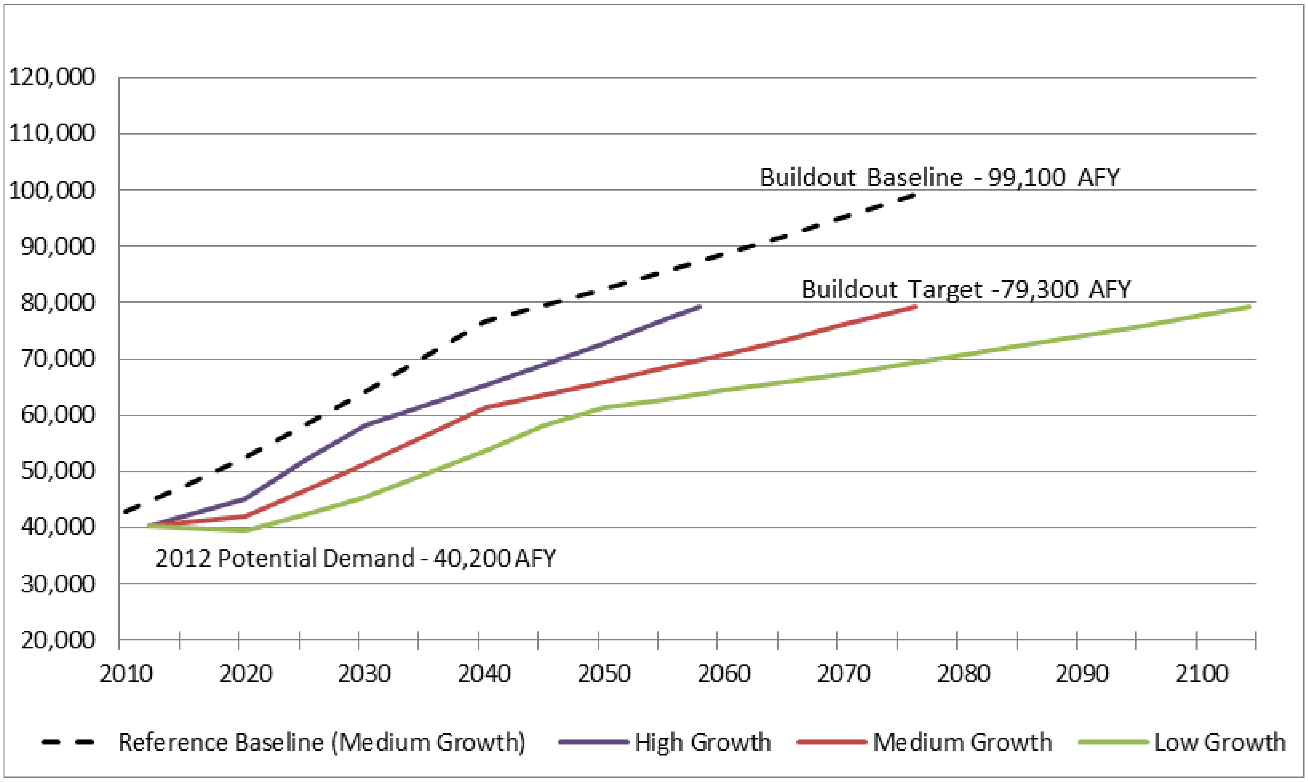


Figure 4-2 El Dorado Irrigation District Service and Favorable Area Urban Water Demand Projections (acre-feet)

4.2.4 EID Agricultural Demand Projection

For the 2007 WRDMP, agricultural demand projections were based on an expansion of agricultural uses and land use capacity of “Choice Farmland” as identified in the 2004 General Plan. For the EID 2013 IWRMP, agricultural water demand projections were based on historic land use and historic water duties, limited to those parcels that had existing agricultural uses. For this analysis, the 2007 WRDMP methodology is employed, but only lands located within the Agricultural Districts are included, as discussed in Section 3.5.

Table 4-6 provides an updated agricultural land and water use projection for the EID Service Area. The cultivated acreage for each crop category (from Table 3-6), and water use assumes water duties (presented in Table 3-7) and a crop mix similar to the base year of approximately 50% “Deciduous Orchard” category and 50% “Vineyard, Christmas Trees, Olive/Citrus, Berries” category with no increase in the “Pasture and Other” category. These water demands reflect the establishment of permanent crops with full utilization of best irrigation management practices, including soil moisture monitoring. For this category, very limited water supply cutbacks may be possible, but fallowing is not a feasible option.

Table 4-6 El Dorado Irrigation District Irrigable Land and Water Use Projection

	Cultivated Area (acre)	*Crop Water Use[a] (acre-feet)*	*Water Demand[b] (acre-feet)*
Deciduous Orchards	3,578	10,020	11,517
Vineyard, Christmas Trees, Olive/Citrus, Berries	3,578	4,652	5,244
Pasture and Other[c]	539	2,048	2,366
Total	***7,696***	***16,720***	***19,218***

a. Based on water duty of 1.3 acre-feet/acre for vineyards, Christmas trees, olive/citrus, berries and 2.8 acre-feet/acre for deciduous orchards.
b. Includes unaccounted water of 13% for system losses.
c. Assumes no net increase in this land use category.

To demonstrate the effect of cropping pattern on water requirements, Figure 4-3 presents baseline water demand (for the crop mix presented in Table 4-6) and estimated demand for 2 conceptual crop mix scenarios: (1) 100% vineyard, Christmas trees and olive/citrus; and (2) 100% deciduous orchard (with no change in pasture irrigation for either scenario). This suggests that the projected crop mix for the baseline year represents the approximate mid-point in the theoretical range of agricultural water demand.

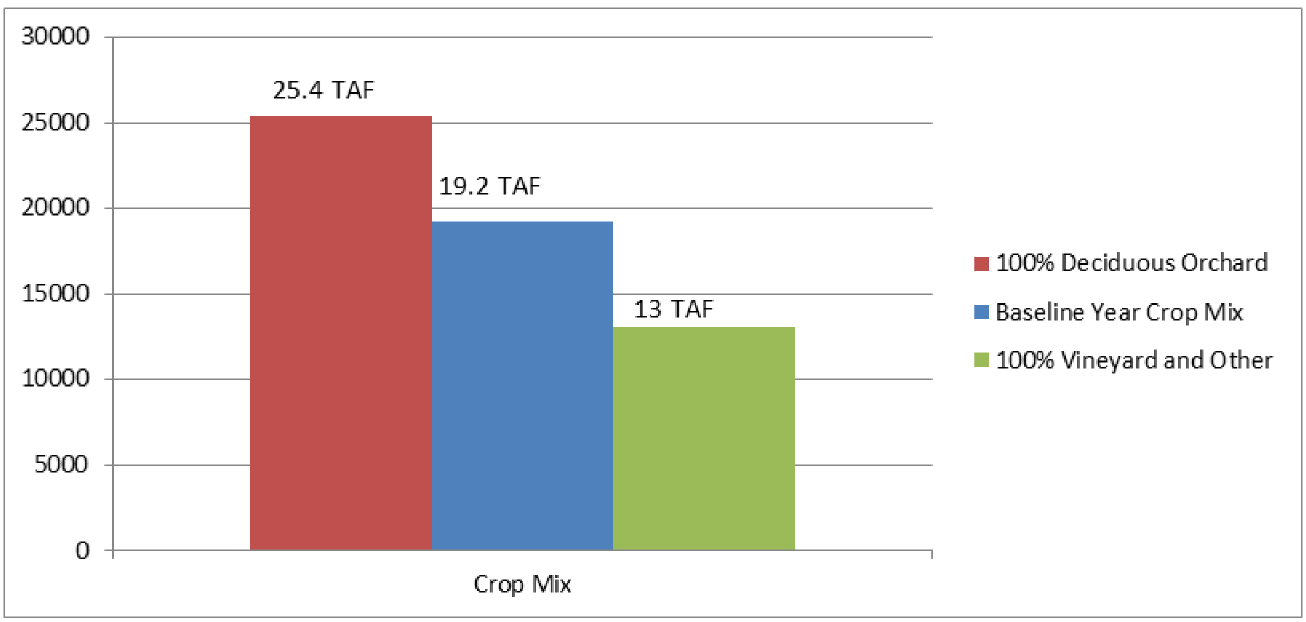


Figure 4-3 El Dorado Irrigation District Service Range of Potential Agricultural Demand (acre-feet)

4.2.5 EID Demand Projection Summary

Table 4-6 presents total estimated/potential water demand for EID for 2012, 2030 and buildout conditions, comprised of urban and agricultural demand, based on the adjusted target GPCD factor (from Table 4-2), the medium growth rate scenario, and agricultural demand based on the crop mix and water duties. Note that the total Service Area potential demand in **Table 4-7** is higher than the sum of actual 2012 raw water diversions (2012 Diversion Report) and recycled water production (2013 Water Resources Report) of 39,000 AFY. The difference is due to many factors, some concrete and others subjective including:

- use of historic averages in calculating potential demand;
- inclusion of latent demands in calculated potential demand;
- lingering effects of the economic downtown;
- recent restructuring and increase in EID water rates; and
- annual hydrologic variation affecting irrigation requirements.

Caution should be exercised in using only one year of data for long range planning purposes because of the variables that can affect demand in any given year. To demonstrate this variability, actual 2008 diversions and recycled water production totaled 48,500 AFY as compared to 39,000 AFY in 2012. For this reason, good water resources planning practice dictates the use of normalized demand values to dampen out the effects of hydrologic variation and other unusual events. In any case, the lower 2012 diversions, at least in part, reflect permanent progress made toward meeting the 20% conservation goal and the target projections in this update. Note 2012 agricultural demand does not include demand supplied from private groundwater or riparian sources.

Table 4-7 El Dorado Irrigation District Urban and Agricultural Water Demand Projection (Medium Growth Scenario) (acre-feet)

	Urban			*Agriculture*			*Total Demand*		
	2012	***2030***	***Buildout***	***2012***	***2030***	***Buildout***	***2012***	***2030***	***Buildout***
Service Area	40,237	49,438	57,480	7,977	9,515	19,218	48,214	58,953	76,699
Favorable Areas		1,966	10,426					1,966	10,426
FAR GP Amend.			11,409						11,409
Total	***40,237***	***51,404***	***79,315***	***7,977***	***9,515***	***19,218***	***48,214***	***60,919***	***98,534***

Note: 2012 agricultural demand does not include demand supplied from ground water or riparian sources.

Figure 4-4 illustrates the demand projections for EID based on the Target GPCD factor, for the low, medium and high growth rate scenarios, and the medium growth scenario for the Baseline GPCD factor for reference. Also shown are the total 2012 potential demand and the actual raw water diversions and recycled water production required to meet demand in 2012.

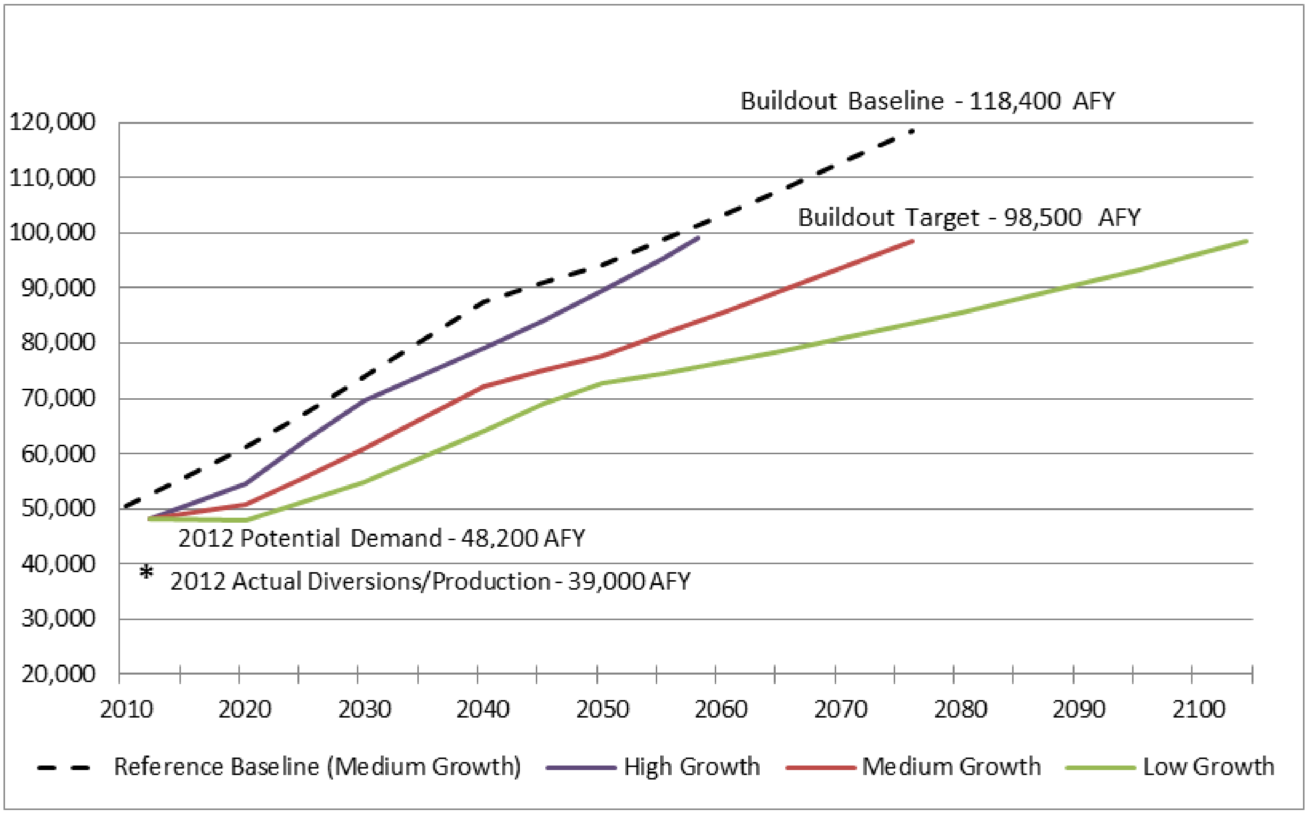


Figure 4-4 El Dorado Irrigation District Urban and Agricultural Water Demand Projections (acre-feet)

4.2.6 EID Demand Projection Comparison

Since completion of the 2007 WRDMP, updated master planning information has been prepared by EID and with the advent of SB X7-7 and the State's requirement to reduce statewide urban water demand 20% by 2020, a completely new methodology is used to project future water demands for this update. With these changes, a comparison of demand projections from these various sources and methodologies can be a useful exercise in validating the projections presented in this update. For comparison purposes, **Table 4-8** provides demand data for the EDCWA 2007 WRDMP, EDCWA Baseline and Target 20x2020 update developed for this update, and EID's 2013 IWRMP. **Figure 4-5** shows the same information in graphical format for ease of comparison. Note that the EID 2013 IRWMP does not include the Favorable Areas or the FAR General Plan Amendment.

Table 4-8 El Dorado Irrigation District Buildout Demand Projection Comparison Acre-feet)

Demand Element	***EDCWA***			***EID 2013 IWRMP***
	2007	***2014 WRDMP Update***		
	WRDMP	***20x2020 Baseline***	***20x2020 Target***	
Service Area	72,831	71,851	57,480	78,200
Favorable Areas	11,040	13,033	10,426	
FAR GP Amendment	12,621	14,262	11,409	
Subtotal Urban Demand	*96,492*	*99,146*	*79,316*	*78,200*
Agriculture	28,324	19,218	19,218	9,900
Total	***124,816***	***118,364***	***98,534***	***88,100***

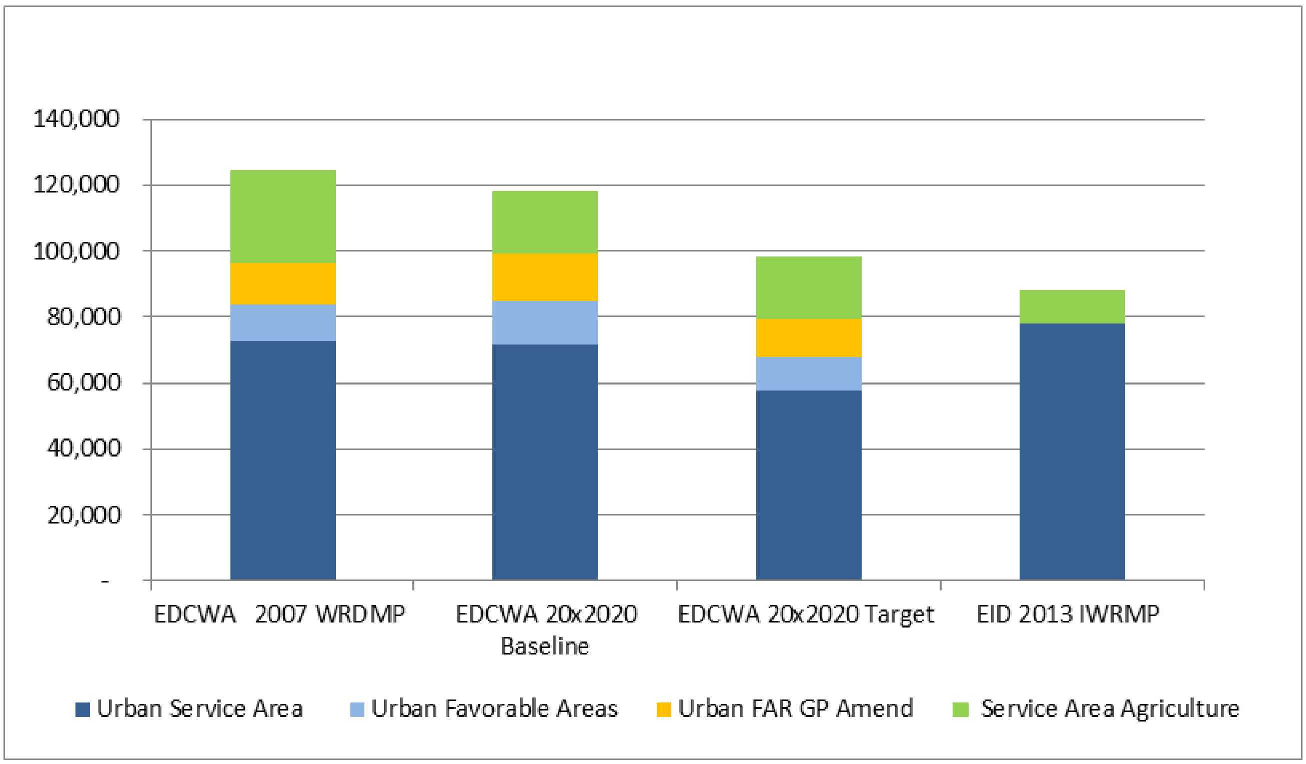


Figure 4-5 El Dorado Irrigation District Buildout Demand Projection Comparison (acre-feet)

4.2.7 Comparisons and Methodology Validation

Using per capita water demand factors to project long term water demand is a departure from the traditional approach, used by EDCWA, of applying separate household and employee unit use factors or water duties to various land use projected over time. There are weaknesses inherent in the per capita methodology that stem from two factors. The first is changes in relative residential and commercial land uses are not captured because per capita demand, as calculated for UWMPs, is based on an historic land use mix, not a future land use mix that may look different over time. In addition, the shift of population from low water use areas in the east to higher water use areas in the west cannot be captured in historic per capita demand factors.

Comparison of EDCWA Urban Demand Projections

In Table 4-2, an adjustment to the future per capita demand factors was made to compensate for these shortcomings. To validate the accuracy of the adjustment factors, a comparison can be made between the urban water demand projections from the 2007 WRDMP (which based demand on household and employment projections) and the estimates for EID developed for this update (based on population estimates and the adjusted Baseline GPCD demand factor). As ultimate buildout within the EID Service Area is based on achieving the land use densities permitted in the 2004 General Plan, demand projections for buildout conditions should be comparable (as buildout conditions are the same for each projection).

Since the 2007 WRDMP based water demand on historical use, a comparison to the water demand derived for the Baseline 20x2020 demand factor (also based on a historic average) are comparable. As shown in Table 4-7, the 2007 WRDMP estimated total urban demand at buildout for the EID Service Area to be 72,831 acre-feet, while the Baseline 20x2020 projection developed for this analysis estimates total buildout demand at 71,851 acre-feet, a difference of approximately 1%. As both projections are comparable, the adjustment of the 20x2020 per capita demand factors incorporated into this update appear reasonable and are validated for long range planning purposes.

Comparison of EDCWA and EID IWRMP Urban Demand Projections

The projections developed for this analysis and those provided in EID's 2013 IWRMP were based on different land use assumptions and unit water use factors and not surprisingly, resulted in different demands for both urban and agricultural uses. For instance, the 2007 WRDMP used 2004 General Plan housing forecasts that assumed the maximum allowable density (with a reduction in density for steep slopes). EID's 2013 IWRMP developed its own methodology based on average land use density, from which water use factors were derived for different land use types. Either method is reasonable for determining long term water needs but do not result in the same demand projections.

As can be seen in Table 4-4, the EID 2013 IWRMP projects significantly greater urban demand within its Service Area than the 2007 WRDMP. This difference can be attributed to the following factors:

- Land area assumptions – A portion of the Favorable Areas have been annexed into EID since 1999, the base year for the 2004 General Plan. Land area in Sacramento County within EID's Service Area is included in the 2013 IWRMP but was not in the 2004 General Plan housing forecast used for the 2007 WRDMP. These differences equate to approximately 3,400 equivalent dwelling units.
- Density assumptions – The 2004 General Plan housing forecast used the maximum density allowed for a specific land use designation with a slope limitation, while the 2013 IWRMP used the average density allowed within each land use designation.
- Unit demand factor assumptions – The 2007 WRDMP used one average household water use factor for each region for all single-family General Plan designations, while the 2013 IWRMP used more refined household water use factors for different single-family residential land uses (with water use per household going up as the allowable parcel size increases).

The combination of differing land area, density and household water use factors used to calculate water demand resulted in a higher "Urban Service Area" demand projection in the 2013 IWRMP.

When comparing the 2013 IWRMP “Urban Service Area” demand to the EDCWA Baseline derived demand projection, the difference is primarily due to the land area and density assumptions discussed above. When compared to the EDCWA Target Demand the difference can be attributed partially to the land use and density assumptions but to a greater extent the anticipated 20% reduction from historical per capita demand used to calculate the Target Demand.

In comparing total urban demand, the inclusion of demand associated with the 2007 FAR General Plan Amendment and Favorable Areas in the SB X7-7 update results in total urban demand being similar for the 2013 IWRMP (78,200 acre-feet) and EDCWA Target Demand (79,316 acre-feet) projections.

Agricultural Demand Comparison

Table 4-7 also shows differences in agricultural demand projections that are primarily due to land area considered. For the 2007 WRDMP, the demand forecast was based on the land use capacity of Choice Farmlands (designated by the 2004 General Plan), both within and outside of the Agricultural Districts (also designated by the 2004 General Plan). Choice Farmland was also used for this analysis, but only those lands within Agricultural Districts were included. For the 2013 IWRMP, a more limited land area was considered, which resulted in a substantially lower projection for agricultural demand. The updated agricultural water demand projection in this document generally represents a mid-point between the projections in the 2007 WRDMP and the 2013 IWRMP.

4.3 GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

For the 2010 UWMP, GDPUD used interim and 2020 target per capita water use factors to develop projected urban water demand. For the purposes of this analysis, in order to comply with the requirements of the recent 20x2020 legislation, the 2010 UWMP urban per capita water demand factors are used to calculate total demand for all residential and commercial uses including demand from Favorable Areas (assumed to be annexed to GDPUD). The effect of the 2007 FAR General Plan Amendment, however, is not included in the GDPUD projections. This is not a defect in GDPUD’s UWMP. Unlike the long range planning nature of EDCWA’s work, GDPUD’s UWMP is used for a shorter term 20-year planning horizon for:

> *… development of a capital improvement program to address system reliability that maximizes the availability water supply in the future. [GDPUD 2011, p. 26]*

The 2010 UWMP does, however, qualitatively address the longer term needs of the District and indicates that:

> *The District’s ongoing management practices and conservation programs to reduce losses in the water conveyance system by lining ditches with gunite, replacing ditches with pipelines, and improving operations that affect losses, will have a value in increasing the life of the present water supply. The District estimates that operational losses in the ditch conveyance system account for up to 3,000 acre-feet of water per year. Improved water supply efficiency will decrease the amount of water required from any of the water supply projects under consideration. However, conservation alone will not be sufficient to meet the long-term projected demands within the District’s service area, and eventually, implementation of an additional water supply supplemental to the Stumpy Meadows Project will be necessary. [GDPUD 2011, p. 26]*

EDCWA's water supply planning must look beyond the 20-year planning horizon to the total land use capacity of the 2004 General Plan for the GDPUD Service and Favorable Areas, which could require many decades to be realized.

4.3.1 Existing Urban Demand

Urban per capita water demand factors for the GDPUD Service Area from the 2010 UWMP are presented in **Table 4-9**. Urban per capita water demand includes residential, commercial, commercial irrigation, authorized uses and distribution system losses (excluding treatment plant losses and raw water losses). The total demand was divided by a population estimate to derive per capita water use. Table 4-9 includes a baseline, mid-term 2015, and as allowed by SB X7-7, Method 3, a 2020 target that reflects 95% of the Sacramento hydrologic region target of 176 GPCD.

Table 4-9 Georgetown Divide Public Utility District Baseline and Target per Capita Water Use Factors

Historic Baseline (GPCD)	*2015 Target (GPCD)*	*2020 Target (GPCD)*
197	182	167
SOURCE: GDPUD (2011).		

4.3.2 GDPUD Capita Demand Adjustments

The 2004 General Plan will permit an increase in commercial land uses within the GDPUD water Service Area. Based on a comparison of base year and buildout 2004 General Plan housing/jobs projections and associated water demand projections (Appendix A) presented in **Table 4-10**, increased economic activity is anticipated to increase GDPUD's per capita water use by over 8%.

Table 4-10 Projected Change in Urban Water Use per Household at Buildout (acre- feet)

Households/Type of Demand	*Baseline Year*[a,b]	*Buildout*[a,b]
Residential Households	3,272	11,142
Residential Demand	1,583	5,393
Commercial Demand	247	1,353
Total Demand	1,830	6,746
Water use per Household (acre-feet/hh)		
Residential water use per household	0.48	.48

Change due to demographic/housing mix changes		0%
Residential and commercial water use per household	0.56	.61
Total change due to demographic/housing mix and increased commercial activity		8.25%

SOURCE: EDC (2002) El Dorado County Land Use Forecast for Draft General Plan.
a. Reference Appendix A
b. Water use does not include system losses or latent demand

As noted above, for the 2010 UWMP, GDPUD used all active residential accounts, with and without water usage, to determine the population within its water Service Area. Thus, the baseline GPCD presented in the UWMP does not account for a residential vacancy factor. The result is an understated GPCD baseline. While not critical for GDPUD's shorter term planning horizon (2030), for EDCWA's long range planning purposes it is important to capture all factors that may affect future demand. GDPUD does not differentiate between inactive and active accounts in published reports; therefore it is assumed that the vacancy rate within the GDPUD Service Area is similar to the 5% used for the EID Service Area.

In order to update water demand projections using per capita water use, changing land use patterns and vacancies must be considered when determining the ultimate need for water. Based on these factors, the adjusted target demands is 180, shown in Table 4-11. For comparison purposes and methodology validation later in this section, baseline GPCD with the same adjustments as presented in **Table 4-11** is carried through this analysis. The adjusted baseline GPCD is 225.

Table 4-11 Georgetown Divide Public Utility District Water Use Adjustments for increased Economic Activity

	Demand (GPCD)	*Adjustment for Residential Vacancies*	*Adjusted GPCD for 2020 Projection*	*Adjusted for Increased Economic Activity*	*Adjusted GPCD for Buildout (GPCD)*
Target	158[a]	5.14%	166	8.25%	180

a. Adjusted target GPCD will be higher than 95% of the hydrologic region so target demand is reduced to 80% of the baseline GPCD 197 and then adjustment factors are applied.
b. Baseline GPCD would be 225 with these adjustments and is noted here for comparison purposes and methodology validation.

4.3.3 GDPUD Population Projection

Total urban demand for GDPUD can be derived by multiplying the adjusted per capita water demand (from Table 4-11) by total residential population within the existing GDPUD Service Area and the Favorable Areas reallocated to GDPUD. Population estimates are derived from the number of households projected to result from buildout of the 2004 General Plan and 2.64 persons per household, as shown in **Table 4-12**.

Table 4-12 Georgetown Divide Buildout Population Projections

	Households[a]	***Capita/Household***[b]	***Population***
Service Area	11,142	2.64	29,415
Favorable Areas	1,746	2.64	4,609
Total	***12,888***	***2.64***	***34,024***

SOURCE: EDC (2002) El Dorado County Land Use Forecast for Draft General Plan
USCB (2014) US Census Quick Facts

a. Households based adopted 2004 General Plan. Households equal 95 percent of total dwelling units. The additional dwelling units water use is captured by applying a latent demand factor when calculating total demand.
b. Capita/Household: US Census Bureau Quick Facts 2014, El Dorado County.

Figure 4-6 provides a graphical representation of population growth for the GDPUD Service Area and Favorable Areas based on the low, medium and high growth rates discussed in Section 3.1.2.

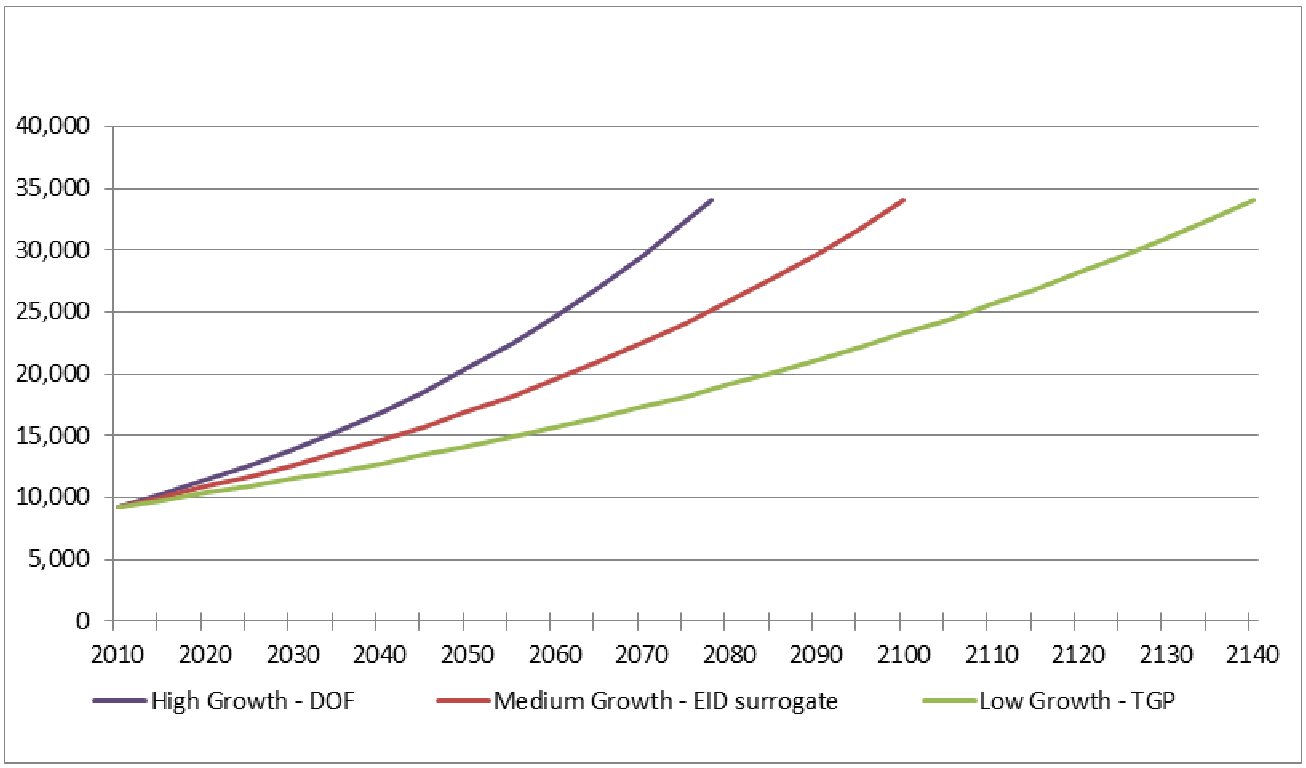


Figure 4-6 Georgetown Divide Public Utility District Service Area and Favorable Area Population Forecast

4.3.4 GDPUD Urban Demand Projections

In order to calculate demand associated with the population growth, adjusted target GPCD factor from **Table 4-10** are applied to the population to determine the Service Area and Favorable Area urban water demand shown in **Table 4-13**. The calculated Service and Favorable Areas projections presented also include factors for system losses and latent demand as defined below.

Service Area Demand

- Treatment process loss of 10% is not included in the 2010 UWMP per capita water use. The treatment process loss is identified in worksheets used to develop GDPUD's annual Water Supply and Demand Report.
- Latent demand of 5%
- Raw water system requirements and losses of 610 acre-feet. Raw water system operational requirement and loss is estimated in the 2009 GDPUD Options to Increase Water Supply report and includes water up, carriage and conveyance losses. Of the estimated 3,050 acre-feet, 20% (610 acre-feet) is attributed to the treated water system.

Favorable Area Demand

- Treatment process loss of 10%
- Latent demand of 5%

2007 FAR General Plan Amendment

The 2007 FAR General Plan Amendment identified the potential for 1,009 acre-feet of additional water demand within the GDPUD Service and Favorable Areas to serve commercial demands. For this demand system losses are also included.

- Treatment process loss of 10%
- Distribution system loss of 5.3 % (based on a 5 year average from worksheets used to develop GDPUD's annual Water Supply and Demand Report Summary reports).

Table 4-13 Georgetown Divide Public Utility District Urban Buildout Demand Projections

	Baseline Demand (AFY)		***Target Demand (AFY)***	
	Adjusted GPCD	***Adjusted GPCD w/system losses and latent demand***	***Adjusted GPCD***	***Adjusted GPCD w/system losses and latent demand***
Service Area[a]	7,408	9,274	5,926	7,542
Favorable Areas[b]	1,161	1,358	929	1,086
FAR General Plan Amendment[c]	1,009	1,192	807	953
Total		***11,824***		***9,581***

a. Includes water treatment process loss of 10%, latent demand of 5% and 610 acre-feet raw water system operational requirement and loss attributed to treated water system.
b. Includes water treatment process loss of 10% and latent demand of 5%.
c. Includes water treatment process loss of 10% and distribution system loss of 5.3%.
Note: Adjusted baseline GPCD (225) demand calculations are included for comparison and methodology validation purposes only.

Based on the population forecast scenarios presented in Figure 4-6, **Figure 4-7** provides corresponding water demand for the high, medium and low growth scenarios discussed in Section 3.1.2. The starting point for the baseline demand is 3,643 acre-feet in 2010 and is shown for reference relative to the target demand. Only the medium growth scenario is shown for the baseline scenario. The starting point for the target demand scenarios is 2012 with the most current published demand information and in part reflects progress made toward meeting the 20 percent conservation goal. The total "potential" urban demand in 2012 was 3,000 acre-feet and includes active, latent and other demands as defined in the GDPUD 2012 Water Supply and Demand Summary supplemented with raw water system requirement and loss data from the Appendix 1 of the 2009 GDPUD Options to Increase Water Supply (GDPUD, 2009). Note that demand in 2012 is below normal as a result of the economic down turn as discussed in 2.3.2.

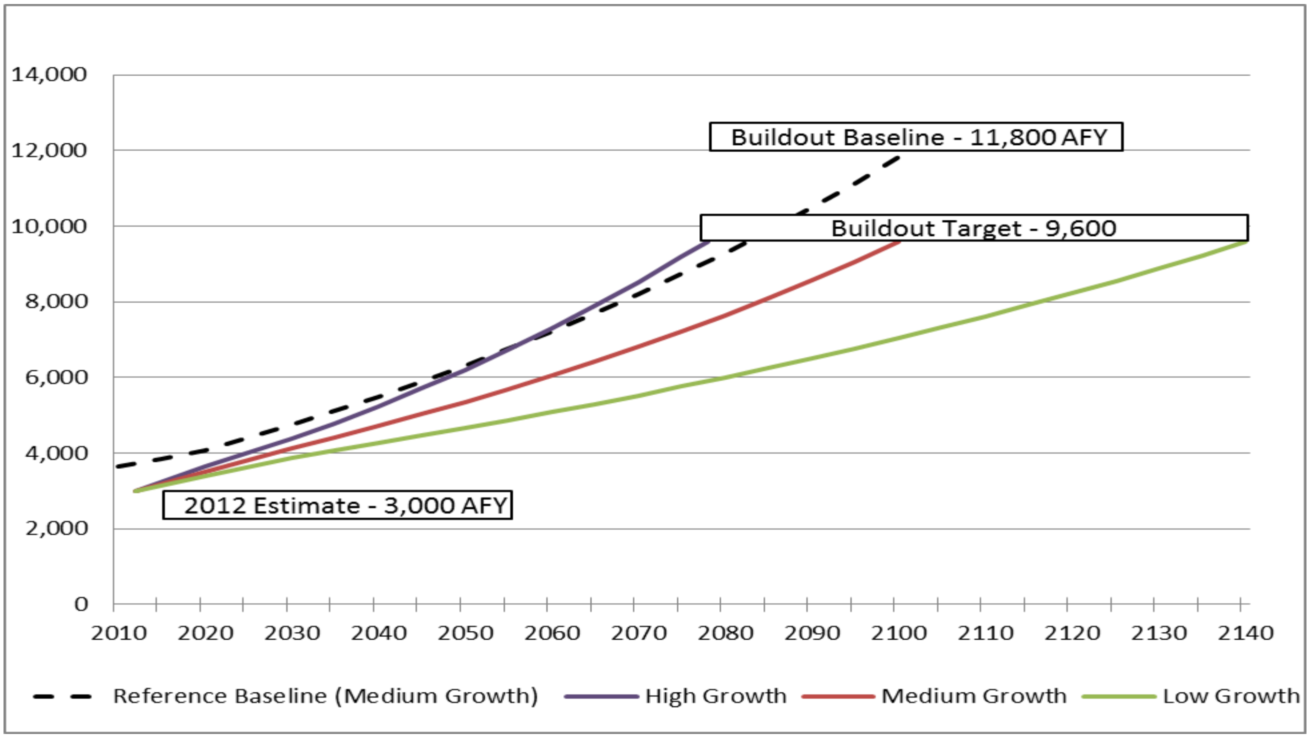


Figure 4-7 Georgetown Divide Public Utility District Service and Favorable Area Urban Water Demand Projections (acre-feet)

4.3.5 GDPUD Agricultural Demand Projection

For the 2007 WRDMP, agricultural demand projections are based on an expansion of agricultural uses and land use capacity of "Choice Farmland" as described in the 2004 General Plan. For this update the 2007 WRDMP methodology is employed but is limited to lands within the Agricultural Districts as discussed in Section 3.4.

Table 4-14 provides an updated agricultural land and water use projection for the GDPUD Service Area. The cultivated acreage in **Table 4-14** is from Table 3-6 and assumes a crop mix similar to the base year of approximately 20% Deciduous Orchard category and 80% Vineyard, Christmas Trees, Olive/Citrus, Berries category with no increase in the Pasture and Other category. The water demands associated with deciduous orchards and vineyards reflect the establishment of permanent crops for which very limited water supply cutbacks may be possible and fallowing is not feasible.

Table 4-14 Georgetown Divide Public Utility District Irrigable Land and Water Use Projection

	Area (acre)	Crop Water Use[a] (acre-feet)	Demand[b] (acre-feet)
Deciduous Orchards	362	1,012	1,342
Vineyard, Christmas Trees, Olive/Citrus Berries	2,049	2,663	3,531
Pasture and Other[c]	1,003	3,810	5,052
Total	**3,413**	**7,909**	**10,349**

a. Based on water duty of 1.3 acre-feet/acre for vineyards, Christmas trees, olive/citrus, berries and 2.8 acre-feet/acre for deciduous orchards
b. Includes 2,440 acre-feet raw water system operational requirement and loss prorated between crop categories
c. Assumes no net increase in this land use category.

4.3.6 GDPUD Demand Projection Summary

Table 4-15 provides the combined buildout urban target and agricultural demand projection with a 2030 demand projection based on the medium growth scenario. It should be noted that the economic downtown beginning in 2008 and a slow recovery resulted in a lower than historic average water demand in 2012. In addition, 2012 demand, representing only one year of data, does not capture the hydrologic variability of urban and agricultural irrigation demands like historic averages do. Note 2012 agricultural demand does not include demand supplied from private groundwater or riparian sources.

Table 4-15 Georgetown Divide Public Utility District Target Demand Buildout Projections (Medium Growth Scenario)

	Urban			Agriculture			Total Demand		
	2012	2030	Build-Out	2012	2030	Build-Out	2012	2030	Build-Out
Service Area	3,001	3,911	7,542	7,121	7,621	10,349	10,122	11,532	17,891
Favorable Areas		209	1,086					209	1,086
FAR GP Amendment			953						953
Total	**3,001**	**4,120**	**9,581**	**7,121**	**7621**	**10,349**	**10,122**	**11,741**	**19,930**

Note: 2012 agricultural demand do not include demand supplied from ground water or riparian sources.

Figure 4-8 provides the combined urban target and agricultural projection from Table 4-15 together with the high and low growth scenario. The baseline demand projection for the medium growth scenario is also included for reference.

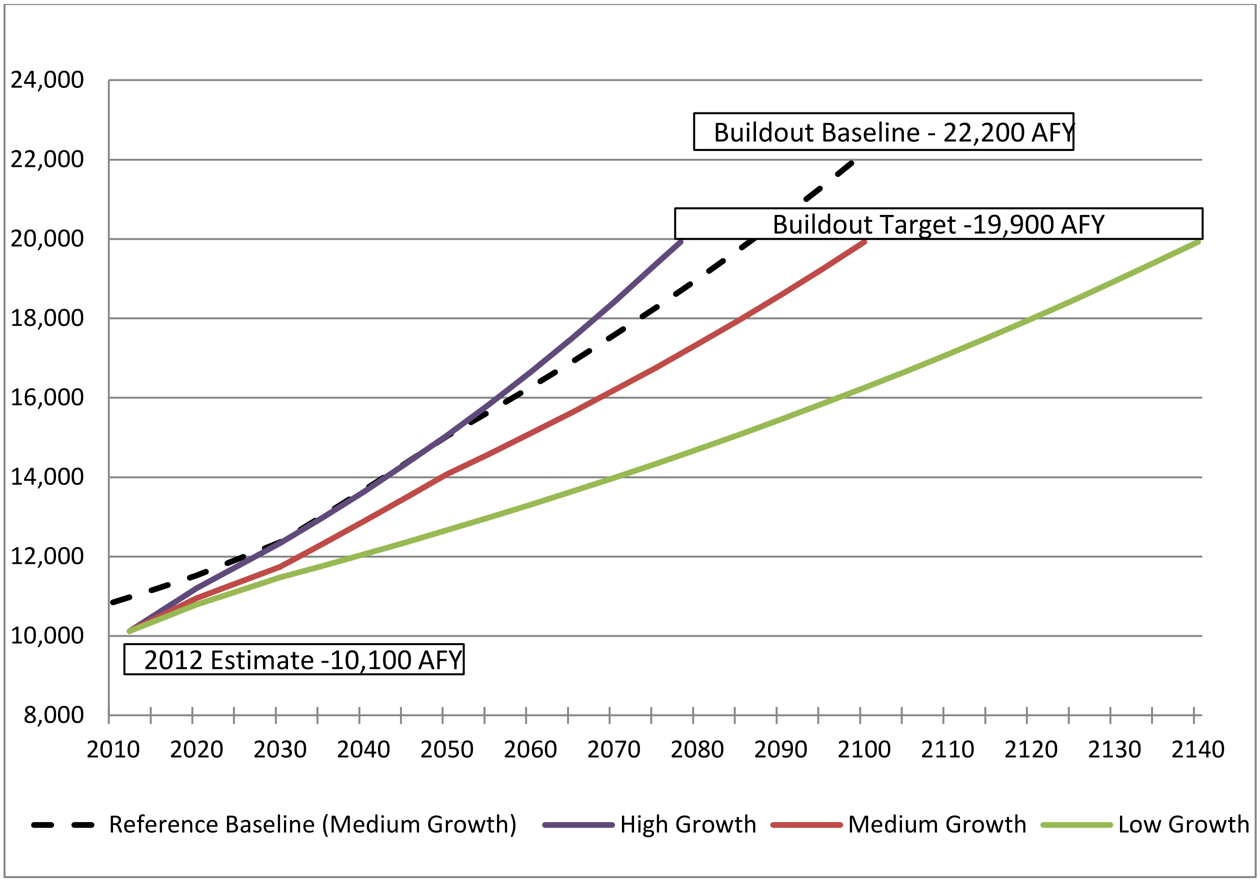


Figure 4-8 Georgetown Divide Public Utility District Service/Favorable Area Urban and Agricultural Water Demand Projections (acre-feet)

4.3.7 Comparison and Methodology Validation

Using per capita water demand factors to project long term water demand is a departure from the traditional approach, used by EDCWA, of applying separate household and employee unit use factors or water duties to various land uses projected over time. There are weaknesses inherent in the per capita methodology for projecting long term water demand for the GDPUD Service Area. The weakness stems from changes in relative residential and commercial land uses not being captured because per capita demand, as calculated for UWMPs, is based on an historic land use mix, not a future land use mix that may look different over time. With this change in methodology a comparison of demand projections from the 2007 WRDMP and this update can be a useful exercise in validating the projections presented in this update. For comparison purposes, **Table 4-16** provides demand data for the 2007 WRDMP and EDCWA's Baseline and Target 20x2020 update developed for this report. **Figure 4-9** shows the same information in graphical format for ease of comparison. Note the GDPUD 2010 UWMP does not include a buildout projection, so a comparison is not possible using that source.

Table 4-16 Georgetown Divide Public Utility District Demand Projection Comparison

	EDCWA 2007 WRDMP	*EDCWA 20x2020 Baseline*	*EDCWA 20x2020 Target*
Service Area	11,495	9,274	7,542
Favorable Areas	1,318	1,358	1,086
FAR GP Amendment	1,009	1,192	953
Subtotal Urban Demand	*12,504*	*11,824*	*9581*
Agriculture	16,911	10,349	10,349
Total	***30,733***	***22,173***	***19,930***

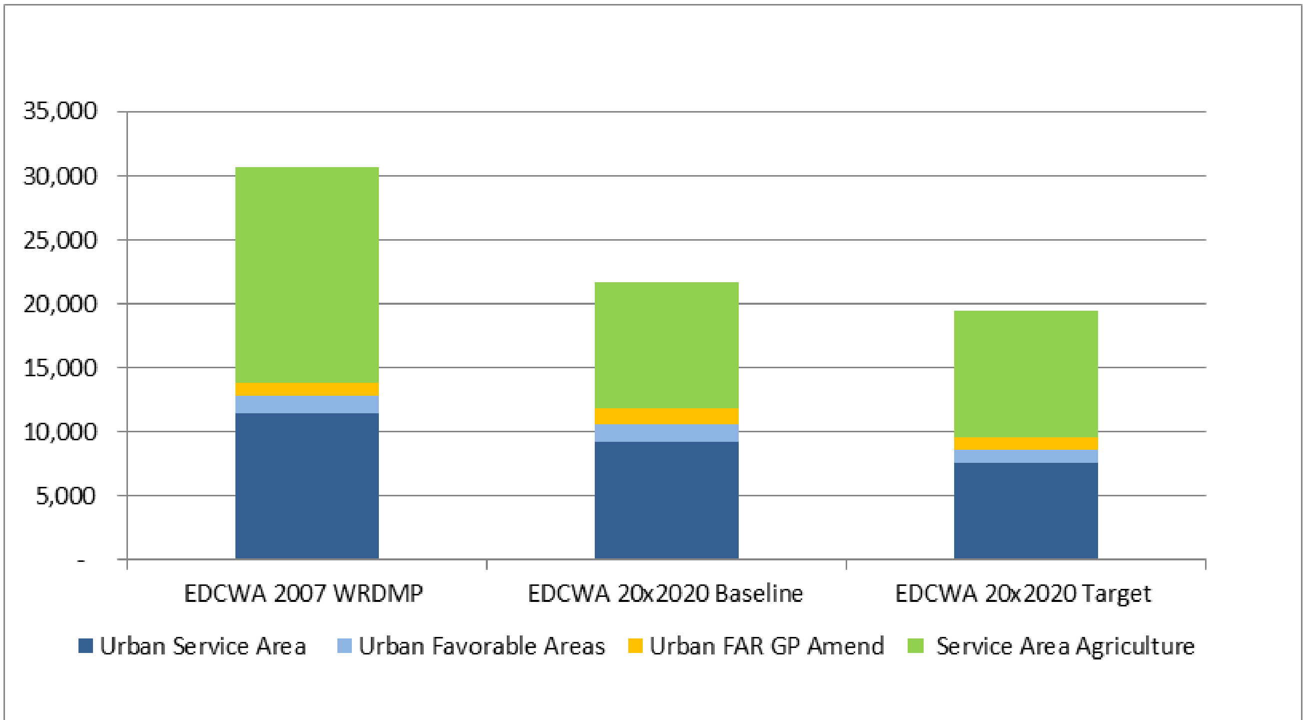


Figure 4-9 Georgetown Divide Public Utility District Demand Comparison (acre-feet)

GDPUD Urban Demand Comparison

Using per capita water demand factors to project long term water demand is a departure from the traditional approach, used by EDCWA, of applying separate household and employee unit use factors or water duties to various land uses projected over time. As noted above, there are weaknesses inherent in the per capita methodology. In the GDPUD case, changes in relative residential and commercial land uses are not captured because per capita demand, as developed for the UWMP, is based on an historic land use mix and not a future land use mix that may look very different over time.

In Table 4-11, an adjusted per capita use factor was developed to compensate for this shortcoming. To validate the accuracy of the adjustment factor, a comparison was made of the urban water demand projections from the 2007 WRDMP (based demand on household and employment projections) and the estimates for GDPUD developed for this analysis (based on population estimates and the adjusted Baseline GPCD demand factors). As ultimate buildout within the GDPUD

Service Area is based on achieving the land use densities permitted in the 2004 General Plan, demand projections for buildout conditions should be comparable (at buildout conditions are the same for each projection).

Since the 2007 WRDMP based water demand on historical use, a comparison to the water demand derived for the baseline 20x2020 demand factor (also based on a historic average) should be comparable since they are derived from the same baseline source data on historical water demand. As shown in Table 4-14, however, the Baseline 20x2020 urban projection of 9,274 acre-feet is significantly lower than the 2007 WRDMP projection of 11,495 acre-feet. Assumptions related to latent demand are partially responsible for the significant difference in the projections. Latent demand of 15% was used for the 2007 WRDMP compared to 5% used for this update. Also, a portion of the latent demand attributed to agricultural demands in the 2007 WRDMP were incorrectly assigned to urban uses. When considering the combination of these two changes/corrections (approximately 2,400 acre-feet), the projections are only slightly different, thus validating the methodology.

■ **GDPUD Agricultural Demand Comparison**

Table 4-15 shows differences in agricultural demand projections that are primarily due to land area considered. For the 2007 WRDMP, land use capacity of Choice Farmlands inside and outside Agricultural Districts is the basis. For this update only lands within Agricultural Districts were considered.

4.4 GRIZZLY FLATS COMMUNITY SERVICES DISTRICT

4.4.1 GFCSD Urban Demand Projection

For this analysis, the 2004 General Plan Housing Forecast was not used, because household projections are only available for the entire TAZ, which is inclusive of the GFCSD boundary. As the TAZ is substantially larger than the GFCSD Service Area, the estimate of housing units provided in the GFCSD 2012 Water Supply and Development Update (WSDU) are incorporated herein.

GFCSD is not an Urban Retail Water Supplier and is not subject to the SB x7-7 requirements, so household unit demand of 0.25 acre-feet/household (for 2010) identified in the 2012 WSDU is used in this analysis. The unit demand factor includes 10% unaccounted for water. There is essentially no commercial demand or agricultural demands within the GFCSD Service Area. **Table 4-17** presents total projected GFCSD households and calculated water demand from the 2012 WSDU.

Table 4-17 Grizzly Flats Community Service District Urban Buildout Demand Projections

Households[a]	*Unit Demand*[a,b] *(acre-feet/hh)*	*Demand (acre-feet)*
1,252	0.25	313

a. Households and unit demand factor from 2012 Water Supply.
b. Unit demand factor includes 10% unaccounted for water.

Table 4-18 provides demand projections for 2030 and buildout, based on the projected long term West Slope growth rate of 1.03% from the TGP Update as discussed in Section 3.1.2.

Table 4-18 Grizzly Flats Community Services District Demand Projection

	Urban Demand		
	2010	***2030***	***Buildout***
Service Area	153	187	313

4.5 OTHER COUNTY AREAS

4.5.1 Urban Water Demand

For Other County Areas (OCA) outside the purveyor boundaries, the 2004 General Plan housing forecast and unit household water use factors were used to determine potential water demand. **Table 4-19** presents the total OCA households, households reallocated to EID and GDPUD from Table 3-4, and the remaining OCA households.

Table 4-19 Households Remaining in Other County Areas

Total OCA Households[a]	***Households Reallocated to EID***	***Households Reallocated to GDPUD***	***Households Remaining in the OCA***
31,640	13,152	1,746	16,742

a. Total buildout households from GP Housing Forecast included in Appendix B.

Within OCA there are no urban retail water agencies providing water service, and as a result SB X7-7 requirements do not apply. Household unit demand for OCA used in the 2007 WRDMP is 0.7 acre-feet/household. In **Table 4-20** this unit demand factor is applied to the households not reallocated to the EID and GDPUD Service Areas to calculate residential demand in OCA.

Table 4-20 Other County Areas Urban Buildout Demand Projection

Households Remaining in the OCA	***Unit Demand[a] (acre-feet/hh)***	***Household Demand (acre-feet)***	***Total Demand[b,c] (acre-feet)***
16,742	0.7	11,719	12,336

a. Unit demand factor used in 2004 General Plan/2007 WRDMP for OCA.
b. Includes latent demand of 5%.
c. Assumes all 2004 General Plan/2007 WRDMP projected commercial demand (578 acre-feet) is reallocated to EID and GDPUD.

4.5.2 Agricultural Demand

Existing agricultural land uses in OCA are supported by private wells drilled in fractured rock. The wells are generally low producing and not capable of supporting large water intensive agricultural operations. While there are some deciduous orchard crops grown in the OCAs, most cultivation is wine grapes that have a relatively low water duty. Expansion of agricultural land use in OCA on the scale represented in Table 4-20 is likely not possible without the introduction of a public surface water supply. The projections developed for this analysis assume that water would largely be conveyed through newly developed infrastructure to supply water to the land outside the EID and GDPUD Service Areas. The cultivated acreage in **Table 4-21** is from Table 3-6 and assumes a crop mix similar to the base year of approximately 20% Deciduous Orchard category and 80% Vineyard, Christmas Trees, Olive/Citrus, Berries category with no increase in the Pasture and Other category.

Table 4-21 Other County Areas Agricultural Buildout Demand Projection

	Area (acre)	*Crop Water Use[a,b] (acre-feet)*
Deciduous Orchards	2,178	6,098
Vineyard, Christmas Trees, Olive/Citrus Berries	8,711	11,325
Pasture and Other[c]	14	53
Total	***10,903***	***17,476***

a. Based on water duty of 1.3 acre-feet/acre for vineyards, Christmas trees, olive/citrus, berries and 2.8 acre-feet/acre for deciduous orchards.
b. Does not include conveyance system losses.
c. Assumes no net increase in this land use category.

4.5.3 Demand Projection Summary

Table 4-22 provides the combined urban and agricultural OCA demand projection at buildout. A 2012 estimate and 2030 projection are not made for OCA.

Table 4-22 Other County Area Demand Projection (acre-feet)

	Build-Out Demand
Urban	12,336
Agriculture	17,476
Total	***29,812***

Chapter 5. Water Use Efficiency

Water reuse, recycling, and conservation are increasingly important components of the state's overall water supply. These measures are a growing part of El Dorado County plans for providing reliable supplies for multiple benefits into the future. This chapter presents an update to the Water Efficiency Chapter of the 2007 WRDMP, describing: 1) West Slope urban retail water suppliers' past water conservation achievements; 2) water use efficiency strategies to optimize supply and meet the state mandated SB X7-7 conservation goals; and 3) potential new conservation and water use efficiency strategies that could reduce demand estimated in Chapter 4 beyond the SB X7-7 conservation goal.

5.1 WATER CONSERVATION AND OPERATIONAL STRATEGIES FOR WATER SUPPLY OPTIMIZATION

Water conservation has been and remains an important component of water resources management in the County. Although it is the area of origin for a significant volume of water used in the greater Sacramento region, El Dorado County itself has limited developed water supplies. As a result, conservation efforts (including metering) have been a high priority since the 1976-77 drought and remain an important component of water resource management in the County. Water conservation broadly defined, is the use of available raw and treated water resources in increasingly efficient ways in order to serve as many beneficial uses as possible. Many areas have been metered since the 1970s and water service in the County is metered today with very few exceptions. Irrigation management services (IMS) have been offered by EID since the early 1980s; the program has substantially reduced agricultural water use and is responsible for saving over 2,000 acre-feet of water each year. EDCWA has been providing IMS for the remainder of the West Slope of the County since 2001, with water savings between 6% and 38% depending on whether ground water or surface water is used. This section describes in more detail the various state/local policies and the water conservation programs being implemented by El Dorado County West Slope water purveyors and EDCWA.

Water conservation and efficient use are common goals and objectives shared by local/regional water purveyors and state agencies to accommodate planned growth and address drought contingencies. The State Department of Water Resources requires that each water provider prepare an Urban Water Management Plan (UWMP) that describes programs and policies that ensure a reliable water supply for their service area for the future. UWMPs must be updated every five years, with the next UWMPs due by the end of 2015 (although this deadline may be extended by a year or so). As defined by California Water Code Section 10631, an urban water supplier is a provider that is either private or publicly-owned that serves at least 3,000 customers or supplies more than 3,000 acre-feet of water annually on a wholesale or retail basis. Urban water management programs typically contain the following five elements: 1) water delivery and per capita water use data; 2) description of the water supply, water supply reliability, and water demand management measures; 3) water shortage contingency plans; 4) water recycling; and 5) water service reliability. UWMPs typically include measures to improve operations and water use efficiency that will achieve the agencies' conservation goals.

EID and GDPUD are the urban water purveyors on the West Slope of El Dorado County that are required to develop UWMPs. EID and GDPUD have adopted a number of urban and agricultural programs to conserve water. Each purveyor implements different water conservation programs to meet the needs of their respective service area customers. Details of measures being implemented by these water suppliers in El Dorado County are described for each supplier in the following sections. The range of actions that have been taken varies with each water supplier, but generally includes the following:

- Reducing leakage and losses in raw water canals and conveyance systems
- Conducting water audits/surveys to assess potential illegal diversions/use
- Water and wastewater treatment plant backwash water recovery
- Leak management on both raw water and finished water distribution system
- Public education/outreach program implementation
- Tiered water rate structure implementation
- Residential and commercial/industrial (CII) plumbing retrofit program
- Rebate programs for high-efficiency clothes washers and toilets
- Rebate program for irrigation efficiency improvements
- Residential and CII water surveys and leak detection programs
- Individually metered landscape water use and sub-metering
- Implementing automated meter reading retrofits
- Tailwater controls and spill management

5.1.1 California Water Policy

In response to changing conditions and the costs associated with developing new sources of water supply, State water policy has become increasingly assertive in encouraging water use efficiency over the last decade. SB X7-7, the Water Conservation Act of 2009, set an overall requirement of reducing per capita urban water use by 20% by December 31, 2020 (with an interim goal of at least 10% by December 31, 2015) using one of the following methodologies.

1. 80% of baseline use
2. Sum of specified performance standards
3. 95% of DWR Hydrologic Region target from the draft 20X2020 Plan
4. A flexible alternative designed to adjust to local circumstances

As urban retail water suppliers, EID and GDPUD are subject to this legislation. Each has determined its “baseline” per capita water use (for residential, commercial and industrial uses) based on average demand for a recent 10 year period, expressed in GPCD. Their respective 2010 UWMPs also contain water reduction targets and water use reduction plans to demonstrate how they will achieve the per capita water demand target.

EID is expected to continue its conservation programs and expects to reduce per capita water consumption by 56 GPCD by 2020. Similarly, GDPUD is expected to reduce demand by 30 GPCD. The EID GPCD reduction is based on Method 1 and the GDPUD reduction is based on Method 3.

It should be noted that, with very limited exception, the 20x2020 legislation does not allow credit for reduced raw water losses in the calculation of target GPCD. Raw water losses for GDPUD represent the best opportunity for significant reduction system losses.

5.1.2 Factors Influencing Local Water Efficiency Programs and Cost Effectiveness

El Dorado County has unique opportunities to achieve water use efficiency. A significant amount of potable water is used to meet agricultural water demands due to the lack of groundwater availability in the fertile mountainous areas. Irrigation demands are higher than the more populated coastal regions of the state. As presented in **Figure 5-1**, most of the developed areas on the western slope of El Dorado County are in Climate Zones 13 and 14. Evapotranspiration rates on the West Slope are more than 40% higher, on average, than coastal regions such as San Francisco. As a result, the County has a strong emphasis on agricultural water efficiency and urban outdoor landscape water efficiency. In addition, in the western downslope section of the county, urban landscapes are served by metered recycled water instead of surface water to meet outdoor irrigation demands.

BMP implementation has historically been driven by local cost effectiveness and the availability of grant funds that make implementation cost effective. Cost effectiveness has been measured using industry standards like the American Water Works Association, Manual of Practice, M52, Water Conservation Program – A Planning Manual:

> *Water conservation planners often rely mostly on cost-effectiveness analysis to compare water conservation measures. This type of analysis is a systematic way to evaluate benefits and costs associated with measure implementation. A conservation measure is said to be cost-effective if the present value of the benefits [avoided cost of supply] exceeds the present value of the costs [to implement the conservation program]. (AWWA, 2006)*

Local costs of existing water supplies in El Dorado County are low when compared with other parts of California, since much of the source of supply is gravity feed which does not require costly pumping and requires less costly treatment due to more pristine water quality in the Sierra foothills. Consequently the avoided cost (or benefits) of saving water is significantly lower than in coastal regions of the state reliant on imported supplies. As El Dorado County looks to new supplies to meet its long term water needs, the cost of such supplies are expected to affect the cost effectiveness of a number of conservation measures. Fortunately there are a number of potential future water use efficiency measures that are possible. For example, recycled water use could be expanded. Further reductions in urban landscape use could be developed through various incentives and new technology.

The following sections address existing and continuing water conservation programs. Section 5.7 addresses the relative cost effectiveness of specific water use efficiency measures currently implemented or having future potential.

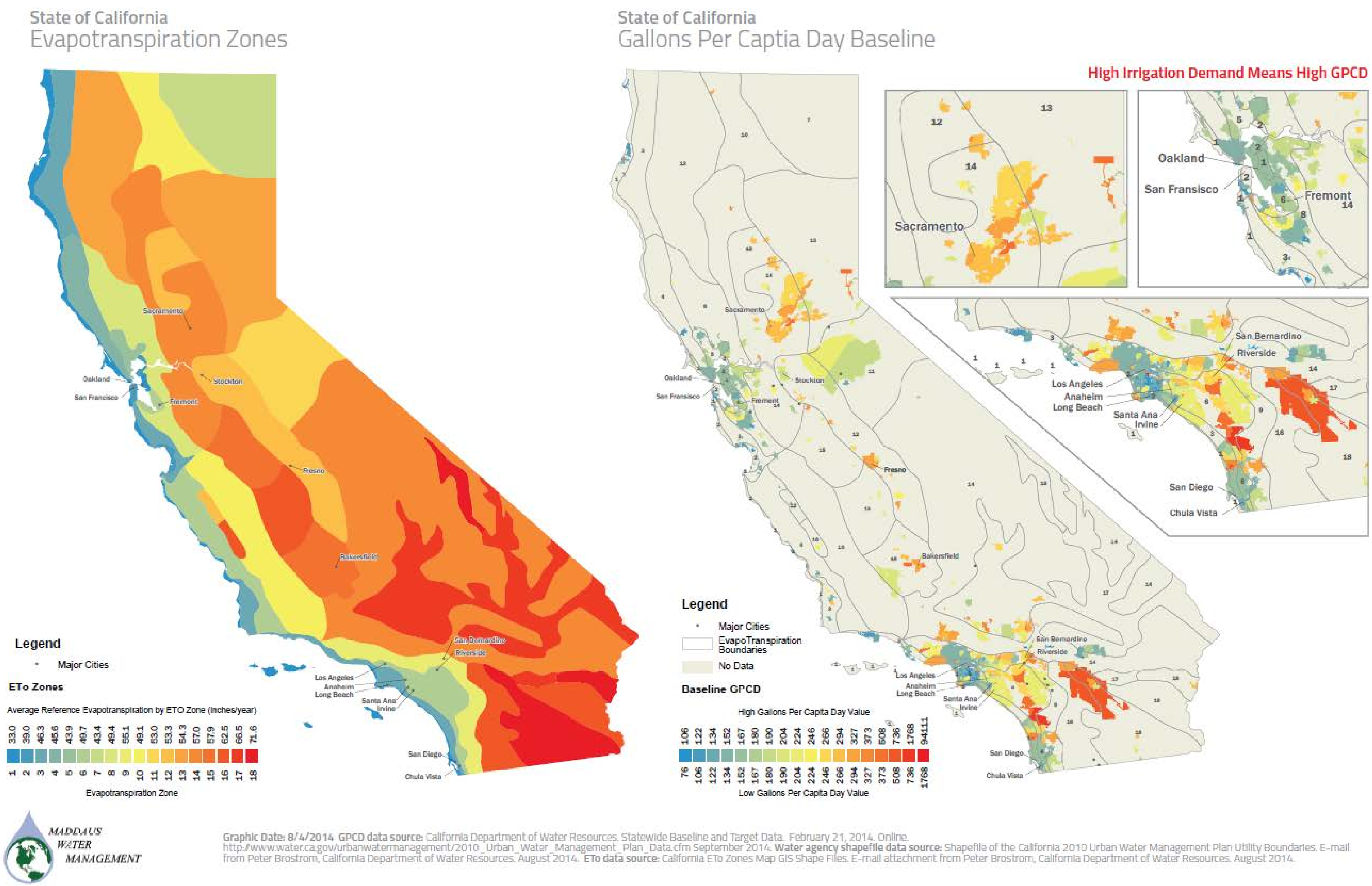


Figure 5-1 Climate Zones

5.2 EL DORADO IRRIGATION DISTRICT

EID has a long history as a leader in the region for progressive urban and agricultural water efficiency programs, and a statewide leader for the development of a recycled water program for front and backyard residential irrigation.

5.2.1 California Urban Water Conservation Council

The Council is a voluntary consensus-based organization created to promote efficient water use statewide through partnerships among urban water suppliers, public advocacy organizations, and other interested groups. The Council's goal is to integrate urban water conservation Best Management Practices (BMPs) into the planning and management of California's water resources through voluntary partnerships.

Members of the Council commit to developing and implementing Foundational and Programmatic BMPs for water conservation. The Foundational BMPs (Utility Operations and Education programs) consisting of operations practices (conservation coordinator and water waste prevention), water loss control, metering, conservation pricing, public information and school education programs. The Programmatic BMPs (residential, commercial, industrial, institutional and landscape categories) consist of water surveys, leak detection assistance, plumbing retrofits, incentives for high-efficiency clothes washers and toilets, and incentives to improve water efficiency through water budgets, and site specific technical assistance to sites over budget.

The initial California Urban Water Conservation Memorandum of Understanding (MOU) was signed by nearly 100 urban water agencies and environmental groups in December 1991. Since then the Council has grown to 400 members. Those signing the MOU have pledged to develop and implement urban water conservation practices to reduce the demand on urban water supplies. EID has been a member of the Council since 2003. As a Federal water supply contractor, EID annually reports its BMP activity to the Council. The Council issues bi-annual coverage reports for all members.

5.2.2 Best Management Practices (BMPs)

EID implements the Council's BMPs in all of its customer sectors for: (1) residential, (2) commercial, Industrial, and institutional (CII) and (3) agriculture. All existing and new water services within EID are metered and billed by volume-of-use and a tiered rate structure. EID has identified landscape irrigation as having the highest potential for water savings, and has focused significant resources in this area including water surveys and irrigation efficiency rebates. Indoor water efficiency has included rebates and complimentary plumbing retrofits as summarized below. Over $1.4 million in grant and EID funds have been invested in urban and agricultural water efficiency programs over the last decade. Areas of investment Include but are not limited to the following:

- **Urban BMP Investment**
  - Incentives for CII customers with mixed-use meters to install dedicated irrigation sub-meters
  - Rebate incentive program for large landscape irrigation systems
  - Rebates for smart controllers for residential and CII customers

- Water surveys and leak detection assistance for residential and CII customers
- Incentives for CII customers including waterless urinals and pre-rinse spray valves for commercial dishwashers.
- Rebates for high-efficiency clothes washers
- Rebates to replace high flush volume toilets with Ultra Low Flow and High Efficiency toilets (since 2009)
- Public information about water efficiency programs highlighted in EID's bi-monthly newsletter
- School education programs that promote water efficiency for grades K through 12.
- Partnerships with water agencies in the Sacramento area through membership in the Regional Water Authority's Water Efficiency Program (WEP)

Agricultural BMP Investment

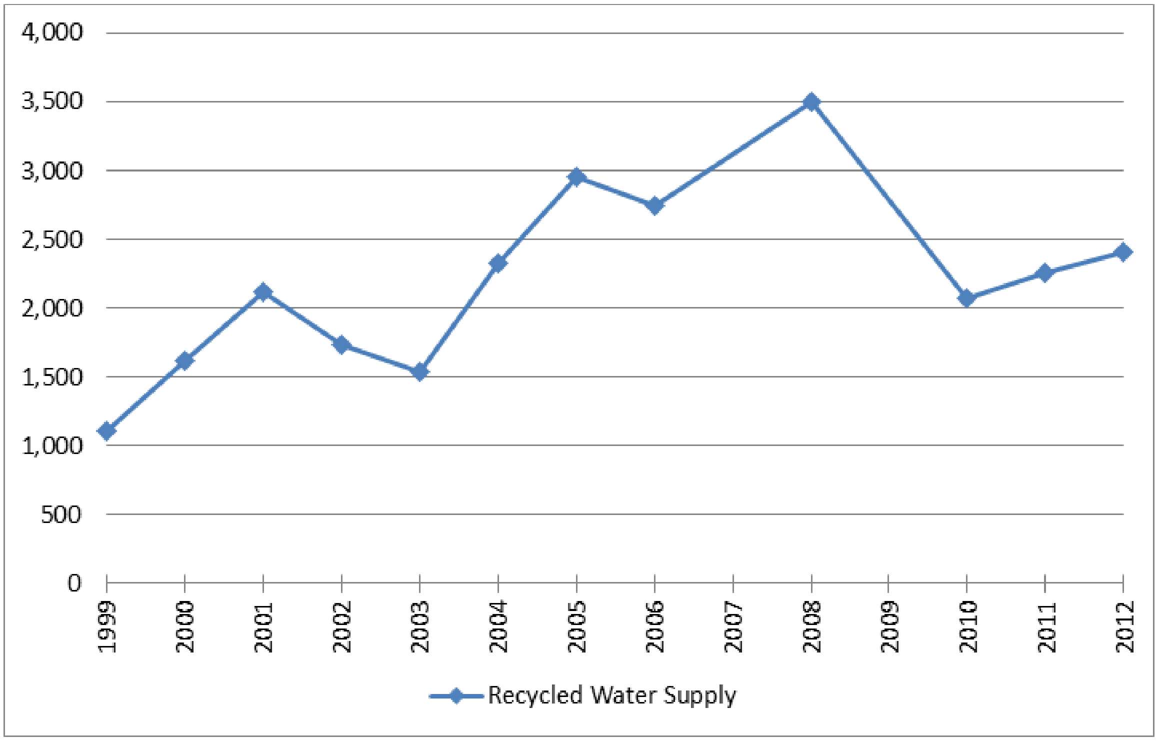
EID has implemented an Irrigation Management Services (IMS) Program since the late 1970s. This very successful program monitors soil conditions and provides irrigation recommendations to growers with five or more acres in production. EID currently monitors the soil moisture conditions at approximately 232 field sites that are read weekly during the irrigation season. Each grower receives individualized farm data the following day. The data indicates soil moisture status, predicts the next scheduled irrigation, and recommends the amount of water to apply to each field. The program also provides weather data from the California Irrigation Management Information Service (CIMIS) station #13 located in EID's service area near the community of Camino. The water savings realized by growers who participate in the IMS program has equaled more than 2000 acre-feet every year since inception. Irrigation efficiency has risen from less than 50 percent to nearly 80 percent for farms in the program from 1977 to today. Approximately 30% of growers within the EID service area participate in the program.

Recycled Water

EID has made a priority of using treated wastewater to meet non-potable needs within its service area beginning in 1979. In 1990, EID began tertiary treatment and reclamation for golf courses and road median irrigation. Over the next 10 years EID constructed transmission and distribution systems to serve local growth. EID has developed award-winning recycled water infrastructure that utilizes tertiary treated wastewater for public landscaping and residential irrigation demands. The Serrano master-planned community uses recycled water for its golf course and residential and public landscaping. The Town Center, Creekside Greens, Euer Ranch and West Valley developments also use recycled water for residential, park and/or street median landscape irrigation. Currently EID provides service to 4,600 residential and 170 commercial customers and all services are metered (EID 2013). Other future developments are also planned for use of recycled water. EID mandates use of recycled water through Board Policy 7010, wherever economically and physically feasible (EID 2010 UWMP).

EID’s ability to expand its use of recycled water is limited by wastewater inflow to the WWTPs and limited storage at the El Dorado Hills WWTP. In order to meet the current recycled water demand, EID supplements its recycled water supply with potable water at recycled water tanks. Recycled water supply shown in **Figure 5-2** varies year to year based on plant influent and recycled water demand and has been as high as 3,400 acre-feet (2008). EID delivered a total of 2,400 acre-feet of recycled water in 2012 representing approximately 7% of total raw water diversions. An additional

600 acre-feet of potable water was used to supplement the recycled water system. As WWTP inflows increase with growth, up to 5,600 acre-feet of recycled water is projected to be available. Optimization of recycled water production with seasonal storage is discussed in Section 6.6.



SOURCE: EID (2000-2013) Water Resources and Service Reliability Report

Figure 5-2 EID Historical Recycled Water Supply (acre-feet)

5.2.3 Historical Active Water Conservation Savings

EDCWA commissioned Brown and Caldwell to prepare a Water Use and Conservation Analysis (WUCA) in early 2010 in response to its concerns over the availability of regional water supplies and its ongoing water supply acquisition projects. The report presents an analysis of historic and current local water use, estimates urban GPCD baselines, and documents conservation activity for EID, including the City of Placerville, GDPUD, and STPUD. The report also includes purveyor historic average per capita water use and conservation savings compared to statewide, regional, and local water system estimates. Information in this section primarily comes from the 2010 WUCA and is supplemented with information from the EID 2010 UWMP.

EID provides wholesale water to the City of Placerville and the City contracts with EID to provide conservation services. EID's service area surrounds the City of Placerville, and EID tracks water savings for its own customers as well as savings for Placerville customers; therefore, historical and projected conservation savings and water use are presented jointly for the two water purveyors.

In quantifying water conservation achieved by EID the 2010 WUCA indicates that:

> *EID and Placerville saved approximately 9,300 AF of water through metering (formerly BMP 4). Both agencies have potable water systems that are fully metered, and both employ tiered*

rate structures. Water savings resulting from metering is based on an estimated 20 percent reduction in water use according to the CUWCC. Approximately 3,600 AF in additional savings, resulting from other BMP implementation, was realized in 2008. Recycled water production at EID's Deer Creek and El Dorado Hills Wastewater Treatment Plants offset potable water use by approximately 3,500 AF in 2008.

Figure 5-3 presents EID and Placerville's historical urban and agricultural water use and conservation savings resulting from metering and other BMP implementation from the 2010 WUCA. The blue shaded area is actual water diverted to meet demands. The purple shaded area is actual recycled water supplied. The orange shaded area is water that would have otherwise been diverted if not for implementation of water conservation measures.

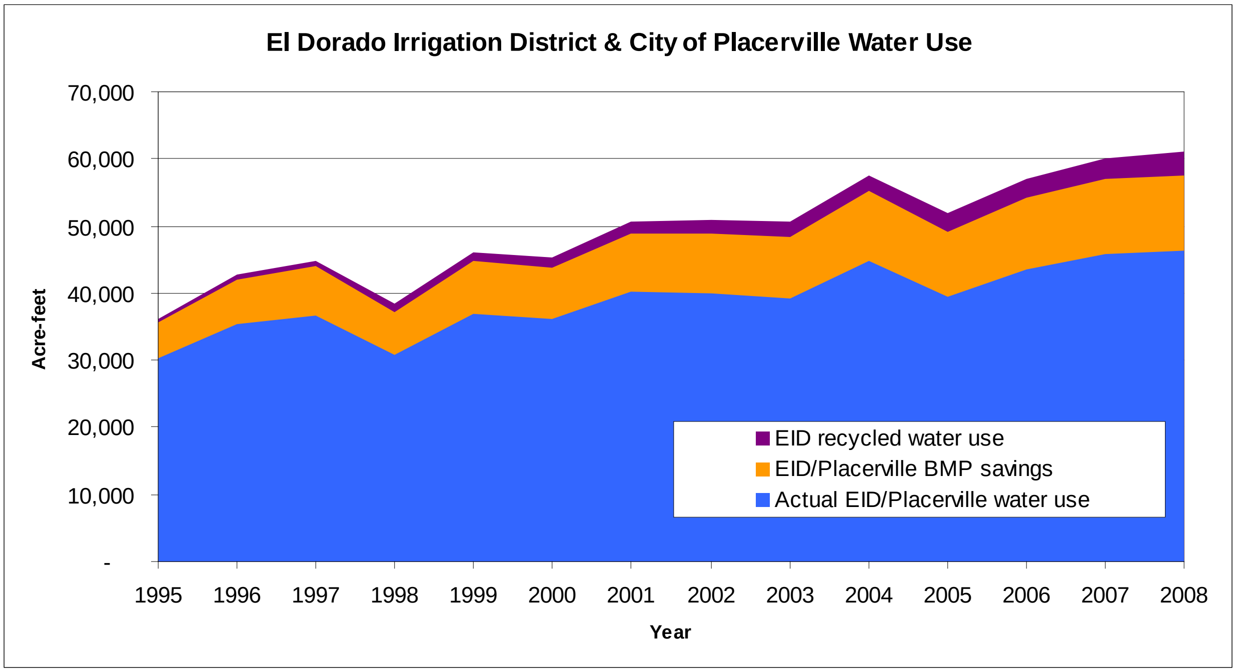


Figure 5-3 EID and Placerville Historical Water Use and Estimated Active Water Conservation Savings

Source: EDCWA 2010 Water Use and Conservation Analysis

The EID 2010 UWMP reports water savings to be about 4,000 ac-ft to date per year, based on BMP reports submitted to CUWCC website since 2002, which represented 11% of 2010 diversions of 35,677 acre-feet. Water conservation resulting from metering is not reflected in the reporting because meters were installed in the 1980's, prior to creation of CUWCC.

5.2.4 Achieving 20x2020 Conservation Goal

The following is a summary of EID water efficiency initiatives and programs (also available to City of Placerville water service customers). These actions are characterized as active conservation because EID has direct control over operational improvements and some control for offering opportunities for engaging customer participation for achieving 20x2020 goals. The BMPs and capital improvements listed below -- together with the passive water savings from building codes, landscape requirements and retrofits subject to plumbing and appliance standards -- represent EID's current plan for meeting the 20 percent water conservation requirements under current law:

Residential Indoor

- Toilet rebates: for the installation of new high-efficiency, WaterSense rated toilets in pre-1992 residences.
- Clothes washer rebates: for new TIER 2 and TIER 3 models.
- Irrigation efficiency rebates: including the addition of weather, soil moisture, or rain sensors; replacing existing controllers with WaterSense certified models; converting fixed spray heads with high-efficiency nozzles or drip irrigation systems; and replacing leaking control valves.
- Home water audits: including leak detection assistance at the water meter and complimentary plumbing retrofits as needed.
- Complimentary plumbing retrofits: including WaterSense rated showerheads and faucet aerators, toilet tank displacement bags, toilet leak detection packets, and toilet flappers if a leak is detected.

Commercial/Industrial/Institutional (CII)

- Toilet rebates: for new high-efficiency, WaterSense rated toilets or urinals in pre-1992 establishments.
- Clothes washer rebates: for new TIER 2 and TIER 3 models.
- Water surveys: to assist in identifying leaks, fine tuning irrigation schedules, and offering water-efficiency recommendations.
- Pre-rinse spray nozzles: complimentary low-flow, high-efficiency and high-velocity pre-rinse spray valves to replace older 2 to 6 gallon per minute spray valves.

Agriculture

- Irrigation Management Services program: The program serves 70 growers and 232 soil moisture monitoring sites on approximately 350 acres with an annual budget of $20,000.
- Maintain the State CIMIS station #13 at Camino.

Large Landscape Dedicated Meters

- Irrigation efficiency rebates: including the addition of weather, soil moisture, or rain sensors; replacing existing controllers with WaterSense certified models; converting fixed spray heads with high-efficiency nozzles or drip irrigation systems; and replacing leaking control valves.
- Water budgets: provides web-based budgets calculated using aerial maps of specific sites through an RWA contract with Waterfluence.
- Low cost sub-metering: available to CII customers only, excluding Placerville customers, to separate landscape irrigation from building uses for more efficient monitoring of irrigation demands.

Educational

- Water Education Materials: available to all local schools within the EID service area and the City of Placerville. The complimentary materials include interactive classroom booklets (K-8) concerning water conservation, the water cycle, and water-themed coloring books.
- Media Education Program: provides electronic newspapers, educational supplements, and teacher guides to classrooms.
- Landscape publications: available in the lobby of EID's headquarters building and at local events, including materials on water-efficient landscape design and plant selection. The popular, interactive "Water-Wise Gardening in the Gold Country Region" plant database software is also available at the lobby kiosk or at EID's website.

- Demonstration garden: The EID headquarters building features a drought-tolerant garden with several native plant species. Signage identifies the plants, and corresponds with a list of the common and botanical names of the garden's plants available in the lobby. A detailed plant report is also available upon request at the front desk or at the lobby kiosk.
- Events: complimentary water-efficiency publications and materials are available from EID for distribution at local community events.

Recycled Water

- EID operates two reclamation plants and delivers an average 3,000 acre-feet of recycled water each year to CII customers, residential dwellings for front and back yard irrigation and treatment plant uses. Recycled water use is mandatory, where feasible, within the service area and is metered and billed on a volumetric basis.

Water Supply Conveyance Capital Improvements

- Piping the Main Ditch between Forebay Reservoir and the Reservoir 1 Water Treatment Plant. This project will reduce seepage and evapotranspiration losses by an estimated 1,300 acre-feet per year.
- Waterline replacements

In addition to the water conservation elements above, EID implements the following "foundational BMPs".

- Volumetric metering of water system customers with tiered commodity rates, including meter testing and programmatic meter replacement.
- Enforcement of a water waste prohibition regulation all year and at all times, including yearly notifications in EID's newsletter.
- Water loss control including pressure management, leak detection and intervention.
- Wholesale agency water efficiency assistance to the City of Placerville customers.
- Designation of full-time water conservation coordinator.

Since the enactment of the first statewide plumbing code measures in 1978, passive savings have also been assumed to occur by actions of existing EID customers as a result of the federal, state and local codes. These codes have evolved over time as technology has become increasingly efficient. Each of the four items listed below, along with the year the standard became/becomes effective, are described in Section 6.5.

1. National Plumbing Code (1992)
2. Cal Green (2011),
3. AB 715 (2014)
4. SB 407 (2017)
5. AB 1881 (Model Water Efficient Landscape Ordinance, 2010)

5.3 GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

GDPUD began installing meters in 1961. Since the 1976/77 drought GDPUD has been proactive in implementing water conservation measures. Since 1982, treated water has been billed on an inclining block rate structure where the unit cost increases with the amount of water used. This penalizes inefficient water use. Today almost all (99.8%) urban water connections are metered and billed by volume and a tiered rate structure. Water used by irrigation and agricultural accounts is also metered. Agricultural customers use untreated water, which is metered and billed on the basis of a specific flow rate.

5.3.1 Water Efficiency Program and Demand Management Measures

GDPUD focuses mainly on agricultural water efficiency programs including lining open canals and irrigation management, with $120,000 dedicated annually to lining and piping open canals. GDPUD's urban water efficiency program has focused on five main areas: pressure control; customer communication about abnormal water use; residential plumbing retrofits; large landscape efficiency and education/public outreach. GDPUD also enforces water waste prohibitions even during normal water supply situations. These ordinances prohibit gutter flooding, non-recirculating fountains, non-recirculation systems in carwash and commercial laundry establishments.

Agricultural Water Efficiency

GDPUD owns and operates over 75 miles of raw water conveyance system. The District estimates that operational and carriage losses in the raw water conveyance system account for up to 3,000 acre-feet of water per year, or approximately 25% of total diversions. As a result, raw water conveyance system losses have been identified as having the highest potential for further conservation. Routine funding for rehabilitation has resulted in piping or lining over 30 percent of the untreated water conveyance system. Unfortunately, the 20x2020 legislation does not allow credit for GDPUD's reduced raw water losses in the calculation of target GPCD.

Urban Demand Management Measures

While GDPUD focuses mainly on more significant water savings from agricultural water efficiency measures, GDPUD also implements the applicable Demand Management Measures (DMM) described in the Urban Water Management Planning Act (Water Code Section 10610 et seq.) to support its urban water efficiency program. According to its 2010 UWMP, GDPUD has implemented 11 of the 14 DMMs. As cited in the 2010 UWMP, GDPUD determined that 3 DMMs either do not apply to the District or are not currently economically feasible based on the cost of existing supplies. Additional analysis is required to determine the cost effectiveness of these measures when compared to the cost of future water supplies. **Table 5-1** provides the DMM description and status. GDPUD is not a member of CUWCC.

Table 5-1 2010 UWMP GDPUD DMM Implementation Status

DMM	*DMM Description*	*Implemented?*
A	Water Survey Programs for Single-Family and Multi -Family Residential Customers	Yes
B	Residential Plumbing Retrofits	Yes
C	System Audits, Leak Detection and Repair	Yes

D	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections	Yes
E	Large Landscape Conservation Programs and Incentives	Yes
F	High-Efficiency Washing Machine Rebate Programs	No(1)
G	Public Information Programs	Yes
H	School Education Programs	Yes
I	Conservation Programs for Commercial Industrial and Institutional Accounts	Yes
J	Wholesale Agency Assistance Programs	No(2)
K	Conservation Pricing	Yes
	Water Conservation Coordinator	Yes
M	Water Waste Prohibition	Yes
N	Residential Ultra-Low-Flush To let Replacement Programs	No(1)
(1) Implementation not economically feasible (2) Implementation not applicable to District		
Source: 2010 UWMP, Page 33		

GDPUD has determined that offering a high efficiency washer or ultra-low-flush toilet rebate program is not cost effective based on the current cost of service. While GDPUD offers some level of assistance to CII customers by making them aware of abnormal water use, offering incentives is also not cost effective at this time. Future analysis of cost effectiveness considering the cost of new supplies may change the outcome of this analysis. Alternatively, GDPUD focuses its resources on the larger conservation potential of broader system-wide water conservation measures such as ditch lining of the raw water delivery system.

Recycled Water

There is currently no recycled water use in the District service area. The District manages the onsite wastewater disposal system serving the Auburn Lake Trails Subdivision in Cool. This 1,100 lot subdivision utilizes site-specific waste disposal methods that depend on the type of soil present on each lot. A small Community Disposal System (CDS) serves 139 of these lots that otherwise do not support site-specific disposal. Average dry weather wastewater flow from this system has been 22,000 gallons/day. At build out, the CDS will handle approximately 32,000 gallons/day.

The District and the Auburn Lake Trails Owners Association has evaluated the potential for utilizing reclaimed water to irrigate the nearby 9-hole golf course. The golf course currently uses 100,000 gallons of treated water per day during the summer months. The district and property owner's association determined that the wastewater system could only meet approximately 30% of that demand. Since the wastewater is not disinfected and is classified as primary wastewater, additional treatment would be required. These factors make the use of recycled water cost-prohibitive at this time.

5.3.2 Historical Active Water Conservation Savings

The 2010 WUCA indicates:

> *In 2008, GDPUD saved approximately 430 AF of water through metering (formerly BMP 4). Savings are based on an estimated 20 percent reduction in water use according the CUWCC.*

From the 2010 WUCA, **Figure 5-4** presents GDPUD's historical urban water use and conservation savings resulting from metering only as savings associated with other DMMs is not available.

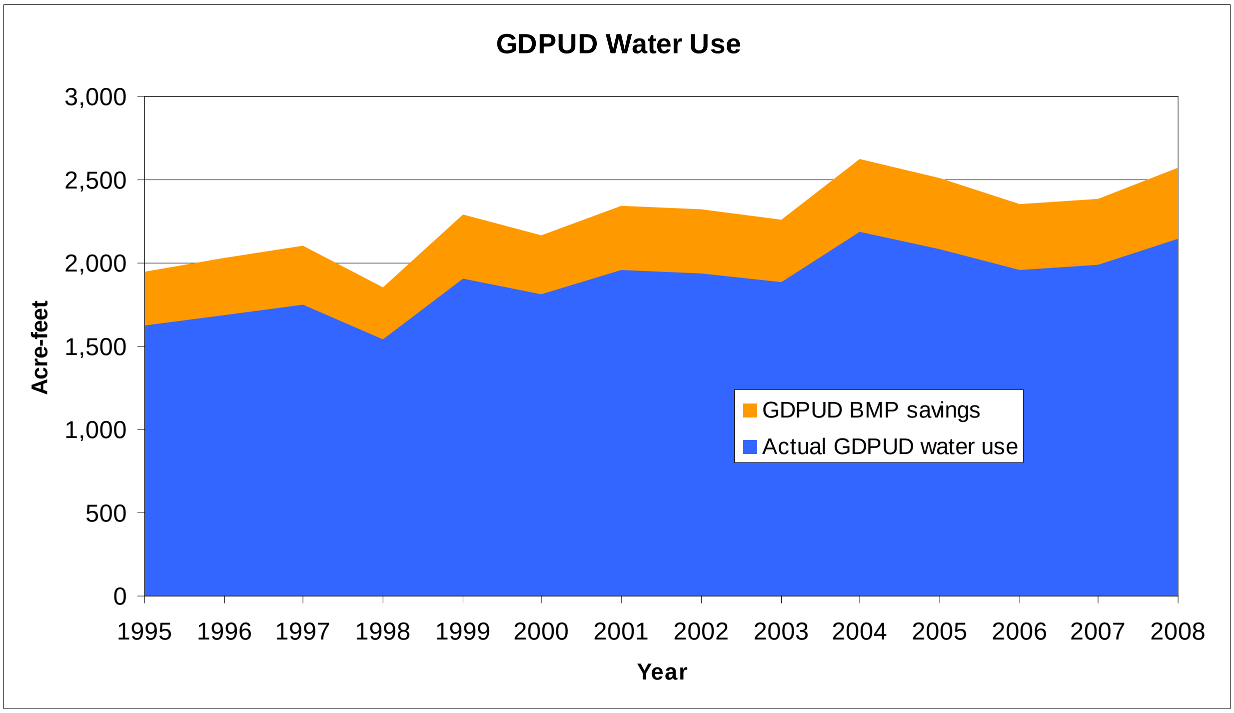


Figure 5-4 GDPUD Historical Urban Water Use and Estimated Active Water Conservation Savings

SOURCE: EDCWA 2010 Water Use and Conservation Analysis

GDPUD's 2013 water rights report to the State Water Resources Control Board indicates the District achieved a combined total of 5,200 acre-feet of water conservation savings in its raw and treated water systems. The savings is attributed to metering, public education, inclining block rate structure for the treated water system, loss monitoring, crop acreage records, canal piping and lining, phreatophyte removal and irrigation efficiency programs. A breakdown of the savings between urban and agricultural uses was not provided.

5.3.3 Achieving Per Capita Conservation Goal

The following is a summary of GDPUD water efficiency initiatives and programs from its 2010 UWMP. These actions are characterized as active conservation because the agency has more direct control over implementation of operations related measures and resources to engage and encourage customers to participate in efficiency programs. The scope of the following DMMs and capital improvements together with the passive saving that will result from building and plumbing code changes represent GDPUD current plan for meeting its SB X7-7 urban water conservation requirements.

Agricultural Water Efficiency

- Metering: Untreated irrigation water is contracted and billed on the basis of a specified flow rate. Deliveries from ditches are metered. Deliveries from pipelines are made through pressure-activated flow metering devices.
- Weather Monitoring: To promote water conservation through efficient application of irrigation water, two evaporation/weather stations have been established with the support and

cooperation of the Department of Water Resources and Georgetown Divide Resource Conservation District. Station data is published in local newspapers weekly during the irrigation season.

- Education: The Conservation District has sponsored demonstrations and newspaper articles concerning development of effective irrigation schedules by using weather and soils data.
- Irrigation Management Services (IMS): The El Dorado County Water Agency sponsors an IMS program available to growers within the GDPUD service area, utilizes irrigation management consultants, that includes providing growers with weekly site specific soil moisture monitoring results from moisture sensing nuclear probes and recommended irrigation scheduling by crop. District staff is also trained to assist in defining soil type, water holding capacity, and efficient irrigation scheduling for customers.

Urban Demand Management Measures

- Residential Water Survey Program (DMM A): The program includes monitoring usage, customer notification of abnormal use, and incentives for timely repairs.
- Residential Plumbing Retrofits (DMM B): Water conservation kits including high quality 2.5 gpm or less showerheads, 2.2 gpm or less faucet aerators, toilet displacement devises and leak detection tablets. Kits are available at the District office and are offered during surveys.
- Water System Audits, Leak Detection and Repair (DMM C): Maintenance of Water Use Records by User Type. Monthly and annual audits that identify metered use by customer category, unmetered water for authorized and unauthorized uses. Immediate repair of reported leaks, remote sensing for leak detection, targeted pipeline replacement in areas of reoccurring leaks, aging meter replacements and pressure control are implemented.
- Metering with Commodity Rates (DMM D): 99.8% of the District's domestic water connections are metered and all water is billed volumetrically. 15 unmetered accounts will have meters by 2020 where practical and/or feasible.
- Large Landscape Conservation Programs and Incentives (DMM E): Dedicated irrigation meters and detailed water use information provided to customer. Assist customers in identifying conservation that will improve efficiency and provide economic incentive through rate structure.
- Public Information Programs (DMM G): Public information program promoting conscientious use of water resources including District personnel speaking at service clubs, neighborhood association meetings, conservation messaging in bimonthly bills, flyers available at district office and on website and a demonstration of drought tolerant plants at the district office.
- School Education Programs (DMM H): Education program including District personnel speaking at schools to promote conscientious water use, conducting field trips at water treatment plant and assisting with special projects involving water resources.
- Conservation Pricing (DMM K): Water billed on an inclining block rate structure where unit cost increases with the amount used, which penalizes inefficient water usage.
- Conservation Coordinator (DMM L): Staff member dedicated to the coordination and oversight of conservation efforts.

- Water Waste Prohibition (DMM M): 1982 ordinance authorizing abatement procedures to curtail blatant water waste including discontinuation of water service.

Capital Improvements

GDPUD plans to continue systematic lining and piping of its raw water conveyance system. The District aggressively pursues grant or loan funding whenever possible to maximize its ability to maintain, rehabilitate or upgrade the raw water conveyance system.

GDPUD plans to improve its urban and agricultural water conservation program with grant funding potentially available through the Cosumnes, American, Bear and Yuba (CABY) Integrated Regional Water Management watershed group. GDPUD recently applied for grant funding through Reclamation's WaterSmart program for raw water conveyance system improvements, which was unsuccessful, and has just been awarded CABY grant funding under DWR for the same project.

Since the enactment of the first state-wide plumbing code measures in 1978, passive savings have been assumed to occur by actions of existing GDPUD customers as a result of the federal, state and local codes. These codes have evolved over time as technology has become increasingly efficient. Each of the four items listed below along with the year the standard became/becomes effective is described in Section 6.5.

1. National Plumbing Code (1992)
2. Cal Green (2011),
3. AB 715 (2014)
4. SB 407 (2017)
5. AB 1881 (Model Water Efficient Landscape Ordinance, 2010)

5.4 EL DORADO COUNTY WATER AGENCY WATER USE EFFICIENCY PROGRAM

EDCWA implements water use efficiency programs and pursues funding that supports both purveyors and private water systems. EDCWA is also an associated member of CUWCC. EDCWA's Strategic Plan, adopted in 2011, sets out the Agency's goals and objectives. A primary focus of the document is to support county purveyors in their water conservation programs but also to develop a broader countywide umbrella providing resources and support to all water users in the county. The following select goals and objectives from the Strategic Plan relate directly to water conservation and guide the programs offered by EDCWA.

Engage in community outreach and education

- Present to community organizations
- Educate public on current events and key issues
- Utilize agency website as communication tool
- Develop education program for schools

Enhance reliability of existing and future water supplies

- Advance county-wide drought planning effort
- Promote conservation and efficiency to maximize beneficial use
- Assist residents and purveyors with groundwater supply reliability
- Pursue funding opportunities to achieve greater reliability
- Assist local land use authorities in development and implementation of water related ordinances

Identify and pursue new funding sources

- Build capacity to pursue grants
- Explore fee-based services
- Pursue other sources of public and private support

5.4.1 El Dorado County Water Agency Irrigation Management Services

The Water Agency's IMS program for the West Slope of El Dorado County has been in place since 2001. EDCWA's program is a separate stand-alone program that services areas outside the EID service. Using consulting services, the program serves 70 growers and 156 soil moisture monitoring sites on approximately 850 acres in El Dorado County. This program services approximately 90% of the growers outside of EID's service area. The IMS program includes providing growers with weekly site specific soil moisture monitoring results from moisture sensing nuclear probes and recommended irrigation scheduling by crop. Most of the IMS customers are on unmetered wells but some receive surface water from GDPUD. As shown in **Figure 5-5** the IMS program has grown steadily since its inception. EDCWA budgets $80,000 annually to implement this program.

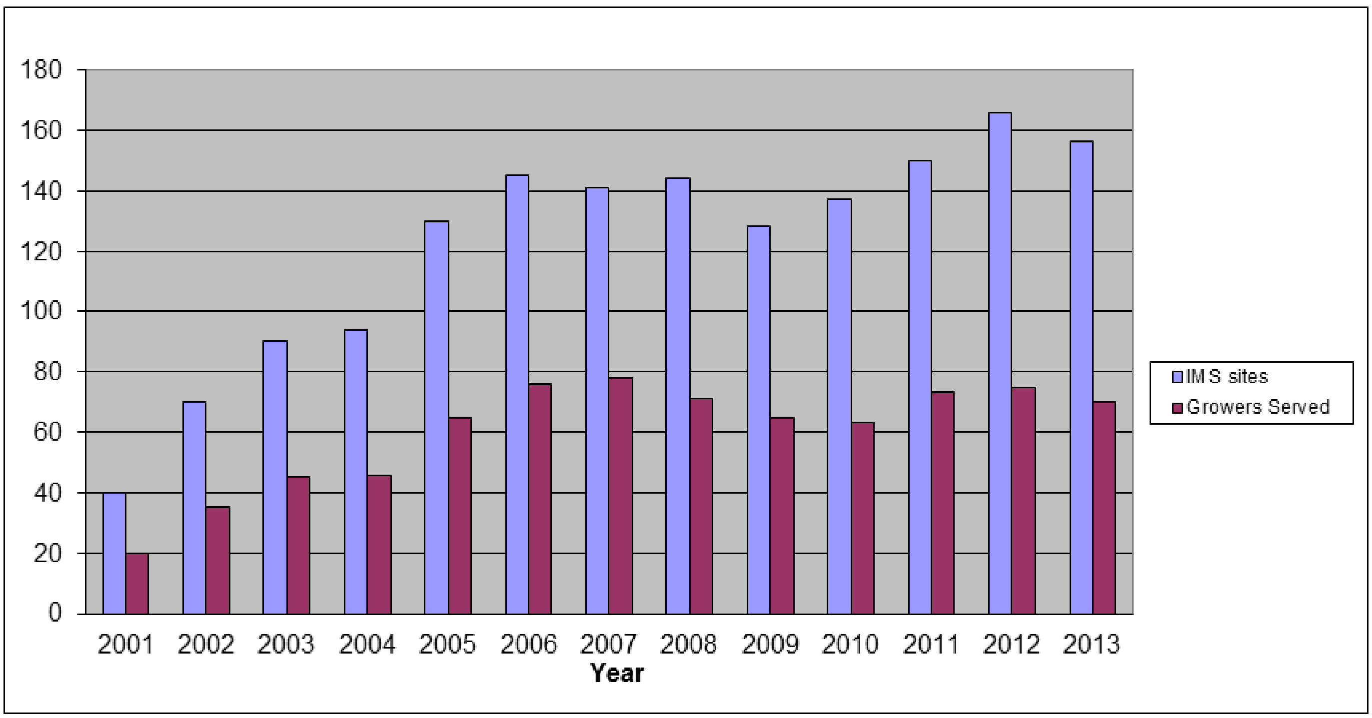


Figure 5-5 El Dorado County Water Agency IMS Sites and Participating Growers

Estimated Water Savings

Water savings is commonly assumed to be the only purpose of an irrigation management program. While conservation is usually a byproduct of irrigation management and typically the goal of a water agency, its functional purpose is efficiency or optimization of the timing and quantity of irrigation by crop type. In other words, the right amount of water, at the right time is provided to produce the best crop. Where publicly purveyed surface water supplies are available, the potential for water savings is greatest as irrigation management reduces overwatering and potential runoff from occurring. In the Water Agency's case, the water supply source for most of the program participants is private wells in fractured rock with limited capacity. The grower's goal is to conserve as much water as is feasible early in the season so that adequate water is available later in the season. The potential for water savings is therefore lower and the focus is more on efficiency.

Although metered data is not available for well water use, water savings resulting from IMS implementation is estimated to be between 6% and 38% depending on whether ground water or surface water is used. The low end of the range is based on capacity limited groundwater use and is inferred using soil moisture data where the grower phased in IMS based irrigation practices over several years. The upper end of the range is based on other foothill IMS programs where publicly purveyed surface water is used for irrigation.

5.4.2 EDCWA Cost Sharing Program

EDCWA offers a grant program to local water agencies and other non-profit water interests with a focus on protecting existing water rights, extending existing water supplies, improving supply reliability and acquiring new water supplies for projected future demands. Over the last five years EDCWA has provided over $5 million in grants to EID, GDPUD, GFCSD, South Tahoe Public Utility District, Tahoe City Public Utility District and the El Dorado/Georgetown Resource Conservation Districts for water supply related projects.

5.4.3 Grant Writing

EDCWA pursues grant funding consistent with the goals and objectives of its strategic plan and has developed projects and/or written applications for urban water conservation plans, government building plumbing and mechanical system retrofits, ditch lining and piping and renewal energy projects on behalf of county purveyors and broader county benefit. The projects and state and federal programs EDCWA has applied to for grant funding are presented in Table 5-2. Renewable energy projects that include in-conduit hydroelectric elements are included as they represent efforts to maximize the efficient and beneficial use of water already diverted into the water system.

Table 5-2 El Dorado County Water Agency Water Use Efficiency Grant Applications

Project	***Grant Funding Source***		***Grant Amount***	***Successful***
CABY Regional Reliability Project including GDPUD and EID ditch lining and piping	Urban /Agricultural Water Use Efficiency Programs	2006	$3,000,000	No
GFCSD Reservoir Lining, Water Reliability and Conservation Project	Sierra Nevada Conservancy	2007	$373,000	No
Placerville - Hangtown Creek Comprehensive Watershed Master Plan	Sierra Nevada Conservancy	2008	$130,000	Yes
EID Pleasant Oak Main Tank 7 Variable Speed Regenerative Drive In-Conduit Hydro Project	California Energy Commission Emerging Technology Demonstration Program	2011	$1,600,000	No
South Tahoe PUD Renewable Energy Regional Exploration Project	California Energy Commission	2012	$750,000	Yes
GDPUD Sandtrap Siphon In-Conduit Hydro Project	California Energy Commission	2012	$1,540,000	No
Placerville Water Line	Integrated Regional	2013	$750,000	Yes

Replacement Program Phase I	Water Management Programs			
EID Tank 7 Small Hydroelectric Projects	Integrated Regional Water Management Programs	2013	$500,000	Yes
GDPUD Ditch Lining	WaterSMART	2014	$300,000	No
GDPUD Ditch Lining Conservation Project	Integrated Regional Water Management Programs	2014	$860,894	Yes
City of Placerville Water Line Replacement Program Phase 2	Integrated Regional Water Management Programs	2014	$745,000	Yes
El Dorado County Government Building Water Efficiency Retrofits and K-8 Water Conservation Education Program	Integrated Regional Water Management Programs	2014	1,775,187	Yes
El Dorado County Water Agency Water Conservation Plan	Integrated Regional Water Management Programs	2014	100,000	Yes
Grizzly Flats CSD Drought Measure and Water System Infrastructure Improvements	Integrated Regional Water Management Programs	2014	492,051	Yes

5.4.4 Achieving Per Capita Conservation Goal

Since 2001 with the implementation of its IMS Program, EDCWA's water resources management role in the County has evolved from a planning agency with the primary goal of protecting existing and acquiring new water rights to an expanded role including targeted water efficiency programs and providing grant funding more focused on water use efficiency. In light of the State's 20 percent water conservation mandate and ongoing drought conditions, EDCWA will need to play an even greater role in assisting the purveyors and others in the county to maximize water use efficiency given local cost effectiveness and the availability of state, federal and private grant funding. To that end and consistent with its strategic plan, EDCWA is considering the creation of an Office of Water Efficiency (OWE).

5.5 STATE-WIDE WATER CONSERVATION CODES AND LEGISLATION

This section describes the building and plumbing codes and new legislation that will generate passive water savings in new developments and existing homes that change ownership or are modified through a building permit process. Water savings resulting from these codes are not quantified for this report.

5.5.1 National Plumbing Code

The Federal Energy Policy Act of 1992, as amended in 2005 requires only fixtures meeting the following standards can be installed in new buildings:

- Toilet – 1.6 gal/flush maximum

- Urinals – 1.0 gal/flush maximum
- Showerhead - 2.5 gal/min at 80 psi
- Residential Faucets – 2.2 gal/min at 60 psi
- Public Restroom Faucets - 0.5 gal/min at 60 psi
- Dishwashing pre-rinse spray valves – 1.6 gal/min at 60 psi

Replacement of fixtures in existing buildings is also governed by the Federal Energy Policy Act; only devices with the specified level of efficiency (shown above) can be sold since 2006. The net result of the plumbing code is that new buildings will have more efficient fixtures and old inefficient fixtures will slowly be replaced with new more efficient models. The national plumbing code is an important piece of legislation and must be carefully taken into consideration when analyzing the overall water efficiency of a service area.

In addition to the plumbing code the US Department of Energy regulates appliances such as residential clothes washers. Regulations to make these appliances more energy efficient has driven manufactures to dramatically reduce the amount of water these machines use. Generally front loading washing machines use 30 to 50 percent less water than conventional models (which are still available). In a typical analysis, cost effectiveness models assume a gradual transition to high efficiency clothes washers (using 19 gallons or less) so that by the year 2020 this will be the only type of machines purchased. In addition to the industry becoming more efficient, rebate programs for washers have been successful in encouraging customers to buy more water efficient models. Given that machines last about 15 years, eventually all machines will be of this type.

5.5.2 State Building Code – CalGreen

The Cal Green requirements affect all new development in the State of California after January 1, 2011. The new development requirements under Cal Green are listed in the table below.

Table 5-3 Cal Green Building Code Summary Table

5.5.3 State Plumbing Code – AB 715

The Plumbing Code includes the new CCR Title 20 California State Law (AB 715) requiring High Efficiency Toilets and High Efficiency Urinals be exclusively sold in the state by 2014. This effects both new construction and retrofits of individual toilets.

5.5.4 California State Law – SB 407

SB 407 (Plumbing Fixture Retrofit on Resale or Remodel): SB 407 begins from the year 2017 in residential and 2019 in commercial properties. This is 25 years after the passage of the National Plumbing Code and perceived beyond the useful life of older inefficient toilets. SB 407 program length is variable and continues until all the older high flush toilets have been replaced in the service area.

Figure 5-6 provides housing data by year built for El Dorado County as compared to California and indicates significant opportunity for water savings resulting from plumbing retrofits in homes built before 1992. A small portion of this potential has already been realized to the extent EID has offered a toilet replacement rebate program since 1995 and has replaced 5,500 toilets with low flow and ultra-low-flow toilets.

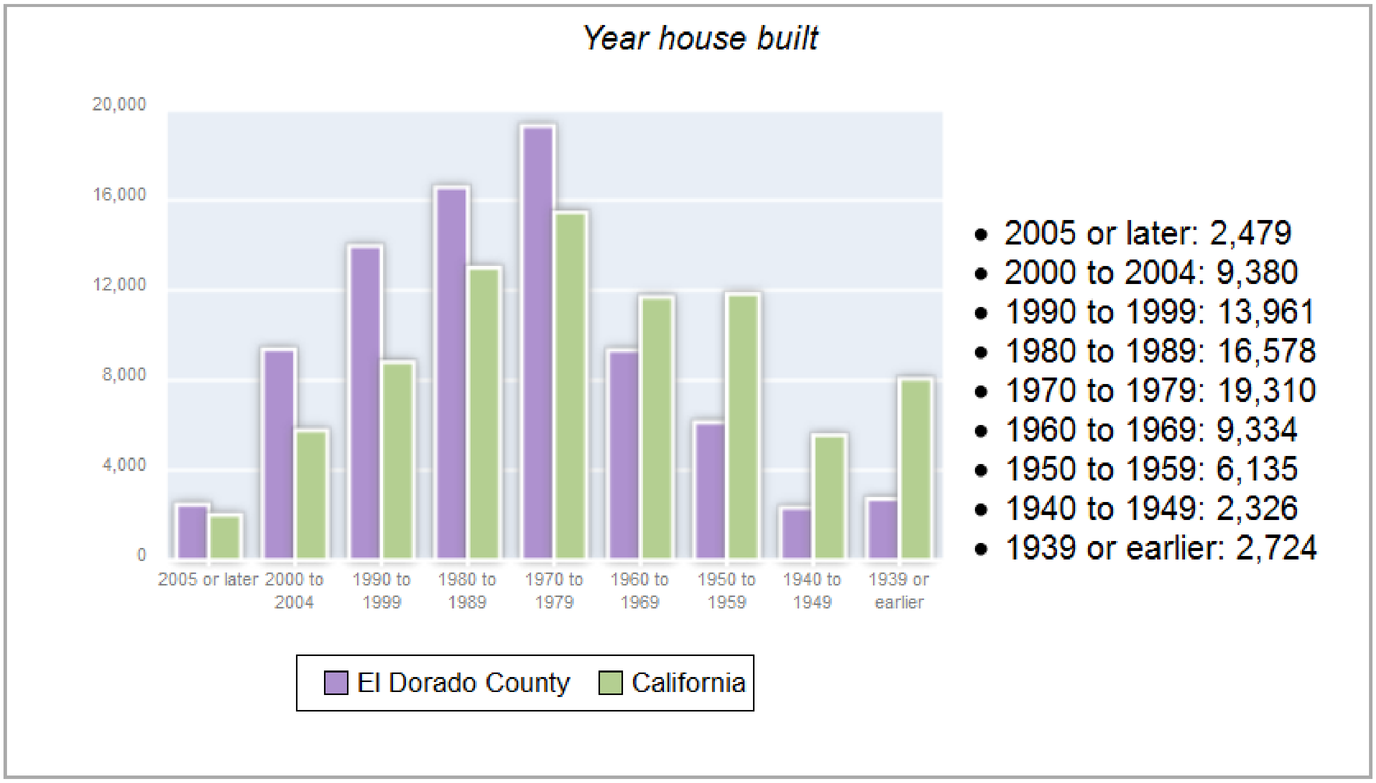


Figure 5-6 El Dorado County and California Housing - Year of Construction
SOURCE: 2010 US Census (http://www.city-data.com/county/El_Dorado_County-CA.html)

5.6 COUNTY WATER CONSERVATION CODES AND LEGISLATION

5.6.1 Landscape Ordinance Implementation

The Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881) required water agencies to adopt landscape water conservation ordinances by January 2010. In the absence of such ordinances, DWR's Model Water Efficient Landscape Ordinance (MWELO) serves as the requisite standard. El Dorado County is currently in the process of updating its Zoning Ordinance and as part of that process, is updating its landscape ordinance to be consistent with General Plan policy requirements for water conservation methods that encourage the use of native, drought tolerant species, reclaimed water, and greywater systems and to ensure it remains as effective in conserving water as the MWELO. Until such time a new ordinance is adopted, the county is operating under the MWELO for all projects submitted as of January 1, 2010.

5.6.2 County Building Codes

The County enforces all state and federal building and plumbing codes.

5.6.3 2004 General Plan Policies

El Dorado County's 2004 General Plan includes a Public Services and Utilities Element (PSUE) to "insure a pattern of development which maximizes the use of existing services while minimizing the costs of providing new facilities and services." The rapid growth experienced by El Dorado County over the last two decades, and resulting strain on services, compelled the County to address public services in its General Plan policies. The PSUE addresses water conservation and water recycling in the following policies:

- Policy 5.2.1.10: The County shall support water conservation and recycling programs and projects that can reduce future water demand, develop and implement a water use efficiency program for existing and new residential, commercial/industrial, and agricultural uses, determine which uses will require recycled water and encourage all purveyors to implement BMP.
- Policy 5.2.1.12: The County shall work with EID to support the continued and expanded use of recycled water, including storage, encourage the construction of distribution lines at the same time as other utilities are installed.
- Policy 5.2.1.15: The County shall support the efforts of the County Water Agency and public water providers to retain existing and acquire new surface water supplies for planned growth and existing and planned agricultural uses including reclaimed water.

5.7 FUTURE GOALS FOR WATER EFFICIENCY BEYOND 2020

Opportunities for conservation evolve with time as operational changes are made, technology advances, customer attitudes shift towards hopefully greater program participation, and progress towards goals are achieved through implementation. As discussed in Chapter 4, target GPCD is used to project 2020 water demands for EID and GDPUD and this chapter describes how the SB X7-7 conservation goal is envisioned to be achieved. Beyond 2020, however, as EID and GDPUD service areas buildout there is the potential for a significant increase in economic activity pursuant to the 2004 General Plan and 2007 FAR General Plan Amendment which translates into a focus on additional commercial water use efficiency in the future.

EDWCA envisions that County residents will continue to benefit from the State of California striving for more efficient use including updates to the Appliance and Plumbing Fixture Codes (CCR Title 20), further refining the goals to be water efficient in the Cal Green Building Codes (CCR Title 24), future revisions to the statewide landscape ordinance as California adopts the "new norm" in native landscaping, and more recycled water codes (CCR Title 22).

Beyond these passive code savings, all the county water purveyors will continue to seek more efficiency from their operations and customers. Each agency will continue monitoring its GPCD and find the most optimal ways to invest rate revenue to maximize water savings. Future decisions on investments in conservation, recycling and other alternative sources are planned to be based on a few common factors, which may include water savings, cost effectiveness, customer service and future regulatory requirements.

As described in Section 5.1.2, the current cost of water for local purveyors is low due to relatively low pumping and treatment costs. Currently, the cost of supply is in the range of $62/acre-foot (EID 2014). Cost effectiveness analyses prepared by the purveyors have taken the simplistic approach of assessing conservation measures based on the current low cost of supply to the cost to implement the conservation measure.

A basic review of the Table 5-4 below (acronyms used in the table are listed immediately following the table) illustrates a long list of current and potential future conservation measures that involve education, incentives or mandates for higher efficiency. For basic qualitative comparison purposes, the range of the current cost of water supply in the County is presented with the unit cost of water savings in $/AF from conservation plans completed elsewhere in Northern California. There are reasons to select a conservation measure even if the unit cost is higher than the avoided cost, namely that its customer service benefit is tied to a key incentive program or the estimated water savings are high enough to warrant the investment to meet GPCD targets or other savings goals. These goals include maximizing outdoor irrigation efficiency to minimize consumption uses in the peak summer months. In general, the majority of conservation measures appear to be more costly on a per unit basis. However, this does not take into account future new water supply avoided cost or a full comprehensive cost effectiveness analysis. Cost effectiveness is driven by future water supply costs, which are expected to be quantified as planning for new water supplies is advanced.

Table 5-4 Summary of Current or Future Potential Water Use Efficiency and Recycled Water Measures

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
NA	**Agricultural Irrigation Management System**	Education	NA	NA	Yes	✓	✓	✓	Long-standing program	Outdoor	Both
	Agricultural Canal Lining	Operations			Yes	✓	✓	✓	Long-standing program		Agency
NA	**Recycled Water Irrigation**	Mandate			Yes	✓	✓	✓	Long-standing program	Outdoor	Agency
1.1	**Prohibit Water Waste Practices**	Mandate	NA	NA	Yes	✓	✓	✓	Long-standing practice	Outdoor	Agency
1.2	**Water Loss Control Program**	Operations program to address real water losses	62	$100-$300	Yes	✓	✓	Beyond Economic Level of Leakage	Long-standing program	Utility	Agency
1.3	**Metering (with AMR benefits to**	Operations	62	$1,000 -	Yes	✓	✓		On-going installation	Utility	Agency

[3] Based on results of a sample of conservation plans prepared in Northern California. Selection of efficiency measures for inclusion in overall conservation and recycled water programs is typically based more on volume of water saved than inferences made from unit cost of water saved estimates.

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potabl e Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Addition al State Funding Support	Comments	Customer Category	County or Agency Led
						✓	✓				
						✓	✓				
	Conservation)			$2,000		✓	✓				
1.3	**Submetering on New Residential Accounts**	Potential Ordinance	62	$1,100 - $1,200	No	Voluntary	Voluntary	✓	Would be new Developer Requireme nt	Residential	Agency
1.3	**Rebates for Mixed-use Meter Conversion to Dedicated Landscape Meter**	Incentive	62	NA	Yes	✓	✓	✓	Costly program	Landscape	Agency or County
1.4	**Conservation Pricing**	Ongoing Volumetric Pricing	NA	NA	Yes	✓	✓	✓	Long-standing policy	Utility	Agency
2.1	**Public Information Program**	Education and Awareness	NA	$200-$400	Yes	✓	✓	✓	Regional Water Authority Partnership	Utility	Partner-ships
2.2	**School Education**	Education and Awareness	NA	$400-$1,000	Yes	✓	✓	✓	SacBee Partnership	Utility	County or Agency
3.1	**SF MF Surveys**	Customer Service	62	$200-$600	Yes	✓	✓	✓	Focus on Outdoor	Residential	Agency

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
									savings		
3.1	**WaterSense Fixtures Giveaway**	Incentive	62	$50-$100	Yes	✓	✓	✓	Education Measure	Residential	Agency
3.3	**HE Clothes Washer SF MF Clothes Washer Rebate**	Incentive	62	$300-$800	Yes	✓	✓	✓	Current PG&E Program	Residential	County or Energy Utility
3.4	**HE Toilet SF/MF/CII Rebates**	Incentive	62	$90-$400	Yes	✓	✓	✓	Outdoor savings focus	Residential	County or Agency
3	**HET SF/MF - Direct Install (Low income)**	Incentive	62	$800-$900	No	✓	✓	✓	Potential Disadvantaged community funding	Residential	Agency or County
Flex Track or GPCD	**HET SF MF - Direct Install (i.e., Green City Niagara Program)**	Incentive	62	NA	No		Costly Program	✓	Direct Install programs are costly.	Residential	County or Agency
4 - Savings	**Customized Top Users Survey & Incentive Program & CII**	Incentive	62	$300-$500	Yes	✓	✓	✓		CII	County or Agency

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
	Rebates for Inefficient Equipment										
4 - Savings	**HE Clothes Washer CII Rebate**	Incentive	62	$500-$1000	No		Full saturation long-term	✓	Higher Emphasis on Outdoor Savings	CII	County or Agency
4 - Savings	**HET CII Rebates**	Incentive	62	$400-$500	Yes		Full saturation long-term	✓	Higher Emphasis on Outdoor Savings	CII	County or Agency
4 - Savings	**HE Urinal CII Rebates**	Incentive	62	$500-$600	Yes		Full saturation long-term	✓	Higher Emphasis on Outdoor Savings	CII	County or Agency
4 - Savings	**Focused School Retrofit Program**	Incentive	62	$750-$1300	Yes	✓	✓	✓	Upgrade equipment & landscape	CII	County or Agency
4 - Savings	**High Efficiency Fixtures Direct Install (Commercial and/or Government Buildings Only)**	Incentive	62	$1,000 - $3,000	No	✓	✓	✓	Very costly for direct install programs. Emphasis on outdoor programs	CII	Agency or County

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
5	**Outdoor Water Audit – Large Landscape**	Customer Service	62	$900-$3,000	Yes	✓	✓	✓		Landscape	County or Agency
5	**Landscape Water Budgets/Monitoring- Large Landscape Dedicated Meters & Mixed Use Conversion**	Customer Service & Education	62	$1,300 - $1,400	Yes	✓	✓	✓	Consider outsourcing from WaterFluence or other vendor	Landscape	County or Agency
Only Flex-Track or GPCD	**Turf Replacement SF Landscape Conversion**	Incentive	62	$3,200 - $3,600	No	✓	✓	✓	Popular with customers. Labor Intensive creates costly program	Residential/ Landscape	County or Agency
Only Flex-Track or GPCD	**Turf Replacement MF CII Large Landscape Landscape Conversion**	Incentive	62	$7,000 - $14,000	No	✓	✓	✓	Popular program, challenging to fund even incentive for larger	Landscape	County or Agency

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
									customers, costly to implement		
5	**WBICs Incentive Program SF MF CII Large Landscape**	Incentive	62	$850-$900	Yes (Residential)	✓	✓	✓	Not locally cost effective	Landscape	County or Agency
5	**Irrigation Efficiency (Rotating Sprinkler Nozzle) Incentive Program SF MF CII Large Landscape**	Incentive	62	$900-$1,000	Yes (Residential)	✓	✓	✓	Not locally cost effective	Landscape	County or Agency
Flex Track or GPCD	**Require Plan CII WUE Review**	Mandate	NA	NA	Yes	✓	✓	✓	County Building Code Requirement	CII	County
Flex Track or GPCD	**Require SF Hot Water On-Demand (Ordinance)**	Mandate	NA	$700-$800	No		High Cost for Retrofit, Limited Feasibilit	✓	Requires code update	Residential Indoor	Agency or County

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
							y				
Only Flex-Track or GPCD	**Gray Water Retrofits SF Rebate**	Incentive	62	$500-$700	No		Limited Feasibility	✓	Participation challenging for retrofits	Residential/ Landscape	County or Agency
Flex Track or GPCD	**Gray Water Plumbing for SF New Development (Ordinance)**	Voluntary	62	NA	Yes	✓	✓	✓	Voluntary Developer Program	Residential	County or Agency
Flex Track or GPCD	**Rebates for Flow Sensors/Hydrometers**	Incentive	62	NA	No		Limited Feasibility	✓	Auto=shutoff for irrigation leaks	Landscape	County or Agency
Only Flex-Track or GPCD	**Turf Replacement SF Landscape Conversion**	Incentive	62	$3,200 - $3,600	No		Costly Program for Customer and Utility	✓	Popular with customers. Labor Intensive creates costly program	Residential/ Landscape	County or Agency
Only Flex-Track or GPCD	**Weather Based Irrigation Controllers (WBICs)**	Incentive	62	$850-$900	Past		✓	✓	Grant funded in the past	Residential/ Landscape	County or Agency

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
	Giveaway Program (and Classes) SF										
Only Flex-Track or GPCD	**Small Irrigation Hardware Incentives (Drip Irrigation and Rain Sensors)**	Incentive	62	$50-$600	Yes		✓	✓	Small savings for the cost of running program	Residential/ Landscape	County or Agency
Code Savings	**Water Conserving Landscape & Codes (not including WBICs and turf removal) SF MF CII**	Mandate	62	$100-$200	Yes			✓	Statewide Ordinance and Codes	Residential/ Landscape	County or Agency

<u>List of Acronyms:</u>
AMR = Automated Meter Reading
AF = Acre-Feet
BMP = Best Management Practices
CII = Commercial, Institutional, and Industrial
CUWCC = California Urban Water Conservation Council
HET = High-Efficiency Toilets
HEU = High-Efficiency Urinals
MF = Multifamily
NA = Not Available
SF = Single Family
UHEU = Ultra-High-Efficiency Urinals
UHET = Ultra-High-Efficiency Toilets
WBIC = Weather-Based Irrigation Controller

5.7.1 Long Term Future Potential Conservation Measures

EDCWA intends to undertake a water use efficiency planning effort to better quantify the long term water savings and associated benefits and costs. Enhancements beyond 2020 to the EID and GDPUD conservation programs supported by EDCWA may include some or all of the following:

- More targeted and extensive outreach to customers and local schools (e.g., increased participation in awareness programs such as the US EPA WaterSense Program and California's Save Our Water)
- Installation of Automatic Meter Infrastructure (smart) metering technology
- Provide leak alerts with customer service follow-up to support customers addressing water loss on their side of the meter
- Develop water budgets for all potable irrigated properties over 1 acre or receiving small farm irrigation metered rate
- Providing Water Use Reports to inform customers of their use compared to similar neighboring properties
- Widespread adoption of “smart” software that can connect consumers with specific programs and opportunities to reduce their water use and save on their water bills
- Making greywater systems, rain cisterns, and other water saving opportunities more easily available in the service areas
- Improved coordination with recreational facilities to reduce water use
- Pursue funding for purveyors to provide cost-effective incentives to residential property owners and businesses to increase their efficiency
- Using government owned facilities as high efficiency demonstrations and examples for customers

5.8 FUTURE PLANNING EFFORTS

It is envisioned that an EDCWA Office of Water Efficiency would provide leadership and funding to propel El Dorado County and its water purveyors to a new level of water use efficiency. Activities an OWE could perform include but are not limited to the following:

- Prepare a conservation program plan that includes cost effectiveness analysis;
- Lead the pursuit of state and federal grant funding for water conservation and efficiency projects of local purveyors and EDCWA;
- Administer conservation rebate programs for local purveyors and residents not served or underserviced by public water suppliers;
- Coordinate and lead local outreach and education efforts on water use efficiency and conservation;

- Provide conservation coordinator services to assist the efforts of local purveyors and reach residents on private wells;
- Lead efforts to improve the health and function of local watersheds to improve water supply reliability in the face of heightened risk of catastrophic fire, diminishing snowpack, and warmer temperatures; and
- Work with local agricultural leaders to develop the next generation of IMS services across the county.

The information contained in this chapter is planned for a future update based on the on-going water efficiency efforts by the purveyors and the need for EID and GDPUD to prepare their respective 2016 UWMPs.

Chapter 6. Water Supply Need

This section of the report compares existing and future water demand (with conservation) projections to existing water supplies to determine the unmet water supply need for each purveyor. Future new public water supplies, water efficiency projects and further water conservation measures discussed in Chapter 5 are then identified to meet the ultimate need for the West Slope.

As discussed in the 2007 WRDMP, the County, like the Mountain Counties region in general, has limited water supply options. Publicly developed surface water is the primary water source for the West Slope of the County. Groundwater on the West Slope is limited due to the fractured rock nature of the sub-surface geology. Consequently, the opportunity for groundwater storage or conjunctive use projects directly within the County is very limited. EDCWA is, however, currently working on a ground water banking concept north of the Lower American River in conjunction with the El Dorado Water and Power Authority's Water Reliability Project that is currently under technical, institutional and environmental review.

In this section water supplies and sources are compared to updated water demand projections. This information is presented along with suggested projects and further conservation measures to meet those demands. Water supply information is based on historic watershed hydrologic conditions and includes information for both "firm yield" and "safe yield."

Yield Definitions

The classic definition of yield for a drainage basin is the amount of water that can be supplied from that basin in a specified interval of time. The yield of a drainage basin can be expressed as the total volume over a year or some other time frame. Under this definition, yield can vary from one time period to the next due to differences in the basin hydrology.

In water resources planning it is important to know the minimum water supply that can be delivered from a water supply system. The **safe yield** of a water system is defined by the critical period of that system. The critical period is defined by the most severe drought experienced during the period of record. If a more severe drought occurs, the critical period changes and the safe yield is reduced.

In most water supply systems, temporary shortages of a reasonable magnitude can be accepted for short periods of time. The **firm yield** definition generally allows for some shortages in the dry years. Specific firm and safe yield information is provided in the following purveyor sections.

6.1 EL DORADO IRRIGATION DISTRICT

EID water supply sources are discussed in detail in Chapter 3 of the 2007 WRDMP. For this update the 2007 WRDMP supply (yield) information is supplemented with more current information appearing in EID's 2010 UWMP and 2013 IWRMP.

6.1.1 Current and Additional New Water Supply

As required for UWMPs, a multiple dry year supply reliability assessment is included in the EID 2010 UWMP based on the years presented in Table 6-1.

Table 6-1 El Dorado Irrigation District Water Year Types

Water Year Type	*Base Year(s)*
Normal Water Year	1983
Single-Dry Year	1977
Multiple-Dry Water Years	1987–1992
SOURCE: EID (2011), Table 5-1.	

Table 6-2 provides normal, dry, and multiple dry year supply yields for each existing source of supply and additional new water supplies. The “Pre-1914/Ditch” supply source has been added since the adoption of the 2007 WRDMP. The “Additional Supply” includes additional recycled water that will become available as connections are made to the Deer Creek and El Dorado Hills Wastewater Treatment Plants. Table 6-2 also provides a third water supply scenario that is not included in the 2010 UWMP, but was included in the 2007 WRDMP, that includes existing and additional supplies with 50% CVP cutbacks in the third dry year instead of 25%. This scenario reflects the water shortage condition anticipated in the 2007 WRDMP resulting from climate change and actually imposed by Reclamation in 2014. Further cutbacks to public health and safety levels are possible in 2014 but are not likely with late season precipitation. In late May 2014, the State Water Resources Control Board curtailed all post-1914 water rights, which will further impact EID’s supplies.

Table 6-2 demonstrates the variability of EID’s water supply portfolio. Supply for the first and third year of multiple dry years is 94% and 84% of a normal or average year, respectively. Besides hydrologic variability, lack of access to ground water or other storage options to stabilize available supplies in dry years contributes to less water supply reliability as compared to agencies with access to ground water.

Table 6-2 El Dorado Irrigation District Current and Additional Recycled Water Supply Yield in Normal and Dry Years (acre-feet)

Source	Existing Water Supply			Additional Supply			Existing and Additional Supply			Existing and Additional Supply w/50% CVP Cutback		
	Normal Year	Year 1	Year 3	Normal Year	Year 1	Year 3	Normal Year	Year 1	Year 3	Normal Year	Year 1	Year 3
Sly Park	23,000	22,000	15,500				23,000	22,000	15,500	23,000	22,000	15,500
USBR	7,550	5,660	5,660				7,550	5,660	5,660	7,550	5,663	3,775
P-184, Pre-1914	15,080	15,080	15,080				15,080	15,080	15,080	15,080	15,080	15,080
Permit 21112	17,000	17,000	17,000				17,000	17,000	17,000	17,000	17,000	17,000
Recycled	3,084	3,084	3,084	2,516	2,516	2,516	5,600	5,600	5,600	5,600	5,600	5,600
Pre-1914/Ditch	4,560	3,000	3,000				4,560	3,000	3,000	4,560	3,000	3,000
Total	***70,274***	***65,824***	***59,324***	***2,016***	***2,016***	***2,016***	***72,790***	***68,340***	***61,840***	***72,790***	***68,343***	***59,955***

SOURCE: EID (2011), Table 5-3; EID (2013a).

Sly Park Reservoir is operated as a 2-year water supply. Yield is not significantly affected by one dry year but as the reservoir does not refill in a second dry year the water remaining is managed to conserve water for two additional years.

The existing USBR Water Service contract is subject to Reclamation shortage policies.

The Project 184, Pre-1914 water rights are available in all water year types.

Permit 21112 water rights are available in all water year types.

Recycled water is limited to current system capacity and assumes seasonal storage will not be built. (Source EID IWRMP, Table 6-1).

Pre-1914/Ditch water rights are limited to 3,000 acre-feet in dry years.

EID manages its water supplies and meter sales based on the firm yield of its contiguous or integrated system. The current system firm yield of 63,500 acre-feet annually was established using the OASIS Model and is published in Table 2 of EID's annual Water Resources and Service Reliability Report (WRSRR). As stated in the 2013 WRSRR:

> *this number represents an overall water demand that cannot be exceeded until new supplies are added.*

The criteria used in the OASIS Model to determine firm yield originates from EID's Regulation No. 2 (later replaced by Board Policy 5010) that defines system firm yield as:

> *annual demand which the integrated water system can theoretically meet 95% of the time. In the remaining 5% of the time, shortages calculated not to exceed 20% will be allowed.*

Also stated in the 2013 WRSRR is the following:

> *Under this (firm yield) methodology, approximately 95% of the time sufficient water supply is available to meet normal water demands … [emphasis added]*

The firm yield published in the 2013 WRSRR does not include recycled water. For purposes of determining the need for additional water supplies, in **Table 6-3**, recycled water from Table 6-2 is added to the contiguous system firm yield. For safe yield, Year 3 supply for the "Existing and Additional Supply w/50% CVP Cutback" from Table 6-2 is used and does include recycled water. Year 3 represents the most severe drought conditions identified in the 2010 UWMP. The "Existing and Additional Supply w/50% CVP Cutback" scenario includes an increase in CVP supply cutback from 25% to 50% in Year 3 to reflect current 2014 water year conditions.

Table 6-3 El Dorado Irrigation District Firm and Safe Yield Supply

Source	***Existing Water Supply***		***Existing and Additional Supply w/50% CVP cutback***	
	Firm Yield	***Safe Yield***	***Firm Yield***	***Safe Yield***
Contiguous System	63,500		63,500	
Recycled Water	3,084		5,600	
Total	***66,584***	***59,324***	***69,100***	***59,955***
SOURCE: EID (2013), Table 2				

As a comparison, the firm yield supply shown in **Table 6-3** reasonably approximates the Year 1 supplies from Table 6-1 for which the 2010 UWMP states, "It is assumed that overall demands will not change during a single-dry year."

6.1.2 Potential Impacts of Climate Change

As noted in Section 2.7 the potential effects of climate change in the County could include increased water demand (e.g., due to warmer air temperatures) coupled with changes in runoff patterns and increased frequency of drought. These effects suggest a reduction of both surface and groundwater supplies, which would reduce water supply reliability.

Supply Impacts

EID's January 2008 Drought Preparedness Plan (EID 2008) includes a separate report ("A Physically-Based Approach to Drought Planning and Climate Change for the El Dorado Irrigation District" – contained in Appendix B of the Drought Plan) prepared by the Stockholm Environment Institute (SEI). SEI developed 10 climate change scenarios for the watersheds of the South Fork of the American River and the tributaries of Sly Park Reservoir using a Water Evaluation and Analysis (WEAP) decision support model developed specifically for the study watershed. The scenarios were constrained by various assumptions set forth in that report (for example, the EID model was "… prioritized to first meet instream flow requirements …"). These scenarios "… suggested that supply reliability would be reduced by around 10%."

SEI did not specifically evaluate the potential impact of climate change within El Dorado County to future demand, since it mixed such potential impacts with future demand projections associated with growth and does so through the year 2030. It is worth noting that potential impacts to water supply are also a function of legal and water rights constraints, but it is not clear that the SEI report considered water right priorities in reaching conclusions on potential impacts to EID water supplies. Further, as there is no commonly accepted definition of water supply reliability, the precise impact of a 10% reduction in "supply reliability" is not entirely clear.

The Mountain Counties Regional Report (in the draft California Water Plan Update 2013) cites a 2012 study by the Scripps Institution of Oceanography and suggests that the study used "the most sophisticated methodology to date" and included estimates that by mid-century (2060–2069) the Mountain Counties could experience an increase of 3.1–3.4°F (1.7–1.9°C) in winter temperatures and a 5.2–6.5°F (2.9–3.6°C) increase in summer temperatures (DWR 2013, citing work by Pierce et al. [2012]).

In 2013, the Geos Institute released the results of downscaled climate modeling (Geos Institute 2013) for the Sierras for the A-2 (or business-as-usual) emissions scenario (which was developed by the Intergovernmental Panel on Climate Change). The report provides specific estimates of the potential impacts for various atmospheric and hydrologic parameters, including runoff for the Northern, Central, and Southern Sierra. For the Central Sierra, potential changes in runoff are estimated at -3% to -10% (for the period of 2010 to 2029), -2% to +3% (for the period of 2030 to 2039); and -31 to +15% (for the period of 2060 to 2079). Given the considerable range of these projections, the selection of a specific estimate for a decline (or increase) in surface water supplies is difficult.

The potential decline of 2 to 3% in runoff (until 2039) in the Geos Institute report, and the decline of 10% in water supply reliability (through 2030) in the SEI report suggest that the potential for frequent or more prolonged drought conditions should be considered. Further, given the long range purposes of this analysis, consideration of more substantial declines in surface water supplies may be prudent. The existing array of water sources, conveyance systems, and treatment facilities that capture, store, treat and deliver surface water supplies in the County could be inadequate if the availability of surface water supplies is substantially reduced.

Therefore, as a conservative assumption, for the purpose of estimating the water supply needs for the West Slope under buildout conditions, this analysis incorporates a potential reduction of 10% in surface water supplies to account for the potential impacts of climate change.

Demand Impacts

Most of the research related to water resources impacts of climate change has focused on potential impacts to water supplies as they relate to changes in temperature and long-term weather patterns. The science surrounding such evaluations is still fairly new, but reveals that surface water supplies are vulnerable to increasing temperatures. Less studied are the potential impacts of climate change on water demands.

In September 2013 the Water Research Foundation, WRF (a research organization of 950 water utilities in the U.S., Canada, Europe, Australia, and Asia) released its report on Project #4263, "Changes in Water Use Under Regional Climate Change Scenarios" (http://www.waterrf.org/ExecutiveSummaryLibrary/4263_ProjectSummary.pdf). This study was conducted since "…there have been relatively few studies of the potential impacts of climate change on the demand for water…." Using downscaled projections from global climate models and employing a process for selecting climate scenarios, the report developed future ranges of increases in water demands for six water utility service areas in North America:

- Colorado Springs Utilities
- Regional Municipality of Durham (Ontario, Canada)
- Massachusetts Water Resources Authority
- Southern Nevada Water Authority
- San Diego County Water Authority
- Tampa Bay Water Authority

The study methodology looked at water uses that are sensitive to weather – essentially landscape irrigation and any agricultural production supported by these utilities. Presumably, indoor water uses remain unchanged. There is no good match among these case studies with conditions in El Dorado County, based on significant assumed geographic differences in latitude, elevation, summer rainfall and landscape patterns. Growing seasons are shorter at higher elevations and more northern latitude. Summer rainfall in some of the case studies helps to meet summer water demands. One observation from the WRF study is that "…in hot and dry climates of the West average customer demands can be 50 to 80 percent higher than in the humid East…." Further, landscape patterns – particularly total area and plant mix – are drivers of summer water demands. Even so, this provides a qualitative benchmark for water demand vulnerability in El Dorado County.

Projections were made for the years 2055 and 2090. The minimum projected mean annual increases in water demand for each of the case studies is shown in **Table 6-4** below.

Table 6-4 Minimum Projected Increases in Mean Annual Demand by Case Study

UTILITY	*YEAR 2055*	*YEAR 2090*
Colorado Springs Utilities	5.9	7.7
Regional Municipality of Durham	1.6	2.0
Massachusetts Water Resources Authority	1.7	2.5
Southern Nevada Water Authority	3.9	5.2
San Diego County Water Authority	3.5	9.2
Tampa Bay Water Authority	1.2	2.1

These are minimum projections. In several cases the maximum projections are double or triple the minimum projections, reflecting a wide range of uncertainty related to impacts.

The WRF study concludes, as it relates to impacts of climate change on specific water utilities, that "…there is no way of discerning potential impacts without undertaking the types of analyses demonstrated in the case studies." Until better information is developed specific to El Dorado County, it appears prudent to use an irrigation demand factor of 5 percent increase for long-term water resources planning within El Dorado County. The alternatives are to assume there will be no impact of climate change on future water demands, or to assume higher percentages based on a great deal of uncertainty.

While not a purpose of this report, it is clear there may be value in a specific climate change vulnerability assessment – of both supplies and demands – for the American River Basin supported by all water users reliant on such supplies. As noted in the 2007 report on climate change vulnerability by the California Urban Water Agencies, the combined effects of decreasing water supplies and increasing water demands are serious challenges for the future.

Therefore, as a conservative assumption, to estimate the water supply needs for the West Slope under build-out conditions, this analysis also incorporates a potential increase in irrigation demands of 5% to account for the potential impacts of climate change. To be conservative only half of the urban demands are assumed to be outdoor use although outdoor use is generally higher than 50% of the total. For instance, within the recycled water service area of EID where recycled water for irrigation and potable water for indoor use are metered separately, the ratio of outdoor to indoor use is 2.5:1 according EID's Administrative Regulation 1107.

6.1.3 Additional Water Supply Need

In order to determine the need for and quantity of new supply and/or further conservation as discussed in Chapter 5, a comparison of projected supply and demand is necessary. **Table 6-5** provides a comparison of firm and safe yield water supply to the updated target demand projections with conservation. As presented in Table 6-5 there is a need for additional water supply and/or further demand reduction at buildout. When comparing existing water supply with projected demand with conservation the supply deficit ranges from 32,000 acre-feet for firm yield to 39,200 acre-feet for safe yield. When considering additional supplies and 50% CVP cutbacks, the supply deficit ranges from 29,500 acre-feet for firm yield to 38,500 acre-feet for safe yield. As discussed in Chapter 5, the Urban Water Suppliers are committed to achieving conservation and it is assumed that the savings will be sustained, except for increases resulting from increased economic activity. If additional conservation beyond the 20 percent requirement can be achieved, the need for new water supplies would be less.

Table 6-5 El Dorado Irrigation District Water Supply Need with Conservation at Buildout

	Existing Water Supply		*Existing/Additional Supply w/50% CVP Cutback*	
	Firm Yield (acre-feet)	***Safe Yield (acre-feet)***	***Firm Yield (acre-feet)***	***Safe Yield (acre-feet)***
Existing and Additional Recycled Supply	66,584	59,324	69,100	59,955
Demand w/ Conservation	98,534	98,534	98,534	98,534
Target Supply Need	***(31,950)***	***(39,210)***	***(29,434)***	***(38,579)***

When considering potential climate change impacts on EID water supplies and demands identified in the SEI and WRF reports, the magnitude of need increases. **Table 6-6** provides a comparison of demand with irrigation demand increased by 5% to firm and safe yield supplies reduced by 10%, except that: 1) safe yield for the "Existing and Additional Supply" scenario (Table 6-2, Year 3) is used so that CVP supply cutbacks are not overstated; and 2) recycled water is not reduced. In this scenario the firm yield deficit (with recycled water supplies) increases from approximately 29,500 to 39,300 acre-feet while the safe yield deficit increases from approximately 38,500 to 45,300 acre-feet.

Table 6-6 El Dorado Irrigation District Water Supply Need with Assumed 10% Supply Decrease and 5% Increase in Irrigation Demand Due to Climate Change

	Existing Water Supply		*Existing/Additional Supply*	
	Firm Yield (acre-feet)	***Safe Yield (acre-feet)***	***Firm Yield (acre-feet)***	***Safe Yield (acre-feet)***
Existing and Additional Recycled Supply	59,926	53,392	62,190	56,216
Target Demand	101,478	101,478	101,478	101,478
Target Supply Need	***(41,533)***	***(48,087)***	***(39,288)***	***(45,262)***

Figure 6-1, Figure 6-2, and Figure 6-3 provide a graphical comparison of each water supply scenario and the range of growth projections developed in the previous section. From these figures the timing of the need for new supplies can be determined. For the Existing Water Supply scenario shown in Figure 6-1 when considering firm yield, new supply is needed as early as 2028 for the high growth scenario and as late as 2045 for the low growth scenario. *For the medium growth scenario new supply is needed by 2035.* When considering safe yield, new supply is needed as early as 2024 for the high growth scenario and as late as 2036 for the low growth scenario. *For the medium growth scenario new supply in needed by 2029.*

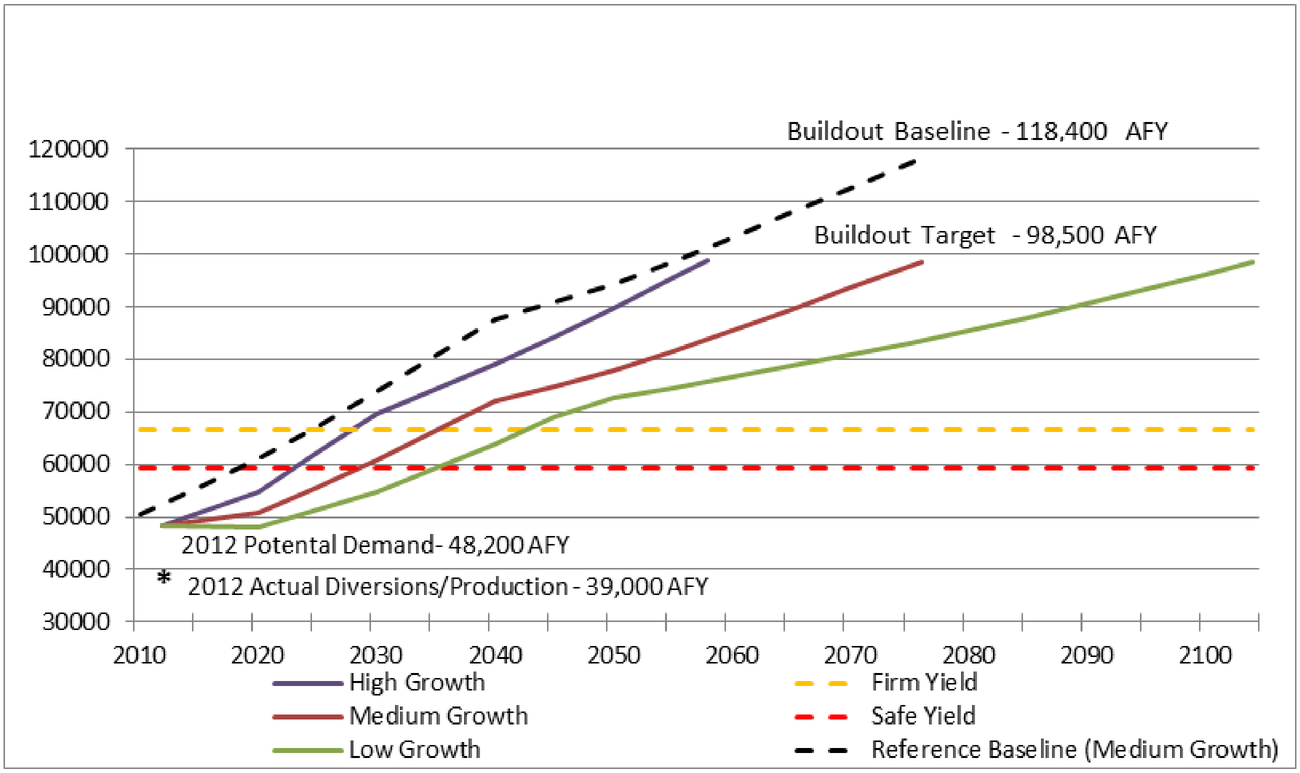


Figure 6-1 El Dorado Irrigation District Existing Supply versus Projected Demand (acre-feet)

For the "Existing and Additional Supply w/50% CVP Cutback" scenario shown in **Figure 6-2**, when considering firm yield, new supply is needed as early as 2030 for the high growth scenario and as late as 2046 for the low growth scenario. *For the medium growth scenario new supply is need by 2038*. When considering safe yield, new supply is needed as early as 2024 for the high growth scenario and as late as 2036 for the low growth scenario. For the medium growth scenario new supply is needed by 2030.

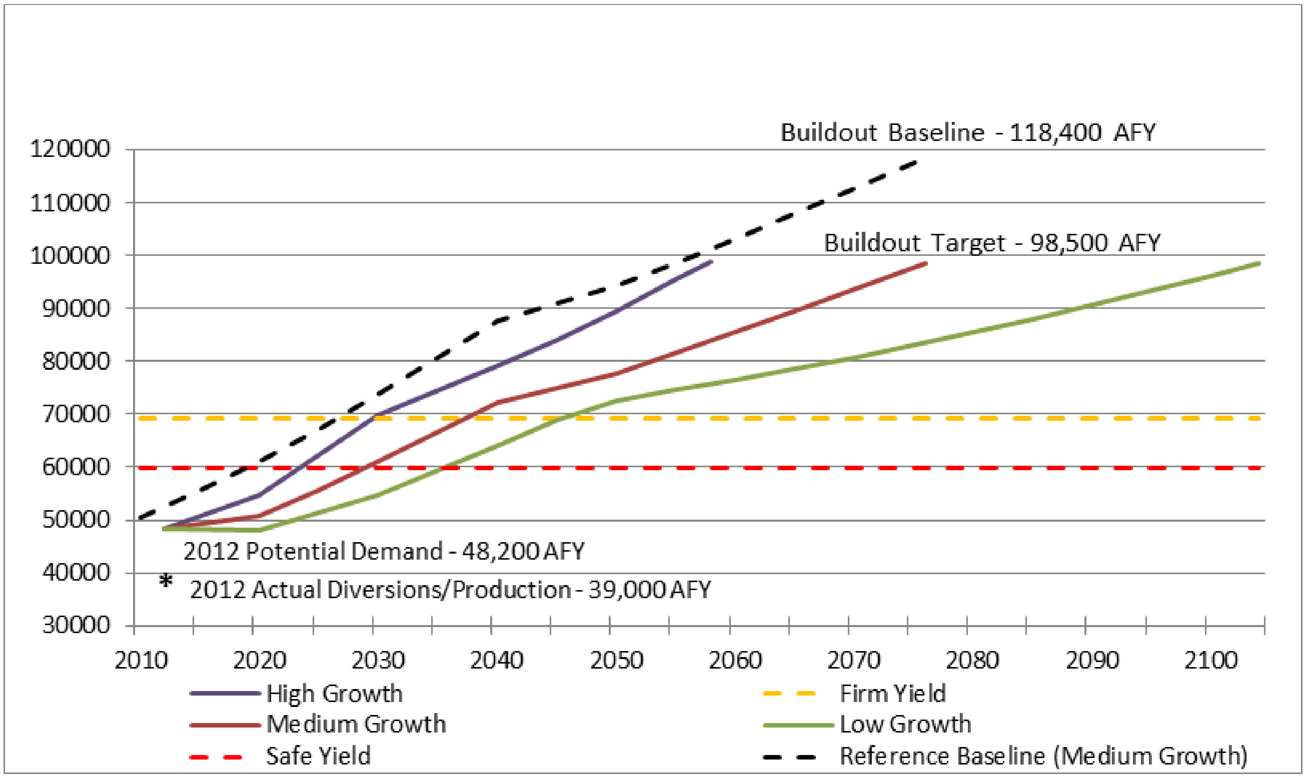


Figure 6-2 El Dorado Irrigation District Existing and Additional Recycled Water Supply w/ 50% CVP Cutbacks versus Projected Demand (acre-feet)

For the "Existing and Additional Supply w/Climate Change" scenario shown in Figure 6-3, when considering firm yield, new supply is needed as early as 2025 for the high growth scenario and as late as 2037 for the low growth scenario. *For the medium growth scenario new supply is needed by 2030.* When considering safe yield, new supply is needed as early as 2022 for the high growth scenario and as late as 2030 for the low growth scenario. *For the medium growth scenario new supply is needed by 2025.*

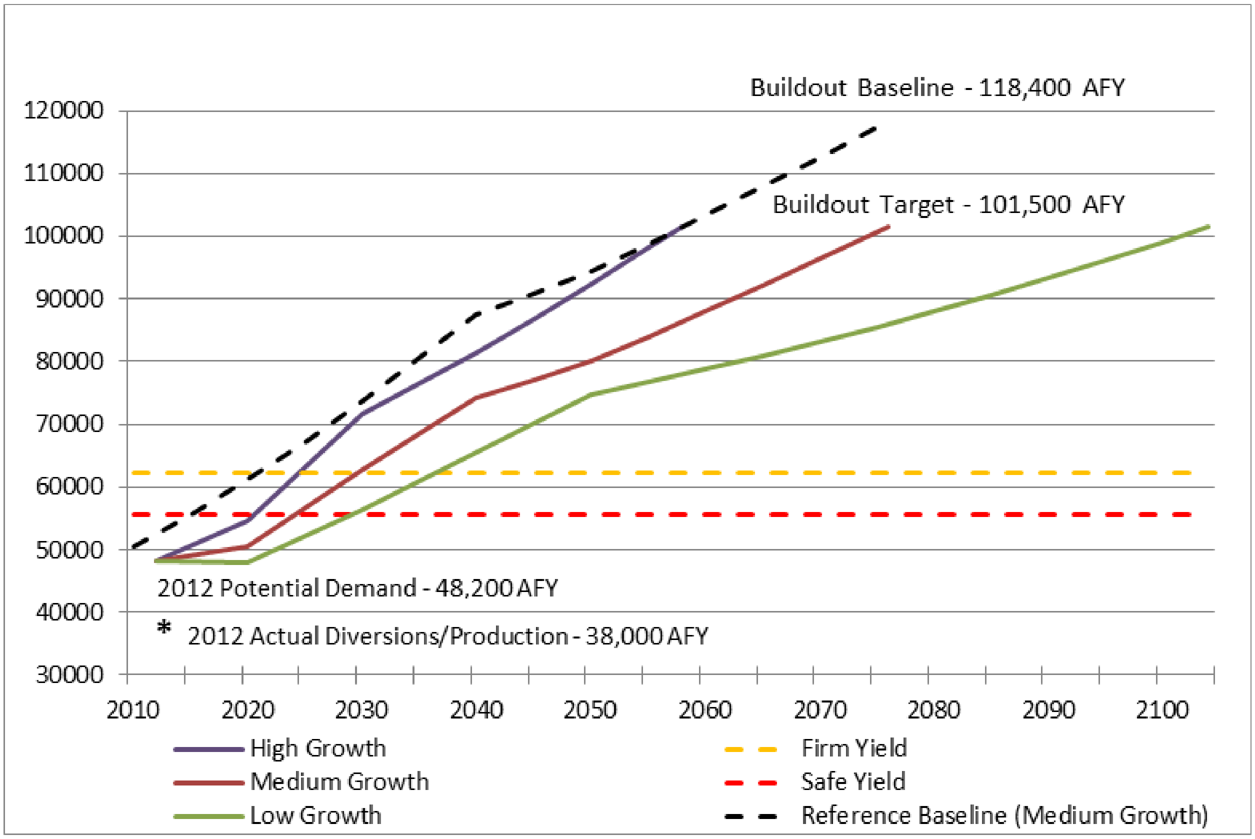


Figure 6-3 El Dorado Irrigation District Existing and Additional Recycled Water Supply versus Projected Demand w/Climate Change (acre-feet)

In order to satisfy these new water supply needs various projects were identified in the 2007 WRDMP and EID's 2013 IWRMP. The most promising of these projects are listed below.

- **Main Ditch Piping-** Piping the Main Ditch between Forebay Reservoir and the Reservoir 1 Water Treatment Plant. This project will reduce seepage and evapotranspiration losses by an estimated 1,300 acre-feet per year. This project is part of EID's plan to achieve its mandated SB X-7 water conservation goal and would not reduce the water supply need identified in this update.

- **Folsom Lake Water Supplies**—A new Water Service Sub-contract with EDCWA for unallocated USBR Central Valley Project water authorized by legislation, Public Law 101-514 (Fazio Water). Under this law, EDCWA was allocated 15,000 acre-feet from Folsom Lake to serve the future municipal and industrial (M&I) needs of the County (West Slope). This water supply is contingent on execution of a new water service contract between EDCWA and Reclamation. For planning purposes it has been assumed that this supply would be shared between EID and GDPUD. The project Environmental Impact Report analyzed a variety of allocation scenarios ranging from 15,000 acre-feet being taken by EID to 11,000 acre-feet being taken by GDPUD and 4,000 acre-feet taken by EID. Section 6.2.3 of this report identifies up to 9,400 acre-feet of additional supply need in the GDPUD service and favorable areas at buildout. GDPUD has limited new supply options and may need the full 9,400 acre-feet from this supply source. It should be noted this supply source is subject to cutbacks up to 50% in dry years under USBR's current and proposed shortage policy, as is the case in

2014. Further cutbacks to health and safety levels are also possible under Reclamation's shortage policy. It is expected that USBR Water Service Contracts will be cut back more frequently in the future under the NMFS 2009 biological opinion on the long-term operations of the CVP and State Water Project. Reclamation's recently completed informal consultation for this project with National Marine Fisheries Service (NMFS) further calls into question the certainty and timing of this supply. According to the NMFS concurrence letter dated June 2, 2014:

> "EDCWA will adhere to restrictions on diversions set forth by Reclamation and/or applicable biological opinions to ensure that the proposed project will not result in any decrease to the available cold water pool in Folsom Reservoir."

The 2009 biological opinion referenced in the concurrence letter requires improvements to Reclamation's:

> "…ability to manage the cold water pool to provide suitable temperatures for steelhead through physical and structural improvements at the dams. More specifically, improvements to the temperature control device at the EID intake structure or the construction of the most effective device for conserving cold water in Folsom Reservoir…"

- **El Dorado Water Reliability Project** (aka Supplemental Water Rights Project) — 40,000 acre-feet of new water from partial assignments of State Filed Application Nos. 5644 and 5645 by action yet to be taken by the State Water Resources Control Board on the applications and petitions filed for such water by the EDWPA, and to be stored in and diverted from SMUD's Upper American River Project in accordance with the El Dorado - SMUD Cooperation Agreement. The water would be supplied via a diversion at SMUD's Whiterock Penstock, located approximately 3 miles northeast of Placerville, and transmitted to a new treatment plant. Under the water rights application water can also be taken at Folsom Lake through existing facilities to potentially backfill CVP shortages in dry years. This water supply option is based on acquiring the water rights and paying for power foregone. This supply source is subject to cutbacks at the Whiterock Penstock in the most critically dry years under the SMUD Cooperation Agreement. Presently, there are no restrictions if taken at Folsom Reservoir.
- **Alder Dam and Reservoir** - The reservoir would have a capacity of 31,700 acre-feet and a safe yield of 11,250 acre-feet. The water would be taken at Jenkinson Lake via the Hazel Creek Tunnel, Forebay Reservoir, downstream at Folsom Reservoir, or at a new point of diversion such as the White Rock Penstock.

Additional water use efficiency projects such as more aggressive pipeline replacements, and implementation of additional water conservation measures discussed in Chapter 5 will also reduce the need for additional supplies.

6.2 GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

GDPUD water supply sources are discussed in detail in Chapter 3 of the 2007 WRDMP. For this update the 2007 WRDMP information is supplemented with information that appears in the GDPUD 2010 UWMP and the "2009 Options to Increase Water Supply" report.

6.2.1 GDPUD Current Water Supply

As required for UWMPs a multiple dry year supply reliability assessment is included in the 2010 UWMP based on the years presented in **Table 6-7**.

Table 6-7 Georgetown Divide Public Utility District Water Year Types

Water Year Type	*Base Year(s)*
Single-Dry Year	1977
Multiple-Dry Water Years	1977
SOURCE: GDPUD (2011), Table 17	

Table 6-8 provides normal, dry, and multiple dry year supply yields and demonstrates the variability of GDPUD's water supply in dry years. Supply for the first and third year of multiple dry years is 55% of a normal or average year. Besides hydrologic variability, lack of access to ground water to stabilize available supplies in dry years contributes to poor supply reliability as compared to agencies with access to ground water.

Table 6-8 Georgetown Divide Public Utility District Existing Water Supply in Normal and Dry Years (acre-feet)

Source	*Existing Water Supply*		
	Normal Year	*Year 1*	*Year 3*
Stumpy Meadows Reservoir	20,000	11,060	11,060
SOURCE: GDPUD (2011), Table 17			

GDPUD manages its water supplies and meter sales based on the firm yield of Stumpy Meadows Reservoir. In the 2010 UWMP:

> *Firm Yield is defined as the maximum annual quantity of water that can normally be made available each year under historic hydrologic conditions. Exceptions are allowed in critical and some dry years when a deficiency may be imposed.*

Deficiencies are limited to:

> *… 10 percent for treated water and 50 percent for untreated water in critically dry years. Firm yield values reflect operational losses and water requirements. The firm yield of the 20,000 acre-foot Stumpy Meadows Reservoir is 12,200 acre-feet …*

From the "2009 Options to Increase Water Supply" report the existing safe yield of Stumpy Meadows is 10,541 acre-feet and represents maximum quantity of water that can be made available without deficiency each and every year of the historic record. Firm and safe yields are presented in **Table 6-9**.

It should be noted that firm yield is dependent on the mix of urban and agricultural demands, in that each take deficiencies at different rates. As urban uses increase as a percentage of total demand, the firm yield will necessarily be reduced or percent deficiencies will increase.

Table 6-9 Georgetown Divide Public Utility District Firm and Safe Yield (acre-feet)

	Firm Yield	*Safe Yield*
Stumpy Meadows Reservoir	12,200	10,541
SOURCE: GDPUD (2011), p. 20; GDPUD (2009), p. 19.		

6.2.2 Climate Change Impacts

Unlike EID, there has been no assessment of potential effects of climate change on the Stumpy Meadows watershed. The Stockholm Environment Institute's, "A Physically-Based Approach to Drought Planning and Climate Change for the El Dorado Irrigation District" may be applicable to Stumpy Meadows (located in the American River watershed), since the conclusions were based on "10 climate change scenarios for the watersheds of the South Fork of the American River and the tributaries of Sly Park Reservoir." Although in the neighboring Cosumnes River Watershed, EID's Sly Park Reservoir watershed characteristics are similar to Stumpy Meadows in elevation range and proximity. For these reasons the SEI study may be a reasonable surrogate for estimating the potential effects of climate change on the Stumpy Meadows watershed. As discussed in Section 5.1.2, SEI concluded that supplies "could be reduced by around 10% due to climate change."

6.2.3 Additional Water Supply Need

In order to determine the need for and quantity of new supply, a comparison of existing supply and demand is necessary. **Table 6-10** provides a comparison of firm and safe yield to adjusted Target demand projection. As can be seen in Table 6-10 there is a need for additional water supply. When comparing existing waters supply with projected Target Demand, the supply deficit ranges from 7,700 acre-feet for firm yield and 9,400 acre-feet for safe yield.

Table 6-10 Georgetown Divide Public Utility District Water Supply Need with Conservation

	Existing Water Supply	
	Firm Yield (acre-feet)	*Safe Yield (acre-feet)*
Supply	12,200	10,541
Target Demand	19,930	19,930
Target Supply Need	***(7,730)***	***(9,389)***

When considering potential climate change impacts on GDPUD water supplies using the SEI report (section 6.1.2) as a surrogate and the WRF report for increases in irrigation demand, the magnitude of need increases. **Table 6-11** provides a comparison with irrigation demand increased by 5% and firm and safe yield supplies reduced by 10%. The supply deficit ranges from 9,700 acre-feet for firm yield and 11,200 acre-feet for safe yield.

Table 6-11 Georgetown Divide Public Utility District Water Supply Need with Assumed 10% Supply and 5% Increase in Irrigation Demand Due to Climate Change

	Existing Water Supply	
	Firm Yield (acre-feet)	***Safe Yield (acre-feet)***
Supply	10,980	9,487
Target Demand	20,687	20,687
Target Supply Need	***(9,707)***	***(11,200)***

Figure 6-4 provides a graphical comparison of existing supply and the range of growth projections developed in the previous section. From this figure, the timing of the need for new supplies can be determined. When considering firm yield, new supply is needed as early as 2030 for the high growth scenario and as late as 2045 for the low growth scenario. For the medium growth scenario new supply is need by 2035. These conclusions are generally consistent with those drawn in the GDPUD 2010 UWMP (p. 20).

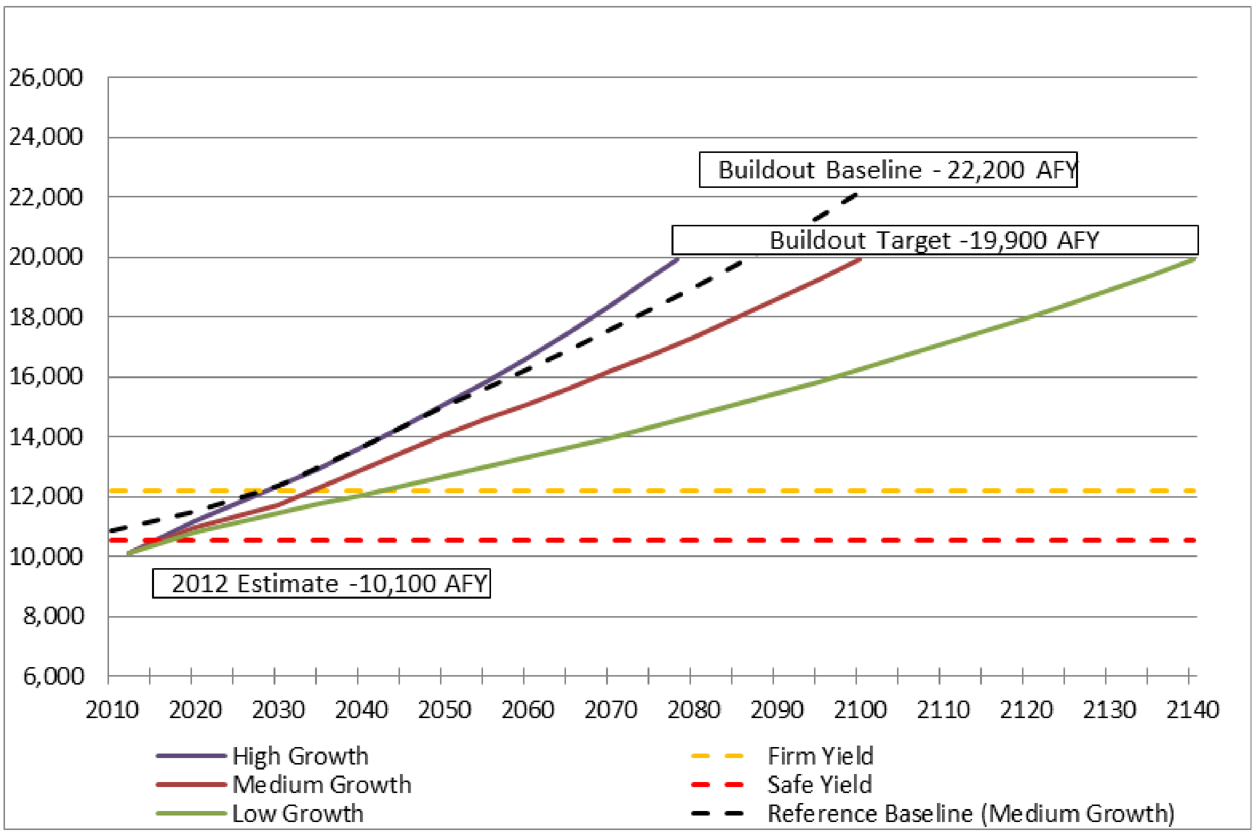


Figure 6-4 Georgetown Divide Public Utility District Existing Water Supply versus Projected Demand (acre-feet)

For the "Existing Supply with Climate Change" scenario shown in **Figure 6-5** new supply is needed as early as 2020 for the high growth scenario and as late as 2025 for the low growth scenario. For medium growth scenario new supply is needed sometime between 2020-2025.

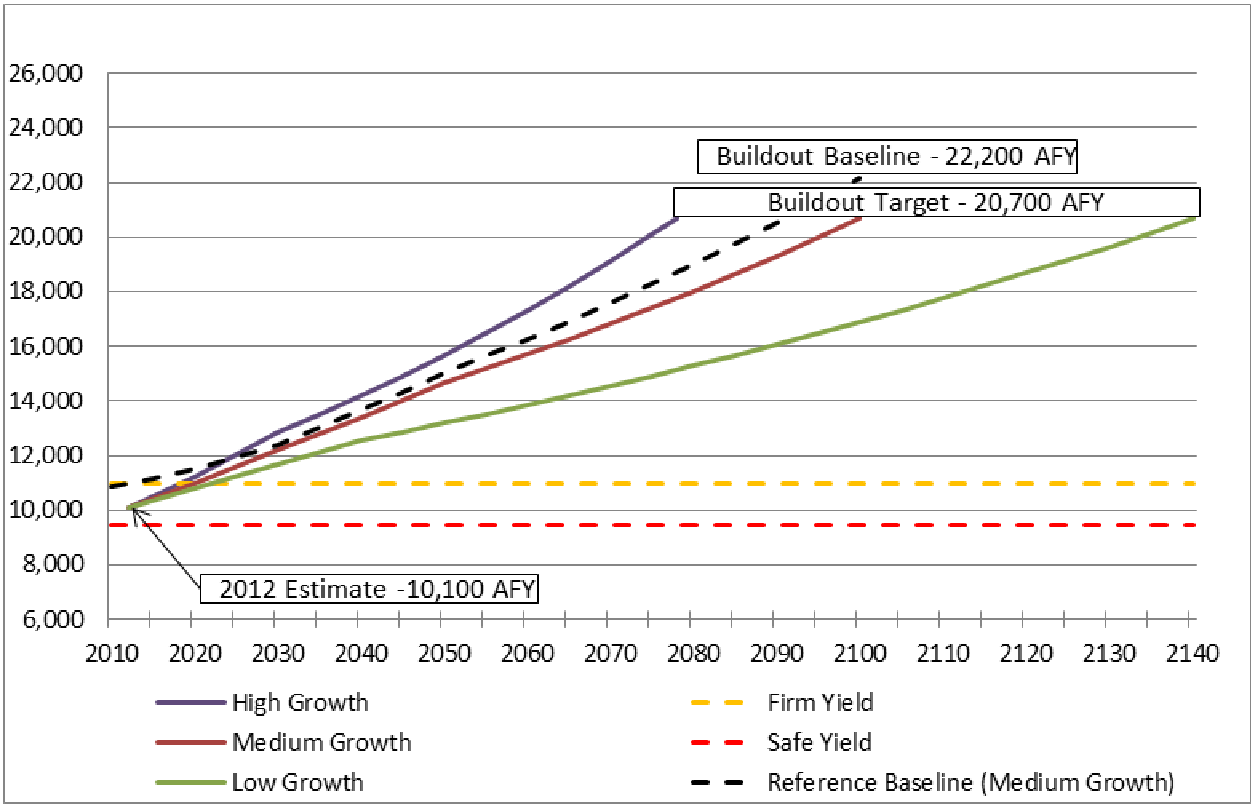


Figure 6-5 Georgetown Divide Public Utility District Existing Water Supply with Climate Change versus Projected Target Demand (acre-feet)

In order to satisfy these new water supply needs, various projects were identified in the 2007 WRDMP and the 2009 Alternatives to Increase Water Supply as follows.

- **Conveyance Canal Loss Reduction**—This option consists mainly of lining portions of unlined open canal sections. It is estimated that 670 acre-feet could be saved through reduction of conveyance losses. This project is part of GDPUD's plan to achieve its mandated SB X-7 water conservation goal and would only partially reduce the water supply need identified in this update.

- **North Fork American River Pumping (aka American River Pump Station)** - Water for this option would be made available from the proposed P.L. 101-514 Water Service Contract at Folsom Reservoir or SMUD's Upper American River Project, both of which would require an exchange with an upstream water rights holders.

  - **Folsom Reservoir Supplies** - A new Water Service Sub-contract with EDCWA for unallocated USBR Central Valley Project water authorized by legislation, Public Law 101-514 (Fazio Water). Under this law, EDCWA was allocated 15,000 acre-feet from Folsom Lake to serve the future municipal and industrial (M&I) needs of the County (West Slope). This water supply is contingent on execution of a new water service contract between EDCWA and Reclamation. For planning purposes it has been assumed that this supply would be shared between EID and GDPUD. The project Environmental Impact Report analyzed a variety of allocation scenarios ranging from 15,000 acre-feet being taken by EID to 11,000 acre-feet being taken by GDPUD and 4,000 acre-feet take by EID. As discussed below, GDPUD has limited new supply options and may need up to 9,000 acre-feet from this supply source.

> - **El Dorado Water Reliability Project** (aka Supplemental Water Rights Project) - 40,000 acre-feet of new water from partial assignments of State Filed Application Nos. 5644 and 5645 by action yet to be taken by the State Water Resources Control Board on the applications and petitions filed for such water by EDWPA, and to be stored in and diverted from SMUD's Upper American River Project in accordance with the El Dorado - SMUD Cooperation Agreement. The water would be available at Folsom Lake and would require an exchange with an upstream water rights holder. This potential supply source would be shared with EID.

- **Rubicon River Diversion**—This option consists of constructing a gravity diversion conveyance system from the South Fork of the Rubicon that would yield 10,300 acre-feet. This option would require a request to EDWPA to negotiate with SMUD under the reopener provision of the El Dorado-SMUD Cooperation Agreement and would likely require payment to SMUD for power foregone.
- **Modification to allowable demand deficiency**—This option considers alternative dry year demand deficiency criteria designed to increase the firm yield of Stumpy Meadows Reservoir. It is estimated that up to 1,000 acre-feet of increased firm yield could be achieved.

Additional water supply options are identifies in the 2009 Alternative to Increase Water Supply. Many of these projects are cost prohibitive, institutionally challenging and/or subject to third party permission and agreement by governmental entities whose favorable participation cannot be compelled. The P.L. 101-514 water supply likely represents the most feasible new supply source in the long run, even with its limitations discussed in more detail in the Section 6.1.3 of this report.

Additional water use efficiency projects such as more aggressive pipeline replacements and implementation of additional water conservation measure discussed in Chapter 5 will also reduce the need for additional supplies.

6.3 GRIZZLY FLATS COMMUNITY SERVICES DISTRICT

GFCSD water supply sources are discussed in detail in the 2012 WSDU. The following section summarizes pertinent supply information from that report for determination of future water supply need.

6.3.1 GFCSD Current Water Supply

The GFCSD water supply comes from two diversions located on North Canyon Creek and Big Canyon Creek within the Cosumnes River drainage basin. The 2012 WSDU includes a firm and safe yield evaluation of these supplies that is provided in **Table 6-12**.

Table 6-12 Grizzly Flat Community Services District Firm and Safe Yield Supply

	Yield	*Critical Water Year, Month*
Safe Yield	165	1989, October
Firm Yield	184	1961, October
SOURCE: GFCSD (2012), Tables 8 and 10.		

From the 2012 WSDU, GFCSD defines firm yield as the water supply needed meeting demand in 95 out of 100 years. Safe yield is defined as the maximum amount of water that can be made available in any year, including the driest year(s) of record.

6.3.2 Climate Change Impacts

Unlike EID, there has been no assessment of potential effects of climate change on the GFCSD water system yield. The Stockholm Environment Institute's, "A Physically-Based Approach to Drought Planning and Climate Change for the El Dorado Irrigation District" may be applicable to GFCSD since the conclusions were based on "10 climate change scenarios for the watersheds of the South Fork of the American River and the tributaries of Sly Park Reservoir." EID's Sly Park Reservoir is within the Cosumnes River (North Fork) watershed as are North Canyon and Big Canyon Creeks (Middle Fork). For this reason the SEI study may be a reasonable surrogate for estimating the potential effects of climate change on the North Canyon and Big Canyon Creek. As discussed in Section 6.1.2, SEI concluded that "supplies could be reduced by around 10% due to climate change."

6.3.3 Additional Water Supply Need

In order to determine the need for and quantity of new supply, a comparison of existing supply and demand is necessary. **Table 6-13** provides a comparison of firm and safe yield to the demands from Table 4-17. As can be seen in Table 6-13 there is a need for additional water supply. When comparing existing water supply with projected demand, the supply deficit ranges from 129 acre-feet for firm yield and 148 acre-feet for safe yield.

Table 6-13 Grizzly Flats Community Services District Water Supply Need

	Existing Water Supply	
	Firm Yield (acre-feet)	***Safe Yield (acre-feet)***
Supply	184	165
Demand	313	313
Supply Need	***(129)***	***(148)***

When considering potential climate change impacts as set forth in the SEI report the magnitude of need increases. The GFCSD demand is not increased since the service area is within a dense conifer forest at an elevation of 3,900 feet with very little outside irrigation. **Table 6-14** provides a comparison of projected demand to firm and safe yield supplies reduced by 10%.

Table 6-14 Grizzly Flats Community Services District Water Supply Need <u>with Climate Change</u>		
	Existing Water Supply w/Climate Change	
	Firm Yield (acre-feet)	***Safe Yield (acre-feet)***
Supply	167	149
Demand	313	313
Supply Need	***(146)***	***(164)***

Figure 6-6 and Figure 6-7 provide a graphical comparison of each water supply scenario and demand projections developed in the previous section. From these figures the timing of the need for new supplies can be determined. For the "Existing Water Supply" scenario shown in **Figure 6-6** when considering firm yield, new supply is needed by 2027. When considering safe yield new supply is needed by 2018.

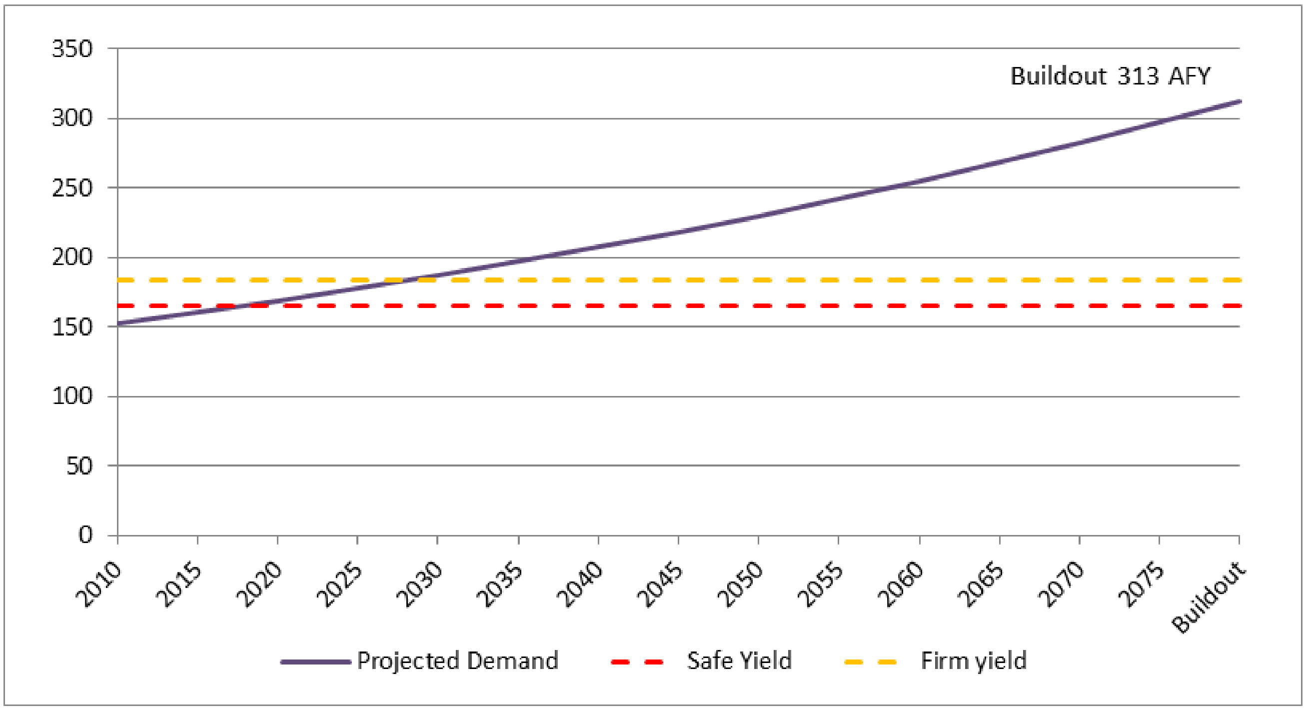


Figure 6-6 Grizzly Flat Community Services District Existing Supply versus Projected Demand (acre-feet)

For the "Existing Supply with Climate Change" scenario shown in **Figure 6-7** new supply is needed as early as 2018.

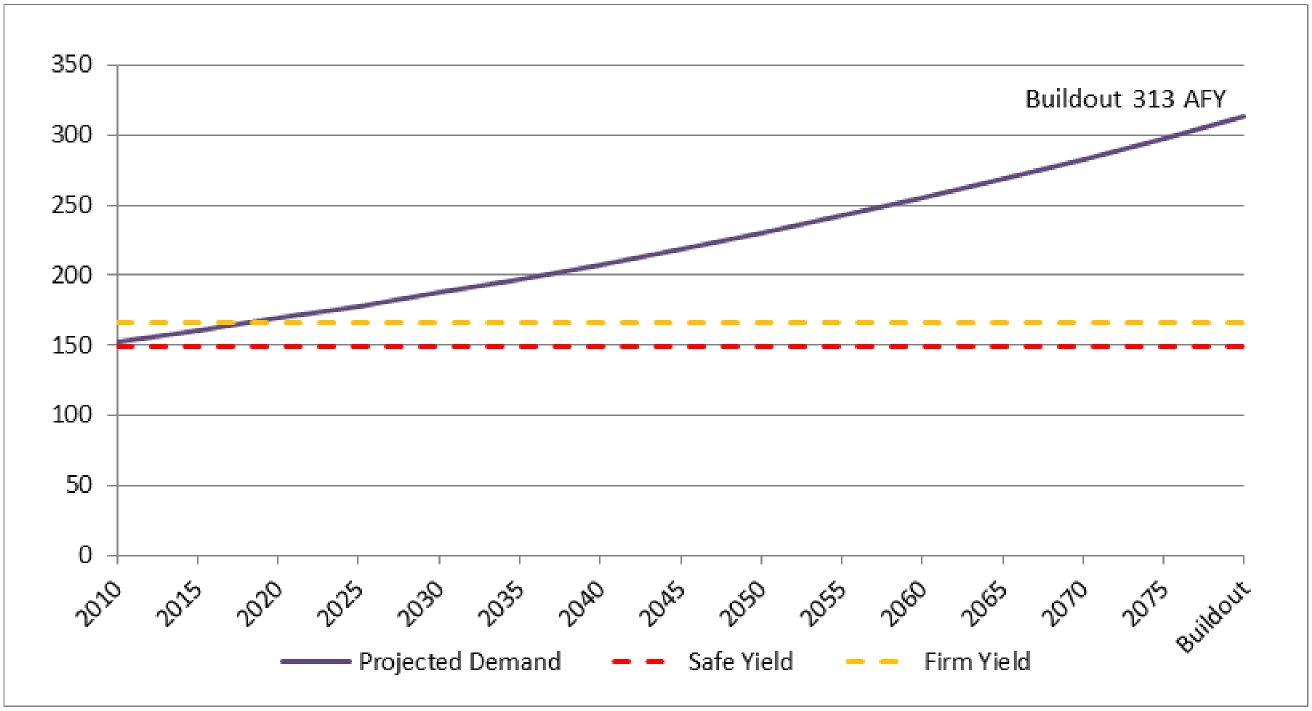


Figure 6-7 Grizzly Flat Community Services District Existing Supply with Climate Change versus Projected Demand (acre-feet)

In order to satisfy these new water supply needs, two projects are identified in the 2012 WSDU. The most promising of these projects is listed below:

- **Lincoln Hill Off-Stream Storage** - Off-stream storage reservoir with active storage of 150 acre-feet estimated to increase safe yield to 318 acre-feet annually.

Additional water use efficiency projects such as more aggressive pipeline replacements and implementation of additional water conservation measures discussed in Chapter 5 will also reduce the need for additional supplies.

Chapter 7. Conclusions

This chapter provides a summary of West Slope water supplies, demand projections and future water need. Conclusions are set forth regarding how water supply adequacy should be measured, as well as the quantity of additional water supply need under the historic hydrologic regime and under the climate change hydrologic regime considered in this update. Three additional points related to future considerations are provided at the end of this chapter.

Various metrics can be used in assessing water supply availability and adequacy. One standard, safe yield, defines the maximum amount of water that can be made available in any year, including the driest year of record. It differs from firm yield, which takes into account imposed deficiencies, based on adopted policy, during periods of drought and, therefore, defines an annual quantity that can be met in most, but not all years. Based on these differences, safe yield and firm yield are typically used in water management projections for differing purposes. Safe yield, as the maximum amount of water conceivably available based on all water year types, is more commonly used in long-range water supply planning as it is based primarily on water rights, physical constraints, and watershed hydrology. Alternatively, firm yield is used for shorter term water supply management decision-making. Both are presented below.

The “Medium Growth Rate” scenario projections are used to estimate both intermediate and long term supply needs, and those projections indicate a long-term need for additional water supplies and/or the precise timing of that need will depend on the future West Slope growth rate.

Table 7-1 focuses on ***short term water supply management using firm yield*** and generally indicates that all West Slope purveyors have adequate supplies to meet near-term demand under historic hydrologic conditions and current firm yield policies. At full buildout of the 2004 General Plan, however, approximately 58,000 acre-feet per year (AFY) of additional water supplies could be needed to meet projected demand on the West Slope when considering firm yield supplies.

Table 7-2 focuses on ***long-term planning using safe yield*** and indicates new supplies are needed for all purveyors at buildout of the 2004 General Plan, with approximately 69,000 AFY of additional water supply needed for the entire West Slope.

For EID, yield values include additional recycled water that will become available as new connections are made to the system. Urban demands in OCA not reallocated to EID and GDPUD are assumed to be satisfied with existing individual wells, except that 25% are assumed to need access to a public water supply at some time in the future either through annexations of lands into the public water supplier service area, extension of service to areas where well production is declining or wells have failed, or through transport of water by truck to existing residents that cannot economically connect to a public water supply system. Agricultural demands in the OCA’s are, however, reflected in new water supply need, as meeting this level of water demand may not be possible or sustainable with groundwater supplies.

Table 7-1 West Slope Additional Surface Water Supply Need with State Mandated Conservation – Considering Firm Yield Supply (acre-feet)

	Existing Firm Yield Supply	*Urban*			*Agricultural*			*Total Demand*			*Additional Water Supply Need*	
		2012	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2030*	*Build-Out*
El Dorado Irrigation District	69,100	40,237	51,403	79,316	7,977	9,515	19,218	48,214	60,919	98,534	—	29,434
Georgetown Divide PUD	12,200	3,001	4,120	9,581	7,121	7,621	10,349	10,122	11,741	19,930	—	7,730
Grizzly Flat CSD Total	184	153	187	313	—	—	—	153	187	313	3	129
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	**—**	**—**	**—**	***101,546***	**—**	**—**	***47,043***	**—**	**—**	***148,590***	***3***	***57,854***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.

Note: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

Table 7-2 West Slope Additional Surface Water Supply Need with State Mandated Conservation - Considering Safe Yield Supply (acre-feet)

	Existing Safe Yield Supply	*Urban*			*Agricultural*			*Total Demand*			*Additional Water Supply Need*	
		2012	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2030*	*Build-Out*
El Dorado Irrigation District	59,955	40,237	51,403	79,316	7,977	9,515	19,218	48,214	60,919	98,534	964	38,579
Georgetown Divide PUD	10,541	3,001	4,120	9,581	7,121	7,621	10,349	10,122	11,741	19,930	1,200	9,389
Grizzly Flat CSD Total	165	153	187	313	—	—	—	153	187	313	22	148
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	**—**	**—**	**—**	***101,546***	**—**	**—**	***47,043***	**—**	**—**	***148,590***	***2,187***	***68,677***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.

Note:1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

Under a climate change hydrologic regime firm yield could look very different and could decrease to near historic hydrologic safe yield levels, confirming that safe yield is appropriate for use for long range planning purposes.

When incorporating the assumed 10% reduction in surface water supply and 5% increase in irrigation demands due to climate change, water supply need could be as high as 70,000 AFY at full buildout when considering firm yield supply as shown in **Table 7-3**. Similar information is shown in **Table 7-4** considering safe yield supplies. The new water supply need when considering safe yield at full buildout could be up to 70,000 AFY.

Table 7-3 West Slope Additional Surface Water Supply Need Considering Firm Yield and Potential Climate Change Impacts (AFY)

	Existing Firm Yield Supply	*Urban*			*Agricultural*			*Total Demand*			*Additional Water Supply Need*	
		2012	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2030*	*Build-Out*
El Dorado Irrigation District	62,190	40,237	52,688	81,299	7,977	9,991	20,179	48,214	62,680	101,478	409	39,288
Georgetown Divide PUD	10,980	3,001	4,223	9,581	7,121	8002	10,866	10,122	12,225	20,687	1,245	9,707
Grizzly Flat CSD Total	166	153	187	313	—	—	—	153	187	313	22	147
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	—	—	—	***103,777***	—	—	***48,522***	—	—	***115,291***	***1,762***	***69,703***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.

Note: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

Table 7-4 West Slope Additional Surface Water Supply Need Considering Safe Yield and Potential Climate Change Impacts (AFY)

	Existing Safe Yield Supply	*Urban*			*Agricultural*			*Total Demand*			*Additional Water Supply Need*	
		2012	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2030*	*Build-Out*
El Dorado Irrigation District	56,216	40,237	52,688	81,299	7,977	9,991	20179	48,214	62680	101,478	6,464	45,262
Georgetown Divide PUD	9,487	3,001	4,223	9,821	7,121	8,002	10,866	10,122	12,225	20,687	2,738	11,200
Grizzly Flat CSD Total	149	153	187	313	—	—	—	153	187	313	39	164
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	**—**	**—**	**—**	***103,777***	**—**	**—**	***48,522***	**—**	**—**	***152,298***	***9,246***	***74,103***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.

Note: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

The analyses in this report are based on projections of both demand and supply based on a variety of assumptions, as well as efforts to provide a range of the potential water supply need for each water purveyor and the West Slope as a whole. However, the 2014 Update was completed during a time of increased uncertainty with regard to impacts of both supplies and demands from continuing severe drought conditions, and unprecedented curtailment of senior water rights by the State Water Resources Control Board. In 2014 the U.S. Bureau of Reclamation also imposed severe cutbacks on its water service contracts, and earlier in the year imposed record cutbacks to its water right settlement contractors (restored to specific contract cutback limits following rains in February and March). There are also some uncertainties with regard to the potential impacts of climate change. Finally, there continue to be regulatory pressures aimed at more water entering the Sacramento-San Joaquin Delta, and such pressures threaten the reliability of upstream water supplies and water users. Considering these circumstances it is prudent to consider all options for augmenting future water supplies and achieving greater water conservation for the West Slope, and in addition explore opportunities to improve water supply conditions during prolonged droughts.

There are three additional considerations for the future addressed in this 2014 Update. The first is the future potential for additional water conservation. Urban utilities throughout California are focusing their efforts on meeting the urban water conservation mandates in SB X7-7. Conservation efforts are not likely to stop at that point, and it is likely that future conservation efforts will be pursued in El Dorado County. Chapter 5 sets forth a number of potential programs, noting that the implementation of any of these programs will be subject to a range of feasibility measures including cost-effectiveness.

A second consideration reflects that the 2014 Update is a significant update to forecasted water demands on the West Slope and that there is value in revisiting data and key assumptions in future updates as more information becomes available (for example, the upcoming updates to urban water management plans which are due July 2016) and the impacts of future growth are experienced. We are in a time of substantial change, recognizing the emerging concerns related to climate change, the remarkable disruption of the recent prolonged economic recession which followed a time of unprecedented growth, and continued changes in water policy.

Finally, while not a purpose of this 2014 Update, Chapter 6 notes that there may be value in a specific climate change vulnerability assessment – of both supplies and demands – for the American River Basin supported by all water users reliant on such supplies. This includes all downstream water users (including environmental uses). It is clear that there is statewide interest in water supplies generated within the American River watershed. As noted in the 2007 report on climate change vulnerability by the California Urban Water Agencies, the combined effects of decreasing water supplies and increasing water demands are serious challenges for the future.

7.1 KEY FINDINGS

In summary, the key findings of the 2014 West Slope Update are listed below.

- Under short term water supply management policies, all West Slope purveyors have adequate supplies to meet near term demand under historic hydrologic conditions and current firm yield policies.
- Under long term safe yield planning assumptions, new supplies are needed for all West Slope purveyors at buildout of the 2004 General Plan, with approximately 69,000 AFY of additional water supply needed for the entire West Slope.
- The climate change hydrologic regime scenario confirms safe yield is the appropriate metric for assessing long term water supply need.
- Considering unprecedented water rights curtailment in 2014 and prolonged drought conditions, it is prudent for EDCWA and West Slope purveyors to consider all options for augmenting future water supplies and achieving greater water conservation for the West Slope.
- An American River Basin climate change vulnerability assessment supported by all water users reliant on such supplies may be valuable to understanding potential basin specific impacts.
- An EDCWA Office of Water Efficiency would provide needed leadership and funding to assist water purveyors in meeting existing and potential future State mandated water use efficiency.

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Appendix A - Completed and Pending EID and GDPUD Annexations since 1999

Table A-1 Completed and Pending EID and GDPUD Annexations since 1999

Project Name	*Project Number*	*Completion Date*	*Total Acreage*	*SFR EDUs*	*Commercial EDUs*
El Dorado Irrigation District					
Neel	96-02	10/20/1999	1.9435	1	
Jehovah's Witness	96-04	10/20/1999	4		
Hunt & Sons	95-04	05/02/2000	0.51		1
Winkelman	95-02	01/11/2001	201.78	13	
Holy trinity Church—OOA	00-09	01/23/2002	20		
Holy trinity Church—Annex	00-10	12/06/2002	20		5
Klas	00-11	03/13/2003	19.83	2	
Gilbertson	01-01	03/13/2003	1	2	
Moule	02-02	05/23/2003	0.46		3
Rescue USD	94-04	12/01/2003	10.19		0
Johnston—OOA	03-06	12/04/2003	5.4	1	
Union Mine	01-03	05/18/2004	281.4		5
Ebert	03-09	06/01/2004	5	1	
EMC	03-05	06/09/2004	1	3	
Shaw	93-05	07/26/2004	4.96	49	
Johnston—Annex	03-08	09/21/2004	11.32	1	
El Dorado Hills Station 86 (fire)	00-05	03/02/2005	10		
Spinardi	93-02	11/14/2005	72.6		
Bell Ranch	01-04	11/14/2005	116.9	113	
Silversprings—Reorganization	05-03	12/21/2005	289.56	253	
Euer Ranch—reorg	03-02	02/06/2006	5.17	460	
Fisher	04-10	02/23/2006	0.39	1	
Bannon	05-05	05/17/2006	26.02	2	
BUSD (Silver Dove School)	05-09	07/27/2006	10		6
Marble Valley—reorg	05-08	02/23/2007	2,549	398	25
Polanco—Snoline Mini Storage	02-04	05/08/2007	1.3		1
Carson Creek—reorg	03-03	05/17/2007	558	1385	
Dorkin	2006-07	05/30/2007	36.51	24	

Table A-1 Completed and Pending EID and GDPUD Annexations since 1999

Project Name	***Project Number***	***Completion Date***	***Total Acreage***	***SFR EDUs***	***Commercial EDUs***
Kregoski	2006-02	06/13/2007	28.43	2	
Garrett	2007-02	09/21/2007	11	5	
Naef—reorg	05-06	04/22/2008	18.93	2	
Visman	2007-05	09/12/2008	49.98	15	
Bass Lake Estates	2008-01	06/04/2009	7.454	36	
Summer Brook	2008-03	04/13/2010	90	34	
Campobello	2010-01	06/24/2011	32.67	49	
Alto—reorg	2009-10	08/08/2012	81.62	25	
Shingle Springs Rancheria—reorg	2012-04	12/05/2012	159.25	46	214.75
EDUHSD	2009-09	05/08/2013	214.99		35
Clarksville	2008-03	12/31/2013	11.36		28
Totals EID Annexations			***4,970***	***2,923***	***324***
GDPUD					
Buckeye	2010-02	07/12/2011	14.66	6	
Pending EID Annexations					
Seven Rivers	94-05		243.43		
La Canada—In Progress	2010-03		144.07		
Shingle Springs Montessori Sch	2012-06				
Malcolm Dixon Estates—reorg	2013-01		40		
Porter	2013-02		33		

Appendix B - 2004 General Plan/2007 WRDMP Household and Employment Projections

Table B-1 2004 General Plan West Slope Growth Projection Summary

Description	*Units*	*NS (OCA)*	*EID*	*GFCSD*	*GDPUD*	*Total*
TOTAL FOR 1999						
Residential						
Single-Family Units	Households	8,627	22,749	263	2,791	***34,430***
Multifamily Units	Households	644	4,126	—	160	***4,930***
Mobile Home Units	Households	947	1,936	15	321	***3,219***
Total Units		***10,218***	***28,811***	***278***	***3,272***	***42,579***
Employment						
Retail Employment	Employees	587	5,626	2	249	***6,464***
Service Employment	Employees	3,061	11,711	26	627	***15,425***
Other Employment	Employees	1,395	6,662	23	465	***8,545***
Total Employment		***5,043***	***23,999***	***51***	***1,341***	***30,434***
TOTAL FOR 2025						
Residential						
Single-Family Units	Households	16,832	39,690	409	3,513	***60,444***
Multifamily Units	Households	1,324	8,083	5	394	***9,806***
Mobile Home Units	Households	947	1,936	15	321	***3,219***
Total Units		***19,103***	***49,709***	***429***	***4,228***	***73,469***
Employment						
Retail Employment	Employees	2,727	14,328	2	428	***17,485***
Service Employment	Employees	8,150	24,921	27	957	***34,055***
Other Employment	Employees	4,550	15,833	23	684	***21,090***
Total Employment		***15,427***	***55,082***	***52***	***2,069***	***72,630***
TOTAL FOR CAPACITY						
Residential						
Single-Family Units	Households	27,744	53,956	2,391	8,547	***92,638***
Multifamily Units	Households	2,949	16,116	66	2,274	***21,405***
Mobile Home Units	Households	947	1,936	15	321	***3,219***
Total Units		***31,640***	***72,008***	***2,472***	***11,142***	***117,262***
Employment						
Retail Employment	Employees	5,636	22,096	6	1,753	***29,491***
Service Employment	Employees	13,713	36,085	33	3,342	***53,173***
Other Employment	Employees	8,200	23,962	27	2,269	***34,458***
Total Employment		***27,549***	***82,143***	***66***	***7,364***	***117,122***

SOURCE: ECO:LOGIC update of 2003 EPS Land Use Forecast, based on the adopted 2004 County General Plan, November 13, 2007

Approximately 500 dwelling units in EID service but within Sacramento County are not included in this housing forecast.

Household projections assume a 5% vacancy factor. Total “Dwelling Units” as defined in General Plan are approximately 5% greater.

Table B-2 2004 General Plan West Slope Urban Water Demand Forecast without Latent Demand or System Losses (acre-feet)

Description	*Units*	*NS (OCA)*	*EID*	*GFCSD*	*GDPUD*	*Total*
TOTAL FOR 1999						
Residential						
Single-Family Units	acre-feet	5,992	16,446	124	1,351	***23,913***
Multifamily Units	acre-feet	179	1,111	0	77	***1,367***
Mobile Home Units	acre-feet	658	1,377	7	155	***2,197***
Total Units		***6,829***	***18,934***	***131***	***1,583***	***27,477***
Employment						
Retail Employment	acre-feet	67	577	1	46	***691***
Service Employment	acre-feet	351	1,369	13	115	***1,848***
Other Employment	acre-feet	160	691	12	86	***949***
Total Employment		***578***	***2,637***	***26***	***247***	***3,488***
TOTAL FOR 2025						
Residential						
Single-Family Units	acre-feet	12,076	29,417	172	1,700	***43,365***
Multifamily Units	acre-feet	399	2,360	2	191	***2,952***
Mobile Home Units	acre-feet	679	1,377	6	155	***2,217***
Total Units		***13,154***	***33,154***	***180***	***2,046***	***48,534***
Employment						
Retail Employment	acre-feet	398	1,819	1	79	***2,297***
Service Employment	acre-feet	1,189	3,791	13	176	***5,169***
Other Employment	acre-feet	664	2,334	11	126	***3,135***
Total Employment		***2,251***	***7,944***	***25***	***381***	***10,601***
TOTAL FOR CAPACITY						
Residential						
Single-Family Units	acre-feet	19,272	39,937	1,004	4,137	***64,350***
Multifamily Units	acre-feet	933	4,708	28	1,101	***6,770***
Mobile Home Units	acre-feet	658	1,377	6	155	***2,196***
Total Units		***20,863***	***46,022***	***1,038***	***5,393***	***73,316***
Employment						
Retail Employment	acre-feet	815	2,771	3	322	***3,911***
Service Employment	acre-feet	1,982	5,369	14	614	***7,979***
Other Employment	acre-feet	1,185	3,426	11	417	***5,039***
Total Employment		***3,982***	***11,566***	***28***	***1,353***	***16,929***

Table B-2 2004 General Plan West Slope Urban Water Demand Forecast without Latent Demand or System Losses (acre-feet)

Description	*Units*	*NS (OCA)*	*EID*	*GFCSD*	*GDPUD*	*Total*
SOURCE: ECO:LOGIC update of 2003 EPS Land Use Forecast, based on the adopted 2004 County General Plan, November 13, 2007						
Approximately 500 dwelling units in EID service but within Sacramento County are not included in this housing forecast.						
Household projections assume a 5% vacancy factor. Total “Dwelling Units” as defined in General Plan are approximately 5% greater. Demands therefore, do not included latent demand						
Demands do not include system losses.						

Appendix C - 2007 Floor Area Ratio General Plan Amendment Employment Forecast

Table C-1 Summary of Nonresidential Forecasts by Market Area

Market #	***Market Area***	***Existing Conditions***	***Adopted General Plan***		***General Plan Amendment***	
			Total Jobs			
			2025	***Buildout***	***2025***	***Buildout***
1	El Dorado Hills	4999	31092	40846	31092	81501
2	Cameron Park/Shingle Springs/Rescue	5395	11374	25818	11374	55682
3	Diamond Springs	3584	7787	10600	7787	30141
4	Placerville/Camino	11025	14810	18701	14810	33302
5	Coloma/Gold Hill	640	791	2572	791	5705
6	Pollock Pines	1313	1676	2379	1676	4144
7	Pleasant Valley	565	828	1013	828	1940
8	Latrobe	137	307	3709	307	9901
9	Somerset	334	501	1632	501	2883
10	Cool/Pilot Hill	364	986	2783	986	4922
11	Georgetown/Garden Valley	1274	1495	5877	1495	13263
13	American River	772	798	945	798	1730
14	Mosquito	32	185	247	185	429
TOTAL		30434	72630	117122	72630	245543

SOURCE: EDC (2006b) Table 4.0-1, Page 4.0-4

El Dorado Irrigation District

Board Policies (BP) and Administrative Regulations (AR)

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El Dorado Irrigation District

BP 0000 MISSION, GOVERNANCE, STANDARDS, ACCOUNTABILITY

BP 0010 District Mission Statement

Adopted: December 11, 2006

The El Dorado Irrigation District is a public agency dedicated to providing high quality water, wastewater treatment, recycled water, hydropower, and recreation service in an environmentally and fiscally responsible manner.

Strategic goals include:

- Maintain continuous, dependable water service and a clean, healthy water supply
- Provide quality wastewater collection, treatment and disposal service
- Provide recycled water in geographic locations where feasible
- Generate hydro-electric power, when appropriate, and according to the FERC requirements
- Ensure opportunities for quality recreation
- Ensure District operations consistently meet all appropriate environmental and other regulations

El Dorado Irrigation District

BP 0020 Professional Governance Standards

Adopted: December 11, 2006

The El Dorado Irrigation District Board of Directors believes that to govern effectively, individual Board members must work with the General Manager, the General Counsel, and with each other to ensure that District operations meet the standards of the District Mission Statement.

This team approach recognizes the separate governance role of the Board and allows the team to assume collective responsibility for building unity and creating a positive work environment for the benefit of the District's customers and employees.

El Dorado Irrigation District

BP 0030 Accountability

Adopted: December 11, 2006

The El Dorado Irrigation District Board of Directors is committed to ensuring that the District is accountable to the public it serves. A General Manager and General Counsel accountability report is an appropriate way to inform the community about the state of the District. The process of developing and maintaining a General Manager and General Counsel accountability report gives the District staff opportunities to review achievements, identify areas for improvement, enlist community support, and establish a vision for the future.

The components of the General Manager and General Counsel accountability report will be established annually to be evaluated the following year during the Board conducted performance evaluation process.

AR 0031 Emergency Response

Approved: December 12, 2006

The District will conduct emergency operations in accordance with EID Board Resolution No. 2006-075 (Adoption of the National Incident Management System) or its successor and pursuant to the EID Emergency Response Plan.

El Dorado Irrigation District

BP 0040 Standards of Behavior

Adopted: December 11, 2006

El Dorado Irrigation District is committed to providing high-quality services with respect and courtesy to customers and co-workers alike.

The General Manager is responsible for creating and enforcing standards of behavior that reflect compliance with all applicable laws and regulations, respects diverse views and expectations, and is committed to open, fiscally sound measures and Board directed guidelines to achieve performance excellence.

The General Counsel is responsible for ensuring the District's legal positions are represented and that District business is conducted in compliance with all applicable laws and regulations.

AR 0041 Code of Ethics for Standards of Behavior

Approved: December 12, 2006

Employees shall provide services with integrity and are expected to maintain high standards in their working relationships. These standards include the following:

- **Obey the law**. We will conduct our business in accordance with all applicable laws and regulations. Compliance with the law does not comprise our entire ethical responsibility. Rather, it is a minimum, absolutely essential condition for performance of our duties.

- **Promote a positive work environment that supports doing what is right, respecting others, and performing to the best of our abilities**. While everyone who works for the District must contribute to the creation and maintenance of such an environment, our executives and management personnel assume special responsibility for fostering a work environment that will bring out the best in all of us. Supervisors must be careful in words and conduct to avoid placing, or seeming to place, pressure on subordinates that could cause them to deviate from acceptable ethical behavior.

- **Work safely: Protect yourself, your fellow employees, and District facilities**. We are committed to providing a drug-free, safe, and healthy work environment. Each of us is responsible for compliance with environmental, health, and safety laws and regulations. Observe posted warnings and regulations. Report immediately to the appropriate management any accident or injury sustained on the job or any safety concern.

- **Make accurate public disclosures**. We must assure that all disclosures and other public communication are full, fair, accurate, and timely and understandable.

- **Avoid conflicts of interest**. Avoid any relationship, influence, or activity that might impair or even appear to impair your ability to make objective and fair decisions when performing your job.

- **Accountability**. Each employee is responsible for adherence to the standards of conduct set forth in this Code and for raising questions if the standards are not being met. Violations of this

Code are cause for corrective action, which may include disciplinary action.

El Dorado Irrigation District

BP 1000 BOARD POLICY PURPOSE AND ENFORCEMENT

BP 1010 Introduction

Adopted: December 11, 2006

The El Dorado Irrigation District is governed by a five-member Board of Directors pursuant to Irrigation District Law (Water Code §§20500, et seq.). The members are elected to four-year terms on a staggered basis from five geographically identified divisions in the service area. At least every five years the division boundaries are re-evaluated to ensure population is equally distributed among the divisions and the other criteria specified by California Election Code section 22000(a) are considered. The Board sets policy for the District and provides leadership on behalf of District customers.

The Board of Directors establishes the Board meeting schedule, location and time of the meetings.

The Board hires, may terminate, and directs the General Manager and the General Counsel pursuant to their separate employment contracts. All other employees of the District, except for the legal office, work under direction of the General Manager.

AR 1010 El Dorado Irrigation District

Approved: December 12, 2006

The El Dorado Irrigation District is a public agency located in El Dorado County, California, with headquarters in the City of Placerville. Included in the District's service area are the communities of Cameron Park, Camino, Diamond Springs, El Dorado, El Dorado Hills, Placerville, Pollock Pines, Shingle Springs, Rescue, and many smaller communities.

EID is an irrigation special district organized in 1925 under the Irrigation District Law (Water Code §§20500, et seq.). Its original purpose was to ensure domestic water for Placerville and irrigation water for local farmers. The District now provides water, wastewater treatment, recycled water, hydroelectric and solar power generation, recreation, and water-use efficiency services.

The Board meets on the second and fourth Mondays of every month, beginning at 9:00 am, in the Board Room of the Harry J. Dunlop Customer Service Building on Mosquito Road in Placerville. Public participation at Board meetings is recognized as an essential part of representative government and the Board encourages public comments in the decision-making process.

BP 1020 Purpose

Adopted: December 11, 2006
Revised: January 28, 2013

The purpose of these Policies is to set forth the role of the Board of Directors and the responsibilities of the General Manager and the General Counsel in carrying out the terms and conditions under which El Dorado Irrigation District provides services to its customers.

The Policies are to direct the operations and administration of the District in a way that ensures that services are provided at the lowest possible cost, consistent with District goals and objectives, and are generally equitably distributed among those benefited, or by other specific policy of the Board.

The Board of Directors has the authority to interpret these Policies and to rule on any point of contention that is not specifically covered herein.

The Policies, as currently amended, are maintained on file at the District's headquarters on Mosquito Road in Placerville. Copies, in either standard format or alternative formats suitable for persons with disabilities, are available to the public upon request.

El Dorado Irrigation District

BP 1030 Amendments

Adopted: December 11, 2006

The Board of Directors may amend the Policies by an affirmative vote of at least three members at a publicized public hearing.

El Dorado Irrigation District

BP 1040 Restriction, Wrongful Acts, and Enforcement

Adopted: December 11, 2006

The District is authorized under California statutes to establish and enforce its Board Policies and to enforce certain laws and restrictions referenced herein. Civil Code Sections 1882-1882.6 permits the District to file a civil action for damages for the unauthorized taking of District water, illegal or unauthorized connections to any facilities owned or used by the District to provide services, and tampering with District property. The statutes also permit the recovery of three times the amount of actual damage, plus the costs of suit and reasonable attorneys' fees. Numerous Penal Code Statues criminalize similar misconduct.

Any violation of these Policies shall be cause for the Board of Directors or their designee to apply such penalties as may be provided by law, file a criminal complaint, or to take any other action as deemed appropriate, including the discontinuance of drinking water, recycled water, wastewater, and recreation services.

At recreation facilities owned, operated, or leased by the District, EID's recreation staff are authorized and empowered to enforce District rules and regulations, as well as state and local codes, relating to the safe use of the facilities. Staff may issue citations for violations or eject or exclude any violator as specified in the Park Operations Manual, pursuant to BP 10000 Recreation.

AR 1040 Wrongful Acts Subject to Penalties

Approved: December 12, 2006

The following acts are considered violations of state law and are subject to penalties imposed by the District and/or criminal authorities.

No person shall:

a) divert or cause to be diverted any District water, wastewater, or recycled water flow without authorization or consent of the District;

b) make or cause to be made any connection or re-connection to facilities owned or used by the District in order to obtain water, wastewater, or recycled water service without authorization or consent of the District;

c) prevent any meter from accurately performing its measuring functions by tampering or any other means;

d) tamper with any property or facilities owned or used by the District to provide potable water service, recycled water service, or wastewater service;

e) use or receive direct benefit from the District's facilities with knowledge or reason to believe that the diversion of water or the tampering or unauthorized connection with District water or wastewater facilities existed at the time of such use, or that the use or receipt of benefit was without authorization or consent of the District; or

f) cause damage to any water, sewer, or recycled water facility or related appurtenances above or below ground through by carelessness or neglect.

AR 1041 Water Waste Prohibition

Approved: February 26, 2008
Revised: August 27, 2008
Revised: March 2, 2009
Revised: March 31, 2014

The District prohibits uses of District-supplied raw, potable, and recycled water that constitute water waste. The objective is to encourage reasonable use of water supplies by prohibiting all intentional or unintentional water waste, including the use of wasteful equipment or techniques, when a reasonable solution or alternative is available. See AR 5011 for additional water waste regulations that apply during declared drought conditions.

AR 1041.1 Definition of Water Waste

Any of the following acts or omissions, whether willful or negligent, shall constitute the waste of water.

A. Causing or permitting water to discharge, flow, or run to waste into any gutter, sanitary sewer, water course, or storm drain, or to any adjacent lot, from any tap, hose, faucet, pipe, sprinkler, or nozzle. In the case of irrigation, "discharge," "flow," or "run to waste" means that the earth intended to be irrigated has been saturated with water to the point that excess water flows over the earth to waste. In the case of washing, "discharge," "flow," or "run to waste" means that water in excess of that necessary to wash, wet or clean the dirty or dusty object, such as an automobile, sidewalk, or parking area, flows to waste.
B. Allowing water fixtures or heating or cooling devices to leak or discharge.
C. Maintaining ponds, waterways, decorative basins, or swimming pools without water recirculation devices.
D. Backwashing so as to discharge to waste swimming pools, decorative basins, or ponds in excess of the frequency reasonably necessary to maintain the clarity and cleanliness of the water.
E. Operation of an irrigation system that applies water to an impervious surface or that is in disrepair.
F. Use of a water hose not equipped with a control nozzle capable of completely shutting off the flow of water except when positive pressure to leave the hose on is applied.
G. Irrigation of landscaping during rainfall.
H. Overfilling of any pond, pool, or fountain that results in water discharging to waste.
I. Failure to comply with any conservation practices during a District-declared drought.

AR 1041.2 Exceptions

Notwithstanding AR 1041.3, the following acts do not constitute the waste of water.

A. Flow resulting from temporary water supply system, water fixture, or heating/cooling device failures or malfunctions lasting 48 hours or less.
B. Flow resulting from firefighting or routine inspection of fire hydrants or from fire training activities.
C. Water applied to abate spills of flammable or other hazardous materials, where water is an appropriate abatement methodology.
D. Water applied to prevent or abate imminent health, safety, or accident hazards when alternate methods are not available.

AR 1041.3 Informing District Customers of the Regulation

The District shall inform customers at least once a year of the water waste regulation, either through a special item in the newsletter that accompanies each two-month bill or as a separate insert in the bill.

AR 1041.4 Enforcement

To enforce this regulation, District personnel will follow the process outlined in AR 1041.5, *Penalties for Violation of the District's Water Waste Regulation*.

AR 1041.5 Penalties for Violation of the District's Water Waste Regulation

District personnel may report or receive reports of violations of AR 1041, which prohibits uses of raw, potable, and recycled water that result in waste. Violations will be penalized as follows:

- First reported violation of any provision of AR 1041: the District shall issue to the customer a written warning notice of and direction to cease and desist violation.
- Second reported violation of any provision of AR 1041: the District shall levy a fine on the violator's bill of $100, or 20% of the two-month water bill, whichever is greater.
- Third reported violation of any provision of AR 1041: the District shall levy a $200 fine on the violator's bill. If all three violations occurred within a 12-month period, the District may elect to discontinue service of the water supply that has been wasted. If service is discontinued due to AR 1041 violations, the District will charge a reconnection fee of $100 to restore service after abatement of the violation and payment of the fine.

Restoration of service may occur without prejudice to any party's position pending appeal under AR 1041.6.

Fourth reported violation of any provision of AR 1041: the District shall levy a $500 fine on the violator's water bill. If all four violations occurred within an 18-month period, the District may elect to discontinue service of the water supply that has been wasted. If service is discontinued due to AR 1041 violations, the District will charge a reconnection fee of $100 to restore service after abatement of the violation and payment of the fine. Restoration of service may occur without prejudice to any party's position pending appeal under AR 1041.6.

Unpaid fines are subject to the property lien procedure of Water Code section 25806.

AR 1041.6 Appeal and Hearing

A customer may appeal any notice of water waste violation by filing a written request for a hearing with the District's General Counsel within seven calendar days after receiving the notice. The appeal shall identify the property and state the grounds of appeal together with all material facts in support of it. Appeals will be heard by the General Counsel or her or his designee. The filing of a request for hearing shall stay any consequences for violation until the appeal is decided.

When a hearing is requested, the hearing officer shall send written notice to the appellant by certified mail, return receipt requested, stating the time and place of the hearing. Hearing procedures shall be informal, but serve the goals of proper decorum and the pursuit of the truth. At the hearing, the appellant shall have the right to present information as to the alleged facts upon which the notice was issued, and as to any other facts that may aid the hearing officer in determining whether a violation has occurred and, if so, the appropriate consequences.

Within ten calendar days after the close of the hearing, the hearing officer shall issue a written determination either upholding, reversing, or modifying the notice of water waste violation, and briefly stating the reasons that support the determination. Failure to issue a written determination within ten calendar days shall automatically reverse the notice of water waste violation. The hearing officer's written determination shall constitute the District's final action.

El Dorado Irrigation District

AR 1050 State Criminal Laws Protecting Public Water Supplies and Wastewater Systems

Approved: December 12, 2006

In relation to the protection of public water supplies, many offenses are misdemeanors under the laws of California, and offenders may be criminally prosecuted. Such offenses include but are not limited to the following: stealing water, interfering with or damaging water tanks, pump stations, and pipelines; and discharging or depositing substances into the public wastewater system.

AR 1060 Unauthorized Use of Water

Approved: December 12, 2006

No customer may use water on any tract of land not included in his or her application for service. Each parcel must be served by a separate meter.

AR 1070 Unauthorized Regulation of Water or Wastewater Flow

Approved: December 12, 2006

No person except authorized employees of the District is permitted to turn on or turn off water at any connection or to open or close any gate valve or other device that regulates the flow or measurement of water, wastewater, or recycled water.

El Dorado Irrigation District

AR 1080 Resale of Water or Wastewater Service

Approved: December 12, 2006

No retail customer shall enter into any contract or agreement to resell any portion of the water or wastewater service to which he or she is entitled without the specific authorization of the Board.

The owner of a mobile home park, trailer park, apartment building, or other multi-unit structure or development may install a separate meter for each unit and may supply water purchased from the District to occupants of each such unit under the following conditions:

a) the rate charged shall not exceed the commodity rate charged by the District during the same period;

b) the District has the right to examine books and records of the property owner, upon reasonable notice, to ensure that the amount charged does not exceed the limits of these Policies; and

c) the property owner shall comply with all state, federal, and local provisions of law applicable to the sale, distribution, and use of water.

AR 1090 Liability for Maintenance or Damages

Approved: December 12, 2006
Revised: April 1, 2013

The District assumes no responsibility for the delivery of water or disposal of wastewater through private pipelines or for any damage resulting from operation of such pipelines. The property owner is solely responsible for maintenance and repair of water and wastewater lateral pipelines connecting to the District's system. For water lateral pipelines, the connection between the water main and the meter box, including the water meter, are owned and maintained by the District. Wastewater service lateral responsibilities are more fully set forth in AR 6020.

AR 1110 Service Interruptions

Approved: December 12, 2006

The District shall make every reasonable effort to notify customers in advance of any interruption in water supply or wastewater collection, outside of emergency circumstances. However, the District disclaims any liability for damages sustained to customer-owned water or wastewater facilities such as booster pumps, water heaters, or solar equipment. The District also disclaims responsibility for damages to private property, privately owned plumbing and other fixtures that may result from an interruption of water supply or wastewater collection or change in water pressure.

AR 1120 Right of Inspection and Access

Approved: December 12, 2006

Employees and agents of the District shall have unrestricted access to all premises, including private property, as necessary or desirable during such hours and upon such notice as is reasonable under the circumstances, to inspect facilities for the purpose of protecting the District, its customers, and public health and to enforce the provisions of these Policies, as necessary.

AR 1130 Public Access to Customer Records

Approved: December 12, 2006

The names, addresses, and any other data collected by the District regarding customers or property owners within the District, including computerized geographical information and project development files, shall not be available to the public except to the extent required by law.

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El Dorado Irrigation District

BP 2000 MANAGEMENT OF THE DISTRICT

BP 2010 Concepts and Roles in District Management

Adopted: December 11, 2006
Supersedes:

The General Manager and General Counsel are appointed by the Board of Directors and serve at the Board's pleasure. The General Manager employs department heads and management personnel to assist in the effective management of the District. All units, departments, programs, and services make up the District's management system and are organized so that appropriate decision-making takes place at various levels in accordance with Board Policies and Administrative Regulations.

AR 2010 Management Functions

Approved: December 12, 2006

District's management function is to:

- provide leadership in enhancing the quality of service provided to District customers and the community;
- ensure employee commitment to a customer-oriented approach in delivering services;
- establish a framework of District responsibility to make sure each department fulfills its role in accomplishing the District's mission;
- establish and implement appropriate budgeting oversight;
- implement and support District programs with the goal of providing high-quality, cost-efficient services;
- effectively manage the day-to-day operations of the District's various departments, programs, and projects;
- respond to local, state, and federal mandates; and
- evaluate procedures, practices, and personnel to ensure the most efficient and effective operation of the District.

AR 2011 Organization Chart/Lines of Responsibility

Approved: December 12, 2006

The General Manager or his/her designee shall maintain up-to-date District organizational charts that clearly designate lines of primary responsibility and the relationships among all District positions.

The organizational charts shall clarify working relationships and functions. They are not intended to indicate all lines of communication and cooperation that must exist to create effective and efficient operation of the District.

Supervisors and managers shall ensure that all personnel understand to whom they are responsible and for what functions.

AR 2012 Staff Organization

Approved: December 12, 2006

The General Manager shall organize District staff in a manner best suited to achieve success, in order to implement Board policies.

The Board directs the General Manager to strive to ensure a respectful, responsive, and resourceful organizational culture that:

- values individuals;
- promotes effective listening and communications skills;
- creates a climate of trust through honesty, openness, fairness, and inclusion;
- responds whenever possible to employee training needs, whether they be organizational, departmental, interdepartmental, or individual;
- provides a collaborative environment to facilitate conflict resolution, improve efficiencies, and accommodate change;
- encourages individuals to solve problems and take prudent risks; and,
- recognizes employees for good work.

AR 2013 Temporary and Part-Time Personnel/Consultants

Approved: December 12, 2006

The General Manager may hire consultants, part-time or temporary employees to assist or advise with the administration and duties of the District, subject to the adopted purchasing practices of the District.

Expenditures of funds for the hiring of consultants shall not exceed the funds budgeted by major categories for such purposes in the annual budget or revisions of the annual budget of the District.

AR 2014 Cell Phone and Smart Phone Allowance and Use

Approved: August 11, 2010
Revised:
Revised:

There is a cell phone and smart phone reimbursement program for District employees who use their personal cell and smart phones for District business purposes. The program recognizes that cell and smart phones enhance District communication, improve employee productivity, and are a key component of the District's communication network during emergencies.

AR 2014.1 Definition of Cell Phone and Smart Phone

A cell (mobile) phone is a long-range, portable electronic device for personal telecommunications. In addition to the standard voice function of a land-line telephone, cell phones can support other services such as short message service for text messaging, email, Internet access, and multimedia message service for sending and receiving photos and video. Most current cell phones connect to a cellular network of base stations, which are in turn interconnected to the public switched telephone network.

A smart phone is any electronic handheld device that integrates the functionality of a cell phone with a personal digital assistant (PDA) or similar information appliance. "Smart" functionality typically includes a miniature keyboard and/or a touch screen, and features may include Internet and email access, scheduling software, contact management, and the ability to read business documents in a variety of formats such as Adobe PDF and Microsoft Office. Connectivity to these features may require the purchase of additional software, which is used to synchronize the smart phone with data such as email and calendars.

In addition to the purchase price of a cell phone or smart phone, these devices require a service or calling plan that defines expected use over a period of time and is paid in monthly installments that vary, but typically include a fixed access charge and air time and data charges.

AR 2014.2 Scope

The program applies to all District employees.

AR 2014.3 Program

Under current government regulations, all personal use of and any reimbursement for personal use of District-owned or provided cell phones must be treated as taxable income. Administration of the program will be conducted in accordance with Standard Operating Procedure *Establishment and Payment of Cell Phone* *and Smart Phone Allowance* or its successor. Program administration is cross-functional and assigns responsibilities as follows:

The General Manager will determine the amount of each type of allowance and adjust periodically as required.

The Director of Information Technology will recommend the cost estimates to set the allowance amounts for approval by the General Manager.

The Director of Human Resources will administer program allowance payments to approved employees through the Payroll process.

The Director of Finance will administer the payment of approved reimbursements through the Accounts Payable process.

Each Department Director will determine the need for an employee to receive an allowance and review their employee's ongoing program participation on an annual basis or other suitable frequency as determined by District business needs.

Four approaches for the use and payment of cell phones and related costs are authorized. An employee may be authorized for one approach. Options B and C below provide an allowance for business use of an employee provided cell phone and fall under IRS Regulation 1.62(c) as a non-taxable business expense reimbursement.

A. District-Owned Phones
The cell and smart phones should be purchased, maintained, and supported through cost allocation to the department where the employee is assigned if the cell phone is used for 100% District business, including all incoming and outgoing calls and/or data usage, and no personal use (with the exception of life safety situations).

The IT Department will perform the following controls on District-owned cell and smart phones.
As required

- Manage user addition, change, and disconnect requests as well as service plans and features with the cellular carrier; maintain the authorized inventory.
  Monthly
  • Validate summary bills and sub-accounts against the authorized inventory of District-owned devices, phone numbers, service plans, and features.
  • Analyze summary fixed access charges, air time charges, data charges, and other charges and credits.

Annually

• Coordinate collection of requirements, address any needed changes, and update related documentation.

• Analyze requirements and recommend standard devices, a service provider, and service plans that provide the best value to the District.

Supervisors will perform the following controls for District-owned cell and smart phones used in their groups.

As required

• In all instances of shared device use, maintain a log—including the assigned user and the time and date of possession of the device—to ensure accountability.

• Review and approve requests to add, modify, or remove District-owned cellular devices and services prior to submitting to the IT Department for action.

Monthly

• Review cell phone invoices for appropriate and applicable use.

Department directors will perform the following controls for District-owned cell and smart phones used in their departments.

Annually

• Review the continuing need for an employee to receive a District-provided device, based on District business need.

B. Employee-Owned Smart Phones

If the smart phone is used for a mix of District and personal use, the employee may request department head approval for an allowance, which will be used to offset the costs incurred by the owner of the phone, including the data plan. The employee is responsible for all costs incurred.

The IT Department will perform the following controls on authorized employee-owned smart phones that comply with published District standards.

As required

• Manage the addition, change, and disconnect requests to the District email system.

• Program the phone so that it can securely and reliably access District mobile device services. This may include the installation of additional software to secure data should the device be lost, stolen, or broken.

• Attempt to secure the data within four business hours on a smart phone reported lost, stolen, or broken. Current technologies do not guarantee that all data can be secured if the device is lost, stolen, or broken.

Annually

- Analyze requirements for employee-owned smart phones and specify standards that provide the best value to the District.

Supervisors will perform the following controls for employee-owned smart phones used in their groups.
As required
- Review and approve requests to add, modify, or remove employees to the smart phone allowance program based on business needs.

Department directors will perform the following controls for employee-owned smart phones used in their departments.
Annually
- Review the continuing need for an employee to receive an allowance based on District business needs.

C. Employee-Owned Cell Phones
If the cell phone is used for a mix of District-business and personal use, the employee may request department director approval for an allowance, which will be used to offset the costs incurred by the employee. The employee is responsible for all costs incurred.

Supervisors will perform the following controls for employee-owned cell phones used in their groups.
As required
- Review and approve requests to add, modify, or remove employees to the cell phone allowance program based on business needs.

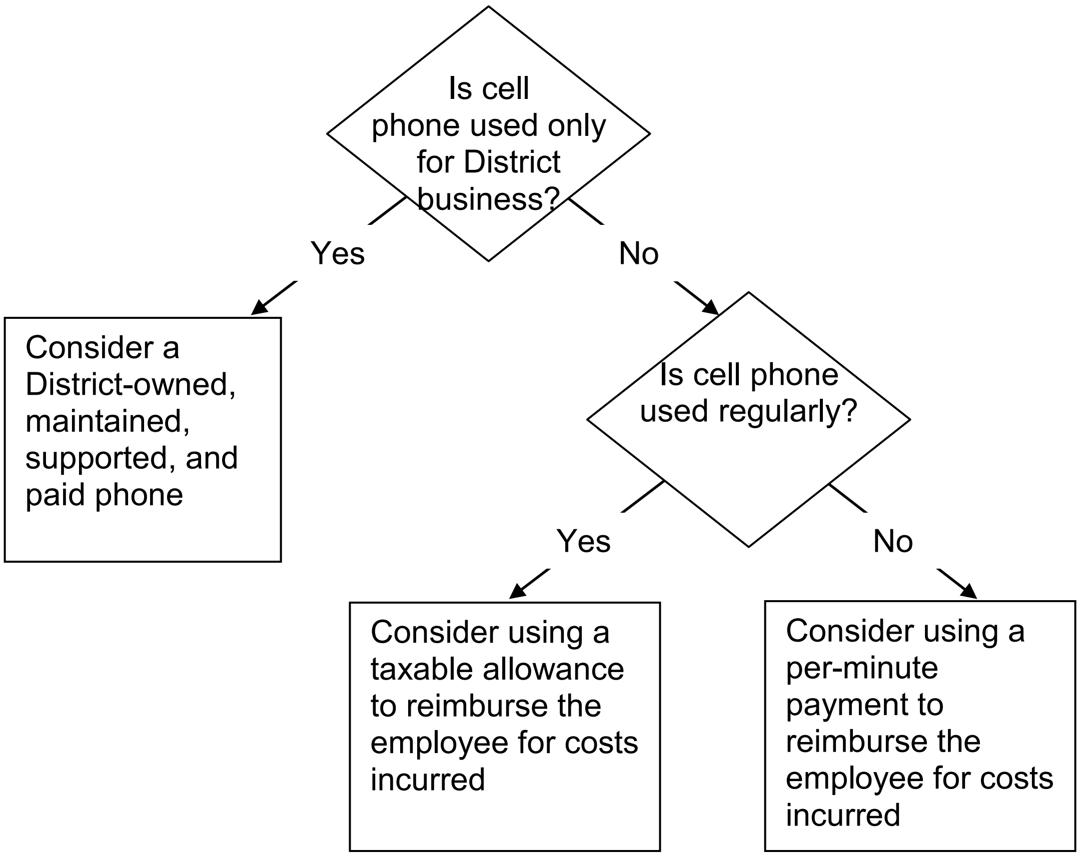
Department directors will perform the following controls for employee-owned cell phones used in their departments.
Annually
- Review the continuing need for an employee to receive an allowance based on District business needs.

D. Incidental Use of Personal Cell Phones
For employees required to use their personal cell phone for unplanned District business, a per-minute payment is authorized. The employee must request the reimbursement through the District's expense statement process.

Supervisors will perform the following controls for incidental use of employee-owned cell phones used in their groups.
As required
- Review and approve requests to reimburse employees for incidental use of employee-owned cell phones based on business needs.

AR 2014.4 Cell Phone Allowance Decision Guideline

This decision guideline is intended to aid the reader in selecting the most appropriate program approach.



AR 2015 Personal and Private Internet Service Use and Reimbursement

Approved: August 11, 2010
Revised: July 14, 2014

This administrative regulation establishes guidelines for the use of personal computers and/or personal or private internet services to conduct District business through secure remote access over the internet. The District recognizes that this practice can enhance employee productivity and the delivery of system support services. The regulation also establishes conditions under which employees may be reimbursed for the use of their personal computer and/or personal or private internet services. The regulation is not intended to alter the District’s practice of providing computer workstations for employee use or cellular internet service on District workstations for those employees who routinely and frequently work in the field and have a business need for secure remote access to District information systems.

AR 2015.1 Definitions

Personal Computer – A personal computer is a general purpose computer whose size, cost, capabilities, and features make it useful for individuals, and which is intended to be operated directly by an end-user with no intervening computer operator. A personal computer may be a desktop computer or a laptop, netbook, tablet or a handheld model, and is not equipped by the manufacturer with the features or functionality intended to make it suitable to serve as the end-user’s mobile phone. Software applications for most personal computers include, but are not limited to, word processing, spreadsheets, databases, web browsers and e-mail clients, digital media playback, and myriad personal productivity and special-purpose software applications. Personal computers typically have connections to the internet, allowing access to a wide range of other resources. Personal computers may be connected to a network, either by a cable or a wireless connection.

Personal and Private Internet Service – A personal internet service uses an Internet service provider (ISP) company to gain access to the internet for personal use with no expectation of resale. Personal internet services are typically found in residences and in some public areas. A private internet service is generally a reseller of ISP services at a facility such as a hotel or conference center where the operator can authorize only specific users to access the Internet for a limited time on a fee basis, such as per day or per hour. Either type of service connects its users or customers to the World Wide Web using a wired or wireless access point.

Full-time Telecommuter – An employee with job duties that require the employee to work from a home office four or more days per week on a recurring basis. Job titles currently authorized as full time telecommuters under this program are Board members, who are expected to complete the vast majority of their District-related job functions through remote access and do not maintain individual offices in District facilities. The procedures for Board members obtaining reimbursement are set forth in AR 12065.

AR 2015.2 Scope

The program applies to all District employees.

AR 2015.3 Program

The District treats the reimbursement of an expense incurred while peforming services for the district as non-taxable income. The following approaches for the use and potential payment of costs related to personal computer and/or personal or private internet are authorized. One or more of these approaches may apply to an employee at a time.

A. Use While Fulfilling Standby or Support Duties

Employees expected to fulfill standby or support duties are provided with a District-owned computer appropriately configured and secured for this purpose. No use of a non-District personal computer is permitted for fulfilling standby or support duties. No reimbursement is authorized for occasional or potential use of personal or private internet service used to conduct District-related activities for employees where secure remote access to District information systems has been provided as a tool by their supervisor. Providing employees with secure remote access via the internet to various business applications and information sources is viewed by the District as a convenience, not a requirement. When remote access is not authorized, feasible, available, or possible, employees must report in person to the job site to attend to their job duties.

B. Use While Traveling on District Business

Employees who expect they will need remote access services when traveling on District business should make arrangements at least three business days in advance with the IT Department to acquire a temporary District-owned computer if necessary and/or temporary cellular internet service for the duration of the business trip. If such arrangements are not possible, a reimbursement payment is authorized for the cost of using a private internet service.

C. Incidental Mobile Internet Use

No reimbursement is authorized for employees that use their personal internet service on a smart phone or similar mobile device for District business if the employee has not been authorized for the Smart Phone Allowance under the Cell Phone and Smart Phone Allowance and Use program. See AR 2014.3 for additional provisions of this program.

D. Full-time Telecommuting Use

Employees who are required to use their personal computer for District business on a near full-time basis are eligible to receive a payment for the actual cost of the computer and certain related items:

- Reimbursement for the purchase price of a single personal computer and extended warranty, up to a maximum of $1,000 no more than one time every four years.
- Reimbursement for the purchase price of software applications required to effectively and securely perform District duties.

Not eligible for reimbursement are any other costs associated with personal computer ownership, including diagnostic and repair services, software and equipment maintenance, training, data backup and recovery, peripheral devices and accessories.

Employees who are required to use their personal internet service for District business on a near full-time basis will receive a payment for the actual cost of the service, up to a maximum of $40 per month.

BP 2020 Role of the General Manager

Adopted: December 11, 2006
Supersedes:

The success of the District depends upon the ability of individuals and groups to adapt to the changing needs of the District and its customers in effectively carrying out the Board's direction. The General Manager shall establish and maintain a standard of respect, ethical behavior, responsiveness, and resourcefulness for District managers and staff to:

- work cooperatively to identify District, customer, and community needs;
- motivate, challenge, and guide others in providing high-quality, cost-efficient services;
- continuously evaluate the effectiveness and quality of the services provided;
- be knowledgeable about District policies and procedures, negotiated agreements, and past practices;
- keep the Board and public informed on the status of the District and make recommendations for changes and improvements that will promote the continued success of the District;
- keep the Board informed on decisions that significantly impact the operations of the District;
- inform the Board on industry developments that have a bearing on the duties or policies of the Board;
- conduct strategic planning and make appropriate recommendations for the future;
- employ a professional staff to assist in carrying out Board Policies;

- offer professional leadership through ongoing program improvements;

- develop and administer regulations and procedures to govern employer-employee relations under state and federal statutes;

- enter into contracts as necessary to perform the functions of the District; and

- comply with all the duties and responsibilities set forth by state and federal law.

BP 2030 Role of the General Counsel

Adopted: December 11, 2006
Supersedes:

The General Counsel shall be attorney for the District, acting by and through its Board of Directors, management, employees, and agents. The General Counsel shall be responsible for:

- providing high-quality, cost-efficient legal services to the District and all District personnel acting within the scope of their employment;
- securing and managing the services of outside counsel to provide specialized knowledge or avoid potential conflicting attorney roles;
- ensuring full compliance with applicable laws and regulations in all District activities;
- proactive counseling and representing the District, the Board, the General Manager and the departments in transactions and events involving District interests;
- representing the District in litigation; and
- ethical behavior.

BP 2040 Formulation and Enforcement of Administrative Regulations

Adopted: December 11, 2006
Supersedes:

The General Manager, in cooperation with the General Counsel, shall establish and amend as necessary or desirable, Administrative Regulations to implement Board policies and bylaws according to law.

Administrative Regulations shall be effective immediately upon adoption by the General Manager and General Counsel. Adopted Administrative Regulations shall be provided to the Board. The General Manager and/or General Counsel have the authority to interpret all Administrative Regulations and to rule on any point of contention that is not specifically covered therein.

BP 2050 Administrative Leeway in the Absence of Policy

Adopted: December 11, 2006
Supersedes:

While the Board Policies and Administrative Regulations are intended to be inclusive, in the absence of a policy or regulation, all employees are directed to act reasonably and in good faith based on the mission and goals of the District. Likewise, the General Manager shall have the power to act in emergency situations where no Board Policies or Administrative Regulations exist.

BP 2060 Conflict of Interest

Adopted: December 11, 2006
Supersedes:

The General Manager and the Board of Directors shall adopt and promulgate a Conflict of Interest Code in compliance with the Political Reform Act, Government Code section 81000, et seq.

Copies of the Conflict of Interest Code can be obtained from the Office of the General Counsel.

El Dorado Irrigation District

BP 3000 DISTRICT BUSINESS OPERATIONS

BP 3010 Budget

Adopted: September 11, 2006
Supersedes: N/A

The Board is committed to promoting the most efficient and effective use of the District's financial resources that will accomplish the goals of the District, support facilities and programs, and provide quality services to District customers. It is the responsibility of the General Manager to inform the Board about financial operations of the District so the Board can make informed decisions and fully discharge its legal responsibilities in a fiscally sound manner.

The Board shall adopt a two-year operating budget and may modify it prior to the end of the year. The Board shall also adopt every year a five-year Capital Improvement Plan and approve funding on an as-required basis.

AR 3011 Budget Development

Approved: December 12, 2006
Revised: November 4, 2010

It is the responsibility of the General Manager to develop the budget based on the priorities and needs of the District and its customers. The budget and any budget modification shall:

1. include, but not be limited to, operating expenses, debt, construction, and reserve funds;
2. meet all legal requirements;
3. support the District's mission;
4. maintain prudent levels of reserves in water, wastewater, hydroelectric, and recreation to fund contingencies that meet the District's debt service requirements;
5. allow the District to meets its financial obligations, including bond covenants;including the annual allocation of property taxes between water and wastewater operating funds;
6. be consistent with a financial plan that guides the District in satisfying its multi-year commitments; and
7. encourage public participation through required disclosures and public hearings.

Responsibility for overseeing the budget development process is assigned to the department head for Finance and Management Services, who will work directly with each department head or manager in drafting the budget. Once the annual budget is prepared, the Board shall act on it.

Timing for preparation and presentation of the annual budget and the five-year Capital Improvement Plan is as follows:

The five-year Capital Improvement Plan will be presented in a workshop for the Board in September or October of each year. The five-year plan will then be presented to and adopted by the Board no later than the end of November of any given year.

The budget will be presented in a workshop for the Board in November on or after the five-year Capital Improvement Plan is adopted. The budget then will be presented and adopted by the Board prior to the end of the calendar year.

Following budget adoption, the department head for Finance and Management Services shall exercise supervision over the finances of the District in keeping with regular budgetary procedures.

Finance Manager shall bring to the Board any modification to the adopted property tax allocation between the water and wastewater operating funds in order to meet the anticipated debt coverage requirements for those separate utilities.

AR 3012 Budget Management and Five-Year Financial Plan

Approved: December 12, 2006
Revised: November 4, 2014

The General Manager desires to maximize efficiency in the management of revenue and expenditures and thereby assigns responsibility for monitoring program budgets to department heads and program managers who shall use financial reports, program reports, and other pertinent data to ensure maximum effectiveness of program operation.

Purpose of the Five-Year Financial Plan
The Five-Year Financial Plan establishes the cost of funding the operations and maintenance, capital expenditures, and debt expenses required to meet the District's mission of providing high quality, wastewater treatment, recycled water, hydro-power, and recreational services in an environmentally and fiscally responsible manner, meeting the District's debt covenant requirements to its bond holders and matching future revenues to those costs.

Long-term financial planning:
- Avoids volatile rate adjustments;
- Better manages debt;
- Better manages prepayment of debt;
- Funds the Capital Improvement Plan;
- Provides a plan for meeting debt covenant requirements; and
- Sets clear, public goals and expectations.

Goals and Objectives of the Financial Plan
The goals and objectives are to:
- Establish necessary operating and maintenance costs, debt expenses, and pay- as-you-go project costs;
- Generate adequate revenues to fund those costs, meet debt covenants, and maintain adequate cash reserves;
- Avoid "rate shock" – small annual rate adjustments are better than years of zero rate increases followed by double-digit increases to make up shortfalls;
- Maintain strong credit ratings with rating agencies (S&P – A+, Moody's – A1);
- Maintain cash reserves between $60 million and $80 million;
- Maintain CIP funding levels to replace high priority capital assets prior to end of life, avoiding critical asset failures;
- Maintain 1.7 to 2.0 debt coverage ratio with Facility Capacity Charges (FCC); and
- Maintain 1.25 debt coverage ratio without FCC's – in all years, meet Finance Control test that annual operating revenue, excluding FCC's, must equal or exceed total annual operating expenses plus debt payments.

El Dorado Irrigation District

AR 3013 Appropriation for Contingencies

Approved: December 12, 2006

Fund balances that are budgeted for contingencies may be transferred to an expenditure appropriation as needed, upon authorization of the responsible department head or program manager.

AR 3014 Reserves

Approved: December 12, 2006

The District will maintain operating reserves, as approved by the board, in each of its fund types including: water, wastewater, hydroelectric, and recreation funds, as a credit enhancement and to provide for:

- economic uncertainties, local disasters, and other financial hardships or downturns in the local, regional, state, or national economies;
- contingencies for unseen operating and capital needs;
- funding for planned remedial, replacement, or renovation of existing facilities;
- cash-flow requirements; and
- a revenue source for invested interest earnings to reduce District needs for ratepayer funds.

AR 3015 Financial Control Test

Approved: August 22, 2012

The projected annual revenues of every adopted District operating budget, excluding Facility Capacity Charges, must equal or exceed the projected annual operating expenses plus debt payments.

BP 3020 Revisions to the Budget

Adopted: September 11, 2006
Supersedes: N/A

After approval of the District's budget, any revision to it shall require the approval of the Board. The General Manager shall bring to the Board's attention any budget revisions that may be necessary because of increased expenditures due to law, regulation, changes in demand for services, price increases, or any other external factors.

BP 3030 General Manager’s Reporting Responsibilities

Adopted: September 11, 2006
Supersedes: N/A

The General Manager shall submit quarterly financial status reports during the fiscal year to the Board. All reports should show whether the District is meeting its financial obligations and include a forecast for the remainder of the current fiscal year.

BP 3040 Annual Audit

Adopted: September 11, 2006
Supersedes: N/A

An annual audit of the District's fiscal operations will be conducted by an independent certified public accountant or certified public accountant firm with knowledge and experience in public agency accounting. An audit report shall be prepared by the auditor.

The independent certified public accountant firm shall be contracted for three years with an option for a two year extension, requiring Board approval.

Government Code section 26909 requires government agencies to undergo periodic external financial reviews. The Board will review and receive the annual audit report within 180 days after the end of the fiscal year.

BP 3050 Financial Condition and Activities

Adopted: September 11, 2006
Supersedes: N/A

The District will be run in a fiscally responsible and prudent manner according to the principles of AR 3051.

El Dorado Irrigation District

AR 3051 Budget Principles

Approved: December 12, 2006
Revised: October 16, 2012

The General Manager shall ensure that the District is run in a fiscally responsible and prudent manner so that:

1. Expenses do not exceed funds that have been received in the budget period to date unless those funds are specifically appropriated for designated reserves or available from the proceeds of authorized short or long-term debt.
2. Indebtedness, except as provided in the Irrigation District Act, shall not exceed an amount greater than can be repaid by certain, otherwise unencumbered revenues within 90 days or prior to the close of the fiscal year.
3. Unappropriated, long-term reserves or undesignated fund balances are not used.
4. Unbudgeted inter-fund transfers are not conducted in any amount greater than can be repaid by certain, otherwise unencumbered revenues within 90 days or prior to the close of the fiscal year without Board approval.
5. Payroll and debts are settled in a timely manner.
6. Tax payments or other government ordered payments or filings are not allowed to be overdue or inaccurately filed.
7. Receivables are pursued after a reasonable grace period in a timely and business-like manner.
8. Operation of the District includes written contracting and purchasing administrative regulations and a procurement manual that address normally prudent protections to assure legal and fiscal compliance against non-competitive acquisition practices, conflict of interest, favoritism, and non-inclusive supplier policies.
9. In the expenditure of public funds, the District shall comply with Article 16, section 6, of the California Constitution.

AR 3052 Employee Expense and Reimbursement

Approved: January 14, 2011

Scope

This Administrative Regulation applies to all District employees, other than the Board of Directors, who incur expenses in the conduct of District business. Board expenses and reimbursement are governed by BP 12065 and AR 12065.

This Administrative Regulation also makes narrowly limited provisions for payment or reimbursement of expenses of other personnel from other agencies and the public as specifically provided below.

General Principles

The following general principles govern all employee requests for and all District payment or reimbursement of expenses.

- District employees shall not profit by or experience a financial loss by incurring travel and other expenses while conducting authorized District business.

- District employees compelled to travel or incur other expense in the performance of their duties for the District shall have their expenses for registration, lodging, transportation, meals, incidentals, and other costs paid or reimbursed, provided those expenses were actually and necessarily incurred and are reasonable in amount, and subject to the maximum limits established by this Administrative Regulation for lodging, meals, and private automobile use.

- The District will not pay or reimburse any costs for alcoholic beverages, or for any expenses incurred on behalf of an employee's spouse or family member who accompanies the employee.

- Travel arrangements should be as economical as practical considering the travel purpose, traveler, the time available to accomplish the travel, available transportation and facilities, and time away from other job duties. Common carrier travel shall be in "coach," "economy," or equivalent class. Rental cars shall be economy or equivalent class unless weather, road conditions, or job duties necessitate otherwise.

- When the sponsor of a training, conference, meeting, or seminar offers discounted lodging, employees seeking District payment or reimbursement of lodging expenses shall utilize the discounted lodging if space is available. Subject to this rule, lodging should be booked whenever possible at establishments that waive transient occupancy taxes for government agencies.

- Employees opting to use private automobiles for District business are responsible for ensuring that the vehicle is in sound and safe operating condition. They must possess a valid driver's license and have current auto insurance documentation on file with the District as required by the Employee Handbook.

- Participants for any travel requiring expense reimbursement should ordinarily be limited to no more than two staff members, who will be responsible for sharing information with other interested parties upon return. A department head or the General Manager may authorize more participants if he or she determines that the travel involves training or meetings of sufficient technical content or breadth that more widespread participation is warranted.

- Employees seeking payment or reimbursement must obtain prior authorization for expenses or travel as provided herein before incurring the expenses and commencing travel.

- No expense is payable or reimbursable unless it is consistent with the intent of this Administrative Regulation.

- The General Manager may, in his or her sole discretion, authorize one-time exceptions to any requirement of this Administrative Regulation, based on good cause shown by the responsible department head. Exceptions will be made only in the interests of fairness and to further the intent of this Administrative Regulation.

<u>Procedures</u>

The following procedures apply to all expense payments and reimbursements.

- Requests for travel authorization and expense payment or reimbursement shall be processed using forms as specified by the Finance Director. Forms shall require written approval from, at minimum, the employee's supervisor and department head, and the Finance Director or his or her designee. Approval should be obtained in advance, whenever feasible.

    - Requests for travel authorization should be submitted at least 30 days prior to travel, whenever feasible, to allow appropriate consideration and to minimize costs.
    - Expense statements and all required substantiation should be submitted not more than 10 business days after the expense is incurred or the travel is completed, whichever is later.

- The Finance Director may, in his or her reasonable discretion, decline to process documentation that does not meet these timelines, does not comply with this Administrative Regulation, is inaccurate, or is incomplete.

- Invoices, published rates, or other comparable documentation are required for pre-payment or cash advances for registration fees, lodging costs, transportation costs, and other authorized expenses.

- Receipts are required for reimbursement of registration fees, lodging costs, transportation costs, meal costs, daily incidental expenses greater than $10.00, and other authorized expenses. Receipts shall be itemized whenever feasible, and appropriately annotated by the requesting party in all instances.

- Incidental expenses, defined as tips, toll charges, transportation costs, parking fees, snow chain installation and removal charges, and similar expenses, are reimbursable without receipts up to a combined maximum of $10.00 per day.

- Payment or reimbursement of certain expenses is limited as follows:

    - ***Lodging*** – On a daily basis, not more than three times the then-current per diem hotel rate provided for the locality under the federal per diem method in the United States Internal Revenue Service's Publication 1542. In-room entertainment fees, spa fees, and similar ancillary services are not lodging expenses and are not authorized for payment or reimbursement.
    - ***Private automobile transportation*** – On a per-mile basis, the United States Internal Revenue Service's then-current federal rate. Mileage for travel shall be computed from the employee's designated work location, except that if travel begins from the employee's residence, mileage shall be calculated from the residence or designated work location, whichever is less.
    - ***Long-distance automobile transportation*** – Employees should not use a District or private automobile for travel more than a five (5) hour, one-way driving distance from the District offices. Any exception to this rule must receive prior approval from the employee's department head. If air travel would be more economical, but the employee is allowed to travel by automobile, the District will pay reimburse transportation costs incurred up to the amount of the air travel cost. The District will not pay or reimburse any transportation costs in excess of that amount, nor any extra days of lodging, meals and other expenses.
    - ***Meals*** – For breakfast, not more than $15.00, including tip; for lunch, not more than $20.00, including tip; for dinner, not more than $35.00, including tip. Subject to these limits, tips of up to 15% of the meal cost are eligible for payment or reimbursement. Except when meals are approved as part of a program for training, meetings, conferences, or

seminars, breakfast expenses are authorized only if an employee's travel extends at least two hours before the employee's regular work hours begin and dinner expenses are authorized only if an employee's travel extends at least two hours after the employee's regular work hours end. The District will not pay or reimburse any additional or other expenses for meals that are already included in the registration fee for a training, meeting, conference, or seminar. There are no per-diem payments for meals.

- Payment or reimbursement of expenses for non-District employees is prohibited, except as follows:

  - Meal costs for the subject of a job interview or a person participating on a job interview panel, when deemed appropriate by the Human Resources Director.
  - Meal costs for representatives of other governmental agencies, community organizations, or private interests, when the meal is attended by one or more District employees, the meal directly and substantially facilitates the conduct of District business, and the expense is authorized by the employee's department head. Due to the potential for abuse, it is the express intent of this regulation that District department heads construe and apply this exception narrowly and only when the District's best interests are clearly served by invoking it.

- District employees may request and receive cash advances of no less than $50.00 and no more than 75% of non-prepaid, authorized expenses. Cash advances will be reconciled against actual expenses at the conclusion of travel. The employee shall refund the District within 2 business days of returning to work for any excess of advanced funds over non-prepaid, authorized expenses actually incurred.

Additional or Overtime Compensation

Overtime or additional compensation for attendance or travel time involved with seminars, conferences, or training sessions for employees will be compensated in accordance with then-current Fair Labor Standards Act guidelines. Employees and supervisors should consult with the Human Resources Department for guidance.

BP 3055 Disposition of Personal Property

Adopted: September 11, 2006
Supersedes: Purchasing Policies and Procedures Manual adopted 11/25/91, revised 2/27/95, revised 7/19/99

The District will dispose of surplus property in a fiscally responsible manner according to the adopted administrative regulations.

El Dorado Irrigation District

AR 3055 Disposition of Personal Property

Approved: December 12, 2006

AR 3055.1 Disposition of personal property valued at $50,000 or more

Disposition of personal property valued at $50,000 or more will be made only after approval of the Board of Directors.

AR 3055.2 Disposition of personal property valued between $5,000 and $50,000

Disposition of personal property valued between $5,000 and $50,000 will be made only after approval of the General Manager, who will report all such dispositions to the Board of Directors on a quarterly basis.

AR 3055.3 Disposition of personal property valued at less than $5,000

Disposition of personal property valued less than $5,000 shall be made by the District Services Administrator as approved by the department head for Finance and Management Services, who will report all such dispositions to the General Manager on a quarterly basis.

AR 3055.4 Restrictions on employee purchases

District employees shall not purchase District property unless such property is disposed of through a third party such as a contract auctioneer.

BP 3060 Contracts and Procurement

Adopted: September 11, 2006
Supersedes: Purchasing Policies and Procedures Manual adopted 11/25/91, revised 2/27/95, revised 7/19/99
Revised: August 13, 2012

The District shall adopt procurement and contracting procedures by administrative regulations. Such procedures shall be designed to provide a fair, open, and competitive process that avoids conflicts of interest, collusion, and favoritism.

Prior to approving a contract or procurement with any outside entity, the District shall first obtain bids when required by law or when beneficial to the District. If bids are not required by law and the General Manager does not opt to use the bidding process, goods and services shall be at the lowest price consistent with desired quality or which is in the best interests of the District.

The Board of Directors hereby delegates to the General Manager the authority to approve contracts and procurements with values of up to and including $50,000, and construction contract change orders of up to and including $100,000. Except during emergencies, the Board of Directors shall approve all contracts or procurements with values greater than $50,000, and construction contract change orders with values greater than $100,000.

In the event of an emergency requiring immediate contract or procurement action, the General Manager is hereby authorized to approve any and all contracts necessary to abate the emergency after first informing the President of the Board of Directors and scheduling an emergency meeting of the Board of Directors at the earliest possible opportunity. The General Manager shall bring any and all contracts or procurements with values exceeding the levels set forth above, but approved during an emergency, to the Board of Directors for ratification at the first meeting of the Board immediately following the emergency.

AR 3061 Procurement and Contracts

Approved: December 12, 2006
Revised: October 22, 2008
October 16, 2012
February 14, 2013

AR 3061.01 Purpose

This administrative regulation seeks to establish efficient, equitable, and uniform procedures for all District contracting for goods (including, without limitation, materials and equipment), services (professional and other), rentals and leases of personal property, and construction; provide for fair and equitable treatment by the District of all persons involved in the contracting process; maximize the purchasing value of public funds; exercise financial control over the District expenditures it covers; clearly define authority for spending approvals and contracting functions; and provide safeguards for maintaining a high-quality procurement system.

AR 3061.02 Procurement and Contract Administration

The District's General Services Supervisor, who shall be the District's Purchasing Agent, will implement and administer standard operating procedures for District contracting in consultation with the District's Office of the General Counsel, to implement the purpose and requirements of these administrative regulations.

The District shall conduct all contracting for goods, services, rentals and leases of personal property, and construction in accordance with these administrative regulations and associated standard operating procedures, and under the administration of the Purchasing Agent.

AR 3061.03 Appropriated Funds

The District shall procure only items and services for which the Board of Directors has appropriated funds.

AR 3061.04 Procurement and Contract Authority

Except as otherwise provided herein, and subject to the ultimate authority and direction of the Board of Directors, General Manager, and General Counsel, the District shall not purchase or contract for goods, services, rentals and leases of personal property, or construction without the approval of the Purchasing Agent. The Purchasing Agent may delegate (or withdraw), in writing, responsibility to approve such transactions to others for a designated term. In addition to the approval of the Purchasing Agent, all contracts and procurements must be approved as follows:

a. A single contract or commitment shall not exceed $50,000 without approval by the Board of Directors. All other contracts or commitments require the following spending approval.

   1. Up to and including $50,000 - General Manager
   2. Up to and including $25,000 - Department Director
   3. Up to and including $10,000 - Division Manager
   4. Up to and including $5,000- Supervisor, or employee who has been pre-approved in writing by his/her department director at the recommendation of his/her division manager for such spending approval authority.

b. Where a single contract or commitment that was originally approved for less than or equal to $50,000, requires a change order that increases it to more than $50,000, the change order shall be submitted to the Board of Directors for approval.

c. Under the direction of the Purchasing Agent and the General Counsel, the District shall adopt and maintain standard forms, which the District shall use for all contracts and procurements, unless the use of such standard forms is infeasible or otherwise not in the District's best interests.

d. The Purchasing Agent shall ensure that District procurements are not artificially divided to avoid the approval requirements set forth herein.

AR 3061.05 Solicitation of Bids and Proposals

Except as otherwise provided herein, and subject to the ultimate authority and direction of the Board of Directors, General Manager, and General Counsel, responsibility for the solicitation of bids and proposals resides in the Purchasing Agent. The Purchasing Agent may delegate (or withdraw), in writing, solicitation responsibility. All solicitations should adhere to the following guidelines:

a. <u>Formal Solicitation of Sealed Bids and Proposals</u>: Except as authorized herein or by statute and/or action of the Board of Directors, the District shall solicit contracts or procurements over $50,000 by issuing a formal Request for Bids (RFB) or Request for Proposals (RFP) with written bidding instructions; the criteria for contract award; bid protest procedures; contract terms and conditions; plans and specifications (for RFBs); insurance and bonding requirements, published notice, or other means of advertisement, each as required by law or deemed necessary to promote competition and protect or further the District's interests; and all other information required by law.

Notwithstanding any provision contained herein, the District shall comply with all laws and regulations concerning solicitation, bid, and award procedures for the construction of public works projects regardless of the size of the project or amount of the contract.

When required by law, the District shall award all contracts solicited under this subsection to the lowest responsive responsible bidder. The District shall award all other contracts to the proposer whose proposal is in the District's best interests. In circumstances in which the District formally solicits bids or proposals and receives only one responsive bid or proposal, the District may negotiate with and award the contract to the sole bidder/proposer.

b. Informal Solicitations: The District shall solicit contracts and procurements, except those for the construction of public works projects, of $50,000 or less as follows:

1. $15,000.01 to $50,000 – Three (3) documented quotes or proposals.
2. $5,000.01 to $15,000 –Two (2) documented quotes or proposals.
3. Goods or services procurements under $5,000 shall not require competitive solicitation.
4. The above thresholds include taxes, fees and freight.
5. The Purchasing Agent may request additional bids or proposals.
6, The District may re-use unchanged awards for one year following acceptance.

c. Request for Qualifications: The District may use a Request for Qualification (RFQ) procedure to acquire the services of certain professionals that require extended analysis, the exercise of discretion, independent judgment, and an advanced, specialized type of knowledge, expertise, or training customarily acquired either by a prolonged course of study or equivalent experience in the field. The District may utilize the RFQ procedure for single procurements, or for establishing an on-call list of professional services providers capable and qualified to conduct certain types of services. No contract for the services of legal counsel may be awarded without the approval of the District's General Counsel. Procedures for the selection of architect, engineer, and land surveying services shall be in accordance with state law.

d. Procurements Subject only to Purchasing Agent Determination: For certain procurements, it is impractical to implement competition in the solicitation process. Accordingly, the Purchasing Agent shall maintain a standard operating procedure listing the types of procurements that generally do not require competition other than at the direction of the

Purchasing Agent upon reviewing a specific procurement request. The listing can be changed only by approval of the General Manager and General Counsel upon the recommendation of the Purchasing Agent.

e. Authorization for the Procurement of Goods or Services from a Single Source: Notwithstanding anything herein, for good cause documented in writing and approved by Purchasing Agent and an executive manager with sufficient spending authority, the District may negotiate with a single source for the procurement of goods or services, including construction services when authorized by law. Good cause for single-sourcing may include, for example, when there is only one available source for a necessary good or service, the General Manager has authorized standardization of goods or services pursuant to Section 3061.09, a prospective consultant or vendor possesses unique skills and expertise necessary for a particular procurement, or emergency or extraordinary circumstances require immediate action that cannot be delayed for obtaining bids or proposals.

f. Prequalification of Bidders: The Purchasing Agent may, at his/her discretion, pre-qualify bidders for public works construction contracts. Pre-qualification of bidders will be conducted in accordance with the legal requirements for contractor pre-qualification.

AR 3061.06 Protests

The District shall adopt and maintain a protest procedure for protests of the solicitation and award of contracts, and include a description of the protest procedure in solicitation documents. Any actual or prospective bidder, proposer, or contractor who is aggrieved in connection with the solicitation of a bid or proposal, or the award of a contract on which he/she bid or proposed, may file a written protest in the manner prescribed in the solicitation documents.

AR 3061.07 Piggyback Procurements

The Purchasing Agent may arrange for the District to enter purchase contracts with a supplier for the purchase of goods or services when the pricing and terms have been previously established by another local, state, or federal, public entity, or an association of public entities, provided:

a. the resulting contract with the supplier of goods or services is the result of competitive bidding or negotiation and is made in compliance with the competitive bid or proposal requirements of the participating entity or association;
b. the purchase is made within the longer of one year of the competitive bid or negotiation, or the original contract term or subsequent extension(s);
c. the purchase conforms to the District's specifications for the goods or services; and

d. the purchase is of equal or better value to the District than if made directly by the District.

AR 3061.08 Cooperative Procurements

The Purchasing Agent may arrange for the District to enter an agreement with one or more local, state, or federal public entity, or association of public entities to procure goods or services cooperatively, provided:

a. the resulting contract with the supplier of goods or services is the result of competitive bidding or negotiation and is made in compliance with the competitive bid or proposal requirements of the participating entity or association;
b. the contract conforms to the District's specifications for the goods or service; and
c. the purchase is of equal or better value to the District than if made directly by the District.

AR 3061.09 Standardization of Goods and Services

Upon recommendation of the Purchasing Agent, the General Manager may authorize the uniform adoption or other standardization of a good or service to promote efficiency or for other good cause when the good or service is designated to match others in use, or planned to be used, by the District. All standardizations shall be valid for a term up to three years, which term may be extended one time up to three additional years by the Purchasing Agent after examining market conditions and upon a determination by the Purchasing Agent that the standardization still serves the District's best interests.

AR 3061.10 Contract Documents and Records

Standardized contracting documents will be developed and provided by the Purchasing Agent in consultation with the District's Office of the General Counsel. Non-standard (vendor agreements) are not authorized for use unless approved by the Purchasing Agent after consulting with the Office of General Counsel. District staff not supervised by the Purchasing Agent, operating under delegated solicitation authority, will provide copies of received quotes, bids, proposals and evaluations to the Purchasing Agent, or his/her designee, before purchases orders or contracts are executed unless otherwise directed by the Purchasing Agent.

AR 3061.11 Americans with Disabilities Consideration during Procurement

District staff shall include accessibility as a criterion during purchasing decision making. Whenever possible, evaluate design, office supplies, furniture and building materials purchases for compatibility with a wide range of disabilities and sensitivities. Select items that are easily adjustable or can be modified to accommodate a variety of physical and ergonomic needs.

BP 3070 Records Retention and Management

Adopted: September 11, 2006
Amended: September 27, 2010
Supersedes: N/A

The District shall manage the life cycle of District records and information under a consolidated records management program and ensure that all records are protected, stored, retrieved, and archived with accuracy, efficiency, and compliance.

The District's records shall be classified and retained, destroyed, and disposed of pursuant to resolutions adopted from time to time by the Board of Directors in accordance with Water Code section 21403 and Government Code section 60201, or their successors.

AR 3070 Electronic Mail Management and Retention

Adopted: October 15, 2014

AR 3070.1 Purpose

The El Dorado Irrigation District ("District") provides electronic mail ("e-mail") to its employees to facilitate the conduct of District business. In return for providing e-mail, the District expects its employees to manage and protect records resulting from their e-mail communications. This regulation describes the responsibilities of all District employees concerning the creation, removal, storage, and retention of e-mails.

District e-mail and e-mail systems are intended solely as a means of communicating information. No District e-mail user is authorized to use the District e-mail system for the long-term storage and maintenance of District records. To ensure the District e-mail system functions as intended, it is imperative that all District employees and e-mail users regularly delete e-mails from the system as provided in this regulation.

This regulation supplements and is intended to be carried out in concert with District's Records Retention Schedule ("Records Schedule"). While not all e-mail communications are District records, all e-mail communications are subject to discovery and can be used as electronic evidence in the event of litigation. Unmanaged and unidentified e-mails residing on District computers could create expensive and unmanageable problems in the event of litigation and pose a threat to District's ability to properly and coherently document and reconstruct business and decision-making processes.

The following items detail specific features of the District's computer network and related hardware and software that comprise the District e-mail system:

1. The District performs an electronic back-up of its computer network, including the e-mail system, following each business day. Those back-ups are an electronic recording of the status of District's computer systems at a particular moment in time and cannot accurately capture or reflect all e-mail or other activity that occurred on the District's computer network on a specific day. For example, a back-up does not capture items on employees' physical computer desktop or in their non-network drives.

2. The District maintains a particular computer system back-up for no more than two weeks, after which that back-up is completely overwritten. Such overwriting is necessary for management and security reasons and to aid the recovery of the computer system in case of a complete failure. Because the process is transitory, a back-up is not reliable and cannot constitute District records.

3. The District maintains an e-mail filtering system that is intended to reduce SPAM, Phishing, viruses, and other unwanted cyber-security threats from entering the District's network. District employees are responsible for promptly reviewing summary e-mail lists from the e-mail filter to determine if valid e-mails were captured by the filter and to delete unwanted, unknown or potentially threatening e-mails. The e-mail filtering system automatically and permanently deletes filtered e-mail after a set time period.

4. The District maintains an e-mail removal system that is intended to automatically dispose of e-mail messages that are unwanted or no longer relevant. District employees are responsible for promptly reviewing incoming, draft, and sent e-mail to determine and segregate for separate handling those that constitute District records, to delete unwanted, unknown or potentially threatening e-mails, and to delete or allow the removal of all other e-mails. The e-mail removal system automatically and permanently deletes e-mail after a set time period depending upon the folder location of the e-mail message.

AR 3070.2 Scope of Regulation

Some e-mail communications constitute District records. Therefore, e-mails also may be governed by the District's Records Schedule depending on their use, character, and contents. In general, e-mail communications fall into three categories:

1. E-mails (including attachments) that document official District business, which include conducting a business transaction with a vendor or consultant, interacting with regulatory agencies, responding to a public information request, and directing employees or consultants are District records and are subject to the District's Records Schedule. The employee who receives or sends an e-mail that is a District record is responsible for promptly transferring the record to a paper or electronic medium, as appropriate, and then filing it and retaining it in accordance with the Records Schedule.

2. E-mails (including attachments) that provide specific information, document an event or communication that serves a transitory official purpose, or involve informal communications - such as announcing the date and time of a meeting or event, responding to professional "list serves" an employee participates in, or circulating draft documents - are not considered District records. Typically, this type of e-mail serves its purpose

once it is read, responded to, or superseded and there is no need to retain it. Occasionally the employee who sends or receives this type of e-mail needs to intentionally save the e-mail for a limited period of time for informational or official purposes. When this need arises, the employee may place the e-mail into a user-defined folder where the e-mail message can be retained for up to 2 years. If an employee believes that any e-mail of this type constitutes a District record, such an e-mail or attachment should be promptly transferred to a paper or electronic medium, as appropriate, and then filed and retained in accordance with the Records Schedule. If an employee is unsure about whether or not an e-mail that falls into this category constitutes a District record, the employee should put it into a user-defined folder to safeguard the e-mail until a final determination can be made and appropriate action taken.

3. E-mails (including attachments) providing personal or general information - such as personal messages, informal communications between employees, meeting or event announcements and reminders, linking to news articles, and working notes and drafts (unless intentionally saved for an official purpose) are not District records. This type of e-mail serves its purpose once it is read, responded to, or superseded and the employee shall promptly delete it or allow it to be removed automatically.

The District's Information Technology staff shall administer this regulation, with oversight and ultimate authority over the regulation exercised by the General Manager.

AR 3070.3 E-mail Retention and Removal

Each District employee is expected to review their e-mail messages at least once each business day under normal circumstances. If an employee will be away from work or unable to review their e-mail, they must notify e-mail senders with an out of office alert or make other provisions to ensure that e-mail is reviewed promptly. Additionally, each District employee is expected to appropriately manage their e-mail messages on a regular basis. E-mail management at least weekly is encouraged as a best practice.

Any e-mail communications (including attachments) that constitute District records must be saved as a paper or electronic document in accordance with the District's Records Schedule. Each District employee is responsible for complying with this regulation with respect to the e-mails they send or receive. If an employee has any question or concern about retaining an e-mail or attachment or other issues of compliance with this regulation, they should discuss the issue with the Information Technology or Records Management staff, as appropriate. If deemed necessary, the Records Management or Information Technology staff may consult with the General Manager and legal counsel about any e-mail retention or removal issue.

E-mail (including attachments) contained in an employee's electronic mailbox within the District e-mail system will be automatically and permanently deleted from the following folders or their sub-folders when the date and time stamp of the e-mail exceeds the identified age:

Folder	Automatic e-mail removal after
Deleted items folder	30 days
Junk e-mail folder	30 days
Inbox	90 days
Sent items folder	90 days
Drafts folder	90 days
Employee-defined folder	2 years

Therefore, e-mails that have continuing business value to District or one of its employees or officers or are otherwise deemed District records under this regulation must be stored on an employee-defined e-mail folder in the short or intermediate term, or stored long-term on an appropriate paper or electronic medium for the duration prescribed by the District Records Schedule.

Whenever feasible, e-mail messages should be filed with other District records concerning the same subject matter or program to ensure that such e-mails are preserved, stored and disposed of in the same manner as like records. If an e-mail does not relate obviously or directly to an existing District subject file or program, an employee should either request that a new records retention category be created or file the e-mail with correspondence.

These rules also apply to any attachments to e-mails, which should be handled in the same manner as described above.

District employees and officers are prohibited from keeping any District-related documents or e-mails on e-mail systems, electronic devices, storage media, or storage services that are not provided by the District nor that are not expressly authorized by the District for this purpose. In addition, employees shall not retain District records or e-mails in alternate locations for the intent or purpose of circumventing the District's Records Schedule or Electronic Mail Management and Retention Regulation.

It is the responsibility of each District employee to comply with this regulation and to manage their e-mails in accordance with it. All employee use of e-mail, including personal use, is subject to District's E-mail/Internet/Computer Use policies provided in the Employee Handbook, as such policies may be amended or restated from time to time. In accordance with those E-mail / Internet / Computer Use policies, the District reserves the right at any time to review employees' e-mail boxes and to purge any e-mails retained there in violation of this regulation.

BP 3080 Claims against the District

Adopted: September 11, 2006
Supersedes: Policy #10
Revised: August 13, 2012

The District shall adopt administrative regulations that comply with state law for the review and disposition of claims for damages submitted to the District pursuant to the Government Claims Act (Gov. Code §§900-935). Such procedures shall be designed to provide a fair, open, and unbiased process that avoids conflicts of interest, collusion, and favoritism. Claims not covered by the District's insurer of less than and including $50,000 shall be resolved by the General Manager; the Board of Directors shall review and resolve claims greater than $50,000.

AR 3081 Claims Against the District

Approved: December 12, 2006
Revised: October 16, 2012

Pursuant to Gov. Code § 935, the District hereby adopts the following claims procedure: All claims against the District subject to the Government Claims Act (Gov. Code §§ 810 et seq.) ("Act"), and all other claims not governed by any other statute or regulation expressly relating thereto, shall be submitted to the District in accordance with the procedures set forth in the Act (Gov. Code, §§ 900-935.4), preferably using the District's claims form. The District shall process such claims in accordance with the Act. The District's Risk Analyst, is delegated the authority of the General Manager to take action on and resolve any and all claims against the District subject hereto of less than, and including, $50,000, but any action taken by the Risk Analyst shall first be approved by the District's General Counsel. The Risk Analyst may submit any and all claims subject to this regulation to the District's insurer, and will work with the District's insurer in the adjustment of such claims.

BP 3090 Investment Policy

Adopted: September 11, 2006
Supersedes: Policy #46

The District's funds shall be invested by District bonded personnel in accordance with principles of sound treasury management and the provisions of California Government Code Sections 53600 et seq.. It is the General Manager's responsibility to ensure that the District's investments provide the highest safety and security for the portfolio, match maturities to future liabilities, and meet daily cash flow demands while achieving the highest possible market rate of return.

AR 3091 Investment

Approved: December 12, 2006

The ultimate goal is to enhance the economic status of the District while protecting its funds. Investments will be accomplished in a manner that provides the highest safety and security for the portfolio, matches maturities to future liabilities, and meets daily cash-flow demands while trying to achieve the highest available average market rate of return.

AR 3091.1 Scope

This policy and subsequent administrative regulations cover all funds and investment activities that are under the direct authority of the District. These funds are accounted for in the District's financial reports and include:

- water and wastewater funds
- capital improvement funds
- debt service funds
- recreation funds
- hydroelectric funds

Investment of bond proceeds shall be governed by these regulations unless otherwise specified by the provisions of related bond indentures. Interest earnings and expenses are allocated proportionately and equitably to each fund.

AR 3091.2 Prudence

The standard of prudence to be used by investment officials shall be the "prudent person" standard and shall be applied in the context of managing an overall portfolio. Investment officers acting in accordance with written procedures and this investment policy and exercising due diligence shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely fashion and the liquidity and sale of securities are carried out in accordance with the terms of this policy.

"...investment shall be made with judgment [sic] and care, under

circumstances then prevailing, which persons of prudence, discretion and intelligence exercise in the management of their own affairs, not for speculation but for investment considering the probable safety of their capital as well as the probable income to be derived."

AR 3091.3 Objectives

Temporarily idle or surplus funds of the District shall be invested in accordance with principles of sound treasury management and in accordance with the provisions of California Government Code Sections 53600 et seq. and this Investment Policy. The primary objectives, in priority order, of investment activities shall be:

AR 3091.4 Safety of Principal

The preservation of principal is of primary importance. Each transaction shall seek to ensure that capital losses are avoided, whether they be from securities default or erosion of the market value. The portfolio is priced to market on a monthly basis.

The District shall seek to preserve principal by mitigating the following two types of associated risk:

Credit Risk, defined as the risk of loss due to failure of the issuer of a security, shall be mitigated by limiting investments to the safest types of investment grade securities and by diversifying the investment portfolio so that the failure of any one issuer would not unduly harm the District's cash flow.

AR 3091.5 Investment Committee

The District established an Investment Committee in 1993 as a sub-committee of the Asset and Liability Management Committee. The Investment Committee consists of the department head for Finance and Management Services/District Treasurer, the District's Deputy Treasurer, and the department head for Environmental Compliance and Water Policy. The purpose of the committee is to review all investment activity and investment strategies. This committee meets quarterly, or more frequently if the need arises, to review the investments of the previous quarter and develop future strategy.

The following table sets portfolio-wide exposure limits (the

Investment Committee may set more specific limits). In addition, the limit on any single issuer is set at 10 percent for corporate and 30 percent for government agency.

Asset Classification	**Minimum Exposure**	**Maximum Exposure**
LAIF + California Asset Managment Trust	Greater of 20% or 3 months of normalized operating and capital expenditures	75%
US Treasury Issues	0%	75%
Government Agency	0%	80%
All Other*	0%	40% or less

* See Authorized Investments for specific details.

Securities purchased under the Asset Classification of "All Other" require ratings by Moody's and Standard & Poor's. Minimum credit ratings are set in the table below.

Asset Classification	**Moody's Rating**	**S & P Rating**
Short-Term	P-1	A-1 or better
Long-Term	A2 or better	A or better
Issuer Disqualifier*	Below P-1 or A2	Below A-1 or A

* *Issuer Disqualifier* means that regardless of the ratings of a particular issue, if the issuer itself has other, senior debt that fall below any of these standards, none of the issues will qualify. For example, if a long-term issue under consideration is rated A2/A, which would normally qualify, but the issuer's commercial paper (short term) is rated A-1/P2, then the issue would still be disqualified.

If a security in the portfolio is downgraded to a level below the minimum credit rating the managers of the Pooled Investment funds will report the downgrading to the other members of the Investment Committee. Credit risk will also be mitigated by pre-qualifying the financial institutions, broker/dealers, intermediaries, and advisors with whom the District does business.

Market Risk, defined as a market value fluctuation due to overall changes in the general level of interest rates, shall be mitigated by:

a. structuring the investment portfolio so that securities mature to meet cash requirements for ongoing operations and matching future liabilities, thereby avoiding the need to sell securities on the open market prior to maturity, and

b. by investing operating funds primarily in shorter-term securities.

It is recognized, however, that in a diversified investment portfolio, occasional measured losses are inevitable and must be considered within the context of the overall investment return and current economic circumstances

AR 3091.6 Liquidity

The investment portfolio shall remain sufficiently liquid to meet all operating requirements that may be reasonably anticipated. This is accomplished by structuring the portfolio so that securities mature concurrent with cash needed to meet anticipated demands. Furthermore, since all possible cash demands cannot be anticipated, the portfolio should consist largely of securities with active secondary or resale markets. Emphasis should be on marketable securities with low sensitivity to market risk. Additional liquidity considerations include issue size, denomination, market of issuance and form of security.

AR 3091.7 Yield

The investment portfolio shall be designed with the objective of attaining a market average rate of return throughout budgetary and economic cycles, taking into account the investment risk constraints and liquidity needs. Return on investment is of least importance compared to the safety and liquidity objectives described above. The core of investments is limited to relatively low-risk securities in anticipation of earning a fair return relative to the risk being assumed. The District's investment strategy is passive and securities shall not be sold prior to maturity with the following exceptions:

a. a declining credit security could be sold early to minimize loss of principal or
b. a security swap would improve the quality, yield, or target duration in the portfolio. Liquidity needs of the portfolio require that the security be sold.

Given this passive strategy, the benchmark used by the District's

Treasurer to determine whether market average yields are being achieved shall be the one-year U.S. Treasury Note because the weighted average maturity of the portfolio typically averages one year or less.

AR 3091.8 Public Trust

All participants in the investment process shall act as custodians of the public trust. Investment officials shall recognize that the investment portfolio is subject to public review and evaluation. In managing the investment portfolio, the managers should avoid any transactions that might impair public confidence in the District. Investments should be made with precision and care, considering the probable safety of the capital as well as the probable income to be derived.

AR 3091.9 Authority

Authority to manage and responsibility for operation of the investment program is granted to the District Treasurer, derived from the adoption of this policy. The District Treasurer shall carry out and maintain established written procedures and internal controls for the operation of the investment program consistent with this investment policy.

Procedures should include references to safekeeping, delivery vs. payment, investment accounting, repurchase agreements, wire transfer agreements, collateral/depository agreements, banking services contracts, and guidance of the specific use of various tools and electronic systems used. No person may engage in an investment transaction except as provided under the terms of this policy and the procedures established by the District Treasurer. The District Treasurer shall be responsible for all transactions undertaken and shall establish a system of controls to regulate the activities of subordinate officials.

AR 3091.10 Ethics and conflicts of interest

Officers and employees involved in the investment process shall refrain from personal business activity that could conflict with proper execution of the investment program, or that could impair their ability to make impartial investment decisions. Employees and investment officials shall disclose to the General Manager any material financial interest in financial institutions that conduct business within this jurisdiction, and they shall further disclose any large personal financial/investment positions that could be related to the performance of the District's portfolio. Employees and investment officials are prohibited from undertaking personal investment transactions with the same individual who conducts business on behalf of the District.

Investments in negotiable certificates of deposit issued by any financial institution, including credit unions, are prohibited if members of the District's Board or employees with investment decision-making authority serve on the board of directors or the specified committees of the financial institution issuing the negotiable certificate of deposit.

AR 3091.11 Local agency investment fund

Yearly, the District's Investment Committee evaluates the State of California Local Agency Investment Fund (LAIF) as a suitable investment for the District. The state fund may invest in a broader range of securities than the District invests in, and it is important to be aware and comfortable with the securities the state pool purchases. The committee also evaluates the fund's operations, how interest is calculated, and its investment policy and security.

AR 3091.12 California asset management trust

Yearly, the Investment Committee evaluates the California Asset Management Trust as a suitable investment for the District. The fund may invest in a broader range of securities than the District invests in, and it is important to be aware and comfortable with the securities the pool purchases. The committee will also evaluate the fund's operations, how interest is calculated, its investment policy and security.

AR 3091.13 Qualified dealers and institutions

The District Treasurer will maintain a list of financial institutions and broker/dealers with whom the District elects to do business, selected by credit worthiness and who are authorized to provide investment services in the State of California. These may include "primary" dealers or regional dealers that qualify under Securities and Exchange Commission Rule 15C3-I (uniform net capital rule). No public deposit shall be made except in a qualified public depository as established by state laws.

The District Treasurer shall conduct a qualified dealer selection process every three years. All financial institutions and broker/dealers who desire to become qualified bidders for investment transactions must submit the following as appropriate:

- **a.** audited financial statements,
- **b.** proof of National Association of Securities Dealers (NASD) certification,
- **c.** proof of state registration,
- **d.** completed broker/dealer questionnaire, and
- **e.** certification of having read, understood, and agreeing to comply with the District’s investment policy.

All financial institutions and broker/dealers with whom the District elects to transact investment activities will first be interviewed and approved by the Investment Committee and then submitted to the Board of Directors for final approval. An annual review of approved financial institutions and broker/dealers will be conducted by the Investment Committee to examine financial condition and ensure state registration and certification of having read the District’s investment policy.

AR 3091.14 Safekeeping of securities

All trades where applicable will be executed by delivery vs. payment (DVP). This ensures that securities are deposited in eligible financial institution prior to the release of funds. Securities will be held by a third-party custodian as evidenced by safekeeping receipts.

AR 3091.15 Internal controls

The District Treasurer is responsible for establishing and maintaining an internal control structure designed to ensure that the assets of the entity are protected from loss, theft or misuse. The internal control structure shall be designed to provide reasonable assurance that these objectives are met. The concept of reasonable assurance recognizes that (1) the cost of a control should not exceed the benefits likely to be derived and (2) the valuation of costs and benefits requires estimates and judgments by management.

Accordingly, the District Treasurer shall establish a process for annual independent review by an external auditor to assure compliance with policies and procedures. The internal controls shall address the following points:

a. **<u>Control of collusion</u>.** Collusion is a situation where two or more employees are working in conjunction to defraud their employer.

b. **<u>Separation of transaction authority from accounting and record keeping</u>.** Separation of duties is achieved by separating the person who authorizes or performs the transaction from the people who record or otherwise account for the transaction.

c. **<u>Custodial safekeeping.</u>** Securities purchased from any bank or dealer including appropriate collateral (as defined by state law) shall be placed with independent third-party safekeeping.

d. **<u>Avoidance of physical delivery securities</u>.** Book entry securities are much easier to transfer and account for because actual delivery of a document never takes place. Delivered securities must be properly safeguarded against loss or destruction. The potential for fraud and loss increases with physically delivered securities.

e. **<u>Clear delegation of authority to subordinate staff members.</u>** Subordinate staff members must have a clear understanding of their authority and responsibilities to avoid improper actions. Clear delegation of authority also preserves the internal control structure that is contingent on the various staff positions and their respective responsibilities.

f. **<u>Investment and wire transfers</u>.** All wire transfers and investment transactions that occur via the on-line banking system have pre-authorized templates, controls, and security provisions. All transfers require initiation and approval by two authorized persons. Written confirmation is required for all wire transfers. On certain occasions, telephone transactions may occur. Because of the potential for error and improprieties that arises from telephone transactions, all telephone transactions will be supported by written communications and approved by two authorized persons.

g. **Wire transfer agreement with the lead bank or third-party custodian.** This agreement should outline the various controls and security provisions and delineate responsibilities of each party making and receiving wire transfers.

h. **Purchase of investment securities**. The purchase of any security must first be approved by two members of the Investment Committee. Settlement information and instructions sent to safekeeping must first be approved by the District Treasurer. Written confirmation is required for all investment purchase transactions.

AR 3091.16 Authorized investments

The District is governed by the California Government Code Sections 53600 et seq. A copy of the applicable California Government Code provision is attached as Exhibit 1. Within the context of these limitations, the following investments are authorized and further limited:

a. **Local Agency Investment Fund.** The District may invest in the Local Agency Investment Fund (LAIF) established by the State Treasurer for the benefit of local agencies up to the maximum permitted by State law (as established in California Government Code Section 16429.1). There is a 75-percent maximum on the total value of the portfolio which can be invested. The minimum limitation is calculated based on the sum of the balances of LAIF and CAMP. This minimum is the greater of 20% of the total portfolio or three months of normalized operating and capital expenditures.

b. **California asset management trust.** The District may invest in the California Asset Management Trust established as a Joint Powers Authority to provide local California governments with investment management services in a professionally managed money market portfolio. There is a 75-

percent maximum on the total value of the portfolio which can be invested. The minimum limitation is calculated based on the sum of the balances of LAIF and CAMP. This minimum is the greater of 20% of the total portfolio or three months of normalized operating and capital expenditures.

c. **U.S. Treasury issues.** U.S. Treasury Bills, Bonds, and Notes are those for which the full faith and credit of the United States are pledged for payment of principal and interest. There is a 75-percent maximum limitation on the total market value of the portfolio that can be invested in this category, although the five-year maturity limitation is applicable.

d. **Government agency.** Obligations are issued by the Government National Mortgage Association (GNMA), the Federal Farm Credit System (FFCB), the Federal Home Loan Bank Board (FHLB), the Federal National Mortgage Association (FNMA), the Student Loan Marketing Association (SLMA), and the Federal Home Loan Mortgage Association (FHLMC). There is a 80-percent maximum limitation on these issues, and a 30-percent limit for a single agency name because U.S. government backing is implied rather than guaranteed on some types of issues. The five-year limitation is applicable.

e. **Other**

1. *Bills of Exchange or Time Drafts* drawn on and accepted by a commercial bank, otherwise known as *Banker's Acceptances*, are eligible for purchase by the Federal Reserve System. Bankers' acceptances purchased may not exceed 180 days to maturity or 40 percent of the portfolio's market value. No more than 30 percent of the District's surplus funds may be invested in the bankers' acceptances of any one commercial bank.

2. *Commercial Paper* ranked "P1" by Moody's Investor Services or "A1" by Standard and Poor's and issued by a domestic corporation having assets in excess of $500,000,000 and having an "A2" or better rating on its long-term debentures as provided by Moody's and a rating of "A" or better by Standard and Poor's. Purchases of eligible commercial paper may not exceed 180 days to maturity nor represent more than 15 percent of the market value of the portfolio. This percentage may be increased to 30 percent if the dollar weighted average maturity does not exceed 31 days. No more than 10 percent of the market

value of the portfolio may be invested in commercial paper issued by any one corporation.

3. *Medium Term Corporate Notes*, with a maximum maturity of five years, may be purchased. Securities eligible for investment shall be rated "A2" or better by Moody's or "A" or better by Standard and Poor's rating services. The notes must be issued by corporations organized and operating in the United States or by depository institutions licensed by the United States or any state and operating in the United States. Purchase of medium term notes may not exceed 30 percent of the market value of the portfolio, and no more than 10 percent of the market value of the portfolio may be invested in notes issued by one corporation. Commercial paper holdings should also be included when calculating the 10- percent limitation.

4. *Negotiable Certificates of Deposit* issued by a nationally or state charged bank or state or federal savings institution. Purchases of negotiable certificates of deposit may not exceed 25 percent of the market value of the portfolio. The maturity limitation of five years is applicable.

5. *Repurchase Agreements.* The District may invest in repurchase agreements with banks and dealers with which the District has entered into a master repurchase contract that specifies terms and conditions of repurchase agreements. The maturity of repurchase agreements shall not exceed 90 days. The market value of securities used as collateral for repurchase agreements shall be monitored daily by the District Treasurer's staff and will not be allowed to fall below 100 percent of the value of the repurchase agreement. To conform with provisions of the Federal Bankruptcy Code, which provides for the liquidation of securities held as collateral for repurchase agreements, the only securities acceptable as collateral shall be eligible negotiable certificates of deposit, eligible bankers' acceptances, or securities that are direct obligations of, or that are fully guaranteed as to principal and interest by, the United States or any agency of the United States.

6. *Collateralized Negotiable Investments*. The District may invest in notes, bonds, or obligations that are at all times secured by a valid first-priority security interest in

securities of the types listed by Section 53651 as eligible securities for the purpose of securing local agency deposits and have a market value at least equal to that required by Section 53652 for the purpose of securing local agency deposits. The securities serving as collateral shall be placed by delivery or book entry into the custody of a trust company or the trust department of a bank that is not affiliated with the issuer of the secured obligation, and the security interest shall be perfected in accordance with the requirements of the Uniform Commercial Code or federal regulations applicable to the types of securities in which the security interest is granted.

7. *Monies held by a trustee or fiscal agent and pledged* to the payment or security of bonds or other indebtedness, or obligations under a lease, installment sale, or other agreement of a local agency, or certificates of participation in those bonds, indebtedness, or lease installment sale, or other agreements. These may be invested in accordance with the statutory provisions governing the issuance of those bonds, indebtedness, or lease installment sale, or other agreement, or to the extent not consistent therewith or if there are no specific statutory provisions, in accordance with the ordinance, resolution, indenture, or agreement of the local agency providing for the issuance.

AR 3091.17 Ineligible investments

Investments not described in these regulations shall not be included in the District's portfolio. Derivative securities, for example, are ineligible investments. They are financial instruments whose value depends on (is derived from) the value of one or more underlying assets or indexes of asset values. The term "derivative products" refers to instruments or features such as collateralized mortgage obligations (CMOs), interest only strips (IOs and principal-only (POs), forwards, futures, currency and interest rate swaps, options, floaters/inverse floaters, and caps/floors/collars. Any security that could result in zero interest accrual if held to maturity is ineligible.

The District Treasurer may seek the Board’s approval for any modifications to the list of eligible investments as state laws are revised or as market and risk conditions change.

AR 3091.18 Reporting

The District Treasurer will provide to the Board, General Manager, Internal Auditor, and the Investment Committee quarterly investment reports that provide a clear picture of the status of the current investment portfolio. The reports should include comments on fixed income markets and economic conditions, discussion regarding restrictions on the percentage of investment by categories, possible changes in the portfolio structure going forward, and thoughts on investment strategies. Required elements of the quarterly report include:

- **a.** A list of individual securities held at the end of the reporting period by authorized investment category.
- **b.** Average life and final maturity of all investments listed.
- **c.** Coupon, discount, or earnings rates.
- **d.** Par value, amortized book value, market value, source of market value, and unrealized gains/losses.
- **e.** Percentage of the portfolio represented by each investment category.
- **f.** Summary of quarterly transactions.
- **g.** Certification of compliance with the District's investment policy.
- **h.** Year-to-date summary of interest earnings (forecast vs. actual).
- **i.** Year-to-date estimate of arbitrage rebate.
- **j.** Six-month cash-flow forecast.

The quarterly report will graphically illustrate portfolio benchmark performance to the market average rate of return.

BP 3095 Delegation of Investment Function

Adopted: September 11, 2006
Supersedes: Policy #46

Delegation of the investment function by any local governing body is limited to a one-year period. The Board will delegate the investment function to the District Treasurer in conjunction with its annual investment review and adoption. The District Treasurer may delegate investment and cash management operational duties to others as approved by Board resolution.

BP 3096 Investment Policy Certification

Adopted: September 11, 2006
Supersedes: Policy #46

It is the responsibility of the District's Treasurer to submit the District's investment policy and administrative regulations for re-certification by the Municipal Treasurer's Association of the United States and Canada every three years. The intent is to ensure compliance with all current legislative requirements and professional standards and practices of prudent investment management.

Exhibit 1: Summary of Authorized Investments

INVESTMENT TYPE	CONDITIONS	TERM
LAIF + California Asset Management Trust	Minimum Limit: Greater of 20% or 3 months of normalized operating and capital expenditures Limit: 75% maximum	n/a
U.S. Treasury Bills, Bonds and Notes	Limit: 75% maximum	5 years
Agencies of the U.S. Govt.	Limit: 80% maximum – Prudent investor rule applies, no more than 30% of max. for a single agency	5 years
Other		
1. Bankers acceptances	Limit: 40% , no more than 30% in any one commercial bank	**180 days**
2. Commercial paper	Domestic corp – assets $500,000,000 – A1 P1 rating. Limit: 15% of portfolio market value, 30% if average maturity does not exceed 31 days. No more than 10% of max. in any single corporation.	180 days
3. Medium term notes	Limit: 30% of total market value- no more than 10% in one corporation, rated A or better, corporations operating, organized & licensed in U.S.	5 years
4. Negotiable Certificates of Deposit	Limit: 25%	5 years
5. Repurchase agreements	Master repurchase agreements. Securities collateral. See Investment Policy	90 days
6. Collateralized negotiable investments	Secured by a valid 1st priority security interest of types listed in Section 53651 as eligible securities – market value equal to that required by Section 53652.	5 years

	See Investment Policy.	
7. Monies held by a trustee or fiscal agent	Pledged for payment of bonds, other indebtedness, lease obligations, installment sale, or other agreement of a local agency. COP's in investments mentioned above. See Investment Policy.	5 years

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El Dorado Irrigation District

BP 4000 HUMAN RESOURCES

BP 4010 Human Resources Policy

Adopted: August 28, 2006
Supersedes: Policy No. 6 – Adopted August 19, 1980, Amended February 28, 1994

The General Manager is responsible, either directly or through assignment, for developing clear, fair, and organized human resources regulations. The regulations should establish conditions that will attract and retain the highest qualified individuals for all positions.

The human resources regulations shall:

- clarify the rules of employment;
- include effective procedures for handling grievances;
- protect against retaliation for non-disruptive expression of dissent;
- acquaint employees with the District's interpretation of their protections under this policy;
- ensure that standards, programs, and procedures meet or exceed acceptable industry standards as written in state and federal regulations;
- ensure a healthy and safe work environment for all District employees;
- ensure that people who work for or on behalf of the District are paid a competitive wage and are provided competitive benefits; and
- comply with all applicable state and federal laws and regulations.

AR 4010 Concepts and Roles in Human Resources

Approved: December 12, 2006

The District desires to attract and retain the best qualified people for the benefit and welfare of EID customers and to meet customer expectations.

Accordingly, human resources regulations must be:

- implemented in an atmosphere of mutual trust and good will,
- consistent with policies established by the Board of Directors, and
- consistent with applicable state and federal rules and regulations.

AR 4011 Role of the Director of Human Resources

Approved: December 12, 2006

The Director of Human Resources is responsible for ensuring that the District:

- attracts and retains qualified employees within the context of management succession planning and overall workforce planning;
- determines fair and equitable salary schedules for unrepresented, management, and confidential employees;
- negotiates with employee organizations;
- maintains an atmosphere that engenders a positive work environment;
- establishes disciplinary processes, including an appeals process, that adheres to all applicable statutes and regulations in accordance with the human resources regulations described in the collective bargaining agreement and the employee handbook;
- fosters and supports equal employment opportunities;
- fosters and supports a high level of employee performance and satisfaction; and
- establishes employee development and performance evaluation procedures to enhance and improve performance.

El Dorado Irrigation District

AR 4012 El Dorado Irrigation District Employee Handbook

Approved: December 12, 2006

In accordance with BP 4010, the District's employee handbook is provided to new employees on their first day of employment at the District.

Copies of the handbook are available upon request.

AR 4013 Harassment-Free Work Environment

Approved: December 12, 2006

The District is committed to providing a workplace free of harassment. This includes harassment based on factors such as race; color; gender; religion; national origin; ancestry; age; physical and mental disability; medical condition; veteran status; sexual orientation; marital status; family care or medical leave status; and pregnancy, childbirth, and related medical conditions.

The District will not tolerate harassment of employees by non-employees with whom District employees have a business, service, or professional relationship.

Harassment includes verbal, physical, and visual conduct that creates an intimidating, offensive, or hostile working environment or that interferes with work performance. Such conduct constitutes harassment when (1) submission to the conduct is made either an explicit or implicit condition of employment; (2) submission to or rejection of the conduct is used as the basis for an employment decision; or (3) the harassment interferes with an employee's work performance or creates an intimidating, hostile, or offensive work environment.

Harassing conduct may take many forms and includes but is not limited to the following: intimidation; slurs; jokes; statements; gestures; assault; impeding or blocking another's movement or otherwise physically interfering with normal work; and pictures, drawings, or cartoons based on an employee's gender, race, color, national origin, religion, age, physical disability, mental disability, medical condition, ancestry, marital status, sexual orientation, family care or medical leave status, marital status or any other legally protected category or status.

Sexually harassing conduct in the workplace includes all of the prohibited actions listed above as well as unwelcome conduct such as requests for sexual favors, conversation containing sexual comments, and unwelcome sexual advances.

AR 4013.1 Reporting Harassment

Any incident of harassment shall be reported immediately to a supervisor or manager, to any member of management, or to Human Resources. Managers who receive complaints or who observe harassing conduct must inform Human Resources immediately. The District emphasizes that employees are not required to notify their supervisor if that supervisor is the individual who is harassing the employee or if an employee feels uncomfortable discussing the situation with the supervisor. An employee may always directly contact Human Resources to report this type of situation.

Reported instances of harassment will be investigated thoroughly. Confidentiality will be maintained throughout the investigation to the extent possible while still maintaining our legal obligation to conduct a full investigation.

The District will not tolerate retaliation against any employee for cooperating in an investigation or for making a complaint to Human Resources or to any manager. If it is established that unlawful harassment has occurred, appropriate action will be taken to correct the situation. Such action may include, but is not limited to, oral or written counseling, disciplinary suspension or probation, or discharge from the organization.

AR 4013.2 Responsibility

Supervisors are obligated to prevent violation of this policy and are responsible for taking prompt actions to end any discriminatory or sexually harassing behavior or conduct. Human Resources is responsible for promptly hearing and investigating employees’ complaints of discrimination or sexual harassment and for communicating any recommendations for remedies to appropriate management for implementation when violations of policy are identified.

AR 4014 Medical Reimbursement Program

Approved: March 7, 2007
Revised: June 3, 2011
Revised: March 11, 2013

AR 4014.1 Medical Reimbursement Program

The purpose of the District's Medical Reimbursement Program is to allow eligible participants to be reimbursed for up to $2,500 per year of legitimate, documented medical, dental, and vision costs and expenses not covered by insurance, as well as healthcare insurance premium costs not otherwise paid by the District. Eligible expenses will be approved by the Human Resources Director before reimbursement is processed through the payroll system. Reimbursements are reported as income on participants' W-2 forms.

AR 4014.2 Medical Reimbursement Program – eligible participants

Eligible participants in the Medical Reimbursement Program are all members of the Board of Directors, the General Manager, the General Counsel, and any other at-will, contract employees.

AR 4014.3 Medical Reimbursement Program – eligible expenses

To be eligible, all claimed expenses must be accompanied by invoices, receipts or equivalent documentation accepted by the Human Resources Director as sufficient to demonstrate that the expense is one of the following:

- Services provided by a bona fide healthcare provider to an eligible participant, their spouse, domestic partner, or dependant; directly paid by an eligible participant, their spouse, or domestic partner; and not covered by insurance;
- Goods or services prescribed by a bona fide healthcare provider to an eligible participant, their spouse, domestic partner, or

dependant; directly paid by an eligible participant, their spouse, or domestic partner; and not covered by insurance; or

- Healthcare insurance premium costs for a policy covering an eligible participant, their spouse, domestic partner, or dependent, and not otherwise paid by the District.

AR 4014.4 Medical Reimbursement Program – ineligible expenses

The following medical expenses are not eligible for reimbursement:

- Cosmetic medical procedures with no therapeutic purpose; and
- Medical marijuana purchased pursuant to California's Compassionate Use Act.

AR 4015 Injury and Illness Prevention Program

Approved: June 16, 2009

District management recognizes the need to ensure a safe and healthy work environment for its employees, volunteers, contractors, visitors, and the public. An important element in meeting this goal is the District's Injury and Illness Prevention Plan (IIPP). The plan has been developed in accordance with the California Code of Regulations, General Industry Safety Order 3203, which requires IIPPs for California-based operations.

The IIPP clearly states expectations for safety responsibilities at all levels within the organization and provides personnel a reference for consistent safety compliance. It is implemented as a continuous improvement program and is reviewed—and revised, if needed—on an annual basis. At a minimum, IIPP specifies and addresses the following:

1. Name(s) and title(s) of personnel responsible for the program.
2. EID's system for identifying and evaluating workplace hazards, including scheduled periodic inspections to identify unsafe conditions and work practices.
3. EID's methods and procedures for correcting any unsafe or unhealthy work practices and conditions in a timely manner.
4. An occupational health and safety training program designed to instruct employees in safe and healthy work practices and in hazards specific to each employee's job assignment.
5. A procedure to investigate occupational injuries and illnesses.
6. EID's system for communicating with employees on occupational health and safety matters, including provisions designed to encourage employees to identify and report hazards at the work site without fear of reprisal.
7. EID's system for ensuring that employees comply with safe and healthy work practices, which may include disciplinary action for failure to comply.

A copy of the plan is available at http://peoplescope/Pages/Default.aspx or upon request from the Safety/Security Office.

El Dorado Irrigation District

BP 5000 WATER SUPPLY

BP 5010 Water Supply Management

Adopted: August 28, 2006
Supersedes: Regulation No. 1 – adopted March 24, 1982, amended April 21, 2003
Regulation No. 2 – adopted July 24, 1989, amended August 6, 2001
Regulation No. 3 – adopted October 25, 1993
Regulation No. 7 – adopted December 14, 1988, amended October 21, 2002
Regulation No. 10 – adopted September 30, 1981, amended February 7, 2000
Regulation No. 11 –adopted June 17, 1984

The Board is committed to provide a water supply based on the principles of reliability, high quality, and affordability in a cost-effective manner with accountability to the public. It is the General Manager's responsibility to ensure that the tenets of this policy are carried out in an open, transparent manner through sound planning, to assure preparedness under varying conditions, and effective management.

It is the policy of the Board that the District will not issue any new water meters if the *Water Resources and Service Reliability Report* indicates that there is insufficient water supply. When warranted by the findings of the report, the General Manager will bring the possibility of restrictions on meter issuance to the Board's attention. Any such restrictions will be established pursuant to Water Code Section 350 et. Seq. of the California Water Code.

AR 5010 Water Availability and Commitments

Approved: December 12, 2006

AR 5010.1 Annual reporting

The District will maintain adequate water supply and demand records to ensure accurate monitoring and reporting. The General Manager will ensure that an updated *Water Resources and Service Reliability Report* is prepared annually for review by the Board of Directors. The report will include the current system firm yield of the overall District, along with the water supply and infrastructure capacity, potential demands, existing commitments, and meter availability for each water service area of the District as defined in the report.

AR 5010.2 Shortages

The *Water Resources and Service Reliability Report* will use a system firm yield method to determine that sufficient water supply exists to meet potential demands. Under this methodology, approximately 95% of the time sufficient water supply is available to meet normal water demands, but during the remaining 5% of the time water shortages may occur. Such shortages may result in the implementation of voluntary or mandatory conservation measures.

AR 5010.3 New meter restrictions

Should findings in the *Water Resources and Service Reliability Report* warrant restrictions on the issuance of new water meters, the General Manager will bring the situation to the attention of the Board of Directors. During emergency conditions when supplies are restricted or limited, the General Manager may also bring to the Board's attention possible restrictions on water meter availability.

El Dorado Irrigation District

AR 5011 Water Supply Management Conditions

Approved: December 12, 2006
Revised: July 25, 2008

The District recognizes that variations in weather patterns can cause watersheds to yield different quantities of water supply in any given year. In some years, dry weather or drought conditions may occur which result in varying degrees of water shortage. The District also recognizes that future climate change may impact the intensity and duration of future droughts.

The actions required to respond to both near- and long-term changing water supply conditions are outlined in the District's *Drought Preparedness Plan*, adopted by the Board of Directors on February 11, 2008. The following water supply management conditions, and corresponding drought stages, describe the incremental steps needed to manage increasing levels of water shortage.

AR 5011.1 Water supply normal and unrestricted
Drought Stage Zero – Ongoing water conservation

Stage Zero is in effect at all times unless another subsequent stage is declared. Stage Zero reflects periods when normal water supplies and normal distribution capacity are available, and the District anticipates the ability to meet the unrestricted demands of its customers. A prohibition of water waste will be in effect during both normal and restricted water supply conditions.

AR 5011.2 Water supply slightly restricted
Drought Stage 1 – Voluntary reductions in use

The objective of Stage 1 is to initiate public awareness of predicted water shortage conditions, and encourage voluntary water conservation to decrease normal demand up to 15%.

AR 5011.3 Water supply moderately restricted Drought Stage 2 – Voluntary and mandatory reductions

The objective of Stage 2 is to increase public understanding of worsening water supply conditions, encourage voluntary water conservation measures, and then if necessary, enforce mandatory conservation measures in order to decrease normal demand up to 30%.

AR 5011.4 Water supply severely restricted Drought Stage 3 – Mandatory restrictions

The objective of Stage 3 is to enforce extensive mandatory restrictions on water use, and implement water rationing to decrease normal demand up to 50% to ensure that water use is limited to health and safety purposes.

AR 5011.5 Declared water shortage emergencies

The General Manager may also declare a water shortage emergency due to an existing condition or when there is a high probability that a condition will be realized in the near future. Such conditions may include an unexpected disruption of supply, storage, or distribution system facilities.

El Dorado Irrigation District

AR 5012 District Infrastructure and Facilities

Approved: December 12, 2006
Revised: May 25, 2010

AR 5012.1 Connections to District infrastructure

Connections to the District's infrastructure shall be made only by District employees or under the direct supervision of District employees. No connection to District infrastructure shall be made without prior approval.

AR 5012.2 Responsibility for infrastructure maintenance

The District's ownership of and responsibility for the operation and maintenance of facilities will end at the discharge side of the meter, or discharge conduit. In circumstances where the customer owns a testable check valve assembly, the annual testing and maintenance of internal components are conducted by the District. The District will be responsible to operate, maintain, and replace District water mains, flumes, ditches, and other facilities of the District's total supply, transmission, and distribution system. The District's water supply system shall be under the exclusive control and management of duly appointed District personnel, and no one shall have any right to operate, maintain or replace any of the District's water facilities, or interfere with the District system in any manner.

For service through private waterlines or community group systems, measuring devices placed within these systems shall be at the sole discretion of the District. Any such placement, however, does not create an obligation on the part of the District for the operation, maintenance, or replacement of the private waterlines or group system.

El Dorado Irrigation District

AR 5013 Water Service Interruptions or Restrictions

Approved: December 12, 2006
Revised: July 25, 2008
December 20, 2012

Water service interruptions or restrictions may occur during water supply conditions, especially Drought Stages 2 and 3, and water shortage emergencies as declared by the General Manager. The District may, with prior notification, temporarily remove or lock off meters or otherwise interrupt water service to classifications not assigned for human consumption.

Irrigation and agricultural services provided by the District may be subject to an interruption or restriction under these conditions. Temporary Water Use program services provided by the District may also be subject to removal, lock-off, restriction, or discontinuance.

The District may also restrict water availability for Temporary Water Use in certain locations due to constraints in the distribution system.

AR 5013.1 Violations

The District reserves the right to interrupt or restrict, without prior notice, any irrigation or agricultural service, construction, or Temporary Water Use that is found to violate the restrictions imposed by a water shortage condition.

AR 5013.2 Service interruptions due to planned or unplanned maintenance

The District reserves the right at any and all times to shut off water delivery or reduce pressure for the purpose of maintenance or making repairs and alterations to the water system. Whenever possible, advance notice of interruption of service will be given to all affected water users.

AR 5014 Fire Suppression

Approved: December 12, 2006
Revised: December 18, 2012
Revised: August 20, 2013
Revised: February 19, 2015

A fire suppression system may consist of a private interior fire sprinkler system or public fire hydrants. The fire protection agency having jurisdiction over the property will set the fire suppression requirements. The District will provide water for fire hydrants and other fire suppression facilities, but does not warrant or guarantee any range of pressures or rates of flow. The District will not be liable for water pressure or damage in any manner that arises from the availability of water or water pressure at any hydrant or facility used for fire suppression.

The District will provide water at no cost to fire protection agencies for the purpose of fire suppression activities. These activities are limited to equipment maintenance and testing, training, and the filling of fire suppression equipment. All other domestic uses of water, including but not limited to washing of tools, driveways and vehicles, and irrigation uses as well as interior uses at fire stations and any associated training facilities, will be supplied in accordance with District regulations and procedures and must be metered and paid for by the fire protection agency.

AR 5014.1 Fire hydrants

Public fire hydrants for parcels located inside District boundaries will be installed and connected to District mains when requested by the fire protection agency having jurisdiction or when required as a condition of a building permit or subdivision of land. The cost of the fire hydrant assembly and all other appurtenances, including installation, will be paid for by the holder of the building permit or the developer of the project. The District will review, approve, and inspect all public fire hydrant installations.

All public fire hydrants will be owned, operated, tested for functionality, flow tested and maintained by the District from the water main up to and including the hydrant. All fire hydrants may be inspected, tested for functionality, and externally maintained by the fire protection agency.

No person, other than authorized EID or fire protection agency personnel, shall open or draw water from any fire hydrant connected to the District's distribution system without prior specific authorization from the District. Refer to AR 9073 for authorized temporary water use.

The removal or relocation of any public fire hydrant must be approved by the District in advance, and any removal or relocation will be made at the expense of the person or entity requesting the change.

AR 5014.2 Commercial fire suppression services

The property owner will be responsible for the expense of installing a commercial fire suppression system and appropriate backflow prevention device as required by the District.

Water provided to a fire suppression sprinkler system will not be used for any purpose other than extinguishing a fire or testing of the fire protection system.

AR 5014.3 Residential fire suppression services

A residential fire sprinkler system may be served by the residential water meter except if a separate service line and water meter is needed to provide the required fire flow.

El Dorado Irrigation District

AR 5015 Ground Water Supply

Approved: December 12, 2006

Because of the unreliable nature of underground water sources in most of El Dorado County, ground water will not be relied on to augment firm yield supply or as a sole source of water for domestic, irrigation, or fire-fighting purposes. Any consideration of direct ground water augmentation to the existing water system will be evaluated on the basis of short- and long-term reliability, quality, and economics. More than one professional, expert opinion regarding adequacy will be required. The costs of necessary tests, expert opinions, and District staff time will be borne by the applicant.

BP 5020 Cross-Connection Control and Backflow Prevention

Adopted: August 28, 2006
Supersedes: Regulation No. 10 – Prevention of Contamination by Backflow and Cross Connections, Adopted September 30, 1981, Amended February 7, 2000

The District will establish and maintain a cross-connection control program according to the California Code of Regulations - Title 17, Section 7583-7605, or their successors.

AR 5021 Cross-Connection Control and Backflow Prevention

Approved: September 16, 2009

In accordance with BP 5020, the District protects its public water system at the service connection against any actual or potential cross-connection between the public water system and any source or system containing used water, industrial fluid, gas or other substance that is not, or cannot be, approved as safe, wholesome and potable for human consumption. Such protection is enforced through California Code of Regulations Title 17 Section 7584, which requires the District to comply with all applicable state and federal laws required by the Safe Drinking Water Act of 1974, as they are now constituted, or as they may hereafter be amended or recodified, and implemented through the District's "Cross-Connection Control and Prevention of Backflow Program."

A copy of the current "Cross-Connection Control and Prevention of Backflow Program" is available upon request from the Environmental Division.

BP 5030 Water Conservation

Adopted: August 28, 2006
Supersedes: Regulation No. 21 – Conservation, Adopted June 10, 1981

It is Board policy to take reasonable and prudent measures to conserve all water and to adopt and implement water-use efficiency programs that will benefit its customers.

BP 5040 Drought Preparedness and Climate Variability

Adopted: August 28, 2006
Supersedes: Regulation No. 2 – Water Supply Reliability, Adopted July 24, 1989, Amended August 6, 2001

The Board supports the adoption and implementation of a drought preparedness plan to ensure a proactive response to the impacts of drought conditions. Included in the planning effort is consideration of climate variability.

BP 5050 Watershed Management

Adopted: August 28, 2006
Supersedes:

It is Board policy to adopt and support watershed management strategies that will maximize water supply reliability and water quality.

El Dorado Irrigation District

BP 6000 WASTEWATER COLLECTION

El Dorado Irrigation District

BP 6010 Wastewater System Management

Adopted: September 25, 2006
Supersedes: Regulation 13 – adopted October 28, 1987, revised January 24, 1994

The District will maintain a wastewater collection, treatment, and disposal system that complies with applicable state, and federal wastewater discharge requirements and regulations.

AR 6020 Wastewater Discharge and Disposal

Approved: December 12, 2006
Revised: April 1, 2013

Where sufficient capacity exists in mainline and collection sewers, the District will make service available subject to applicable connection procedures and fees. Connection to the District's sewer shall not cause objectionable odors or significant corrosive conditions such as those associated with effluent-only systems or pumped services.

AR 6020.1 Wastewater discharge and disposal

No wastewater or other substances shall be introduced into the District's wastewater system that would:

1. introduce pollutants into the District's treatment plants that will interfere with the plants' operations, including the use or disposal of wastewater sludge, or otherwise be incompatible with operations;
2. interfere with opportunities to recycle and reclaim treated effluent and wastewater sludge;
3. injure or damage any person or property or endanger the public health or safety;
4. cause the District to violate any federal or state law or permit;
5. endanger humans, animals, and fish or other aquatic life in any body of water receiving effluent from the District plants

AR 6020.2 Customer responsibility

Service Lateral Responsibilities

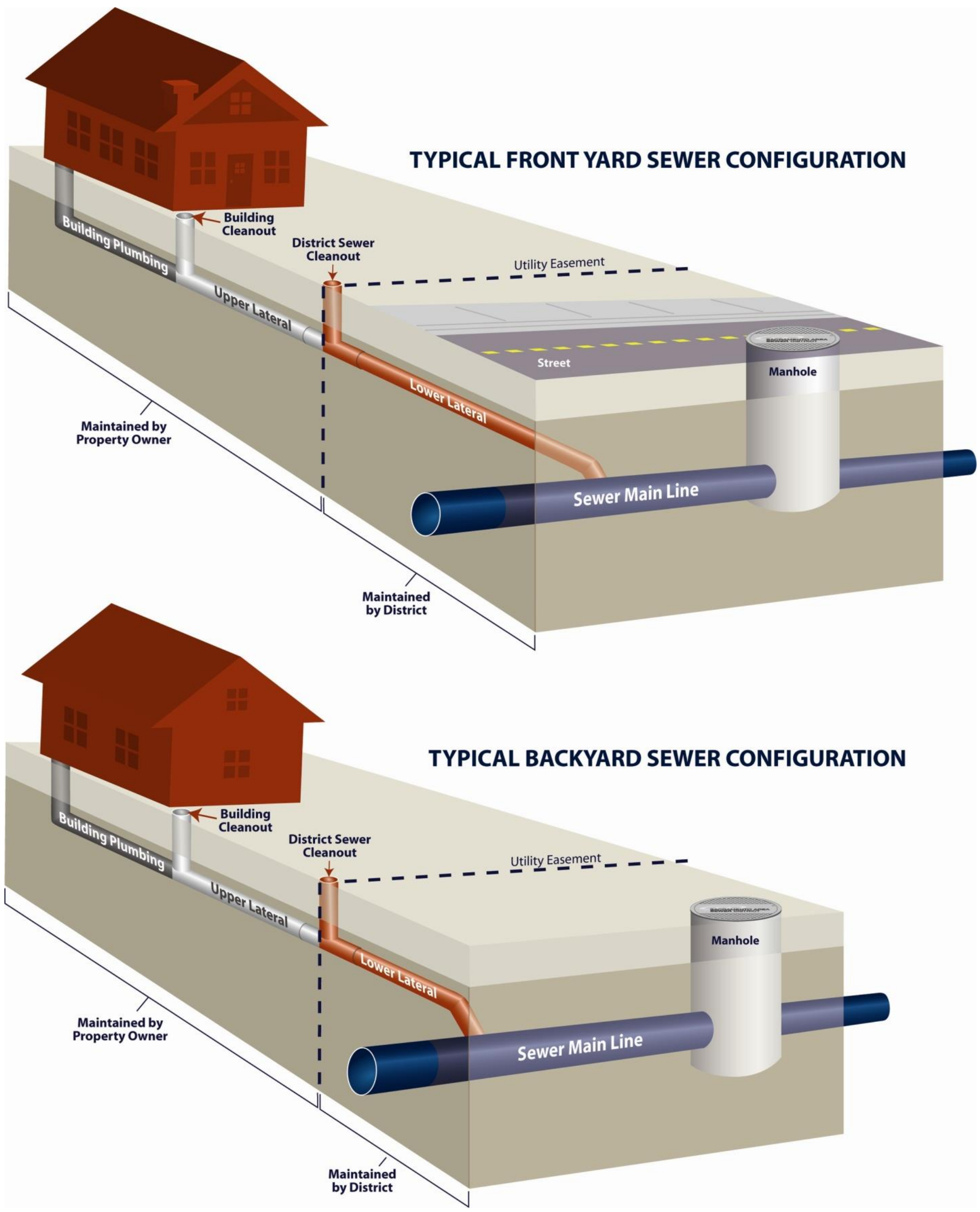
The wastewater service laterals are comprised of an upper and lower portion. The upper lateral is defined as that portion of the wastewater lateral that exists from building plumbing to the cleanout located at or near the utility easement line. In the absence of a cleanout at or near the utility easement line, the upper lateral extends to the utility easement line itself. The lower lateral is defined as that portion of the wastewater lateral from the mainline to the downstream end of the upper lateral, including the cleanout.

The property owner owns and has sole responsibility for clearing stoppages, inspecting, maintaining and repairing the upper lateral. The owner must perform all required maintenance and keep the upper lateral in good condition to avoid negative impacts to the operation and maintenance of the lower lateral. This includes the following:

a) The upper lateral shall be kept free from roots, grease deposits, and other solids that may impede the flow or obstruct the transmission of waste
b) All joints shall be tight, and all pipes shall be sound and free from structural defects, including cracks, breaks, and missing portions, to prevent infiltration and ex-filtration of waste by groundwater or stormwater
c) No drains or other appurtenances that collect stormwater or surface water shall be connected to the upper lateral

The District owns and is responsible for clearing stoppages and for inspecting, maintaining, and repairing the lower lateral. District and owner responsibilities are illustrated in Figure 1 on the following page.

Figure 1:


TYPICAL FRONT YARD SEWER CONFIGURATION
Building Cleanout
Building Plumbing
District Sewer Cleanout
Utility Easement
Upper Lateral
Lower Lateral
Street
Manhole
Sewer Main Line
Maintained by Property Owner
Maintained by District
TYPICAL BACKYARD SEWER CONFIGURATION
Building Cleanout
Building Plumbing
District Sewer Cleanout
Utility Easement
Upper Lateral
Lower Lateral
Manhole
Sewer Main Line
Maintained by Property Owner
Maintained by District

In the absence of a cleanout in the lower lateral, the District reserves the right, subject to approval by the property owner, to install a cleanout at the upstream-end of the lower lateral, or in close proximity thereto. The District maintains sole responsibility for mainlines owned by the District.

Low Pressure Sewer Systems

Low pressure sewer systems are not allowed without approval of the District. If a low pressure sewer system is approved, a private sewer maintenance agreement shall be executed and recorded on all participating properties which will include a delineation of ownership and maintenance responsibilities.

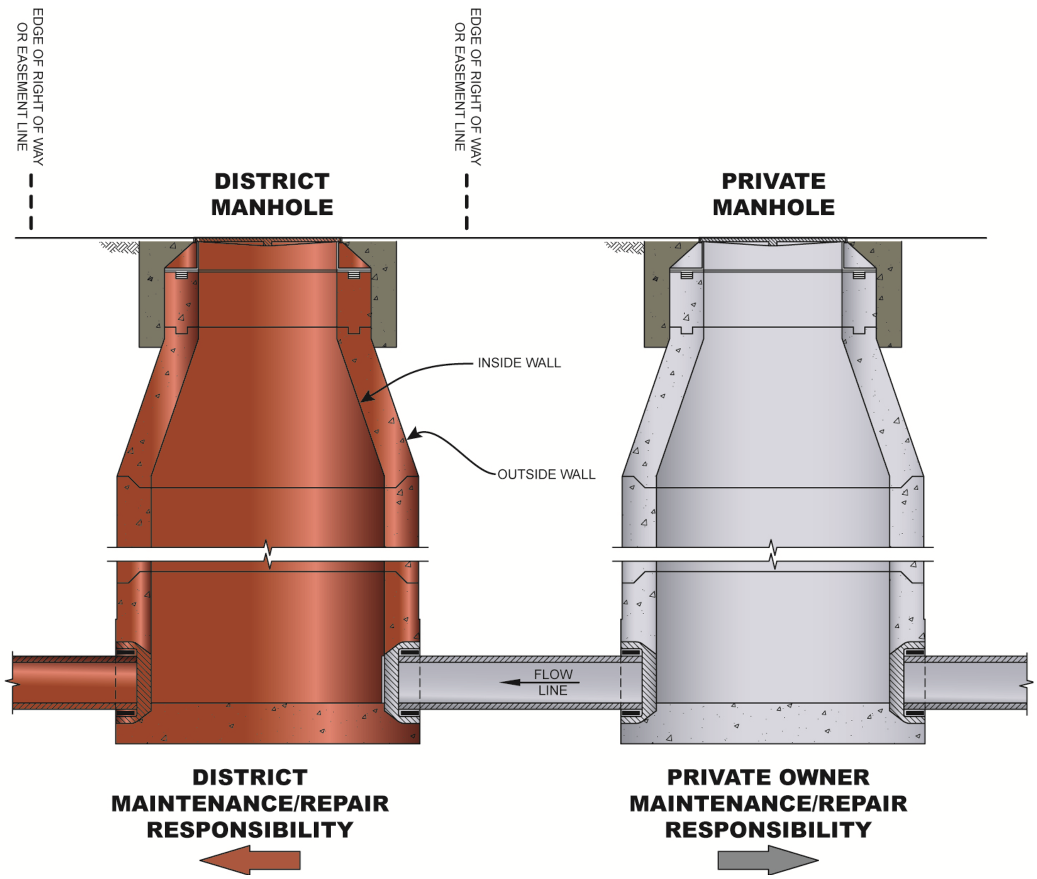
In cases where a parcel or structure is served by a low pressure sanitary sewer collection system, the owner or official/designated owner's group has the sole responsibility for ownership, operation, and maintenance of the low pressure sewer system outside of the utility easement, unless otherwise approved by the District.

The District is not responsible for backups into structures or overflows onto the owner's real property or adjacent real properties caused by grinder pumps, including, but not limited to, a loss of power to or plugging of the grinder pump.

Private System

In cases where a District manhole has been installed to separate a private system from the District sewer system, the end of the pipe at the inside of the upstream wall of the District manhole marks the limit of the District's maintenance and repair responsibility. This responsibility is illustrated in Figure 2 on the following page.

Figure 2



Any customer that violates these regulations will be liable to the District for all direct and indirect costs, expenses, and damages associated therewith, and may be subject to civil liability and/or criminal prosecution.

AR 6021 Industrial Pretreatment Program

Approved: December 12, 2006
Revised: February 25, 2009

In accordance with BP 6010, the District has established and maintains an Industrial Pretreatment Program that complies with applicable state and federal wastewater discharge requirements and regulations.

A copy of the Industrial Pretreatment and Pollution Prevention Program is available upon request from the Environmental Division.

AR 6022 Requirements for the Control of Fats, Oils, and Grease from Food Service Establishments

Approved: June 4, 2009

In accordance with BP 6010, the District controls the amount of fats, oils and grease entering the sewer system from food service establishments to comply with applicable state and federal wastewater discharge requirements and regulations.

A copy of the "Requirements for the Control of Fats, Oils, and Grease from Food Service Establishments" is available upon request from the Environmental Division.

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El Dorado Irrigation District

BP 7000 RECYCLED WATER

El Dorado Irrigation District

BP 7010 Authorized and Mandated Use of Recycled Water

Adopted: September 25, 2006
Supersedes: Regulation No. 31
Revised: November 12, 2013

The District mandates the future use of recycled water, wherever economically and physically feasible, as determined by the Board, for non-domestic purposes when such water is of adequate quality and quantity, available at a reasonable cost, not detrimental to public health, and not injurious to plant life, fish, and wildlife. The type of use is defined in Title 22 of the California Code of Regulations. In general, the lands subject to mandatory recycled water use are defined in the most current version of the District's Master Plans.

The District shall have authority to monitor and inspect the entire recycled water system, including on-site facilities, to ensure and enforce compliance with all applicable requirements and standards. The District shall have the right to access customers' premises as required for these purposes. The District may impose penalties and fines and require corrective action for misuse of recycled water.

El Dorado Irrigation District

AR 7010 Suitability of Recycled Water Supplies

Approved: December 12, 2006

Recycled water supplies will meet the applicable conditions in Title 22 of the California Code of Regulations for tertiary treated wastewater.

AR 7011 Determination of Required Use

Approved: December 12, 2006
Revised: November 12, 2013

Non-domestic use includes, but is not limited to, commercial landscape irrigation, residential or multi-family dual plumbed landscape irrigation, construction water, industrial process water, and recreational impoundments.

The criteria for determining whether recycled water is feasible for a particular property or non-domestic use include the following factors:

- The property is located within an area as defined in the most current version of the District's Master Plan.
- Recycled water may be furnished for the intended use at a reasonable cost to the customer and the District.
- Recycled water is of adequate quality for the intended use and does not require significant additional on-site treatment beyond that required for potable water.
- The use of recycled water is consistent with all applicable federal, state, and local laws and regulations.
- The use of recycled water will not be detrimental to the public health and will not adversely affect plant life, fish and wildlife.

AR 7011.1 Residential dual plumbed water EDU ratio

For residential dual plumbed connections, the District will allocate water EDU's on a 2.5 to 1 ratio (i.e., 2.5 dual plumbed connections = 1 water EDU) in recognition that, based on current demand data, the annual potable water requirement of dual plumbed residential connections is approximately 40% of a full potable connection, including potable supply supplementation of the recycled water system. The District may periodically review and update this allocation based on the then-current demand data.

El Dorado Irrigation District

AR 7012 Construction and Inspection of Facilities

Approved: December 12, 2006

To ensure the health and safety of the public, on-site facilities shall be constructed and inspected to conform to the District's On-Site Facilities Design and Construction Standards and in accordance with the District's Master Reclamation Permit issued by the Regional Water Quality Control Board - Central Valley Region.

The District shall have the ultimate responsibility and authority to monitor and inspect the entire system to ensure and enforce compliance with all applicable standards, regulations, User Reclamation Plans, and Engineer's reports. For these purposes, the District shall have the right to access the customer's premises as required.

AR 7013 Discontinuation / Interruption of Service

Approved: December 12, 2006
Revised: March 20, 2012

It is the goal of the District to provide continuous service and, in the event of a service disruption, to resume service in an expedited manner. When misuse has been established and penalties and fines are not paid or corrective action is not taken within the prescribed time frames, service may be temporarily terminated. Service will be restored when penalties and fines are paid and/or corrections are made.

AR 7013.1 Supply

The District reserves the right to limit the use of recycled water when supplies are limited.

AR 7013.2 Misuse of Recycled Water

Penalties and fines shall be imposed for misuse of recycled water, and the customer will be required to take corrective action as prescribed by the District. Misuse of recycled water includes, but is not limited to, the following:

- Modification or relocation of the meter, which results in nonconformance with District requirements.
- Intentional non-permitted discharges; for example, discharge to surface water or pond overflow.
- Intentional cross connection; for example, connection of the recycled water system to the potable water system.
- Non-approved system installations or modifications; for example, irrigation system modifications that have not been reviewed, approved, and/or inspected by the District, excluding drip systems and sprinkler heads.
- Theft of recycled water; for example, unmetered use of water or meter tampering.
- Non-compliant use of recycled water; for example, use that is not in compliance with the User Reclamation Plan, engineer’s reports, and/or the provisions of Title 22 of the California Code of Regulations.
- Operational non-compliance; for example, system operation that is not in compliance with the site User Reclamation Plan or engineer’s reports such as irrigating outside of the allowable time period.

- Noncompliance with applicant agreement, engineer's reports, or User Reclamation Plans. This applies to the developer or owner of a development who does not follow the specific requirements outlined in the applicant agreement, engineer's reports, and/or User Reclamation Plans.

AR 7013.3 Fines and Penalties

Misuse of recycled water may result in discontinuation of service, penalties, and fines. Penalties and fines paid to the District shall be designated to reimburse operating expenses and/or environmental restoration projects, payment of fines to regulatory agencies, or otherwise according to the District's fines and penalties schedule.

When determining the level of penalty and/or fine, the District will consider all relevant facts and circumstances and may consult with regulatory agencies such as the Department of Health Services (DOHS), Central Valley Regional Water Quality Control Board (CVRWQCB), and/or other resource agencies as appropriate. The District reserves the right to impose fines and penalties in excess of those described above, including possible termination of service, upon a finding of gross negligence or willful misconduct.

A customer may appeal the District's imposition of a penalty and/or fine. Appeals shall follow the procedures of AR 1041.6.

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El Dorado Irrigation District

BP 8000 HYDROELECTRIC SYSTEM

BP 8010 Hydroelectric System Management

Adopted: October 11, 2006
Supersedes: N/A

The District maintains and operates its hydroelectric generating facilities in a safe, efficient, and environmentally responsible manner, and in compliance with all applicable federal and state permits and regulations, the terms of the Federal Energy Regulatory Commission license, and all related agreements. Hydroelectric power generation shall be compatible with the District's consumptive water supply operations.

AR 8010 Priority of Consumptive Water Diversion over Power Generation

Approved: December 12, 2006

The hydroelectric power generation shall be synchronized with consumptive water production with the intentions to maximize power generation. When the General Manager determines there is a conflict between hydroelectric generation and consumptive water production, priorities shall be given to consumptive water production.

AR 8011 Participation in Power Markets

Approved: December 12, 2006

The District shall market its electric generating capacity and energy to the fullest extent possible by using a combination of power marketing strategies, which offer the optimal blend of maximum revenue with acceptable risk levels. Such power markets may include, for example, non-firm energy generated as available, day-ahead firm energy, renewable energy, and ancillary services. The District shall remain up-to-date in regards to electric power marketing strategies, associated risks, and changes.

El Dorado Irrigation District

AR 8012 Emergency Preparedness

Approved: December 12, 2006

The District shall maintain a set of Standard Operating Procedures for the hydroelectric facilities. The SOPs will include emergency preparedness guidelines and recommendations designed to avert the need to invoke an emergency or mitigate the consequences of an emergency.

In addition to the SOPs, the District shall maintain Emergency Action Plans for each of the dams licensed by the Federal Energy Regulatory Commission (FERC). The dam EAPs will be updated periodically and exercised annually by way of either tabletop exercise or a functional exercise.

El Dorado Irrigation District

AR 8013 System Operation

Approved: December 12, 2006

The District shall operate and maintain its hydroelectric system of ditches and powerhouse in a safe and cost-effective manner, in compliance with regulatory requirements and industry standards.

AR 8014 Priority of the Dam Safety Program

Approved: July 10, 2012

The District shall maintain a dam safety program to safeguard the public, the environment, and its hydroelectric facilities. This will be facilitated through the Owner's Dam Safety Program (ODSP), as required by the Federal Energy Regulatory Commission; applicable to the District's high and significant hazard potential dams.

The ODSP shall assure that dam safety is of the highest priority within the District's organization through: acknowledging dam safety responsibilities; promoting internal communication throughout the organization; clearly designating responsibility for maintaining dam safety; allocating adequate resources to dam safety; and continual learning in dam safety.

BP 8020 Additional Generation Opportunities

Adopted: October 11, 2006
Revised: August 10, 2009

The District shall seek to augment its electric energy and capacity revenue stream, and/or reduce its operational energy expenses, by adding new generation facilities whenever they are economically viable.

It is the policy of the El Dorado Irrigation District that resources planning and infrastructure, including water and wastewater systems, emphasize renewable energy and energy efficiency toward a goal of energy independence for El Dorado County and its citizens.

El Dorado Irrigation District

BP 9000 CUSTOMER SERVICE

BP 9010 Customer Service

Adopted: November 11, 2006
Supersedes: N/A

The District strives to meet or exceed customers' reasonable expectations for service through innovative thinking, effective issue resolution, and execution of strategic plans.

AR 9010 Access to Programs, Services, and Facilities

Approved: November 6, 2008

The El Dorado Irrigation District (EID) provides access to its programs, services and facilities to persons with disabilities in accordance with Title II of the Americans with Disabilities Act of 1990 (ADA) (42 U.S.C. §§ 12131-12134), its implementing regulation (28 C.F.R., part 35), and other applicable federal and state laws. The District's Human Resources Director or designee is the initial point of contact for inquiries or complaints regarding accessibility.

El Dorado Irrigation District

AR 9011 Use of District Facilities

Approved: April 22, 2010

District facilities shall be used only for activities that are directly related to or advance the District's mission. The use of District facilities by non-District personnel directly relates to or advances the District's mission if all of the following conditions are satisfied:

- The use is by an organization of which the District or any of its employees is a member.
- The organization's mission or activities are directly related to a business function of the District.
- District personnel are eligible to attend and participate in the activity for which the District facility is being used.
- The activity will further the professional development or personal health of District personnel, or otherwise advance the District's interests.
- The organization has agreed to reimburse the District for any documented District costs incurred solely as a result of the facility use.
- An authorized representative of the organization furnishing the activity has executed a District-approved liability waiver and release form, and the organization has provided satisfactory evidence of insurance coverage in types and amounts reasonably deemed necessary by the District. If the Office of the General Counsel approves, the District may waive any or all of these liability and insurance requirements.

BP 9020 Establishing New Service

Adopted: November 11, 2006
Supersedes: Regulation Nos. 1, 5, 6, 8, 12, 14, 17, 18, 22

The District provides drinking water, recycled water, and wastewater services to residential, municipal, commercial, industrial, and agricultural customers within the District's service area. These services are subject to the provisions of all Board Policies and applicable Administrative Regulations and to the payment of appropriate rates, fees, deposits, and charges.

AR 9021 Eligibility for New Service

Approved: December 12, 2006
Revised: July 24, 2012

When applying for and receiving service from the District, each customer covenants and agrees to be bound by and to comply with all applicable laws, the District's Board Policies and Administrative Regulations, and all terms of signed service agreements.

Except as otherwise indicated in the District's Board Policies and Administrative Regulations, new service will be provided subject to the following conditions:

- The land to be served is within the service area and becomes subject to the indebtedness of the District and annexed to the District.
- The applicant or authorized agent shall make application for service and pay, by cash or check, all applicable water, wastewater, and recycled water connection charges.
- If the property to be served is intended or required to have water, recycled water, and wastewater service, then all services must be listed and paid for in the application process.
- **Raw Water** - Requests for ditch service will be considered only for non-drinking purposes and only if the service ties to the Main Ditch. All raw water connections require the approval of the District's General Manager.
- **Drinking Water** - A District water main of adequate capacity and pressure must exist in a right-of-way abutting a principal boundary of the land to be served, or adequate mains, pumps, and storage facilities (as solely determined by the District) must be constructed in accordance with the District's Board Policies and Administrative Regulations.
- **Recycled Water** - The District requires that customers use recycled water, wherever feasible, for future non-domestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health, and not injurious to plant life, fish, and wildlife. In general, the lands subject to mandatory recycled water use are as defined in the most current version of the District's Recycled Water Master Plan.
- **Wastewater** - A sewer main of adequate capacity must exist in a right-of-way abutting a principal boundary of the land to be served,

or adequate wastewater facilities, including lift stations and collection facilities, must be constructed in accordance with the District's Board Policies and Administrative Regulations.

- **Commercial Private Fire Service** - A private fire service is required for commercial customers who request water for fire suppression other than from public fire hydrants. The principal boundary of the property must abut a District water main of adequate size, capacity, and pressure, unless the applicant receives prior approval from the District. The District does not guarantee any range of pressure or rates of flow and is not liable for damage to the private fire service because of water pressure. The District reserves the right to require a metered service be installed and to disconnect a private fire service if water is taken through the detector check assembly for any use other than fire suppression. The District is not liable for any loss or damage due to such action. *See Administrative Regulation 5014 for more information on commercial and residential fire suppression services.*
- **Small Farm Irrigation and Agricultural Metered Irrigation Service -** To qualify for small farm or agricultural metered irrigation service rates, users must meet all of the requirements set forth in AR9024.

AR 9021.1 Failure to apply for service

Anyone using water, wastewater, and recycled water services without having applied to the District shall be held liable for these services from the date of any previous meter reading that most nearly coincides with the actual date the services were first used.

AR 9021.2 Acceptance of application(s) for service

The District will accept applications for water, recycled water, and wastewater services after determining that all conditions of eligibility have been met. For acceptance, applications must be accompanied by all supporting documentation requested by the District. The District's acceptance of an application for service is not a guarantee that a service connection will be made or service provided.

In compliance with Government Code section 65589.7 or its successors, District staff shall prioritize the processing of applications for service made by developments that include housing units affordable to lower income households.

No service connection will be made if it is found that actual conditions or operation of facilities would violate the District's Board Policies, Administrative Regulations, and *Water, Sewer and Recycled Water Design & Construction Standards*.

AR 9022 Payment of Service Connection Charges

Approved: December 12, 2006

Applicants who meet District requirements for service shall pay a facility capacity charge (FCC) for each service connection. This and all other appropriate fees, surcharges, and inspection and construction costs, if any, must be paid in full prior to receiving service. Payment shall be made by the owner of the property benefiting from the service or by others with the owner's written consent and permission.

AR 9022.1 Refunds and transfers

Once paid, fees, application costs, FCCs, and surcharges are not refundable except if the County/City nullifies or modifies a proposed project. The applicant must provide appropriate documentation of the change or modification, and the District will deduct the appropriate administrative fee from the refund.

Once paid, application costs, FCCs, and surcharges cannot be transferred except if a boundary line adjustment reduces the water demand for a second service, the County/City modifies a project, or the County/City certifies the lot as unbuildable. All transfers must be under the same ownership and must obtain approval from the lien holder prior to the transfer. Verification from either the City or the County will be required if a project is modified or the lot is deemed unbuildable. All transfers are subject to the District’s Board Policies and Administrative Regulations in effect at the time the transfer is approved. Any applicable FCCs or meter relocation fees must be paid in full prior to approval of the transfer.

AR 9022.2 Fee Deferral for Affordable Housing

Single-family or multi-family development projects that meet affordable housing criteria for persons and families of low or moderate income, as defined by California Health & Safety Code section 50093 and related enactments, or their successors, may be eligible to defer the payment of FCCs and associated fees otherwise owed to the District at the time of the issuance of a building permit by the local building official. The maximum fee deferral period will not exceed 12 months, and the District will not issue, install or certify water, sewer or recycled water meters or connections until the FCCs and associated fees are paid in full.

AR 9022.2 Fee Deferral for Affordable Housing (continued)

As a condition of the request for deferment of fees, the property owner will execute an Agreement to pay the fees. The Agreement will be in recordable form, and upon recordation by the county recorder shall constitute a real property lien for the payment of the fees which shall be enforceable against successors in interest to the property owner. Interest (equal to the prevailing prime lending rate on the date the Agreement is signed, plus 2%) will be charged on all amounts deferred and will accrue from the date the Agreement is signed.

AR 9023 Non-Standard Service

Approved: December 12, 2006

When in the sole determination of the District satisfactory service cannot be supplied from District mains because of elevation, location, or other factors, the District reserves the right to refuse service or to require the applicant to provide a written release from liability for any damages or inconvenience that may occur by reason of insufficient pressure, inadequate volume, or intermittent supply. Applicants must, at their own expense, provide private pipelines, storage facilities, and/or pumping plants sufficient to meet their needs.

El Dorado Irrigation District

AR 9024 Small Farm and Agricultural Metered Irrigation (AMI)

Approved: December 12, 2006
Revised: July 13, 2012
Revised: August 20, 2013
Revised: July 14, 2014
Revised: November 4, 2014

To qualify for small farm or agricultural metered irrigation service rates, users must meet all of the requirements under the appropriate category below. Users whose intent is to farm but do not meet eligibility requirements for the Small Farm Irrigation or AMI rate, or who have not begun development, will be placed on the appropriate rate until they meet eligibility requirements.

The right to the Small Farm or AMI rate is not perpetual and does not run with the land. In the event the property changes hands or the qualifications are not being met, the District reserves the right to change the rate to the appropriate rate (for example, Single Family Residential) until such time as the customer can meet the eligibility requirements.

Small Farm Irrigation Eligibility Requirements:

- Minimum parcel size is one (1.0) acre per County Assessor's Office records
- Minimum ½ acre planted agricultural crops and/or qualifying livestock as a marketable product in accordance with county zoning
- Maintenance of the crop to produce a marketable product
- Submission of one of the following: 1) valid Certificate of Compliance from the El Dorado County Department of Agriculture, or 2) current appropriate IRS form that shows at least $3,500 annual gross income in "agricultural products of the lands"
- The Small Farm rate will remain in effect for the customer and time period stated on the Certificate of Compliance. The rate will remain in effect for three years for customers who submit an appropriate IRS form.

Agricultural Metered Irrigation (AMI) Eligibility Requirements:

- Minimum 10.0 acres of irrigated pasture or a minimum of 5.0 acres planted orchards, groves, vineyards or other horticultural pursuits with acreage determined by the El Dorado Department of Agriculture's guidelines for measuring crops

- The AMI rate will remain in effect until there is a change in ownership or the property no longer qualifies for the rate. Surveys may be performed at the District's discretion to ensure the property meets the eligibility requirements.

For customers on an AMI rate, one meter may be installed to serve multiple parcels under the same ownership. The owner must provide sufficient county recorded documentation of ownership. Facility Capacity Charges (FCCs) will not be assessed on the additional parcel, but applicable billing unit charges will apply. When landholdings are under the same ownership, the meter remains with the original parcel or nearest new parcel if the landholdings are modified or sold. Liens are to be placed on each commonly owned parcel, and when a title change occurs, all other parcels under separate ownership will be required to obtain a new water meter, conform to all Board Policies and Administrative Regulations, and pay the FCCs in place at the time of purchase.

AR 9025 Authorized Use of Water

Approved: December 12, 2006
Revised: August 20, 2013

The sole use of water furnished by the District shall be on the parcel that is specified in the customer's application for service. Water furnished by the District to a residential premise may not be resold (for example, multiple dwellings on a master meter), except by the City of Placerville.

The District also provides temporary water use for authorized projects in three ways. Refer to AR 9073 for Temporary Water Use meters.

AR 9026 Water Meters

Approved: December 12, 2006
Revised: August 24, 2012

All delivered water will be measured by appropriate metering devices as determined by the District. Meters will be installed in full compliance with the District's Board Policies, Administrative Regulations, *Water, Sewer and Recycled Water Design & Construction Standards*, and payment of all appropriate connection charges.

At the time of application, the customer is responsible for selecting the appropriate meter size for the service being requested and for applying for a change in meter size if needs change over time. The District may reevaluate the meter installation and require a different size or type meter based on historic use or flow restrictions.

A single water connection and meter will be established for each parcel of land under separate ownership or that is separately described in the County records. No more than one parcel shall be serviced through a single meter, with the exception of agricultural accounts, where one meter may be installed to service multiple parcels under the same ownership. *(See AR9024).*

District meters will be situated in easily accessible locations immediately adjacent to or within the owner's parcel on the principal boundary of the property abutting a right-of-way satisfactory to the District. Exceptions to this requirement are authorized when the District's main does not conform to the perimeter boundaries of a parcel or lie within a right-of-way or vehicular access easement.

For community property, one meter may be installed to serve a parcel of land owned by a home owner's association, such as a condominium, planned unit development or mobile home park, subject to a responsible entity entering into a contract with the District regarding payment of fees and conditions of service. Master location meters and sub-meters *(See AR 9027)* may be installed and used to meter commercial landscape irrigation on community property.

Meters are maintained by the District. Customers are responsible for all repairs to their systems on their sides of the meters. There is a one-year warranty on the gate valve starting from the time of installation regardless of the status of occupancy of the property. Customers are liable for meter repair costs if the District determines that repair work was required as a direct result of excessive wear beyond meter design flow standards or other physical damage to the meter.

AR 9027 Sub-Meters

Approved: December 12, 2006
Revised: January 10, 2013

Sub-meters may be used as follows:

- To meter permanent or long-term commercial establishments that exist in separate buildings or permanent portions of a building;
- To meter commercial landscape irrigation;
- To meter mixed-use developments;
- To meter uses in parks and other facilities of public agencies; and
- To meter any other uses, as reasonably deemed feasible and appropriate by District staff.

AR 9028 Extension or Improvement of Facilities

Approved: December 12, 2006
Revised: January 10, 2013
Revised: April 1, 2013

When water, recycled water, and wastewater services are requested for property that is within District boundaries but does not abut a District water or sewer main with adequate capacity, the District may require an extension or improvement of the District's distribution system. Any improvements or extensions will be paid for by the applicant and must be designed and constructed to meet the District's then-applicable *Water, Sewer and Recycled Water Design & Construction Standards* and when completed, must generate revenues equal to or greater than the costs of staff, equipment or material necessary to operate the facility, plus general and administrative costs. The applicant will have the facilities designed by a licensed professional engineer with experience in the design and construction of the same type of system(s), and installed by an experienced, competent, and licensed contractor. Upon completion and after inspection and acceptance by the District, the facilities shall then be owned and operated by the District.

Extensions or improvements include but are not limited to water, recycled water, and wastewater mains, storage facilities, pump stations, pressure reducing stations, treatment facilities, lift stations, fire hydrants, and all appurtenances.

Design of the facilities shall be in accordance with accepted engineering practices, current AWWA standards, and in compliance with the District's *Water, Sewer and Recycled Water Design & Construction Standards*. Improvement plans will be approved by the District Engineer or his/her designee. All facilities shall be installed in accordance with plans and specifications that have been approved by the District and are in conformance with the District's design standards, noted above, as they exist at the time of approval.

AR 9028.1 Facility Capacity Charge (FCC)

The District will not pass on to the existing customer the incremental cost for expansion of utility facilities and service to provide for growth. Expansion of District facilities to provide capacity for new development will be financed by facility capacity charges assessed to the developers. The extension of utility lines to the development will be engineered and financed by the developer.

AR 9028.2 Inspection and acceptance

District staff will inspect the construction of all new District facilities. The District will not accept or provide regular permanent service through a facility that has not been inspected and accepted.

The District will accept the project upon completion of the construction and successful testing, final inspection by the District, submission of as-built drawings acceptable to the District and all other required documentation, and payment of any outstanding monies due. The facilities shall be owned, operated, and maintained by the District except as specified below:

- Water service line from meter to building or end use
- Recycled water service line from meter to end use
- Wastewater service lateral from the cleanout located at or near the public utility easement line, or in the absence of such a cleanout, the public utility easement line itself to building or end use
- Commercial fire sprinkler line from check valve vault to building

AR 9028.3 Payment of costs

Applicants for extension or improvement of facilities shall pay the District's actual costs including but not limited to engineering analysis, designs, plan checks, preparation of environmental impact documents, hearings, reviews or preparation of improvement plans, construction inspections, as-built drawings, project administration, and usual overhead expenses allocated to such work.

AR 9028.4 First-year warranty responsibilities

For a period of one year from the date of acceptance by the District, the property owner shall warrant for the repair of all defects, leaks, or failure occurring in the facilities that are, as determined by the District, due to negligence in the manufacture and/or installation of the facilities, exclusive of operation of the system by the District, its agents, or natural disasters. Failure by the property owner to pay for any of these repairs after being billed by the District will result in the District placing a lien against the property.

When the facilities serve a residential subdivision, the applicant or the applicant's contractor shall submit a one-year repair surety, which may be a bond , certificate of deposit, or irrevocable letter of credit (in form acceptable to the District) in an amount not less than ten percent of the construction costs of the facilities.

AR 9028.5 Reimbursement for extension and/or improvement

Property owners who extend or improve District water, wastewater, and/or recycled water facilities may qualify for reimbursement of costs, in whole or part, from the District, later users of the facilities, or a combination of the two pursuant to a written agreement with the District. The applicant for reimbursement shall prepare estimates of construction costs and potentially benefitted parcels at its sole expense, for the District's review and determination of reimbursement eligibility. All reimbursements shall be made in arrears as sufficient funds become available to the District. All reimbursements shall be limited to actual, documented and District-approved costs incurred by the application prior to reimbursement.

AR 9028.6 Letters issued by the District

Facility Improvement Letter - The District will issue a Facility Improvement Letter for water, wastewater, and/or recycled water services to applicants requesting service to existing parcels, lands being subdivided, and lands being rezoned or involving petition for amendment to the County or City general plans. The Facility Improvement Letter will be valid for three years from the date of issuance. This document will state the current availability of service and the ability of the District's existing system to provide the requested service. The District may require the submittal of a Facility Plan Report for approval if deemed necessary because of project size or complexity. An extension of up to one year for the Facility Improvement Letter may be granted upon request and submittal of the appropriate application and fee.

Meter Award Letter - The District will issue a Meter Award Letter to eligible applicants once all District requirements have been met, the applicant has complied with all construction and maintenance bonding requirements, and all of the following have been received by the District:

- Facility Improvement Letter
- Approved Facility Plan Report, if required
- Extension of Facilities application and fee, if required
- Environmental documents
- Payment of all applicable water, wastewater, recycled water and other connection fees
- Approval of Annexation, if required
- Agreements approved and signed by the EID Board of Directors
- Land rights being or guaranteed to be conveyed to the District

- All Engineered Improvement Plans approved by the District Engineer and payment of associated fees

Status Letter - Upon request, the District will issue a letter to eligible applicants meeting the following conditions:

- Water, wastewater, and/or recycled water improvements have been completed and accepted by the District (Notice of Completion issuance)
- Applicant has supplied the District with parcel numbers, lot numbers, and addresses for each parcel.

AR 9028.7 Exceptions to extension or improvement of facilities requirements

Water, wastewater, and recycled water services that meet all of the criteria listed below may request variance from the requirement for extension or improvement of facilities.

Criteria for a temporary off-site metered connection for domestic water:

- The property does not front a District water main extension.
- An upgrade to District facilities is not required to provide a minimum level of service as defined in the District's Design and Construction Standards. The parcel to be served shall be located within 1500 linear feet (measured along the path of the service line) from a water line that has capacity and meets the District's minimum line size criteria, as determined by the District Engineer or their designee.
- The property applying for off-site service has been or will be developed as a single family residence. Off-site meters shall not be authorized for the purpose of subdividing residential properties.
- For new single family residential projects, the applicant provides written verification from the appropriate fire district indicating that the fire protection district will not require the installation of a new public fire hydrant. The applicant also provides a letter from the El Dorado County Building Department indicating no objection to the installation of an off-site water meter and private service line.
- The property owner enters into an "Off-site Service Agreement."
- District staff reasonably determines that an extension of facilities to the property would not be in the best interest of the District or surrounding properties.
- For properties applying for off-site service on the basis of hardship, documentation of well failure issued by a certified well company must be provided. District staff shall make hardship determinations on a case-by-case basis.
- The applicant provides a copy of a properly recorded minimum 10-foot easement allowing the property owner to install, operate, maintain, repair, and

replace the private service line, extending from the public water main up to the property to be served. All proposed and recorded easements are subject to the review and approval of District staff prior to the issuance of a water meter.

- All approved offsite water services will be required to install backflow protection. The protection shall be a minimum of a Reduced Pressure Principle Backflow Prevention Assembly (RP).

Approval for a temporary off-site connection will expire twenty-four months from approval if the applicant has not signed an agreement or submitted payment of all applicable fees for the meter.

Criteria for private wastewater service:

- District staff reasonably determines that an extension of facilities to the property would not be in the best interest of the District or surrounding properties.
- A system improvement is not required to provide a minimum level of service.
- The property owner enters into an "Off-site Service Agreement."
- The private wastewater line shall be constructed by the property owner in accordance with District standards and shall be inspected by the District. Subsequent maintenance and repair is the responsibility of the property owner.
- The applicant provides a copy of a properly recorded minimum 10-foot easement allowing the property owner to install, operate, maintain, repair, and replace the private service line, extending from the public sewer main up to the property to be served. All proposed and recorded easements are subject to the review and approval of District staff prior to the issuance of a water meter.

AR 9028.8 Land rights schedule

The applicant shall provide all land easements and right-of-way to the District as follows:

- **Non-subdivision and minor land division:** prior to signing improvement plans
- **Subdivision, off-site:** prior to signing improvement plans
- **Subdivision, on-site:** prior to recording final map, or dedicated by the map

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El Dorado Irrigation District

AR 9029 District Access to Facilities

Approved: December 12, 2006

When applying for and receiving service from the District, customers authorize appropriate District employees and agents to enter their properties at reasonable times for the purpose of reading, inspecting, testing, checking, repairing, maintaining, or replacing the District's meters, backflow prevention devices, and other equipment and facilities. Any fences or other structures that restrict access to new or existing District facilities shall have proper gates or other means to permit reasonable access to the facilities.

BP 9030 Annexation of Land to the District

Adopted: November 11, 2006
Supersedes: Regulation No. 23

The District has the authority to annex property to benefit the operations, management, and implementation of District functions. The General Manager and/or the General Counsel and their designees may represent the Board of Directors in negotiations. It takes a majority vote of the Board to approve all annexations.

AR 9031 Application for Annexation

Approved: December 12, 2006

The District will accept an application for annexation upon determining that all conditions of eligibility have been met and appropriate fees have been paid. A Facility Improvement Letter is a prerequisite to acceptance of an annexation application and will determine if extension to District facilities will be needed.

Annexation of land to the District provides the potential for drinking water, recycled water, and/or wastewater services, but does not guarantee that these services will be available when requested.

If the annexation is not authorized to proceed, the proposal terminates and the applicant must wait one year to apply again.

El Dorado Irrigation District

AR 9032 Recording of Annexation

Approved: December 12, 2006

Before an annexation is recorded with the Local Agency Formation Commission (LAFCO), the impact fee must be paid. The impact fee is an incremental fee to establish a measure of equity between lands that supported the payment of voter-approved debt for the construction of water conveyance facilities. If the annexation is terminated, the impact fee is refunded, and no accrued interest is paid to the applicant.

BP 9040 Improvement and Assessment Districts

Adopted: November 11, 2006
Supersedes: Regulation No. 19

The District may establish Improvement Districts to benefit District operations, capital facility planning and funding or other implementation of District functions. The General Manager and/or the General Counsel and their designees may represent the Board in negotiations. It takes a majority vote of the Board to approve all improvement and assessment districts.

BP 9050 Payment for On-going Service

Adopted: November 11, 2006
Supersedes: Regulation Nos. 5, 15

The District's Board of Directors establishes charges and rates for water, recycled water, and wastewater services.

AR 9051 Billing

Approved: December 12, 2006

Billings will be sent periodically as established by the Board. All billings will be delivered to the United States Postal Service. The property owners are responsible for keeping the District advised of the correct address where bills are to be mailed. All accounts will remain in the property owner's name. Property owners may request that a bill be mailed in care of a tenant or renter, providing the District receives a completed Owner/Tenant Agreement. This agreement does not release the property owner from responsibility for any unpaid charges. Tenants or renters who contact the District regarding shut-offs or other matters concerning service will be referred to the property owner. However, if a tenant or renter wants to pay a bill to avoid an interruption in service, the District will accept payment and credit the account. Non-receipt of a bill does not relieve a customer of any payment obligation to the District.

AR 9051.1 Minimum bills

The District requires all metered accounts to be billed on a regular basis for water, recycled water, and wastewater services and any applicable surcharges from the date the meter is installed. This includes accounts with no usage.

If a meter fails to register correctly, cannot be read, or is not read during the billing cycle, the bill will be based on the District's estimate of the quantity of water delivered as an average of past water usage or will consist of the minimum base charges, taking into consideration seasonal water demand and any other factors that are material and significant in arriving at a fair charge.

Bills will be pro-rated for commencement or termination of service based on the number of days of service during the billing period.

Residential wastewater rate calculations are performed annually, based on water consumption that occurs during the two-month winter billing cycle. For new customers, the lesser of the flat rate or first full billing cycle will be used until a winter billing cycle is established.

AR 9051.2 Disputed bills

Any request for investigation of a disputed bill must be made in writing. The fact that a bill may be in dispute does not justify non-payment. The bill shall be paid in full when due, while investigation and settlement of the dispute proceeds. If the District determines there has been a calculation error, the District will recalculate the charges back one year and apply an adjustment to the customer's account.

AR 9051.3 Bill adjustments

Leak Adjustments

The District may credit accounts if excessive delivery is the result of water leakage that occurs from underground or unexposed pipes beyond the discharge flange of the water meter. Credits will not be given when there is visible leakage, such as leaks from faucets, toilets, sprinklers and hose bibs or for wasteful use or the customer's acts, omissions or negligence.

The District must receive the request for credit in writing within 60 days from the bill date of the bill that reflects the leakage. An adjustment will only be made after leaks have been repaired and it is reasonable to predict that the leak or loss will not occur again. The customer must submit repair receipts for verification that the leak has been repaired. Adjustments are for a single billing period and no more than one adjustment will be made to the same customer for the same premises in any five-year period.

When the District determines an adjustment is warranted, one-half (1/2) of the billed water costs in excess of the amount billed the previous year during the same billing period will be credited. If billing history has not been established for the same billing cycle for the previous year, the average of the water costs billed the previous six (6) billing cycles will be used. If the customer requesting the leak adjustment at the property where the leak occurred has not established usage history for six (6) billing cycles, the customer account is ineligible for an adjustment.

Residential Sewer Commodity Adjustments

The District may adjust accounts if excessive delivery is the result of water leakage that occurs from underground or unexposed pipes beyond the discharge flange of the water meter. The District will also take into consideration the filling of pools, and irrigation issues. Credits will not be given when there is visible leakage, such as leaks from faucets and toilets or for wasteful use or the customer's acts, omissions or negligence.

The District must receive a Sewer Commodity Adjustment Request form within 60 days from the bill date of the bill that reflects the leakage. An adjustment will only be made after leaks have been repaired and it is reasonable to predict that the leak or loss will not occur again. The customer must submit repair receipts for verification that the leak has been repaired. Adjustments will be made for the initial billing period and be effective through the next winter billing period. No more than one adjustment will be made to the same customer for the same premises in any three-year period.

In most instances where a leak has occurred, staff will use the previous year's winter average usage to calculate the adjustment. If a customer moves to another location, the lesser of the flat rate or first full billing cycle will be used until a winter billing cycle is established.

Commercial Sewer Commodity Adjustments

The District may adjust accounts if excessive delivery is the result of water leakage that occurs from underground or unexposed pipes beyond the discharge flange of the water meter. The District will also take into consideration any water usage that did not transfer into the District's wastewater system such as the filling of pools, and irrigation issues. Credits will not be given when there is visible leakage, such as leaks from faucets and toilets or for wasteful use or the customer's acts, omissions or negligence.

The District must receive a Sewer Commodity Adjustment Request form within 60 days from the bill date of the bill that reflects the leakage. An adjustment will only be made after leaks have been repaired and it is reasonable to predict that the leak or loss will not occur again. The customer must submit repair receipts for verification that the leak has been repaired. Adjustments are for a single billing period and will be calculated using last year's usage during the same billing period at the District's current rate. No more than one adjustment will be made to the same customer for the same premises in any one-year period.

AR 9051.4 Billing errors

If during an audit of customer accounts an error in a billing calculation or failure to bill for service is discovered, the District will calculate the amount of credit or additional charges to the customer's account, but will only calculate corrections back one year. All back billing issues will be monitored on a case-by-case basis. Customers will be notified in writing of changes to their accounts.

AR 9052 Payment

Approved: December 12, 2006

Bills are due and payable on mailing or presentation. Payment shall be made to the District’s business office or to a collector authorized by the District.

AR 9052.1 Late payment charge

The District will impose a late payment charge on a balance of $10.00 or greater if not paid five working days past the delinquent date.

AR 9052.2 Returned checks

A returned check fee shall be paid for each check tendered as a payment to the District that is returned unpaid after negotiation by the District.

AR 9052.3 Charges against deposits

The District may charge any unpaid bills against any deposit made by the party liable for the bill.

AR 9052.4 Payment arrangements

Payment arrangements will be extended to customers. If a customer defaults on a payment arrangement, the account must be brought current prior to extending the payment arrangement. If a customer defaults twice within six months, payment arrangements will not be extended until the account is in good standing for six months. If a customer defaults three times within a 12-month period, payment arrangements will not be extended until the account is in good standing for 12 months. Payment arrangements will not be extended to customers who have defaulted on payment arrangements more than five times in an 18-month period.

Customers who receive a 48-hour notice may be extended payment arrangements. If customers default on this arrangement, a District employee will disconnect service, and an appropriate fee will be charged for reconnection.

AR 9053 Active Delinquency

Approved: December 12, 2006
Revised: July 25, 2008
Revised: August 20, 2013

When a customer's account becomes delinquent, the District will send a Past Due Notice by mail and give the customer an additional 10 days to make payment, including the appropriate late fee, prior to the termination of service. If the District does not receive payment or the customer does not make satisfactory payment arrangements within the 10 days, the District will send a Disconnect Notice to the customer by mail and assess a disconnect notice fee. At least 24 hours prior to the termination of service, the District will attempt to contact by telephone an adult person residing at the premises of the customer to notify them of the pending termination of service. If, prior to the date set for termination of service, payment has not been received by the District or payment arrangements made by customer with District, a District employee will be dispatched to disconnect service. The customer will at that time be charged appropriate fees by the District to cover the field costs of the delinquency. Disconnection of service for delinquency in payment will not occur on a Saturday, Sunday, legal holiday, or when the District's business office is closed to the public.

Additionally, service will not be terminated under the following conditions: (a) during a pending investigation by the District of a customer dispute or complaint concerning the service at issue; (b) when the customer has been granted an extension of time by the District for the payment of the bill at issue; (c) on the certification of a licensed physician that to do so will be life threatening to the customer, and the customer is financially unable to pay for service within the normal payment period but willing to enter into a payment arrangement with the District for all charges the customer is unable to pay prior to delinquency; or (d) for an account serving a multi-unit residential structure or mobile home park, when a public health or building official certifies that termination would result in a significant threat to the health or safety of the residential occupants or the public.

AR 9054 Liens

Approved: December 12, 2006

The District will file liens in accordance with Section 25806 of the Water Code of the State of California against the properties of customers who fail to pay the District for service provided.

Once a customer's service has been disconnected or payment for a vacant property is delinquent, the customer will be sent a 30-day lien notification. The notification states that if payment is not received within 30 days, a lien may be placed against the property. Once the lien is recorded, the customer will receive notification of the lien and will be informed that if payment is not made by July 1 of the following year, the lien may be assessed to the property owner's property taxes.

AR 9055 Collections

Approved: December 12, 2006
Revised: June 15, 2014

Accounts that are closed and remain unpaid after a final bill has been issued are subject to collection notifications. Once a final account is 30 days delinquent, a notification letter is sent informing the customer of the District's collection process. If the account remains unpaid, 60- and 90-day delinquent notification letters will be sent. After the 90-day period, the District sends the account to a collection agency or transfers the delinquent balance to another account owned by the customer. Once the account is submitted to a collection agency, the District cannot collect payments for the account. The customer must contact the collection agency to make payment. Once a payment is received by the District from the collection agency, the account will be removed from collections.

BP 9060 Discontinuance of Service

Adopted: November 11, 2006
Supersedes: Regulation No. 4

The District strives to maintain service to customers to the maximum extent possible. However, under specified circumstances where District policies and/or procedures and regulations are violated, notification of potential disconnection will be provided and discontinuation of service may follow, pursuant to District administrative regulations.

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AR 9061 Disconnection or Discontinuation of Service

Approved: December 12, 2006
Revised: July 25, 2008

Failure to comply with applicable laws and the District's Board Policies and Administrative Regulations is sufficient cause to discontinue service until full compliance has been made.

The District reserves the right to disconnect any connection to its water, recycled water, and wastewater systems for any of the following reasons:

- The District determines a condition exists that is hazardous to the health and safety of the public.
- The customer fails to comply with any of the District's policies, administrative regulations, standards, or procedures.
- The service is being furnished without a proper application or under a false or fraudulent application.
- There is evidence of unlawful tampering or interference with District facilities by the customer.
- The customer fails, after notice from the District, to remove an obstruction that prevents EID employees from reading a meter.
- The District finds flagrant wasting of water, and the customer does not correct the problem within the specified period of time.
- The customer fails to pay bills or does not comply with bill payment plans.

Notification of potential disconnection for failure to pay bills or to comply with bill payment plans will be given in accordance with AR 9053. The timing and form of notification of potential disconnection for any other reason will be as deemed appropriate by the District depending upon such factors as, for example, the immediacy of the hazard to public health and safety.

AR 9061.1 Customer Notifications of Interruption of Service

Whenever possible, advance notice of interruption of service will be given to all customers who will be affected. This notice will be in the form of a door hanger, automated telephone message, web site message, notification through the media, or other means deemed appropriate by the District.

In the event of a natural disaster or other emergency, the District follows the procedures for public notification outlined in its Emergency Response Plan.

AR 9062 Cancellation of Service by the Customer

Approved: December 12, 2006

Service will be terminated on any business day (not a Saturday, Sunday, or legal holiday) at the customer's request provided that the request is received by the District no later than three business days prior to the date of termination. The customer will be responsible for bills related to all service furnished by the District prior to notification of the termination of service.

The District will not disconnect service for eviction purposes. Customers requesting a temporary termination of service will be informed that they may shut off water at their valve.

El Dorado Irrigation District

AR 9063 Reinstatement of Service

Approved: December 12, 2006
Revised: November 5, 2014

Customers requesting that their service be restored shall pay a field service call fee, any delinquent charges, and any applicable service charges before service is restored.

An additional standby charge may be assessed if a standby technician is requested to restore the service after hours. If service is restored after hours and payment has not been received, the service may subsequently be disconnected and additional charges may apply.

BP 9070 Additional Services

Adopted: November 11, 2006
Supersedes: Regulation No. 6

The District may provide additional services when beneficial to the District's business.

AR 9071 Additional Services

Approved: December 12, 2006

The District provides additional services to existing and potential customers, developers, and the general public when the District determines that the service is necessary, reasonable, and in alignment with the District's mission. The provision of supplemental services is subject to the District's Administrative Regulations and the payment of appropriate deposits, rates, fees, and charges.

AR 9072 Underground Service Alert (USA)

Approved: December 12, 2006

EID will respond to Underground Service Alert (USA) requests that are within the District's service area. In compliance with northern and central California's "Call Before You Dig" program, anyone other than the District who will be digging must notify USA two working days prior to the start of this work. USA will assign a ticket number to the requester and then contact the District to provide one of the following services:

- mark or stake the horizontal path of the District's underground facilities,
- provide information to the requester about the District's underground facilities, or
- advise the requester that the District does not have underground facilities in conflict with the specified digging.

The ticket issued by USA will be active for a 28-day period. The District will not perform a utility locate service if the ticket has expired. The requester is also required to notify USA, not the District, at any time that the field markings are no longer reasonably visible.

AR 9073 Temporary Water Use Program

Approved: December 12, 2006
Revised: December 20, 2012
Revised: August 20, 2013

All withdrawals of water from temporary connections must use District-provided hardware. The District provides temporary water use for authorized projects in three ways. Connections are authorized and established upon receipt of a signed agreement (permit) and payment of all appropriate deposits, fees, and charges.

- **Card lock bulk water stations**. The card lock water stations provide water to customers with prepaid cards that are available at the District office. A straight commodity charge is applied to water from these stations. There is a fee for the cash card and no recurring fees or charges. The cards are reusable and should be treated as cash.

- **Interim bulk water stations**. These bulk water stations require the user to have an approved permit and a key to allow access to the stations. A daily fee is charged to users to draw water from these stations. There is a fee to obtain a permit to set up an account and users are billed bi-monthly for the daily fee. There is also a charge for lost keys. There is no commodity charge for water drawn from interim bulk water stations. These stations will be replaced with card lock bulk water station at the District's earliest opportunity.

- **Fixed meter**. These meters are located at the closest approved fire hydrant or blow-off to a customer project. The customer must have an approved permit for the District to set the hardware at the requested location. The customer must provide a hardware deposit to the District and will pay a fee to set up the account, a daily rental fee, and commodity water charges.

Failure to adhere to these requirements will result in the assessment of a financial penalty against the applicant and/or a prohibition on current or future use of temporary water use hardware.

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El Dorado Irrigation District

BP 10000 RECREATION

BP 10010 Authority and Enforcement of Park Regulations

Adopted: November 13, 2006

BP 10010.1 Authority

The District is committed to the health and safety of visitors and District employees at all EID recreation facilities and to the protection of District recreation properties.

BP 10010.2 Enforcement

Board policies, rules, and regulations shall govern and apply to all visitors and District employees at EID recreation facilities.

EID recreation staff are authorized and empowered to enforce District rules and regulations for all District-owned, -operated, and -leased recreation facilities as well as state and local codes related to safe use of those facilities. Staff may issue citations for violations and eject or exclude any violator as specified in the Park Operations Manual.

El Dorado Irrigation District

AR 10011 Recreation

Approved: December 12, 2006
Revised: January 3, 2013

AR 10011.1 Recreation Access

Use of the Districts recreational lands is a privilege. Recreational use privileges may be revoked at any time for violations of Federal, State, County, or District laws, or rules; non-payment of fees; behavior that endangers people, animals, or facilities; or behavior that diminishes the recreational experience of others.

Trespassing- Visitors shall not trespass on recreation property or use recreation facilities during hours not posted for public use and/or when an entrance gate is closed and locked. Anyone entering during off-use hours may be charged with defrauding an innkeeper. All visitors must display proof of payment or a valid permit.

Selling or Soliciting - Visitors shall not engage in soliciting, selling, or peddling any good or services or distribute any circulars in the areas without prior approval of the District.

AR 10011.2 Fees

Fees are subject to change, based on staff evaluation of similar facilities and services.

AR 10011.3 Annual Permits

Annual permits for day use and boating are subject to availability and valid only during posted day use hours. Annual permit period is based on a calendar year. Permit stickers must be attached to the driver-side mirror or exterior windshield, on the vehicles for which they were purchased, to be valid.

AR 10011.4 Vehicle Use

Vehicle Speed Limit - Visitors shall not operate any vehicle in excess of the posted speed limit, which is a maximum of 15 mph on recreation roads and 5 mph in campgrounds. No visitor shall drive a vehicle within any EID recreation area other than in a reasonable and prudent manner and with due regard for traffic and road conditions. In no event shall a vehicle be driven at a speed that endangers the safety of persons, property, or wildlife.

Drivers' Licenses - Visitors shall not operate any type of motorized vehicle on park properties without possession of a valid driver's license for the vehicle.

Roadway Rules - Vehicles shall be operated only on designated roadways and parking areas. Motor vehicles, bicyclists, and other recreational users shall share the roadways within any EID recreation area.

Vehicle Washing and Repair - Persons are prohibited from washing, repairing, and cleaning any vehicles within recreation boundaries.

Vehicle Parking - Visitors shall not illegally park a vehicle within EID recreation boundaries without authorization by the District. The District reserves the right to tow—at the expense of the vehicle's owner—any illegally parked vehicle and vehicles that block gates in the park or campgrounds.

Motorized wheelchairs and mobility devices – Persons with mobility disabilities may use motorized wheelchairs and mobility devices in defined pedestrian areas and developed camping and recreational facilities, and on any trails designated and signed as disabled accessible. Persons utilizing these devices are encouraged to consult with staff in advance regarding safety and accessibility issues.

Electric Vehicle/Golf Cart Use - Electric vehicles and golf carts within park boundaries shall strictly obey all State and local vehicle operation statutes, codes, and regulations. Such vehicles shall operate only on designated roadways and obey all of the rules listed in these administrative regulations.

Motorized Scooters - Motorized scooters are not allowed.

AR 10011.5 Boat Use

Boats are allowed during day use hours. Boat operators shall comply with California boating laws, the *ABC's of California Boating Laws* and all posted rules. Use of boat docks is restricted to loading or unloading only. Loitering, fishing, diving, and swimming on or around boats docks is prohibited.

Specific Jenkinson Lake Boat Restrictions - Personal watercraft (Jet Skis, sea doos, etc.) are not permitted on Jenkinson Lake.. The maximum number of boats, excluding the mooring facility, allowed on Jenkinson Lake is 101. Maximum speed limit is 35 mph. A counter-clockwise boating traffic pattern is required.

Islands are off limits. Unloading and exchanging of occupants on the islands in Jenkinson Lake are prohibited.

Specific Caples Lake Boat Restrictions – Maximum speed 15 mph. Alpine County restricts boating speed limit to 15 mph on all lakes within Alpine County.

Specific Forebay Reservoir Restrictions – Boats of any kind are not permitted on Forebay Reservoir.

Unsafe Boating Activities - Any malicious or unsafe boating activities, failure to observe posted safety rules, or California boating laws may result in a loss of boating privileges and forfeiture of all paid fees and deposits.

Noise Limits on Boats - Boat motors shall meet the noise requirements stipulated in the *ABC's of California Boating Law*. General noise from boats, including amplified sound, shall not diminish the recreational experience of others.

AR 10011.6 Mooring Facilities

The district operates a seasonal mooring facility at Jenkinson Lake. Occupants must sign a rental contract and provide proof of current insurance. Subleasing of slips is prohibited.

AR 10011.7 Pets

Pets must be on a leash and under an owner's control at all times. Pet owners are required to immediately clean up after their pets. Unleashed, vicious or noisy pets subject the owners to revocation of recreational privileges.

Specific Jenkinson Lake Restrictions – By order of the State of California, pets are not permitted in the waters of Jenkinson Lake. Violations will result in revocation of the owners' recreational privileges.

AR 10011.8 Day Use

Day-Use Vehicle Fees – All vehicles entering the recreation areas are subject to day use fees. Proof of payment must be displayed in vehicle windshield during entire visit.

Equipment Rentals - The District may rent game equipment including but not limited to horseshoes and volleyballs/nets.

Use of Sound Amplifying Equipment - Sound amplifying equipment is not allowed in day-use areas.

AR 10011.9 Campgrounds

Campsites- Campsites with a barbecue, fire ring, and table are available to the public. Available campsites include Americans With Disabilities Act accessible campsites.. Campsites not reserved in advance are available on a first-come, first-served basis. Camping registration tags must be displayed in the window of the vehicle. Campsite fee includes campsite and one vehicle only. Extra vehicles, boats, and pets are subject to additional fees.

Campsite Appearance and Cleanliness - Campsite cleanliness is required for aesthetic, sanitary, and safety purposes. Campsites must be free of debris.

Campsite Occupancy - a maximum occupancy is 8 people per campsite unless otherwise specified.

Minors at Campsites Overnight - Minors under 18 years of age shall not be allowed to reserve or register for a campsite. Minors under 18 years of age must be accompanied by their legal guardian while camping overnight.

Maximum Stay at a Campsite - The maximum stay at a campsite shall not exceed 14 consecutive nights..

Campsite "Quiet Time" - A period of "quiet time" is observed in campsites from the hours of 10:00 p.m. to 6:00 a.m. During quiet time, noise, including that from generators, radios, music and sound amplifying equipment, and other disturbing activities are not allowed.

Jenkinson Entry and Exit Gates - -Entry gates will be locked at various times depending on the season. All outside emergency personnel will have access to gate locks. Campers may exit, but reentry will be limited.

Campsite Day Guests - All guests of campers must vacate the campgrounds no later than posted day use hours. Guests may park at campsites, where space is available, but must not block any roadway or create overcrowding conditions that, in the opinion of park staff, cause a disturbance or other problems. Registered campers are responsible for the actions and behavior of their guests while in the park.

Fires at Campsites - Fires are permitted only in the provided fire rings and cannot reach a height that is dangerous. No garbage is to be burned in the fire rings and the wood must be no longer than the diameter of the fire ring.

AR 10011.10 Camp Host Program

Camp Host Positions - The District may work with volunteers during peak-use times each year to assist staff in customer service functions and maintenance of facilities.

AR 10011.11 Filming

Permits - Filming and photography are permitted subject to an application procedure, proof of insurance, and payment of applicable fees.

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AR 10016 Protection of District Property and Wildlife

Approved: December 12, 2006

District Property - Visitors shall not damage or deface any recreation property owned or leased by the District.

Vegetation - Visitors to District recreation facilities shall not dig up, remove, or damage any tree, plant, shrub, or other vegetation.

Trash Disposal - Visitors shall not place or leave any glass, ashes, wastepaper, bottles, cans, or other trash or rubbish at District recreation facilities except in receptacles provided for that purpose. Trash or rubbish shall not be brought onto District recreation facilities for disposal.

Fire Hazards - Visitors shall not create any fire hazards at District recreation facilities; for example, logs that are larger than the diameter of provided fire rings shall not be burned.

Birds and Mammals - Visitors shall not abuse, injure, or kill any birds or mammals at District recreation facilities or interfere with their habitat. The California Department of Fish and Game may be notified to address these kinds of problems.

AR 10017 Recreation and Forest Lands Adjoining Caples and Silver Lakes

Approved: December 12, 2006

AR 10017.1 Camping

Camping (defined as the temporary use of District lands for the purpose of overnight occupancy without a permanently fixed structure) is prohibited.

AR 10017.2 Vehicle use

- Possessing and/or using a vehicle off of developed forest roads is prohibited.
- Vehicles use on trails is prohibited.

AR 10017.3 Exceptions

- Any federal, state, or local officer or member of an organized rescue or fire fighting force in the performance of an official duty is not restricted by Administrative Regulation 10017.2, nor are persons with a permit specifically authorizing such vehicle use.

AR 10018 District Recreation Staff

Approved: December 12, 2006

District park rangers will adhere to the guidelines outlined in EID's *Park Manual*.

AR 10019 Water Quality

Approved: December 12, 2006

Directive – All District staff will treat water quality in EID owned lakes seriously and will immediately report any activity—including but not limited to gasoline or oil spills in the lake and trash at campsites and along shorelines—that could impact the quality of the water

Dogs - Dogs and other domestic animals are not permitted in Jenkinson Lake.

Diapers - Babies in diapers are not permitted in Jenkinson Lake

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El Dorado Irrigation District

BP 11000 FEES AND CHARGES

BP 11010 Fees and Charges

Adopted: November 27, 2006
Supersedes: Resolution No. 04-120
Portions of Regulation Nos. - 4, 5, 6, 7, 8, 10, 13, 14, 18, 19, 22, 23

The District shall strive to recoup all costs of providing services through rates, fees, charges, fines, and deposits. The Board will adopt changes in rates pursuant to Article XIII D Section 6 of the California Constitution (Proposition 218) and changes to Facility Capacity Charges (FCCs).

In relation to FCCs, the District is committed to provide capacity for a reasonable rate of growth within its service area. FCCs will be charged to applicants for new service to cover the costs of services that include but are not limited to water filtration, sewage treatment, recycled water, system storage, and transmission and distributions systems. Existing customers will not share in these costs.

The General Manager is authorized to approve changes in fees, charges, fines, and deposits as warranted by the costs of providing services.

El Dorado Irrigation District

AR 11010 Adoption of Rates, Fees, and Charges

Approved: October 26, 2011
Revised: October 4, 2013

The District will establish all user charges and fees at the full cost of providing the service, including direct, indirect, overhead, and capital recovery costs.

The Board of Directors will review and adopt rates and Facility Capacity Charges (FCCs). The General Manager or her/his designee will periodically review and report to the Board on rates and FCCs and will review and approve all other District fees, charges, penalties, and deposits.

A copy of *Attachment A*, which sets forth the *Fees/Deposits/Penalties* is available upon request from the Customer Services Division.

AR 11020 Deposits - General

Approved: December 12, 2006

In general, District-required deposits are estimates only. Project-related deposits include averages of overhead, materials, and labor. Deposits for equipment loans are based on the average time and materials spent to inspect, repair, recalibrate, and clean the loaned equipment.

If a deposit falls short of actual costs, the District will bill the customer for the difference. If the deposit exceeds actual costs, the District will refund the difference to the customer.

AR 11030 Bond Segregation / Re-apportionment Deposit

Approved: December 12, 2006

The District requires a deposit from the property owner to cover costs associated with reapportionment of a bond assessment. District engineering, legal, and administration costs will be charged against the deposit.

AR 11040 Land Annexation Fee

Approved: December 12, 2006

This fee reimburses the District for one year's taxes based on a 10-year average tax rate per $100 assessed land value paid for tax Class 207 voter approved debt. The fee will be updated annually and applied to the current assessed land value of the property.

AR 11050 Land-based Financing Fee

Approved: December 12, 2006

The District will consider developer requests or petitions to initiate the formation of a special assessment or community facilities district, which would be considered only after receiving the required form(s) and a non-refundable deposit. The deposit will be 1% of the proposed principal amount of the bonds to be issued. It will be used to cover District labor and other costs such as independent financial advisory, appraisal, and market absorption analysis services that are associated with proceedings and are not contingent on bond issuance.

The deposit is reimbursable from the proceeds of bonds upon issuance. In the event that actual costs exceed deposited fees, the applicant will deposit additional funds to advance the process. If the District does not receive additional funds within the requested time period, the proceedings will be suspended.

AR 11060 Customer Maintenance Call Fee

Approved: December 12, 2006

If a District employee or work crew is dispatched in response to a customer call to fix an operational problem or leak, and the problem is determined to be related to customer-owned equipment, the District will charge a fee for the maintenance call based on time and materials, including overhead. To avoid unnecessary charges, District personnel will ask customers to identify the problem and alert them to their responsibility for customer-owned equipment.

AR 11070 Facility Improvement Letter Fee

Approved: December 12, 2006

The District will charge a fee for completing a Facility Improvement Letter. This fee will reimburse District costs to review requests for future service and analyze the capacity of the District's systems and available supply.

AR 11080 Delinquent Account Field Call Fee

Approved: December 12, 2006

The District will charge for a field call to deliver a delinquent account notification or turn off service on a delinquent account. The fee will cover the cost of dispatching personnel to complete the action. EID will make a reasonable effort to contact customers prior to discontinuance of service for non-payment.

AR 11090 Temporary Water Use Charges

Approved: December 12, 2006
Revised: December 18, 2012

- **Charges for use of temporary water use hardware –** Customers requesting temporary water use will be charged to cover the District's costs of providing service. These charges are defined on page three of the Temporary Water Use permit.

- **Deposit for temporary water use hardware –** The District will require a deposit to cover labor and materials for any repairs required on District hardware.

- **Fine for tampering with temporary water use hardware –** Anyone who uses temporary water use hardware to take unauthorized water or alters the District hardware, including breaking the safety wire on the adjusting vane and changing the configuration of the meter assembly, will be fined.

El Dorado Irrigation District

AR 11100 Private Fire Service Charges

Approved: December 12, 2006

A bi-monthly fee for private fire service will be charged based on the size of the service. In addition, water consumption resulting from leakage and testing will be charged at double the rate for general use. Water used for any purpose other than testing is a violation and will be charged at five times the rate for general use. There will be no charge for water used to extinguish accidental fires.

AR 11110 Commercial and Industrial Waste Discharge Permit Fee

Approved: December 12, 2006

The District will charge a fee for a Commercial and Industrial Wastewater Discharge Permit to recover the cost of implementing the Industrial Pretreatment Program.

AR 11120 Inspection Fees

Approved: December 12, 2006

Recycled water on-site facility inspection fee – This fee **c**overs the cost of labor and materials for project set-up and inspections.

Residential wastewater inspection fee – This fee **c**overs labor and materials for the inspection of each unit of service. This fee is payable at the time of application.

AR 11130 Meter Fees

Approved: December 12, 2006

Meter installation deposit/fee – The District will charge a flat fee for installation of ¾-inch and 1-inch meters if an existing outlet is provided. Payment for all other meter installations will be based on a written job estimate. A deposit must be paid prior to commencement of work on these installations. The deposit will be used for labor, materials, equipment, and overhead and may also include the District's costs in obtaining a Department of Transportation permit, a complete road crossing, and/or a bore for the meter installation.

Meter tampering fee – When meter tampering is suspected, the District will take steps to assure that the tampering ceases and that the equipment is restored to proper working condition. Tampering is interference with a pin-lock or pad-lock or reconnection of a pulled meter. If meter registers are broken, if meters are removed, or if curb-stops are altered, the District will make the necessary repairs to restore service. The property owner may be billed for time and materials.

Meter testing and repair fee – Typically, the District receives requests to test meters when high consumption is registered. If the meter is determined to be defective, the meter is repaired or replaced at no charge to the customer. If the meter meets acceptable flow standards, the customer may be billed for the cost associated with the meter test.

AR 11140 Ditch Service Fees

Approved: December 12, 2006

Ditch service call fee - The District will charge a fee to ditch customers who request an increase or decrease in their flow during the irrigation season. This fee will cover the cost of labor to make the necessary weir adjustments.

Tampering with ditch flow fee - Customers or other individuals who receive unauthorized water from ditches will be charged a tampering fee.

El Dorado Irrigation District

AR 11150 Account Set-Up Fee

Approved: December 12, 2006

The District will charge an account set-up fee when a new customer is set up on an established meter. This fee will cover administrative costs and the labor to perform a field meter read (trip charge).

AR 11160 Bad Check Fee

Approved: December 12, 2006

The District will charge a fee to cover costs associated with processing returned checks and will assess a graduated penalty per occurrence within a 12-month period.

AR 11170 Late Payment Fee

Approved: December 12, 2006

The District will assess a late payment charge on past due accounts. This fee will be applied to a past due account for any unpaid balance greater than $10.00.

AR 11180 Lien Release Fee

Approved: December 12, 2006
Revised: August 20, 2013

The District will charge customers a fee to release a lien on a parcel. The fee will be equal to the administrative cost to process and deliver the lien release. It will include a fee set by the El Dorado County Recorder's Office, which will be paid to the El Dorado County Recorder's Office.

El Dorado Irrigation District

AR 11190 Overhead Charges

Approved: December 12, 2006

- **Overhead for development project labor –** Project-related work performed by the District's development engineering and construction inspection staff will be fully cost allocated. An overhead amount will be charged in addition to full direct labor costs and benefits. This charge will be recalculated annually by the District.

- **Overhead for District materials –** The most current District overhead rate will be applied to all materials charges. This charge is to be recalculated annually by the District.

AR 11200 Quitclaim Easement Charges

Approved: December 12, 2006

EID costs associated with quitclaim easements will be fully recovered by the District through time and materials charges, plus overhead.

AR 11210 Miscellaneous Fees

Approved: December 12, 2006

These fees include but are not limited to general administrative costs; labor to retrieve and duplicate District records; reproduction of reports, manuals, maps, and other documents; and reproduction of tapes, CDs, and other electronic or digital media. Miscellaneous Fees will be recalculated on an annual basis.

AR 11220 Special Rate Categories

Approved: December 12, 2006
Withdrawn: August 20, 2013

AR 11230 Penalties and Fines

Approved: December 12, 2006

Penalties and fines paid to the District will be designated for business purposes.

Determination of penalties and fines – When determining the level of penalties and fines, the District will consider all relevant facts and circumstances and may consult with regulatory agencies such as the Department of Health Services and Central Valley Regional Water Quality Control Board, as appropriate. The District reserves the right to impose fines and penalties in excess of those above, including possible termination of service, upon a finding of gross negligence or willful misconduct.

Non-payment of penalties and fines – When penalties and fines are not paid within 30 days or corrective action is not taken within the prescribed time-frames, the District may temporarily terminate service. Service will be restored when penalties and fines are paid and/or corrections are made.

El Dorado Irrigation District

AR 11240 Attachment A

Approved: December 12, 2006

Schedule of 2007
FEES / CHARGES / PENALTIES / DEPOSITS

This document will consist of one or more charts containing the fees, deposits and other charges that are proposed for 2007. It will be developed each year as part of the budget process and then included as an attachment to BP11000.

Until adoption of the 2007 budget, Section 4.0 Miscellaneous Fees / Deposits / Penalties of EID's current rules and regulations binder and Resolution No. 04-120 will remain in effect.

El Dorado Irrigation District

BP 12000 BY-LAWS OF THE BOARD

BP 12010 Purpose

Adopted: July 19, 2004
Updated: December 11, 2006
Supersedes:

The purpose of these By-laws is to provide Board directed rules for the conduct of the Board members and meetings of the Board of Directors of the District.

BP 12020 Duties and Powers

Adopted: July 19, 2004
Updated: December 11, 2006
Supersedes:

The Board's role is to provide oversight and direct the implementation of the District's mission. The Board will do so by deciding and monitoring policy and fiscal matters. Board members will use the following methods to address their concerns – advise the General Manager, work through Board committees, present specific recommendations to the whole Board for action. Board members shall be guided by a desire to achieve and support the District's mission in a constructive manner.

BP 12030 Public Statements and Individual Board Member Actions

Adopted: December 11, 2006
Supersedes:

All public statements in the name of the Board shall be issued by the Board President or, if appropriate, by another Board member, the General Manager, or the General Counsel, but only at the direction of the Board President unless otherwise authorized by the Board without the Board President's direction. No individual Board member shall make public statements or express an opinion or position, orally or in writing, in such a way that it allows an audience to conclude that such opinion or position is held by the Board, unless the Board has acted as a unit to adopt the position or opinion.

The Board is the unit of authority. Apart from the normal function as part of the unit, a Board member has no individual authority. Individually, a Board member may not commit the District or the Board to any policy, act, or expenditure. No individual member of the Board has any administrative responsibility or authority with respect to the District or any of its programs, nor as an individual to command the services of any employee of the District.

Non-compliance with this policy shall be grounds for censure by the Board.

BP 12040 Code of Ethics

Adopted: December 11, 2006
Supersedes:

In all actions as a Board member, the first commitment is to the betterment of the District and the community. In the performance of these duties, Board members shall be aware of, and comply with the Constitutions of the State and Nation, the California Water Code, other laws pertaining to the services provided by the District, and the established policies of the District. As elected representatives Board members can neither relinquish nor delegate their responsibilities to any other individual or group.

In addition to giving consideration to the wants and needs of their individual constituency, each Board member shall consider the District as a whole.

Board members shall present concerns and concepts through the process of Board debate and, if in the minority, the Board member shall respect the divergent opinions presented.

Board members shall devote sufficient time, thought, and study to proposed actions to make informed decisions.

BP 12050 Accountability, Review, and Evaluation

Adopted: December 11, 2006
Supersedes:

In exercising their oversight, and in order to maintain accountability for the performance of their duties and responsibilities, the Board shall provide for ongoing review and evaluation of current programs, services, and activities of the District. The Board recognizes that this includes regular reports to the public on qualitative and quantitative assessments.

The General Manager shall establish and conduct regular assessments of the services and activities of the District. This may include oral or written reports presented at meetings of the Board.

BP 12060 Compensation

Adopted: December 11, 2006
Supersedes:

The Board's compensation is defined by Section 21166 of the California Water Code and it is fixed by the adoption of an ordinance in accordance with Section 21166.

BP 12065 Board Expense and Reimbursement

Adopted: August 15, 2007
Supersedes: Policy Statement No. 11

The reimbursement of Board expenses shall comply with Sections 53232.2 and 53232.3 of the California Government Code or their successors. Eligibility and procedures shall be defined by the terms of a resolution adopted in accordance with those statutes.

AR 12065 Board Expense and Reimbursement

Approved: August 15, 2007
Revised: July 14, 2014

Purpose

This document sets forth the policy of the El Dorado Irrigation District concerning Directors' expense payments and reimbursements.

Intent

The District encourages Directors to take advantage of opportunities to be informed concerning matters of interest to the District, and to inform others of the activities and interests of the District. The District encourages Directors to attend conferences, seminars and other meetings that require their participation or provide the foregoing opportunities. Directors are entitled to reimbursement for the amount of reasonable and prudent expenditures incurred by Directors in the performance of their duties as Directors. Directors may not profit by or experience a financial loss in the course of conducting District business. The District does not pay or reimburse for any expenses incurred by spouses and other family members of Directors. No expense is payable or reimbursable unless it is consistent with the Intent of this policy.

Procedures

A. The District's annual budget will set an appropriate level of funding for payment and reimbursement of Directors' expenses. The General Manager or his or her designee will be responsible for ensuring that the budgeted amount is not exceeded without approval of the Board.

B. Direct expenses for registration fees, travel, hotels and meals will be paid by the District in accordance with the guidelines and per diem rates for an accountable expense reimbursement plan as defined in the United States Internal Revenue Service's Publication 535, section 13 and Publication 1542 ("Accountable Plan"). A copy of the Accountable Plan documents can be obtained from the District Director of Finance and Management Services.

C. The following expenses are permissible business-related expenditures:

1. Personal Vehicle Expenses. A director will be reimbursed for travel miles at the rate authorized under the Accountable Plan for all necessary travel. A Director will be considered to have accounted for personal vehicle expenses by indicating the miles traveled, the business purpose of the travel and the dates of travel.

2. Hotel Expenses. The District will pay or reimburse a Director's hotel expenses necessarily incurred. A Director may either (a) receive reimbursement for the per diem hotel rate provided in IRS Publication 1542 for the locality in which the hotel is located; or (b) use the Director's personal funds to pay for hotel charges, in which case the District will reimburse the Director for actual charges up to three times the applicable per diem hotel rate provided in the Accountable Plan; or (c) request that the District pay for hotel charges, in which case the District will pay for actual charges up to three times the per diem hotel rate provided in the Accountable Plan, and the Director will be responsible for any excess hotel charges.

3. Meal/Incidental Allowance. A Director attending a conference, seminar, or meeting outside of El Dorado County will be given a meal/incidental allowance for costs necessarily incurred. A Director may either (a) receive reimbursement at the per diem meal/incidental rate provided for in Publication 1542 for the locality in which the conference, seminar, or meeting is held; or (b) use the Director's personal funds to pay for meals and incidentals, in which case the district will reimburse the Director for actual charges up to three times the per diem meal/incidental rate provided for in the Accountable Plan. If a Director is not traveling for a full day, defined as from 12:01 a.m. to 12:00 midnight, the per diem meal/incidental allowance will be prorated according to the actual hours of travel. If a Director who is not traveling for a full day uses his or her personal funds to pay for meals and incidentals, the District will reimburse the Director for actual charges incurred for meals and incidentals while traveling, up to three times the prorated per diem meal/incidental rate provided for in the Accountable Plan. Tips for meals should not be reported separately because they are included in the allocated amount of the meal per diem. Actual expenses for alcoholic beverages shall not be reimbursed. Incidentals include but are not limited to tips for taxi drivers, baggage porters, bellhops and hotel maids.

4. Common Carrier Travel. When personal vehicle use for District business is impractical due to time and/or distance, a Director may use regularly-scheduled commercial carriers for travel. A Director traveling by plane, train, rental car, bus, or taxi will travel by the least-expensive fare actually available for the date and time of the travel. Notwithstanding the foregoing, a Director may utilize charter transportation if such transportation is included as part of an integrated package price for travel, including but not limited to Water Education tours and the Sacramento Chamber of Commerce "Cap to Cap" program. Airport or train parking are reimbursable expenses; however, long-term parking shall be used at airports and train stations for travel exceeding 24 hours and reimbursement shall be limited to the long-term parking rate in such instances. A Director may use personal funds to purchase a common-

carrier fare, in which case the District will reimburse the Director for the actual amount of the fare.

5. Telephone/Computer/Fax/Cellular/Internet Services. A Director will be reimbursed for actual telephone (including one cellular phone), computer (including one personal computer and software applications required to effectively and securely perform District business), fax and internet service provider expenses incurred on District business. Each Director will be offered a District-issued and paid cellular phone, but is not obliged to accept it.

6. Meeting/Conference/Seminar Registration and Similar Expenses. The District will pay or reimburse a Director's actual registration charges or similar expenses incurred to gain admission to a meeting, conference, seminar or similar activity. Such payment or reimbursement, as well as hotel and meal/incidental per diem payments or reimbursements, shall be limited to a maximum of three days per event with the following exception: ancillary programs that are not part of the main conference, such as workshops held immediately before or after the main conference.

7. Meals Within El Dorado County. The District will pay or reimburse a Director for meals within El Dorado County. If a Director seeks reimbursement for a meal under this provision, the Director may either (a) receive reimbursement at one-third of the per diem meal/incidental rate provided in Publication 1542 for El Dorado County; or (b) use the Director's personal funds to pay for the meal, in which case the District will reimburse the Director for actual charges up to the per diem meal/incidental rate provided for in the Accountable Plan. Tips for meals should not be reported separately because they are included in the allocated amount of the meal per diem. Actual expenses for alcoholic beverages shall not be reimbursed.

8. Meals of Other Persons. This Policy recognizes that at times it is appropriate for a Director to be reimbursed for the meal expenses of others who are meeting with a Director during the meal. If a Director seeks reimbursement for the meals of other persons under this provision, the Director may either (a) receive reimbursement for each other person at one-third of the per diem meal/incidental rate provided for in Publication 1542 for the locality in which the meeting is held; or (b) use the Director's personal funds to pay for meals and incidentals, in which case the District will reimburse the Director for actual charges for each other person up to the per diem meal/incidental rate provided for in the Accountable Plan. Tips for meals should not be reported separately because they are included in the allocated amount of the meal per diem. Actual expenses for alcoholic beverages shall not be reimbursed.

9. Membership Fees or Dues. The District will pay or reimburse a Director's actual fees or dues for membership in organizations if the Board President or Board of Directors finds that the membership will serve a District business purpose.

D. In order to be reimbursed for any expense authorized under this Policy, a Director must fill out a District-provided expense report. The report form is designed to ensure that Directors' expense reimbursements comply with the requirements of the Accountable Plan. Accordingly, the General Manager will review each report form, and sign indicating compliance with the requirements of this Policy. In all cases where a Director seeks reimbursement for expenses incurred while attending a conference, seminar or other meeting, the Director must attach a copy of the conference registration form to his or her expense reimbursement report as a condition of receiving reimbursement for an appropriately-incurred business expense. Originals or copies of additional documentation shall be required as follows as a condition of receiving reimbursement under this Policy:

1. Personal Vehicle Expenses. The Director will not be required to attach any additional documentation to the expense report.

2. Hotel Expenses. If a Director is entitled to be reimbursed for hotel charges, the Director may claim the per diem hotel rate allowed in Publication 1542 for the locality in which the hotel is located. The Director will report on the District expense report as directed without attaching any additional documentation except as specified in this Policy. If a Director wishes to use personal funds to pay hotel charges and be reimbursed for the actual charges to the extent allowed by this Policy, the Director must attach to the expense report an itemized bill issued by the hotel and the credit card receipt or other proof of the Director's payment.

3. Meal/Incidental Allowance. If a Director is entitled to be reimbursed for a meal/incidental allowance, the Director may claim the per diem amount allowed in the Publication 1542 for the locality in which the expense was incurred. The Director will report on the District expense report as directed without attaching any additional documentation. If a Director wishes to use personal funds to pay for meals and claim reimbursement for the actual meal charges to the extent allowed by this Policy, the Director must attach to the expense report an itemized bill or receipt issued by the restaurant and the credit card receipt or other proof of the Director's payment. If a Director wishes to use personal funds to pay for incidental expenses and claim reimbursement for actual incidental expenses to the extent allowed by this Policy, the Director must attach to the expense report a bill or receipt issued by the source of each incidental expense, subject to paragraph 11, below.

4. Common Carrier Travel. A Director must attach to his or her expense report the fare, coupon, or itemized bill from a travel agency, airline or

railroad showing the actual amount expended for such travel. A Director must attach to his or her expense report receipts for any airport or train parking authorized by this Policy, showing the actual amount expended for such parking.

5. Telephone/Computer/Fax/Cellular/Internet Service. A Director must attach to his or her expense report an itemized bill or receipt from each service provider.

6. Meeting/Conference/Seminar Registration and Similar Expenses. A Director must attach to his or her expense report a completed conference registration form and the credit card receipt or other proof of the Director's payment.

7. Meals Within El Dorado County. If a Director is entitled to be reimbursed for a meal within El Dorado County, the Director may claim one-third of the per diem amount allowed in Publication 1542 for El Dorado County. The Director will report on the District expense report as directed without attaching any additional documentation. If a Director wishes to use personal funds to pay for meals and claim reimbursement for the actual meal charges to the extent allowed by this Policy, the director must attach to the expense report an itemized bill or receipt issued by the restaurant and the credit card receipt or other proof of the Director's payment.

8. Meals of Other Persons. If a Director is entitled to be reimbursed for a meal of one or more other persons, the Director may claim, per person, one-third of the per diem amount allowed in Publication 1542 for the locality in which the expense is incurred. The Director will report on the District expense report as directed without attaching any additional documentation, except that the Director shall identify the other person(s) and the business purpose of the meeting. If a Director wishes to use personal funds to pay for meals and claim reimbursement for the actual meal charges to the extent allowed by this Policy, the Director must attach to the expense report an itemized bill or receipt issued by the restaurant and the credit card receipt or other proof of the Director's payment. In addition, the Director shall identify the other person(s) and the business purpose of the meeting.

9. Membership Fees or Dues. A Director must attach to his or her expense report a bill or receipt from the organization and the credit card receipt or other proof of the Director's payment.

10. In all cases where the District pre-pays a Director's expense for hotel expense, conference registration, common carrier travel, or membership fees or dues as authorized by this Policy, the Director will remain responsible for filing an expense report and attaching any appropriate

documentation obtained by the Director in conformance with paragraphs 1 through 9 above.

11. For incidental expenses where no receipt is available, e.g. tips, toll charges, parking meter costs, etc., a reimbursement request for such expenses may be claimed on the District approved expense report. Certification that such expenses were actually incurred by the Director will be made when signing the District approved expense report form.

E. In accordance with the Accountable Plan, a Director must substantiate all expenses on an expense report with the appropriate documentation attached within 60 days of incurring or paying the expense. Any mis- or late-reported expenses incurred by a Director will not meet the requirements of the Accountable Plan, and will be considered income to the affected Director. To comply with the applicable tax laws, the District will be required to issue to a Director a Form W-2 reporting all mis-or late-reported expenses as income. Expenses turned in late, after 60 days, will be subject to Board approval.

F. District will prepare a list of the amount and purpose of each expense reimbursement paid by the District to each Director. This information will be included in the agenda materials for each regular monthly Board of Director’s meeting each month.

El Dorado Irrigation District

BP 12070 Members

Adopted: July 19, 2004
Updated: December 11, 2006
Supersedes:

The Board shall consist of five members, each for a four-year term. The five members are elected by the voters in their Division according to California state law.

Vacancies shall be filled according to California state law.

BP 12080 Meeting Procedures

Adopted: July 19, 2004
Updated: December 11, 2006
Revised: July 14, 2014

A. Except in unusual circumstances, the Board shall, in accordance with *Robert's Rules of Order Newly Revised,* limit itself to the following motions in ascending order of precedence:

1A. Main motions (same order of precedence as 1B.)
a. Original main motions
b. Incidental main motions

1B. Motions that bring a question again before the assembly (other than motion to reconsider) (not in order of precedence)
a. Take from the table
b. Rescind
c. Discharge

2. Subsidiary motions (in ascending order of precedence)
a. Postpone indefinitely
b. Amend
c. Refer to committee
d. Postpone to a certain time
e. Limit or extend limits of debate
f. Previous question
g. Lay on the table

3. Privileged motions (in ascending order of precedence)
a. Call for the orders of the day
b. Raise a question of privilege
c. Recess
d. Adjourn
e. Fix the time to which adjourn

4. Incidental motions (not in order of precedence)
a. Point of order
b. Appeal
c. Suspend the rules

d. Objection to the consideration of the question
e. Division of a question
f. Consideration by paragraph or Seriatim
g. Request to be excused from a duty
h. Requests and inquiry
    i. Parliamentary inquiry
    ii. Point of information
    iii. Request for permission to withdraw or modify a motion
    iv. Request to read papers

5. Motion to reconsider (subject to Section H. below)

B. Except as prohibited by the Brown Act, the Board, by motion passing with minimum of four affirmative votes, may suspend or vary the application of these meeting procedures with regard to any proceedings, or to any particular problem before the Board.

C. Meetings shall be conducted within the guidelines of any regularly adopted agenda.

D. Three voting members of the Board shall constitute a quorum for the transaction of business. The only action which may be taken at a meeting attended by less than a quorum is to adjourn the meeting.

E. At each regular meeting of the Board, the minutes of the prior meeting shall be presented for approval.

F. Members of the Board who are unable to attend a meeting shall, if possible, so inform the Clerk to the Board before said meeting, in order to determine a quorum in advance.

G. Except as otherwise provided by law or District procedures, to constitute "action taken" on any item, the motion must receive at least three affirmative or negative votes.

H. A motion for previous question may be passed by three affirmative votes.

I. No matter upon which "action is taken" may be reagendized or reconsidered for a period of six (6) months except by the following process: The Board of Directors may, upon any member's agendizing the matter, vote to reconsider any action previously taken, and if a majority of the Board votes to reconsider, the matter shall be placed on the agenda for reconsideration at a subsequent meeting.

J. The rules contained in the current edition of *Robert's Rules of Order Newly Revised* shall govern the District in all cases to which they are applicable and in which they are not inconsistent with applicable law, these By-Laws, or any District policy statement.

BP 12080.1 Voting

Voting on resolutions and motions shall be recorded by Division and declared passed or failed by the Clerk to the Board.

AR 12081 Meetings

Approved: December 12, 2006
Revised: July 19, 2012

A. Regular meetings shall generally be held on the second and fourth Monday of each month at 2890 Mosquito Road, Placerville, California starting at 9:00 a.m. in open session. When the date falls on a legal holiday, the meeting shall be specified in advance by the Board.

B. Meetings may be adjourned to another time and place by the President. He/She shall give public notice of the time and place during the meeting so adjourned. The meeting place shall be within the District boundary except as provided in Government Code Section 54954.

C. Special meetings of the Board may be called at any time by the President of the Board or a majority of the Directors by giving at least 24-hour written notice to each Director as well as each local newspaper of general circulation and radio or television station requesting notice in writing. The call and notice shall specify the time and place of the special meeting and the business to be transacted or discussed. No other business shall be considered at the meeting. The call and notice shall be posted at least 24 hours prior to the special meeting in a location that is freely accessible to members of the public.

D. Emergency meetings of the Board may be held when required and shall be ordered by the President, or by a majority of the Directors. The emergency meeting shall meet the definitions and follow the procedures provided in Government Code Section 54956.5. Each local newspaper of general circulation and radio or television station which has requested notice of special meetings pursuant to Government Code Section 54956 shall be notified by the Clerk to the Board, or other person designated by the President, one hour prior to the emergency meeting or, in the case of a dire emergency, at or near the time that the President or designee notifies the Directors of the meeting. Notification shall be by telephone or email addresses provided in the most recent request of such newspaper or station notification of special meetings shall be exhausted. To the extent that telephone or email services are not functioning, notification shall be deemed waived and the District shall notify such newspaper or station of the fact of the holding of the emergency meeting, the purpose of the meeting, and any action taken at the meeting as soon after the meeting as possible. The minutes of an emergency meeting, a list of persons who the President of the Board, or designee of the Board, notified or attempted to notify, and a report of all roll-call votes, and any actions taken at the meeting shall be posted for at least 10 days in a public place as soon as after the meeting as possible.

E. Closed sessions may be agenized for a regular, special, or emergency meeting, or called by the Board or its President during the course of a regular or emergency meeting, under any applicable provision of the Brown Act. All procedures relating to closed sessions shall comply fully with the Brown Act.

F. Workshops and standing committee meetings will normally be held at 2890 Mosquito Road.

AR 12082 Order of Business

Approved: December 12, 2006
Revised: November 4, 2010
Revised: May 15, 2014

The normal order of business for Board meetings shall be as follows. When the General Manager's Report includes employee recognition, that portion of the Report shall occur immediately prior to the approval of the Consent Calendar. The President of the Board has the prerogative to alter the order of items 6 through 16 to enhance public participation or meeting efficiency, except that time-specific items shall not be called prior to their noticed time.

1. Roll Call
2. Pledge of Allegiance
3. Moment of Silence
4. Adopt Agenda
5. Approve Consent Calendar
6. Action on Items Pulled from Consent Calendar
7. Public Comment
8. Board of Directors' Communications
9. Clerk to Board Communications
10. General Manager's Report
11. Public Hearings
12. Workshops
13. Information Items
14. Director Items
15. Action Items
16. Closed Session
17. Review of Assignments
18. Adjournment

AR 12083 Order for Each Specific Agenda Item

Approved: December 12, 2006

A. President announces matter next by name and item number to be discussed.

B. President or General Manager calls staff to review items and present recommendations.

C. President or General Manager calls on principal party, applicant or person requesting Board actions.

D. President asks for input from public. Public input will normally be limited to five (5) minutes per person. The President may establish other guidelines as he/she sees fit based upon the number of those wishing to speak, the time available, or other factors.

E. President calls for discussion from Board members and controls further public comment. The President will normally limit discussion to the Board until action is taken, unless directed otherwise by a majority of the Board.

F. Board acts to:

1. close or continue hearing until later date,

2. request further information from staff or others, which information shall be limited to specific response to Board questions,

3. approve, conditionally approve, deny or take under advisement, and

4. continue to a later date any timed appearances or public hearing items that take more time than allocated.

AR 12084 Agenda Items

Approved: December 12, 2006

Agenda items and requests for appearances shall be in writing and shall specifically set forth both the matter to be discussed and the action requested of the Board, along with copies of said request and documentary information or supporting material.

BP 12090 Board Officers

Adopted: July 19, 2004
Updated: December 11, 2006
Supersedes:

A. The officers of the Board shall consist of a President and Vice President.

B. The President and Vice President shall be elected to one-year terms by members of the Board at the first regular meeting in December of each year during Board non-election years, or either a designated meeting in December or first meeting the following month in election years. The President and Vice President shall take office immediately following the election. Vacancies shall be filled in the same manner, at a regular meeting following the time the vacancy occurs. No officer shall serve more than two consecutive years in the same position, unless elected by a four-fifths vote of the Board.

C. The President shall act as the presiding officer at all meetings of the Board.

D. The Vice President shall preside and exercise all duties of the President in his/her absence, or by direction of the President. In the absence of both the President and Vice President, and temporary President shall be elected by the Board to act as President until the return of the President or Vice President.

BP 12100 Representative Appointments

Adopted: December 11, 2006
Supersedes:

The President, with concurrence by the Board, may appoint Board representatives to various organizations and associations. These entities shall be identified in AR 12101 and updated annually in consultation with the General Manager and General Counsel.

El Dorado Irrigation District

AR 12101 Board Representative Appointments

Approved: December 12, 2006
Revised: November 24, 2014

Board members may be appointed to represent the District in the following organizations:

1. American Public Power Association
2. Association of California Water Agencies
3. California Association for Sanitation Agencies
4. California Municipal Utilities Association
5. Citizens for Water
6. El Dorado County Water Purveyors Association
7. El Dorado Forum
8. El Dorado County Local Agency Formation Commission
9. Mountain Counties Water Resources Association
10. Regional Water Authority
11. SAGE
12. Taxpayers' Association of El Dorado County

BP 12110 Standing Committees

Adopted: December 11, 2006
Supersedes:

The President, with concurrence by the Board may appoint Board members to serve as Chairs of Board Standing Committees. The Standing Committees shall be identified in AR 12111 and updated annually in consultation with the General Manager and General Counsel.

El Dorado Irrigation District

AR 12111 Standing Committee Appointments

Approved: December 12, 2006
Revised: November 24, 2014

A. The following standing committees, composed of the entire membership of the Board, are hereby established:
   1. Engineering and Operations;
   2. Insurance and Personnel;
   3. Finance, Rates, and Charges;
   4. Legal and Legislation; and
   5. Recreation and Property Management.

B. Committees may meet on the following duties, and as necessary:
   1. Engineering and Operations – Monthly at the first Board meeting of the month;
   2. Insurance and Personnel – Quarterly, at the second Board meeting of the month;
   3. Finance, Rates, and Charges – Quarterly, at the first Board meeting of the month;
   4. Legal and Legislation – Second Board meeting of October and June; and
   5. Recreation and Property Management – First Board meeting of October and June.

C. The President, with the approval of the Board, may appoint two chairs to each Board Standing Committee.

BP 12120 Ad-hoc Committees

Adopted: December 11, 2006
Supersedes:

The President, with concurrence by the Board, may appoint ad-hoc committees.

El Dorado Irrigation District

BP 12130 Conflict of Interest

Adopted: December 11, 2006
Supersedes:

Except as expressly permitted under the terms of the Political Reform Act (Government Code Section 81000 et seq.), a Board member shall not take any action on, or participate in any discussion or otherwise influence the Board on any matter of Board business in which said member of the Board has a "financial interest" as defined under the Political Reform Act.

RESOLUTION NO. 182-2011

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF EL DORADO

RESOLUTION OF INTENTION TO AMEND THE GENERAL PLAN

WHEREAS, the County of El Dorado is mandated by the State of California to maintain an adequate and proper General Plan; and

WHEREAS, The County of El Dorado's General Plan and the various elements thereof must be continually reviewed and updated with current data, recommendations and policies; and

WHEREAS, on April 4, 2011, Development Services presented to the Board of Supervisors the first Five-Year Review of the General Plan with findings that support a need for a variety of revisions to policies related to the development of housing affordable to the moderate-income earner, the creation of jobs, improving sales tax revenues, further supporting the promotion and protection of Agriculture and to address recent changes in State law; and

WHEREAS, on July 25, 2011, Development Services presented to the Board of Supervisors a list of key issues and options for addressing identified General Plan amendment components discussed on April 4, 2011 as part of the General Plan 5 year review; and

WHEREAS, the Board of Supervisors directed staff to return with a comprehensive Resolution of Intention that included previously adopted Resolutions of Intentions to amend the General Plan including; 1) ROI 274-2008, adopted 10/7/2010 - Planned Development policies for 30 percent Open Space and requirement for a Planned Development when creating 50+ parcels; 2) ROI 110-2009 adopted 5/19/2009 - Community Region Boundary Change for Camino/Pollock Pines; 3) ROI 179-2010 adopted 12/7/10 - Historical Design Overlay for historical town sites of El Dorado and Diamond Springs; and

WHEREAS, the Board of Supervisors intends to have the above listed Resolutions superseded by this resolution.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission and Board of Supervisors will set public hearings to consider the following amendments:

LAND USE ELEMENT

Land Use Map

Camino/Pollock Pines Community Region Boundary amendment: consider amending the Camino/Pollock Pines Community Region Boundary to create three Rural Centers to allow for separate and distinct opportunities for each of the communities.

Policy 2.1.1.3

Commercial/Mixed Use: Consider amending allowable residential density by increasing residential use as part of a Mixed-use development from 16 units per acre to 20 units per acre to achieve CEQA streamlining benefits.

Policy 2.2.1.2 and Table 2-1

Table 2-1 & Commercial and Industrial Use: Consider amending General Plan Table 2-1 and Policy 2.2.1.2 for Commercial and Industrial to allow for commercial and industrial uses in the Rural Regions.

Commercial/Mixed Use: Consider deleting the sentence, "*The residential component of the project shall only be implemented following or concurrent with the commercial component.*"

Industrial Use: Consider deleting the requirement for Industrial Lands to be restricted to only industrial lands within, or in close proximity to Community Regions and Rural Centers. Delete the requirement that Industrial Lands in Rural Regions can only provide for on-site support of agriculture and natural resource uses.

Multi-Family Use: Consider amending density from 24 units per acre to 30 units per acre to comply with California Government Code 65583.2(c)(iv) and (e) which requires jurisdictions within Metropolitan Statistical Areas (MSA) of populations greater than 2,000,000 to allow for up to 30 units per acre when determining sites to meet the low and very low housing allocation categories. El Dorado County is located within the Sacramento MSA. Amend the Multi-Family land use to allow for commercial as part of a mixed use project. Amend the Multi-Family land use to encourage a full range of housing types including small lot single family detached design without a requirement for a Planned Development.

High Density Residential Use: Consider deleting requirement for a Planned Development application on projects of 3 or more units per acre.

Open Space: Consider amending policy to make reference to Objective 7.6.1

Table 2-2
Consider amending table to reflect changes in density for Commercial/Mixed Use from 16 units per acre to 20 units per acre and Multi-Family from 24 units per acre to 30 units per acre.

Policy 2.2.1.5 and Table 2-3
Consider amending Policy to direct the regulation of building intensities be established in the Zoning Ordinance and delete Table 2.3.

Policies 2.2.3.1, 2.2.3.2, 2.2.5.4
Consider amending the 30% open space requirement inside of Community Regions and Rural Centers to allow lesser area of "improved open space" on site, set criteria for options in meeting a portion of the requirement off-site or by an in lieu fee option as deemed necessary.

Table 2-4
Consider amending Table 2-4 to reflect Zoning Ordinance Update revision to zones.

Policy 2.2.4.1
Consider amending the Density Bonus policy which allows incentive for the creation of open space as part of residential projects, and implement policy specifics through Zoning Ordinance.

Policy 2.2.5.4
Consider deleting policy.

Policy 2.2.5.8
Consider amending the policy requirement for a Neighborhood Services Zone and allow for objectives to be meet in a related zone.

Policy 2.2.5.10

Consider deleting requirement for special use permit for Ag Support Services; incorporate standards and permitted uses into Zoning Ordinance

Policy 2.4.1.3
Consider amending policy to recognize the historical townsites of El Dorado/Diamond Springs and other historical townsites.

Policy 2.9.1.2, 2.9.1.3 and 2.9.1.4
Consider amending criteria for establishing Community Region and Rural Center boundaries. Amend timeframe for revision by the Board of Supervisors allowing for amendments to the boundaries to be completed by Board of supervisors on an as needed basis.

New Policies
Consider setting criteria for and identify Infill sites and Opportunity areas that will provide incentives substantial enough to encourage the development of these vacant/underutilized areas. This amendment would set criteria for CEQA streamlining opportunities but would not amend land uses or go beyond existing EIR growth projections or densities set by the General Plan. These policies may support the use of Traditional Neighborhood Design guidelines, Mixed Use, and Form Base Code.

TRANSPORTATION AND CIRCULATION ELEMENT

Policy TC-1a, TC-1b, and Table TC-1
Consider revising policies, and table to bring objectives into conformance with policy TC-1p, TC-1r, TC-1t, TC-1u, TC-1w, TC-4f, TC-4i, HO-1.3, HO-1.5, HO-1.8, HO-1.18, HO-5.1 and HO-5.2, to allow for narrower streets and road ways and to support the development of housing affordable to all income levels.

Policies TC-1m, TC-1n(B), TC-1w
Consider amending policies to clean up language including; TC-1m delete "of effort"; TC-1n(B) replace accidents with crashes; and TC-1w, delete word maximum.

Table TC-2, TC-Xband TC-Xd
Consider amending or deleting Table TC-2 and maintain list outside of General Plan and amending any policies referring to Table TC-2.

Policy TC-Xb(C)
Consider amending policy TC-Xb(C) to refer to Figure TC-1 when referencing the circulation diagram.

Policy TC-Xg
Consider amending to include that each development shall also design necessary improvements as well as construct or fund them.

Policy TC-Xi
Consider amending policy to allow for coordination of regional projects to be delivered on a schedule agreed to by related regional agencies and therefore not subject to meeting the scheduling requirements of the policies of this General Plan.

Policies TC-4a, TC-4d and TC-4f
Consider amending policies to clean up language to ensure consistency with subsequent adopted plans.

Policies TC 4i, TC-5a, TC-5b and TC-5c
Consider amending policies to provide more flexibility when requiring sidewalks.

New Goal
Consider a new goal and associated policies recognizing the requirements of California Government Code § 65080(b)(2)(I) implemented through the regional Metropolitan Transportation Plans to provide CEQA streamlining opportunities for qualified projects.

New Policy
Consider a new policy that supports the development of new or substantially improved roadways to accommodate all users, including bicyclists, pedestrians, transit riders, children, older people, and disabled people, as well as motorists consistent with appropriate code requirements. Add implementation measure to update the applicable manuals and standard plans to incorporate elements in support of all users. (Assembly Bill 1358 the Complete Streets Act of 2008)

PUBLIC SERVICES AND UTILITIES ELEMENT

Policy 5.1.2.2 and Table 5-1
Consider amending policy and table to provide flexibility when achieving minimum level of service requirements consistent with related policies being considered for amendment.

Policies 5.2.1.3 and 5.3.1.1
Consider amending policies to increase flexibility for the connection to public water and wastewater systems when projects are located in a Community Regions.

PUBLIC HEALTH, SAFETY AND NOISE ELEMENT

Policy 6.4.1.4 and 6.4.1.5
Consider amending policies and remove Attachment A to address recommendations by the Office of Emergency Services and Homeland Security regarding dam failure inundation.

Policy 6.5.1.11 and Tables 6-1 thru 6-5
Consider revising existing noise standards to establish attainable noise thresholds with regard to temporary nighttime construction activities and other temporary exceedences.

Objective 6.7.1 and 6.7.5
Consider amending the General Plan Objective 6.7.1 and 6.7.5 to reflect updated air quality plan opportunities that support the adoption of a separate Air Quality - Energy Conservation Plan. Create policy(s) to implement these objectives.

CONSERVATION AND OPEN SPACE ELEMENT

Policy 7.1.2.1
Consider amending the restrictions for development on 30% slopes, and set standards in the Zoning Ordinance and Grading Ordinance.

Objective 7.6.1.3(B)
Consider amending policy to delete specific references to zones to conform with the changes proposed in the Zoning Ordinance update.

AGRICULTURE & FORESTRY

Policy 8.1.3.2

Consider amending policy to provide a limited buffer for lands within a Community Region by adding language similar to 8.4.1.2 to 8.1.3.2 to bring the forest resources and agriculture lands buffering policies, in line with one another.

Policy 8.2.4.2
Consider amending policy to eliminate special use permit requirement for visitor-serving uses and establish standards and permitted uses in the Zoning Ordinance

Policy 8.2.4.4
Consider amending policy and any related policies to allow for ranch marketing activities on grazing lands.

BE IT FURTHER RESOLVED, the Board of Supervisors intends to analyze the following policies:

Policy 2.2.1.2
<u>High Density Residential:</u> Consider analyzing the effects of increasing High Density Residential Land use density from a maximum of 5 units per acre to 8 units per acre.

Policy 2.1.1.1 and 2.1.2.1
Consider analyzing the possibility of adding new, amending or deleting existing Community Regions or Rural Center planning areas.

TC-1y
Consider analyzing the potential for deleting the El Dorado Hills Business Park employment cap limits including option identified in TC-1v.

Policy TC-Xd, TC-Xe and TC-Xf
Consider revising the policies to clarify the definition of "worsen", what action or analysis is required if the threshold of "worsen" is met, clarification of the parameters of analysis (i.e. analyis period, analysis scenarios, methods), thresholds and timing of improvements.

Policy 7.2.1.2
Consider amending policy to clarify the Mineral Resource Zones that are required to be mapped.

BE IT FURTHER RESOLVED the Board of Supervisors hereby authorizes Planning Services under the management of the Chief Administator to procede with the preparation of all necessary documentation and CEQA review requirements pursuant to the requirements of the California Environmental Quality Act.

BE IT FURTHER RESOLVED that Resolutions ROI 274-2008, ROI 110-2009 and ROI 179-2010 are hereby superseded by this resolution.

BE IT FURTHER RESOLVED that the Planning Commission and Board of Supervisors will return in a public hearing to consider the proposed amendments.

PASSED AND ADOPTED by the Board of Supervisors of the County of El Dorado at a regular meeting of said Board, held the 14 day of November, 20 11, by the following vote of said Board:

Ayes: Sweeney, Briggs, Knight, Nutting, Santiago
Noes: none
Absent: none

Attest:
Suzanne Allen de Sanchez
Clerk of the Board of Supervisors

By: ______________________
Deputy Clerk

____
First Vice Chair, Board of Supervisors
John R. Knight

RESOLUTION NO. 183-2011

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF EL DORADO

RESOLUTION OF INTENTION TO UNDERTAKE A COMPREHENSIVE UPDATE OF THE ZONING ORDINANCE

WHEREAS, the County of El Dorado is mandated by the State of California to maintain an adequate and proper General Plan; and

WHEREAS, the County of El Dorado adopted a General Plan in 2004; and

WHEREAS, many Policies, programs, and implementation measures are implemented through the Zoning Ordinance; and

WHEREAS, the Zoning Ordinance has not been comprehensively updated for over 30 years, yet has been amended an average of twice a year, resulting in a Zoning Ordinance that is a patchwork of provisions and dated regulations; and

WHEREAS, many State and federal regulations that affect the Zoning Ordinance are not accurately reflected in the Ordinance; and

WHEREAS, the Board of Supervisors adopted Resolution of Intention No. 44-2008,and

WHEREAS, the Board of Supervisors is considering amendments to the General Plan to address job creation, construction of housing for moderate-income families, the retention of sales taxes, and support of the agriculture and resource industries of the County that would be implemented by the Zoning Ordinance, and

WHEREAS, according to Section 17.10.010 the Zoning Ordinance amendment must be initiated by Board of Supervisors Resolution;

NOW, THEREFORE, BE IT RESOLVED that the County of El Dorado Board of Supervisors hereby authorizes the Development Services Department to proceed with the preparation of a Comprehensive Update of the Zoning Ordinance, addressing the following issues:

1. Conform the zoning map to the General Plan land use designations;

2. Eliminate conflicting provisions of the existing ordinance;

3. Include provisions in the ordinance to implement General Plan Implementation Measures LU-A, HO-6, HO-16, HS-K, CO-A, AF-A, ED-N, ED-P, ED-II, ED-JJ, ED-KK, and ED-QQ

4. Ensure that the ordinance is consistent with applicable state and federal laws;

5. Reorganize the ordinance for ease of use by the public, staff, and decision makers, including the use of tables to identify permitted uses and development standards, establishing specific use regulations for administrative review of specified uses, and providing rules of interpretation and a comprehensive glossary;

6. Create new zones to reflect current zoning needs and implement the General Plan, including the following zones: Rural Lands, Forest Resources, Agricultural Grazing, Neighborhood Service, and Limited Agriculture;

7. Delete obsolete zones, including Unclassified, Agriculture, Residential-Agricultural, and Planned Commercial;

8. Create overlay zones to more effectively implement General Plan policies;

9. Expand potential uses in the agricultural and rural lands zones to provide for opportunities for agricultural support, recreation, and rural commerce, including allowing ranch marketing on grazing land;

10. Provide a range of intensities for home occupations, based on size and zoning of parcels, addressing the use of accessory structures, customers, and employees.

11. Modify zoning for Williamson Act contracted and rolled out land to reflect the underlying General Plan land use designation;

12. Revise the zoning map to conform to standardized rule sets for zoning modifications based on the General Plan land use designations; and

13. Provide a range of commercial zones to specify and direct the type, design, and location of commercial uses.

BE IT FURTHER RESOLVED that the Board intends to have analyzed in the Environmental Impact Report for Comprehensive Zoning Ordinance Update the following options which may be included in the ordinance:

1. Create a Rural Commercial Zone that would be permitted within the Rural Regions planning concept area;

2. Increase potential uses to provide additional agricultural support, recreation, home occupation, and other rural residential, tourist serving, and commercial_uses in zones in the Rural Region;

3. Create standards (master plans) for mixed use and Traditional Neighborhood Design development to provide for a streamlined approval process and to protect the commercial viability of the site;

4. Include single family detached development standards in the Multi-Family zone. Allow up to 15% of the project area, for commercial uses as part of a mixed use development in multifamily zones.

5. Provide multiple industrial zones to specify and direct the type, design, and location of industrial uses;

6. Provide alternative means to any open space requirement as part of a planned development to provide more flexibility and incentives for infill development and focus on recreation in Community Regions and Rural Centers;

7. Amend Zoning map to include historical overlay on El Dorado and Diamond Springs in relationship to historical townsites but consistent with adopted General Plan and Zoning Ordinance policies; and

8. Codify standards for wetland and riparian setbacks.

BE IT FURTHER RESOLVED that Resolution of Intention No. 44-2008 is hereby incorporated into and superseded by this resolution.

BE IT FURTHER RESOLVED that the Planning Commission and Board of Supervisors will return in a public hearing to consider the proposed amendments.

PASSED AND ADOPTED by the Board of Supervisors of the County of El Dorado at a regular meeting of said Board, held the 14 day of November, 2011, by the following vote of said Board:

Ayes: Sweeney, Briggs, Knight, Nutting, Santiago
Noes: none
Absent: none

Attest:
Suzanne Allen de Sanchez
Clerk of the Board of Supervisors

By: ______________________
Deputy Clerk

First Vice Chair, Board of Supervisors
John R. Knight

RESOLUTION NO. 184-2011

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF EL DORADO

RESOLUTION OF INTENTION TO UNDERTAKE A COMPREHENSIVE UPDATE OF THE ZONING ORDINANCE

WHEREAS, the County of El Dorado is mandated by the State of California to maintain an adequate and proper General Plan; and

WHEREAS, the County of El Dorado adopted a General Plan in 2004; and

WHEREAS, many Policies, programs, and implementation measures are implemented through the Zoning Ordinance; and

WHEREAS, the Zoning Ordinance has not been comprehensively updated for over 30 years, yet has been amended an average of twice a year, resulting in a Zoning Ordinance that is a patchwork of provisions and dated regulations; and

WHEREAS, many State and federal regulations that affect the Zoning Ordinance are not accurately reflected in the Ordinance; and

WHEREAS, the Board of Supervisors adopted Resolution of Intention No. 44-2008,and

WHEREAS, the Board of Supervisors is considering amendments to the General Plan to address job creation, construction of housing for moderate-income families, the retention of sales taxes, and support of the agriculture and resource industries of the County that would be implemented by the Zoning Ordinance, and

WHEREAS, according to Section 17.10.010 the Zoning Ordinance amendment must be initiated by Board of Supervisors Resolution;

NOW, THEREFORE, BE IT RESOLVED that the County of El Dorado Board of Supervisors hereby authorizes the Development Services Department to include with the preparation of a Comprehensive Update of the Zoning Ordinance the provision of opportunities for residential and recreational uses on Timber Production Zone land compatible with timber management and harvesting.

BE IT FURTHER RESOLVED that the Planning Commission and Board of Supervisors will return in a public hearing to consider the proposed amendments.

Resolution No. 184-2011

PASSED AND ADOPTED by the Board of Supervisors of the County of El Dorado at a regular meeting of said Board, held the 14 day of November, 2011, by the following vote of said Board:

Ayes: Sweeney, Briggs, Knight, Santiago
Noes: none
Absent:
Recused: Nutting

Attest:
Suzanne Allen de Sanchez
Clerk of the Board of Supervisors

By: Kathryn Taylor
Deputy Clerk

First Vice Chair, Board of Supervisors
John R. Knight

NOTICE OF PREPARATION OF
A DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT (EIR)
AND NOTICE OF PUBLIC SCOPING MEETING FOR THE
EL DORADO COUNTY TARGETED GENERAL PLAN AMENDMENT AND ZONING ORDINANCE UPDATE

Date: 10/01/2012

To: Interested Parties

From: El Dorado County Chief Administrative Office

The County of El Dorado (County) will be the Lead Agency under the California Environmental Quality Act (CEQA) for preparation of an Environmental Impact Report (EIR) for the Targeted General Plan Amendment (TGPA) and Zoning Ordinance Update (ZOU). The purpose of this Notice of Preparation and Notice of Public Scoping Meeting is to request the views of public agencies and interested persons as to the scope and content of the environmental information and analyses, including the significant environmental impacts, reasonable alternatives and mitigation measures that should be included in the Draft EIR. The project description, location, and potential environmental effects are summarized in the attached materials.

The County released a Notice of Preparation on May 25, 2012 with a 45 day review period for this project. Comments received during this review period and through the Zoning Ordinance Workshop held the week of July 16, 2012 are available on the County website at http://www.edcgov.us/landuseupdate/. Documents have been revised based on current direction by the Board of Supervisors and comments received. Written comments should be directed to revisions made to the documents and sent at the earliest possible date, but not later than 30 days after the receipt of this notice. There will be another opportunity to submit detailed comments when the Draft EIR is released for public review. Please send your comments to:

Shawna Purvines, Senior Planner
Development Services Department, Planning Services
2850 Fairlane Court, Building "C"
Placerville, CA 95667

or use the Public Comment form at:

http://www.edcgov.us/landuseupdate/

The County will conduct a public agency and public scoping meeting on the project to provide additional information and to receive verbal and written input. The public meeting will include a brief overview of the project by the County staff, followed by an opportunity for public and agency comment. The public meeting will be held at the El Dorado County Planning Commission, 2850 Fairlane Court, Placerville, on October 25, 2012.

Kim Kerr
Assistant Chief Administrative Officer
Interim Department of Transportation Director

NOTICE OF PREPARATION OF
A DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT (EIR)
AND NOTICE OF PUBLIC SCOPING MEETING
FOR THE
EL DORADO COUNTY TARGETED GENERAL PLAN AMENDMENT AND ZONING ORDINANCE UPDATE

Location:

This project involves changes to policies of the County General Plan and the adoption of an update to the Zoning Ordinance. These changes will take effect county-wide in those areas that under county jurisdiction. In addition, the County will consider amending the Camino/Pollock Pines Community Region Boundary and Agricultural District Boundaries in the General Plan.

Project Description:

The County is proposing a limited number of amendments to its General Plan policies and land use designations and a comprehensive update to the Zoning Ordinance. The items below are listed in no particular order of importance.

General Plan Amendments

Amendments to the General Plan are proposed for the Land Use Element; Transportation and Circulation Element; Public Services and Utilities Element; Public Health, Safety and Noise Element; Conservation and Open Space Element; and Agriculture and Forestry Element.

General Plan amendments to be addressed in the EIR are primarily policy changes, although a limited number of General Plan Land Use Designations, discussed below, are also identified for potential amendment. The EIR will analyze all of the potential amendments under consideration.

The following is a summary of the proposed policies and maps considered for analysis or amendments to the General Plan:

Land Use Map

1. Camino/Pollock Pines Community Region Boundary amendment to create three (3) Rural Centers including Camino, Cedar Grove, and Pollock Pine, to allow for separate and distinct opportunities for each of the communities.

2. Agriculture District Boundary Expansion for Garden Valley-Georgetown, Coloma, Camino-Fruitridge, Gold Hill, Oak Hill, Pleasant Valley, and Fair Play-Somerset.

3. Limited Land Use clean-up identified through the Zoning Ordinance Update.

Consider Amending the Following Policies

1. *Policy 2.1.1.3:*Commercial/Mixed Use- Amend to allow residential density by increasing residential use as part of a mixed-use development from 16 units per acre to 20 units per acre.

2. *Policy 2.2.1.2, Table 2-1, and Table 2-1*: Commercial and Industrial- Amend to allow for commercial and industrial uses in the rural regions.

3. *Policy 2.2.1.2*:Commercial/Mixed Use- Delete sentence, "The residential component of the project shall only be implemented following or concurrent with the commercial component."

4. *Policy 2.2.1.2:* Delete requirement that industrial lands be restricted to areas within, or in close proximity to community regions and rural centers. Delete the requirement that industrial lands in rural regions have more limited industrial uses, for support of agriculture and natural resource uses.

5. *Policy 2.2.1.2:* Amend multi-family density from 24 units per acre to 30 units per acre to comply with California Government Code 65583.2(c)(iv) and (e). Amend the multi-family land use to encourage a full range of housing types including small lot single family detached design without a requirement for a planned development.

6. *Policy 2.2.1.2:* High Density Residential- Delete requirement for a planned development application on projects of 3 or more units per acre.

7. *Policy 2.2.1.2:*Open Space- Amend policy to refer to Objective 7.6.1

8. *Table 2-2:* Amend table to reflect changes in density for commercial/mixed use from 16 units per acre to 20 units per acre and multi-family from 24 units per acre to 30 units per acre.

9. *Policy 2.2.1.5 and Table 2-3:* Amend policy to direct the regulation of building intensities be established in the Zoning Ordinance and delete Table 2.3.

10. *Policies 2.2.3.1, 2.2.3.2, and 2.2.5.4:* Amend the 30% open space requirement for Planned Development community regions and rural centers to allow lesser area of "improved open space" on site, and consider options to provide a portion of the required open space off-site or by an in-lieu fee option.

11. *Table 2-4:* Amend as necessary to reflect Zoning Ordinance Update revisions.

12. *Policy 2.2.4.1:* Amend the density bonus criteria, and consider placing the specifics of this policy into the Zoning Ordinance.

13. *Policy 2.2.5.4:* Delete policy requiring a Planned Development application on projects requesting the creation of 50 parcels or more.

14. *Policy 2.2.5.8:* Amend the policy creating the Neighborhood Services zone and allow for objectives to be met in a related commercial zone.

15. *Policy 2.2.5.10:* Delete policy requirement for special use permit for agriculture support services; incorporate standards and permitted into Zoning Ordinance

16. *Policy 2.4.1.3:* Amend policy to recognize the historical town sites of El Dorado/Diamond Springs and other historical town sites.

17. *Policies 2.9.1.2, 2.9.1.3, and 2.9.1.4:* Amend criteria for establishing community region and rural center boundaries by deleting the restriction that boundaries can be amended every five years, and allow revisions to the boundaries to be initiated by Board of Supervisors whenever necessary.

18. *Add New Policies that provide* set criteria for and identify infill sites and opportunity areas that will provide incentives for development of these vacant/underutilized areas, including streamlining the CEQA process for these identified locations. These policies may support the use of traditional neighborhood design guidelines, mixed use, and "form based" codes. These policy changes would not include amending the land use designations, or increasing the densities currently provided for in the General Plan.

19. *Policies TC-1a, TC-1b, and Table TC-1:* Revise policies, and table to further support the important objectives found in policies TC-1p, TC-1r, TC-1t, TC-1u, TC-1w, TC-4f, TC-4i, HO-1.3, HO-1.5, HO-1.8, HO-1.18, HO-5.1 and HO-5.2, allowing for narrower streets and road ways and to support the development of housing affordable to all income levels.

20. *Policies TC-1m, TC-1n(B), TC-1w:* Amend to make minor modifications to clarify language including; TC-1m delete "of effort"; TC-1n(B) replace accidents with crashes; and TC-1w, delete word maximum.

21. *Tables TC-2, Policy TC-Xb, and Policy TC-Xd:* Amend or delete Table TC-2; if Table TC-2 is deleted, amend all references to TC-2, including the references in TC-Xb and TC –Xd.

22. *Policy TC-Xb (C):* Consider minor amendment to refer to Figure TC-1 when referencing the circulation diagram.

23. *Policy TC-Xg:* Amend to clarify the requirement that development constructs or funds necessary road improvements, and include the requirement to design, or fund design.

24. *Policy TC-Xi:* Amend to allow for coordination of regional projects to be delivered on a schedule agreed to by related regional agencies and therefore not subject to meeting the scheduling requirements of the policies of this General Plan.

25. *Policies TC-4a, TC-4d, and TC-4f:* Amend to clean up language to ensure consistency with subsequent adopted plans.

26. *Policies TC 4i, TC-5a, TC-5b, and TC-5c*: Amend to provide more flexibility of when sidewalks are required.

27. *Add New Goal and associated policies* to provide for CEQA streamlining opportunities for qualified projects that are consistent with the Metropolitan Transportation Plans.

28. *Add New Policy* to support the development of new or substantially improved roadways to accommodate all users, including bicyclists, pedestrians, transit riders, children, older people, and disabled people, as well as motorists, to comply with Assembly Bill 1358, the Complete Streets Act of 2008. Add implementation measure to update the applicable manuals and standard plans to incorporate elements in support of all users.

29. *Objective 5.1.1, 5.1.2, and Table 5-1:* Amend as needed policy(s) and table to clarify Board authority when determining minimum level of service requirements consistent with General Plan objectives, standards, and related policies.

30. *Policy 6.4.1.4 and 6.4.1.5*: Amend policies and remove flood insurance rate maps, to address recommendations by the Office of Emergency Services and Homeland Security regarding dam failure inundation.

31. *Policy 6.5.1.11 and Tables 6-1 thru 6-5*: Amend existing noise standards to establish attainable noise thresholds with regard to temporary nighttime construction activities and other temporary exceedances.

32. *Objective 6.7.1 and 6.7.5:* Amend these objectives to reflect updated air quality plan opportunities that support the adoption of a separate Air Quality - Energy Conservation Plan.

33. *Policy 7.1.2.1:* Amend the restrictions for development on 30% slopes, and set standards in the Zoning Ordinance and Grading Ordinance.

34. *Policy 7.2.1.2 and 7.1.2.3*: Amend to clarify which mineral resource zones are required to be mapped.

35. *Objective 7.6.1.3(B):* Amend to delete specific references to zone districts to conform to the changes proposed in the Zoning Ordinance update.

36. *Policy 8.1.3.2:* Amend policy to provide a limited buffer for lands within a community region by adding language similar to Policy 8.4.1.2 to Policy 8.1.3.2.

37. *Policy 8.2.4.2: Consider* amending policy to eliminate the requirement for a special use permit for all visitor serving uses , and instead establish standards, permitted uses, and requirements for permits, in the various zone districts in the Zoning Ordinance

38. *Policy 8.2.4.4:* Consider amending the policy to allow for ranch marketing activities on grazing lands.

Consider Analyzing the Following Policies

1. *Policies 2.1.1.1 and 2.1.2.1:* Analyze the possibility of adding, amending or deleting existing Community Regions or Rural Center planning areas.

2. *Policy 2.2.1.2:* High Density Residential- Analyze the potential effects of increasing high density residential land use density from a maximum of 5 units per acre to 8 units per acre.

3. *Policy TC-1y:* Analyze the potential for deleting the El Dorado Hills Business Park employment cap limits including option identified in TC-1v.

4. *Policies TC-Xd, TC-Xe and TC-Xf:* Analyze impacts to revising the policies to clarify the definition of "worsen", to clarify what is required if a project "worsens" traffic, identifying the methodology for traffic studies (e.g. analysis period, analysis scenarios, methods), and identifying the timing of improvements.

Zoning Ordinance Update

The proposed comprehensive Zoning Ordinance Update has two elements: 1) revising the zoning maps to bring existing zoning designations into conformance with the General Plan, and 2) providing a comprehensive update of the text of the Zoning Ordinance both to bring conformance with the General Plan and to modernize implementation tools.

The following is a summary of the proposed changes:

1. Ensure that the zoning designation for all parcels in the County conforms to the General Plan land use designations for those parcels.

2. Eliminate inconsistent provisions of the existing Zoning Ordinance.

3. Include provisions in the Zoning Ordinance to implement General Plan Implementation Measures LU-A, HO-6, HO-16, HS-K, CO-A, AF-A, ED-N, ED-P, ED-II, ED-JJ, ED-KK, and ED-QQ.

4. Ensure that the Zoning Ordinance is consistent with applicable state and federal laws.

5. Reorganize the Zoning Ordinance for ease of use, including the use, including the use of tables to identify permitted uses and development standards, establishing specific use regulations for administrative review of specified uses.

6. Create new zones to reflect current zoning needs and implement the General Plan, including the following zones: Rural Lands, Forest Resources, Agricultural Grazing, Neighborhood Service, and Limited Agriculture.

7. Delete obsolete zones, including Unclassified, Agriculture, Residential-Agricultural, and Planned Commercial.

8. Create combining zone districts (e.g. Historical, Community Design, etc.) to identify land that needs additional regulation, protection of resources, protection of public health and safety, or establishes a review process to more effectively implement General Plan policies and related ordinances.

9. Expand potential uses in the agricultural and rural lands zones to provide for opportunities for agricultural support, recreation, and rural commerce, including allowing ranch marketing on grazing land.
10. Provide a range of intensities for home occupations, based on size and zoning of parcels, addressing the use of accessory structures, customers, and employees.
11. Modify zoning for Williamson Act contracted and rolled out land to reflect the underlying General Plan land use designation.
12. Revise the zoning map to conform to standardized rules (i.e. mapping criteria) for zoning modifications based on the General Plan land use designations.
13. Provide a range of commercial zones to specify and direct the type, design, and location of commercial uses. Proposed zones include Commercial Regional (CR), Commercial General (CG), Commercial Community (CC), Commercial Planned Office (CPO), Commercial Limited (CL), and Commercial Mainstreet (CM).
14. Create a Rural Commercial Zone that would be permitted within the rural regions planning concept area.
15. Increase potential uses to provide additional agricultural support, recreation, home occupation, and other rural residential, tourist serving, and commercial uses in zones in the rural region.
16. Create standards (master plans) for proposed mixed use and traditional neighborhood design development on commercial and multi-family zoned parcels to provide for a streamlined approval process and to protect the commercial viability of the parcels.
17. Include standards for single family detached development proposed in multifamily zones. Create a standard to allow a limited percentage of commercial use in proposed mixed use development in multifamily zones.
18. Provide multiple industrial zones to specify and direct the type, design, and location of industrial uses.
19. Provide alternative means to any open space requirement as part of a planned development to provide more flexibility and incentives for infill development and focus on recreation in community regions and rural centers.
20. Amend Zoning map to include a historical overlay zone district to the historical townsites of El Dorado and Diamond Springs, consistent with adopted General Plan and Zoning Ordinance policies.
21. Establish standards for wetland and riparian setbacks.
22. Provide opportunities for residential and recreational uses on Timber Production Zone land compatible with timber management and harvesting.

Project Objectives

The TGPA and Zoning Ordinance Update have the following objectives:

TGPA:

1. Establish policies related to the development of housing affordable to the moderate income earner,
2. Establish policies that will result in job creation and improved sales tax revenues,
3. Establish policies that will promote and protect agriculture in the county,
4. Establish policies consistent with SB 375 (2008) and housing element law, and
5. Revise existing General Plan policies as needed to provide clarity.

Zoning Ordinance Update:

1. Conform the zoning map to the General Plan land use designations,
2. Eliminate conflicting provisions within the existing ordinance,
3. Include provisions in the ordinance to implement General Plan Implementation Measures LU-A, HO-6, HO-16, HS-K, CO-A, AF-A, ED-N, ED-P, ED-II, ED-JJ, ED-KK, and ED-QQ,
4. Ensure that the ordinance is consistent with applicable state and federal laws,
5. Reorganize the ordinance for ease of use, including the use of tables to identify permitted uses and development standards, establishing specific use regulations for administrative review of specified uses,
6. Create new zones to reflect current zoning needs and implement the General Plan, including Rural Lands, Forest Resources, Agricultural Grazing, and Limited Agriculture,
7. Delete obsolete zones,
8. Create overlay zones to more effectively implement General Plan policies,
9. Expand potential uses in the agricultural and rural lands zones to provide for opportunities for agricultural support, recreation, and rural commerce, including allowing ranch marketing on grazing land,
10. Provide a range of intensities for home occupations, based on size and zoning of parcels, adding the use of accessory structures, customers, and employees,
11. Modify zoning for Williamson Act contracted and rolled out land to reflect the underlying General Plan land use designations,

12. Revise the zoning map to conform to standardized rules sets for zoning modifications based on the General Plan land use designations, and

13. Provide a range of commercial zones to specify and direct the type, design, and location of commercial uses, consistent with the General Plan.

Level of Detail for the Environmental Analysis in the Draft EIR

The analysis will be at a program-level. It will focus on the reasonably foreseeable direct and indirect physical environmental effects that could result from implementation of the TGPA and the ZOU. Because no specific development projects are being proposed, the analysis will not be parcel-specific.

The ZOU includes a number of optional ordinances that will be considered by the County, but which may or may not be adopted. The EIR will examine these options as part of the project and will discuss the range of impacts that could result from adopting the options as part of the ZOU.

Scope of the EIR– Potential Significant Effects

The County is preparing an Initial Study pursuant to Appendix G of the CEQA Guidelines to help identify potential significant effects to be analyzed in the Draft EIR. The following list of potentially significant effects is not intended to be comprehensive. The Draft EIR may address additional impacts as a result of the comments received on the Notice of Preparation, the scoping meetings, and the Environmental Checklist/Initial Study.

Comments and suggestions are requested regarding the environmental issues that will be analyzed in the EIR; a 45 day public comment period (instead of the normal 30 day period) is set to begin upon receipt of this Notice of Preparation.

Potentially Significant Impacts to be Addressed in the EIR

At this time, the following issues are anticipated to be addressed in the EIR:

1. Aesthetics
2. Agriculture Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources
6. Greenhouse Gas Emissions
7. Land Use/Planning

8. Noise

9. Population/Housing

10. Transportation/Traffic

Less Than Significant Impacts That Will Not Be Addressed in the EIR

Based on a preliminary review of the Project, the County has determined that the proposed Project would have a less than significant impact or no impact on the CEQA issue areas identified below. This is a preliminary determination only and does not preclude the County from making a different determination upon further analysis.

The primary reasons for these preliminary determinations are as follows:

Geology/Soils

None of the proposed changes in General Plan policy or zoning regulations will result in an increased risk from geologic hazards in that no reduction in safeguards are proposed.

Hazards and Hazardous Materials

None of the proposed changes in General Plan policy or zoning regulations will result in the exposure of residents to hazards or hazardous materials. For example, no changes are proposed to regulations regarding naturally occurring asbestos.

Hydrology/Water Quality

None of the proposed changes in General Plan policy or zoning regulations will violate any water quality standards or waste discharge requirements, nor will the proposed project substantially alter or degrade groundwater supplies, existing drainage patterns, or water quality.

Mineral Resources

None of the proposed changes in General Plan policy or zoning regulations will substantively change mineral resource designations or the regulation of mineral resource recovery.

Public Services, Utilities/Service Systems

Because none of the proposed changes in General Plan policy or zoning regulations will substantively change projected population or change the amount of housing designated in the General Plan, or increase areas to be developed, the changes are not expected to substantially affect demand for public services or utilities. However, this will be reviewed in the EIR in relation to proposed changes to density at the local level.

Recreation

None of the proposed changes in General Plan policy or zoning regulations will reduce standards for recreational lands, nor will they substantially reduce recreational opportunities; therefore future recreational demands will be met during the future process of considering individual development projects.

Alternatives to be addressed in the EIR

In accordance with section 15126.6 of the State CEQA Guidelines, an EIR must "describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most the basic objectives of the Project, but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the comparative merits of the alternatives." The State CEQA Guidelines also require that a No Project Alternative be evaluated, and that under specific circumstances, an environmentally superior alternative be designated from among the remaining alternatives.

The EIR will evaluate a reasonable range of alternatives, selected by an alternatives screening analysis, which will include alternatives that meet most or all of the objectives described above, are potentially feasible, and reduce significant impacts associated with the proposed TGPA and ZOU. The EIR will include an explanation of why other alternatives were rejected from further analysis in the EIR.

The alternatives analysis may, in addition to the No Project Alternative, consider one or more of the reduced intensity alternatives for further development and analysis in the EIR. The selected alternatives will be analyzed at a qualitative level of detail for comparison against the impacts identified for the proposed Project, consistent with the requirements of CEQA. Because this is a county-wide project, no alternative will be analyzed that is outside the county.

Requests for Additional Information

If you have any questions, please contact Shawna Purvines at the County of El Dorado, Development Services Department, Planning Services, 2850 Fairlane Court, Building "C," Placerville, CA 95667, by telephone at (530) 621-5362, or by e-mail toTGPA-ZOU@edcgov.us.

The full text of the proposed changes, is available from the Development Services Department, Planning Services, 2850 Fairlane Court, Building "C," Placerville, CA 95667. The full text of the proposed changes is also available online at the Land Use Policy Programmatic Update website: http://www.edcgov.us/landuseupdate/, and at the following County libraries:

1. Main Library in Placerville, 345 Fair Lane, Placerville, CA 95667. HOURS: Tuesday & Wednesday 12-7, Thursday, Friday & Saturday 10-5, Closed Sunday & Monday

2. Cameron Park Branch 2500 Country Club Dr, Cameron Park, CA 95682 HOURS: Monday, Wednesday & Friday 10-5, Tuesday & Thursday 12-7, 2nd Saturday of each month 10-3, Closed Saturday & Sunday

3. El Dorado Hills Branch 7455 Silva Valley Parkway El Dorado Hills, CA 95762. Monday 1-5, Tuesday & Wednesday 12-7, Thursday & Friday 10-5, Saturday 1-5, Closed Sunday.

4. Georgetown Branch 6680 Orleans Street P. O. Box 55 Georgetown, CA 95634. HOURS: Tuesday & Wednesday 12-7, Thursday 10-5, Friday 1-5, Saturday 10-3, Closed Sunday & Monday.

5. Pollock Pines Branch 6210 Pony Express Trail P O Box 757 Pollock Pines, CA 95726 HOURS: Tuesday 12-7, Wednesday & Thursday 10-5, Closed Friday, Saturday, Sunday & Monday.

6. South Lake Tahoe Branch 1000 Rufus Allen Blvd South Lake Tahoe, CA 96150. HOURS: Tuesday & Wednesday 10-8, Thursday, Friday & Saturday 10-5, Closed Sunday & Monday.

Aquatic Buffer Model Ordinance

☞ *This ordinance focuses primarily on stream buffers. Communities creating coastal buffers may wish to incorporate additional features. For an example of a coastal buffer ordinance, see the Rhode Island ordinance.*

Section I. Background

Buffers adjacent to stream systems and coastal areas provide numerous environmental protection and resource management benefits that can include the following:

1) Restoring and maintaining the chemical, physical, and biological integrity of the water resources
2) Removing pollutants delivered from urban stormwater
3) Reducing erosion and sediment entering the stream
4) Stabilizing stream banks
5) Providing infiltration of stormwater runoff
6) Maintaining base flow of streams
7) Contributing the organic matter that is a source of food and energy for the aquatic ecosystem
8) Providing tree canopy to shade streams and promote desirable aquatic organisms

☞ *This benefit applies primarily to forested buffer systems. In some communities, such as prairie settings, the native vegetation may not be forest. See the example ordinance from Omaha, Nebraska, for an example.*

9) Providing riparian wildlife habitat
10) Furnishing scenic value and recreational opportunity

It is the desire of the _________________(*Natural Resources or Planning Agency*) to protect and maintain the native vegetation in riparian and wetland areas by implementing specifications for the establishment, protection, and maintenance of vegetation along all stream systems and/or coastal zones within our jurisdictional authority.

Section II. Intent

The purpose of this ordinance is to establish minimal acceptable requirements for the design of buffers to protect the streams, wetlands, and floodplains of ___________________ (*jurisdiction*); to protect the water quality of watercourses, reservoirs, lakes, and other significant water resources within _________________(*jurisdiction*); to protect ___________________'s (Jurisdiction's) riparian and aquatic ecosystems; and to provide for the environmentally sound use of ________________'s (*jurisdiction's*) land resources.

Section III. Definitions

Active Channel — The area of the stream channel that is subject to frequent flows (approximately once per one and a half years) and that includes the portion of the channel below the floodplain.

Best Management Practices (BMPs) — Conservation practices or management measures that control soil loss and reduce water quality degradation caused by nutrients, animal wastes, toxics, sediment, and runoff.

Buffer	A vegetated area, including trees, shrubs, and herbaceous vegetation, that exists or is established to protect a stream system, lake, reservoir, or coastal estuarine area. Alteration of this natural area is strictly limited.
Development	1) The improvement of property for any purpose involving building 2) Subdivision or the division of a tract or parcel of land into two or more parcels 3) The combination of any two or more lots, tracts, or parcels of property for any purpose 4) The preparation of land for any of the above purposes
Nontidal Wetlands	Those areas not influenced by tidal fluctuations that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

☞ *The definition of "nontidal wetland" here is adapted from the definition of "wetland" used by the USEPA and the US Army Corps of Engineers.*

Nonpoint Source Pollution	Pollution that is generated by various land use activities rather than from an identifiable or discrete source and is conveyed to waterways through natural processes, such as rainfall, stormwater runoff, or groundwater seepage rather than direct discharges.
One Hundred-Year Floodplain	The area of land adjacent to a stream that is subject to inundation during a storm event that has a recurrence interval of 100 years.
Pollution	Any contamination or alteration of the physical, chemical, or biological properties of any waters that will render the waters harmful or detrimental to 1) Public health, safety, or welfare 2) Domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses 3) Livestock, wild animals, or birds 4) Fish or other aquatic life
Stream Channel	Part of a watercourse either naturally or artificially created that contains an intermittent or perennial base flow of groundwater origin. Base flows of groundwater origin can be distinguished by any of the following physical indicators: 1) Hydrophytic vegetation, hydric soil, or other hydrologic indicators in the area(s) where groundwater enters the stream channel in the vicinity of the stream headwaters, channel bed, or channel banks 2) Flowing water not directly related to a storm event 3) Historical records of a local high groundwater table, such as well and stream gauge records.
Stream Order	A classification system for streams based on stream hierarchy. The smaller the stream, the lower its numerical classification. For example, a first-order stream

does not have tributaries and normally originates from springs and/or seeps. (See Figure 1.)

Stream System — A stream channel together with one or both of the following:
1) 100-year floodplain
2) Hydrologically related nontidal wetland

Streams — Perennial and intermittent watercourses identified through site inspection and US Geological Survey (USGS) maps. Perennial streams are those which are depicted on a USGS map with a solid blue line. Intermittent streams are those which are depicted on a USGS map with a dotted blue line.

☞ *Defining the term "stream" is perhaps the most contentious issue in the definition of stream buffers. This term determines the origin and the length of the stream buffer. Although some jurisdictions restrict the buffer to perennial or "blue line" streams, others include both perennial and intermittent streams in the stream buffer program. Some communities do not rely on USGS maps and instead prepare local maps of all stream systems that require a buffer.*

Water Pollution Hazard — A land use or activity that causes a relatively high risk of potential water pollution.

Section IV. **Applications**

A) This ordinance shall apply to all proposed development except for that development which meets waiver or variance criteria as outlined in Section IX of this regulation.
B) This ordinance shall apply to all timber harvesting activities, except those timber harvesting operations which are implementing a forest management plan that has been deemed to be in compliance with the regulations of the buffer ordinance and has received approval from _____________(*state forestry agency*).
C) This ordinance shall apply to surface mining operations except that the design standards shall not apply to active surface mining operations that are operating in compliance with an approved ______________(*state or federal agency*) surface mining permit.
D) The ordinance shall not apply to agricultural operations that are covered by an approved Natural Resources Conservation Service (NRCS) conservation plan that includes the application of BMPs.

☞ *Communities should carefully consider whether exempt agricultural operations from the buffer ordinance because buffer regulations may take land out of production and impose a financial burden on family farms. Many communities exempt agricultural operations if they have an approved NRCS conservation plan. In some regions, agricultural buffers may be funded through the Conservation Reserve Program (CRP). For further information, consult the Conservation Technology Information Center (CTIC) at www.ctic.perdue.edu.*

☞ *Livestock operations near and around streams may be regulated by communities. Livestock can significantly degrade the stream system and accelerate streambank erosion. The King County Livestock Management Ordinance is one example of a local livestock ordinance. For more information, contact the King County Department of Development and Environmental Services at (206) 296-6602.*

E) Except as provided in Section IX, this ordinance shall apply to all parcels of land, structures, and activities that are causing or contributing to

1) Pollution, including nonpoint source pollution, of the waters of the jurisdiction adopting this ordinance
2) Erosion or sedimentation of stream channels
3) Degradation of aquatic or riparian habitat

Section V. **Plan Requirements**

A) In accordance with Section IV of this ordinance, a plan approved by the appropriate agency is required for all development, forest harvesting operations, surface mining operations, and agricultural operations.
B) The plan shall set forth an informative, conceptual, and schematic representation of the proposed activity by means of maps, graphs, charts, or other written or drawn documents so as to enable the agency an opportunity to make a reasonably informed decision regarding the proposed activity.
C) The plan shall contain the following information:

☞ *The ordinance can identify the scale of maps to be included with the analyses in items 2) through 7). A 1"=50' to 1"=100' scale will generally provide sufficient detail.*

1) A location or vicinity map
2) Field-delineated and surveyed streams, springs, seeps, bodies of water, and wetlands (include a minimum of 200 feet into adjacent properties)
3) Field delineated and surveyed forest buffers
4) Limits of the ultimate 100-year floodplain

☞ *The limits of the ultimate floodplain (i.e., the floodplain under "built-out" conditions) might not be available in all locations.*

5) Hydric soils mapped in accordance with the NRCS soil survey of the site area
6) Steep slopes greater than 15 percent for areas adjacent to and within 200 feet of streams, wetlands, or other waterbodies

☞ *The ordinance may also explicitly define how slopes are measured. For example, the buffer may be divided into sections of a specific width (e.g., 25 feet) and the slope for each segment reported. Alternatively, slopes can be reported in segments divided by breaks in slope.*

7) A narrative of the species and distribution of existing vegetation within the buffer

D) The buffer plan shall be submitted in conjunction with the required grading plan for any development,and the forest buffer should be clearly delineated on the final grading plan.
E) Permanent boundary markers, in the form of signage approved by ___________(*natural resources or planning agency*), shall be installed prior to final approval of the required clearing and grading plan. Signs shall be placed at the edge of the middle zone (See Section VI.I).

Section VI. **Design Standards for Forest Buffers**

A) A forest buffer for a stream system shall consist of a forested strip of land extending along both sides of a stream and its adjacent wetlands, floodplains, or slopes. The forest buffer width shall be adjusted to include contiguous sensitive areas, such as steep slopes or erodible soils, where development or disturbance may adversely affect water quality, streams, wetlands, or other waterbodies.

B) The forest buffer shall begin at the edge of the stream bank of the active channel.
C) The required width for all forest buffers (i.e., the base width) shall be a minimum of 100 feet, with the requirement to expand the buffer depending on
   1) Stream order
   2) Percent slope
   3) 100-year floodplain
   4) Wetlands or critical areas

☞ *The width of the stream buffer varies from 20 feet to 200 feet in ordinances throughout the United States (Heraty, 1993). The width chosen by a jurisdiction will depend on the sensitivity and characteristics of the resource being protected and the political realities in the community.*

B) In third-order and higher streams, 25 feet shall be added to the base width of the forest buffer.
C) The forest buffer width shall be modified if steep slopes are within close proximity to the stream and drain into the stream system. In those cases, the forest buffer width may be adjusted.

☞ *Several methods may be used to adjust buffer width for steep slopes. Two examples ifollow:*

Method A

Percent	Width of Buffer
15%-17%	add 10 feet
18%-20%	add 30 feet
21%-23%	add 50 feet
24%-25%	add 60 feet

Method B

Percent Slope	Type of Stream Use	
	Water Contact Recreational Use	Sensitive Stream Habitat
0% to 14%	no change	add 50 feet
15% to 25%	add 25 feet	add 75 feet
Greater than 25%	add 50 feet	add 100 feet

D) Forest buffers shall be extended to encompass the entire 100-year floodplain and a zone with a minimum width of 25 feet beyond the edge of the floodplain.
E) When wetland or critical areas extend beyond the edge of the required buffer width, the buffer shall be adjusted so that the buffer consists of the extent of the wetland plus a 25-foot zone extending beyond the wetland edge.

H) Water Pollution Hazards
The following land uses and/or activities are designated as potential water pollution hazards

and must be set back from any stream or waterbody by the distance indicated below:
1) Storage of hazardous substances—(150 feet)
2) Aboveground or underground petroleum storage facilities—(150 feet)
3) Drainfields from onsite sewage disposal and treatment systems (i.e., septic systems)—(100 feet)
4) Raised septic systems—(250 feet)
5) Solid waste landfills or junkyards—(300 feet)
6) Confined animal feedlot operations—(250 feet)
7) Subsurface discharges from a wastewater treatment plant—(100 feet)
8) Land application of biosolids—(100 feet)

☞ *For surface water supplies, the setbacks should be doubled.*

☞ *A community should carefully consider which activities or land uses should be designated as potential water pollution hazards. The list of potential hazards shown above is not exhaustive, and others may need to be added depending on the major pollutants of concern and the uses of water.*

l) The forest buffer shall be composed of three distinct zones, with each zone having its own set of allowable uses and vegetative targets as specified in this ordinance. (See Figure 2.)

☞ *Although a three-zone buffer system is highly recommended, the widths and specific uses allowed in each zone may vary between jurisdictions.*

l) Zone 1, Streamside Zone
   a) Protects the physical and ecological integrity of the stream ecosystem.
   b) Begins at the edge of the stream bank of the active channel and extends a minimum of 25 feet from the top of the bank.
   c) Allowable uses within this zone are highly restricted to
      i) Flood control structures
      ii) Utility right of ways
      iii) Footpaths
      iv) Road crossings, where permitted
   d) Target for the streamside zone is undisturbed native vegetation.

☞ *This ordinance assumes that the native vegetation in the stream corridor is forest. In some regions of the United States, other vegetation such as prairie may be native. See the Omaha, Nebraska, buffer ordinance for an example of a stream buffer ordinance that protects nonforested systems.*

2) Zone 2, Middle Zone
   a) Protects key components of the stream and provides distance between upland development and the streamside zone.
   b) Begins at the outer edge of the streamside zone and extends a minimum of 50 feet plus any additional buffer width as specified in this section.
   c) Allowable uses within the middle zone are restricted to
      i) Biking or hiking paths
      ii) Stormwater management facilities, with the approval of _______________ *(local agency responsible for stormwater).*

   iii) Recreational uses as approved by ___________________ (*planning agency*).
   iv) Limited tree clearing with approval from ________________ (*forestry agency or planning agency*).
  d) Targets mature native vegetation adapted to the region.

3) Zone 3, Outer Zone
  a) Prevents encroachment into the forest buffer and filters runoff from residential and commercial development.
  b) Begins at the outward edge of the middle zone and provide a minimum width of 25 feet between Zone 2 and the nearest permanent structure.
  c) Restricts septic systems, permanent structures, or impervious cover, with the exception of paths.
  d) Encourages the planting of native vegetation to increase the total width of the buffer.

Section VII. <u>Buffer Management and Maintenance</u>

A) The forest buffer, including wetlands and floodplains, shall be managed to enhance and maximize the unique value of these resources. Management includes specific limitations on alteration of the natural conditions of these resources. The following practices and activities are restricted within Zones 1 and 2 of the forest buffer, except with approval by ____________ _____ (*forestry, planning or natural resources agency*)
  1) Clearing of existing vegetation
  2) Soil disturbance by grading, stripping, or other practices
  3) Filling or dumping
  4) Drainage by ditching, underdrains, or other systems
  5) Use, storage, or application of pesticides, except for spot spraying of noxious weeds or non-native species consistent with recommendations of _________________(*forestry agency*)
  6) Housing, grazing, or other maintenance of livestock
  7) Storage or operation of motorized vehicles, except for maintenance and emergency use approved by _____________(*forestry, planning, or natural resources agency*)

B) The following structures, practices, and activities are permitted in the forest buffer, with specific design or maintenance features, subject to the review of _______________ (*forestry, planning, or natural resources agency)*:
  1) Roads, bridges, paths, and utilities:
    a) An analysis needs to be conducted to ensure that no economically feasible alternative is available.
    b) The right-of-way should be the minimum width needed to allow for maintenance access and installation.
    c) The angle of the crossing shall be perpendicular to the stream or buffer to minimize clearing requirements
    d) The minimum number of road crossings should be used within each subdivision, and no more than one fairway crossing is allowed for every 1,000 feet of buffer.
  2) Stormwater management:
    e) An analysis needs to be conducted to ensure that no economically feasible alternative is available and that the project either is necessary for flood control or significantly improves the water quality or habitat in the stream.
    f) In new developments, onsite and nonstructural alternatives will be preferred over larger facilities within the stream buffer.

g) When constructing stormwater management facilities (i.e., BMPs), the area cleared will be limited to the area required for construction and adequate maintenance access as outlined in the most recent edition of _________________ (*refer to stormwater manual*).

☞ *Rather than placing specific stormwater BMP design criteria in an ordinance, it is often preferable to reference a manual. With this approach, specific design information can be changed over time without going through the formal process needed to change ordinance language.*

☞ *The* Maryland Stormwater Design Manual *is one example of an up-to-date stormwater design manual. For more information, go to [www.mde.state.md.us.](http://www.mde.state.md.us) Under topics, choose "Stormwater Design Manual."*

h) Material dredged or otherwise removed from a BMP shall be stored outside the buffer.

3) Stream restoration projects, facilities, and activities approved by ____________________ _ (*forestry, planning, or natural resources agency*) are permitted within the forest buffer.
4) Water quality monitoring and stream gauging are permitted within the forest buffer, as approved by _______________(*forestry, planning or natural resources agency*):.
5) Individual trees within the forest buffer that are in danger of falling, causing damage to dwellings or other structures, or causing blockage of the stream may be removed.
6) Other timber cutting techniques approved by the agency may be undertaken within the forest buffer under the advice and guidance of ____________________ (*state or federal forestry agency*) if necessary to preserve the forest from extensive pest infestation, disease infestation, or threat from fire.

C) All plans prepared for recording and all right-of-way plans shall clearly
1) Show the extent of any forest buffer on the subject property
2) Label the forest buffer
3) Provide a note to reference any forest buffer stating: "There shall be no clearing, grading, construction or disturbance of vegetation except as permitted by the agency."
4) Provide a note to reference any protective covenants governing all forest buffer areas stating: "Any forest buffer shown hereon is subject to protective covenants that may be found in the land records and that restrict disturbance and use of these areas."

D) All forest buffer areas shall be maintained through a declaration of protective covenant, which is required to be submitted for approval by _______________ (*planning board or agency*). The covenant shall be recorded in the land records and shall run with the land and continue in perpetuity.

☞ *This protective covenant can be kept either by the local government agency responsible for management of environmental resources or by an approved nonprofit organization. An example conservation easement is included later in this section.*

E) All lease agreements must contain a notation regarding the presence and location of protective covenants for forest buffer areas and shall contain information on the management and maintenance requirements for the new property owner.

F) An offer of dedication of a forest buffer area to the agency shall not be interpreted to mean that this automatically conveys to the general public the right of access to this area.

G) ________________________ (*responsible individual or group*) shall inspect the buffer annually and immediately following severe storms for evidence of sediment deposition, erosion, or concentrated flow channels and corrective actions taken to ensure the integrity and functions of the forest buffer.

☞ *A local ordinance will need to designate the individual or group responsible for buffer maintenance. Often, the responsible party will be identified in protective covenants associated with the property.*

H) Forest buffer areas may be allowed to grow into their vegetative target state naturally, but methods to enhance the successional process such as active reforestation may be used when deemed necessary by _________________ (*natural resources or forestry agency*) to ensure the preservation and propagation of the buffer area. Forest buffer areas may also be enhanced through reforestation or other growth techniques as a form of mitigation for achieving buffer preservation requirements.

☞ *Explicit forestry management criteria are often included in a forestry or natural resources conservation ordinance. An example forest conservation ordinance from Frederick County, Maryland is included in the miscellaneous ordinances section of this site.*

Section VIII. <u>Enforcement Procedures</u>

A) _________________ (*director of responsible agency)* or his/her designee is authorized and empowered to enforce the requirements of this ordinance in accordance with the procedures of this section.

B) If, upon inspection or investigation, the director or his/her designee is of the opinion that any person has violated any provision of this ordinance, he/she shall with reasonable promptness issue a correction notice to the person. Each such notice shall be in writing and shall describe the nature of the violation, including a reference to the provision within this ordinance that has been violated. In addition, the notice shall set a reasonable time for the abatement and correction of the violation.

C) If it is determined that the violation or violations continue after the time fixed for abatement and correction has expired, the director shall issue a citation by certified mail to the person who is in violation. Each such notice shall be in writing and shall describe the nature of the violation, including a reference to the provision within this ordinance that has been violated and what penalty, if any, is proposed to be assessed. The person charged has 30 days within which to contest the citation or proposed assessment of penalty and to file a request for a hearing with the director or his/her designee. At the conclusion of this hearing, the director or his/her designee will issue a final order, subject to appeal to the appropriate authority. If, within 30 days from the receipt of the citation issued by the director, the person fails to contest the citation or proposed assessment of penalty, the citation or proposed assessment of penalty shall be deemed the final order of the director.

B) Any person who violates any provision of this ordinance may be liable for any cost or expenses incurred as a result thereof by the agency.

C) Penalties that may be assessed for those deemed to be in violation may include the following:

1) A civil penalty not to exceed $1,000.00 for each violation. Every day that such violation(s) continue will be considered a separate offense.
2) A criminal penalty in the form of a fine of not more than $1,000.00 for each violation, imprisonment for not more than 90 days, or both. Every day that such violation(s) continue will be considered a separate offense.
3) Anyone who knowingly makes any false statements in any application, record, or plan required by this ordinance shall upon conviction be punished by a fine of not more than $1,000.00 for each violation, imprisonment for not more than 30 days, or both.

☞ *Specific penalties will vary between communities, and should reflect realistically enforceable penalties given the political realities of a jurisdictin.*

F) In addition to any other sanctions listed in this ordinance, a person who fails to comply with the provisions of this buffer ordinance shall be liable to the agency in a civil action for damages in an amount equal to twice the cost of restoring the buffer. Damages that are recovered in accordance with this action shall be used for the restoration of buffer systems or for the administration of programs for the protection and restoration of water quality, streams, wetlands, and floodplains.

Section IX. **Waivers/Variances**

A) This ordinance shall apply to all proposed development except for activities that were completed prior to the effective date of this ordinance and had received the following:
   1) A valid, unexpired permit in accordance with development regulations
   2) A current, executed public works agreement
   3) A valid, unexpired building permit
   4) A waiver in accordance with current development regulations.

B) The director of the agency may grant a variance for the following:
   1) Those projects or activities for which it can be demonstrated that strict compliance with the ordinance would result in a practical difficulty or financial hardship
   2) Those projects or activities serving a public need where no feasible alternative is available
   3) The repair and maintenance of public improvements where avoidance and minimization of adverse impacts to nontidal wetlands and associated aquatic ecosystems have been addressed
   4) Those developments which have had buffers applied in conformance with previously issued requirements

C) Waivers for development may also be granted in two additional forms, if deemed appropriate by the director:
   1) The buffer width made be reduced at some points as long as the average width of the buffer meets the minimum requirement. This averaging of the buffer may be used to allow for the presence of an existing structure or to recover a lost lot, as long as the streamside zone (Zone I) is not disturbed by the reduction and no new structures are built within the 100-year floodplain.
   2) ______________________ (*planning agency*) may offer credit for additional density elsewhere on the site in compensation for the loss of developable land due to the requirements of this ordinance. This compensation may increase the total number of dwelling units on the site up to the amount permitted under the base zoning.

D) The applicant shall submit a written request for a variance to the director of the agency. The application shall include specific reasons justifying the variance and any other information necessary to evaluate the proposed variance request. The agency may require an alternative analysis that clearly demonstrates that no other feasible alternatives exist and that minimal impact will occur as a result of the project or development.

E) In granting a request for a variance, the director of the agency may require site design, landscape planting, fencing, signs, and water quality best management practices to reduce adverse impacts on water quality, streams, wetlands, and floodplains.

Section X. **Conflict With Other Regulations**

Where the standards and management requirements of this buffer ordinance are in conflict with other laws, regulations, and policies regarding streams, steep slopes, erodible soils, wetlands, floodplains, timber harvesting, land disturbance activities, or other environmental protective measures, the more restrictive shall apply.

Figure 1: Stream Order (Source: Schueler, 1995)

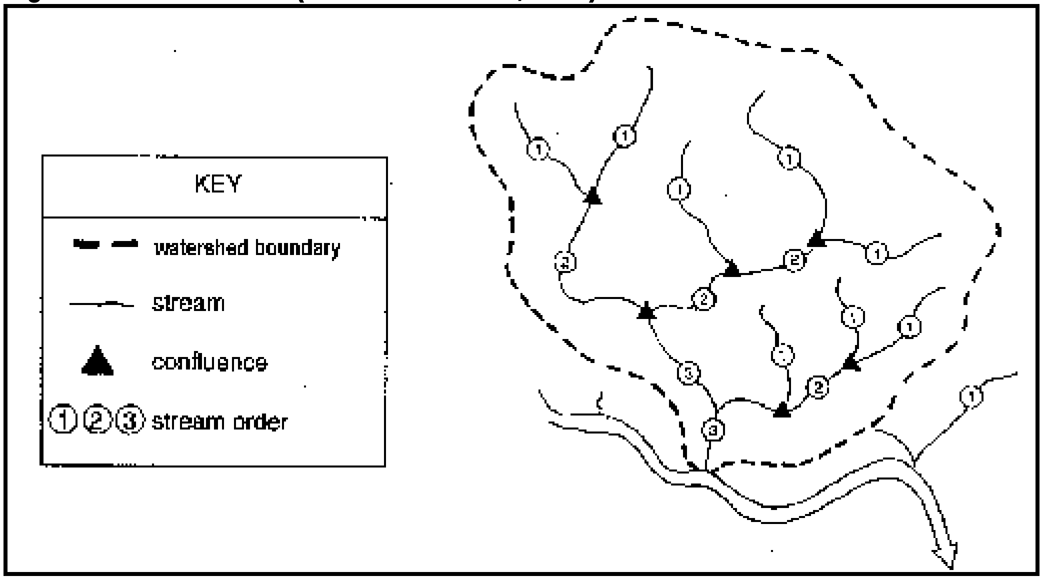
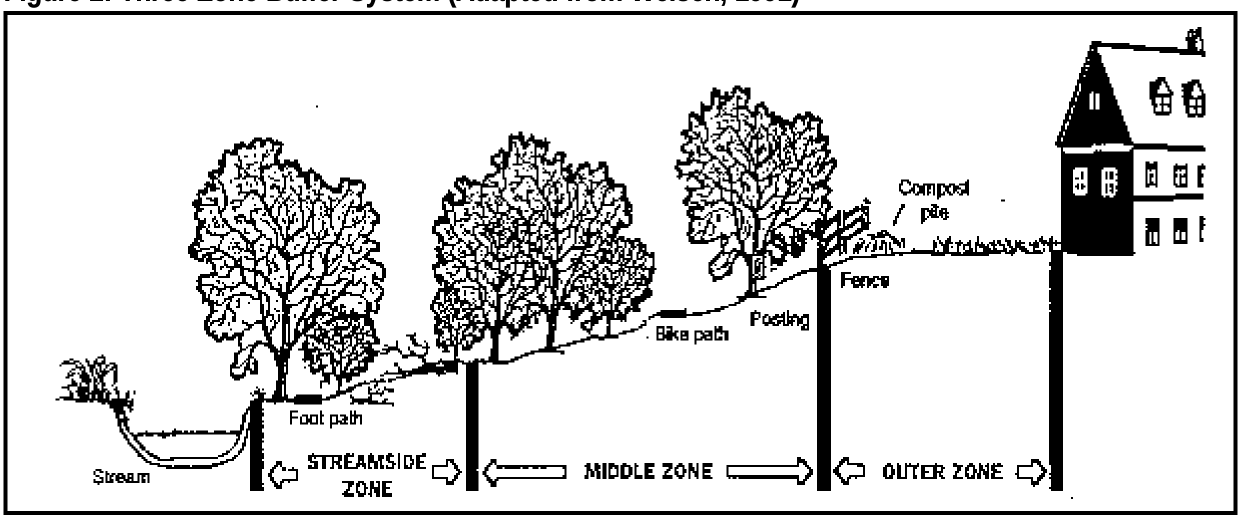


Figure 2: Three Zone Buffer System (Adapted from Welsch, 1991)



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Heraty, M. 1993. Riparian buffer programs: a guide to developing and implementing a riparian buffer program as an urban best management practice. Metropolitan Washington Council of Governments, USEPA Office of Wetlands, Oceans and Watersheds. Washington, DC.

Schueler, T. 1995. Site planning for urban stream protection. Metropolitan Washington Council of Governments, USEPA Office of Wetlands, Oceans and Watersheds. Washington, DC.

Welsch, D. 1991. Riparian forest buffers. FS Pub. No. NA-PR-07-91. US Department of Agriculture, Forest Service. Forest Resources Management, Radnor, PA.

Water: Basic Information about Regulated Drinking Water Contaminants

Basic Information about Asbestos in Drinking Water

- Drinking Water Contaminants Home
- Basic Information about Drinking Water Contaminants

Asbestos at a Glance

Maximum Contaminant Level (MCL) = 7 million fibers per Liter (MFL)

Maximum Contaminant Level Goal (MCLG) = 7 MFL

Health Effects
Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.

Drinking Water Health Advisories provide more information on health effects

Chemical Abstract Service Registry Number
1332-21-4

Sources of Contamination
Decay of asbestos cement in water mains; erosion of natural deposits

List of all Regulated Contaminants (PDF) (6 pp, 396 K, About PDF)

EPA regulates asbestos in drinking water to protect public health. Asbestos may cause health problems if present in public or private water supplies in amounts greater than the drinking water standard set by EPA.

- What is asbestos?
- Uses for asbestos.
- What are asbestos' health effects?
- What are EPA's drinking water regulations for asbestos?
- How does asbestos get into my drinking water?
- How will I know if asbestos is in my drinking water?

- How will asbestos be removed from my drinking water?
- How do I learn more about my drinking water?

What is asbestos?
Asbestos is a fibrous mineral occurring in natural deposits.

Uses for asbestos.
Because asbestos fibers are resistant to heat and most chemicals, they have been mined for use in more than 3,000 products, including roofing materials, brake pads, and cement pipe often used in distributing water to communities.

If you are concerned about asbestos in a private well, please visit:

- EPA's private drinking water wells website
- Water Systems Council website EXIT Disclaimer

What are asbestos' health effects?
Some people who drink water containing asbestos well in excess of the maximum contaminant level (MCL) for many years may have an increased risk of developing benign intestinal polyps.

This health effects language is not intended to catalog all possible health effects for asbestos. Rather, it is intended to inform consumers of some of the possible health effects associated with asbestos in drinking water when the rule was finalized.

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What are EPA's drinking water regulations for asbestos?
In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine the level of contaminants in drinking water at which no adverse health effects are likely to occur. These non-enforceable health goals, based solely on possible health risks and exposure over a lifetime with an adequate margin of safety, are called maximum contaminant level goals (MCLG). Contaminants are any physical, chemical, biological or radiological substances or matter in water.

The MCLG for asbestos is 7 MFL. EPA has set this level of protection based on the best available science to prevent potential health problems. EPA has set an enforceable regulation for asbestos, called a maximum contaminant level (MCL), at 7 MFL. MCLsare set as close to the health goals as possible, considering cost, benefits and the ability of public water systems to detect and remove contaminants using suitable treatment technologies. In this case, the MCL equals the MCLG, because analytical methods or treatment technology do not pose any limitation.

The Phase II Rule, the regulation for asbestos, became effective in 1992. The Safe Drinking Water Act requires EPA to periodically review the national primary drinking water regulation for each contaminant and revise the regulation, if appropriate. EPA reviewed asbestos as part of the Six Year

Review and determined that the 7 MFL MCLG and 7 MFL MCL for asbestos are still protective of human health.

- More information on the Six Year Review of Drinking Water Standards.

States may set more stringent drinking water MCLGs and MCLs for asbestos than EPA.

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How does asbestos get into my drinking water?
The major sources of asbestos in drinking water are decay of asbestos cement water mains; and erosion of natural deposits.

A federal law called the Emergency Planning and Community Right to Know Act (EPCRA) requires facilities in certain industries, which manufacture, process, or use significant amounts of toxic chemicals, to report annually on their releases of these chemicals. For more information on the uses and releases of chemicals in your state, contact the Community Right-to-Know Hotline: (800) 424-9346.

- EPA's Toxics Release Inventory (TRI) website provides information about the types and amounts of toxic chemicals that are released each year to the air, water, and land.

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How will I know if asbestos is in my drinking water?
When routine monitoring indicates that asbestos levels are above the MCL, your water supplier must take steps to reduce the amount of asbestos so that it is below that level. Water suppliers must notify their customers as soon as practical, but no later than 30 days after the system learns of the violation. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

- See EPA's public notification requirements for public water systems.

If your water comes from a household well, check with your health department or local water systems that use ground water for information on contaminants of concern in your area.

- For more information on wells, go to EPA's website on private wells.

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How will asbestos be removed from my drinking water?
The following treatment method(s) have proven to be effective for removing asbestos to below 7 MFL: coagulation/filtration, direct and diatomite filtration, and corrosion control.

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How do I learn more about my drinking water?
EPA strongly encourages people to learn more about their drinking water, and to support local efforts to protect the supply of safe drinking water and upgrade the community water system. Your water bill or telephone book's government listings are a good starting point for local information.

Contact your water utility. EPA requires all community water systems to prepare and deliver an annual consumer confidence report (CCR) (sometimes called a water quality report) for their customers by July 1 of each year. If your water provider is not a community water system, or if you have a private water supply, request a copy from a nearby community water system.

- The CCR summarizes information regarding sources used (i.e., rivers, lakes, reservoirs, or aquifers), detected contaminants, compliance and educational information.
- Some water suppliers have posted their annual reports on EPA's website.

Other EPA websites

- Find an answer or ask a question about drinking water contaminants on EPA's Question and Answer website or call EPA's Safe Drinking Water Hotline at (800) 426-4791
- EPA Office of Prevention, Pesticides and Toxic Substances, Asbestos and Vermiculite
- EPA Office of Indoor Air Quality, An Introduction to Indoor Air Quality, Asbestos
- EPA Integrated Risk Information System

Other Federal Departments and Agencies

- US National Institutes of Health, National Cancer Institute, Fact Sheet: Asbestos Exposure and Cancer Risk
- US Agency for Toxic Substances and Disease Registry, Asbestos

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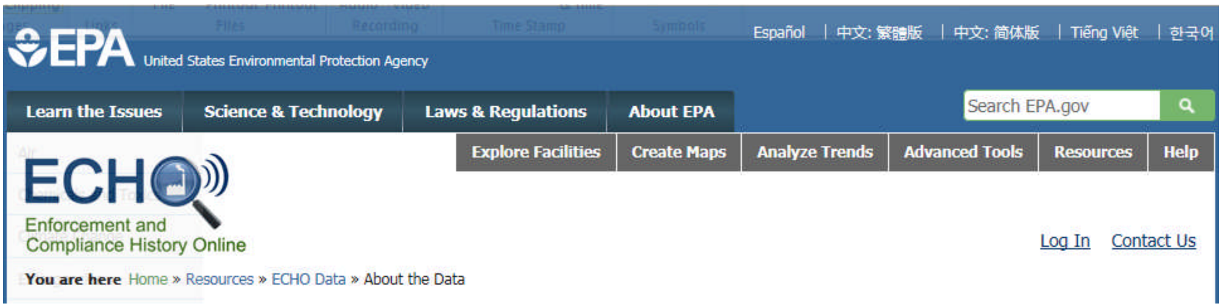

About the Data

ECHO Data

Enforcement and compliance data for:

- Air emissions
- Surface water discharges
- Hazardous waste
- Drinking water systems

ECHO data focuses on compliance- and enforcement-related information for regulated facilities, including:

- Permit data
- Inspection/compliance evaluation dates and findings
- Violations of environmental regulations
- Enforcement actions
- Penalties assessed

ECHO includes EPA, state, local and tribal environmental agency compliance and enforcement records that are contained in EPA national databases. ECHO also incorporates many EPA environmental data sets to provide additional context for analyses. Learn more about:

- ECHO Data Sources
- Data Completeness
- Data Quality
- Use of ECHO Data

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ECHO Data Sources

Below is a summary of data included in ECHO.

Database	Description	Date Data Extracted	Expected Next Extract
FRS	The Facility Registry Service (FRS) contains facility identification information.	2/28/2015	3/4/2015
AFS	The Air Facility System (AFS) contains data regarding regulated Clean Air Act stationary sources and their compliance records. ***EPA is transitioning to a modernized data management system (ICIS-Air) to manage Clean Air Act data. During the transition period, ECHO Clean Air Act data are frozen and reflect data as of October 17, 2014. Please note that it's possible some facilities have since returned to compliance or have new violations. Clean Air Act data refreshes are expected to resume in April 2015.**	10/17/2014	None*
ICIS-Air	The Integrated Compliance Information System (ICIS) for Air contains data regarding regulated Clean Air Act stationary sources and their compliance records.	None*	April 2015
ICIS-FE&C	The Integrated Compliance Information System (ICIS) Federal Enforcement and Compliance (FE&C) contains EPA data for inspections and enforcement actions for the following environmental laws: • Clean Air Act (CAA) • Clean Water Act (CWA) • Resource Conservation and Recovery Act (RCRA) • Safe Drinking Water Act (SDWA) • Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) • Emergency Planning and Community Right-to-Know Act (EPCRA) • Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) • Marine Protection, Research, and Sanctuaries Act • Toxic Substances Control Act (TSCA).	2/27/2015	3/3/2015

ICIS-NPDES	ICIS National Pollutant Discharge Elimination System (ICIS-NPDES) contains permit information, limits, and discharge monitoring data for facilities managed under the CWA NPDES program. *Note: ICIS-NPDES includes historical data for the state of New Jersey; however, as of November 29th, 2012, the state no longer provides EPA with required data about its CWA activities.*	2/27/2015	3/3/2015
RCRAInfo	The Resource Conservation and Recovery Act Information (RCRAInfo) system includes data for hazardous waste handlers and includes information on treatment, storage, and disposal facilities regarding permit/closure status, compliance with federal and state regulations, and cleanup activities.	2/28/2015	3/4/2015
SDWIS	The Safe Drinking Water Information System (SDWIS) contains information on public water systems, including monitoring, enforcement, and violation data related to requirements established by the Safe Drinking Water Act (SDWA).	1/13/2015	4/15/2015
TRI	The Toxics Release Inventory (TRI) data include information on the release of chemicals to the environment (emitted to the air or water, or placed in some type of land disposal) and management of chemicals through recycling, energy recovery and/or treatment. *Note: As of 11/22/14, ECHO uses 2013 TRI data.*	2/28/2015	3/4/2015
EIS	The Emission Inventory System (EIS) database contains information on stationary and mobile sources that emit criteria air pollutants and their precursors, as well as hazardous air pollutants (HAPs). *Note: Data expected to be added in April 2015.*	NA	NA
GHG	The Greenhouse Gas Reporting Program offers public access to comprehensive greenhouse gas (GHG) data reported directly to EPA from across the country.	2/28/2015	3/4/2015
ATTAINS	The Assessment, TMDL Tracking, and ImplementatioN System (ATTAINS) contains information on water quality assessments, impaired waters, and total maximum daily loads (TMDLs), through data submitted by states under Clean Water Act sections 303(d) and 305(b).	6/20/2014	TBD

RAD	The Reach Address Database (RAD) contains location information for facilities in Water Programs that have been linked to underlying surface water features in the National Hydrology Database (NHD) Plus dataset, such as watersheds and waterbodies. RAD incorporates waterbody location information from USGS's Geographic Names Information System (GNIS). The RAD is part of the Watershed Assessment, Tracking & Environmental Results System (WATERS), which links various program databases (e.g., ICIS-NPDES, ATTAINS, BEACON, STORET) to the NHD.	6/20/2014	TBD
BEACON	The BEach Advisory and Closing Online Notification (BEACON) system contains information on state beach advisory and closing data, related to requirements established under the Beaches Environmental Assessment and Coastal Health (BEACH) Act.	6/20/2014	TBD
U.S. Census Data	U.S. Census demographic data from the Census Block Group Data (CBG) database are included. The CBG database is derived from the 2010 Census of Population and Housing Summary Tape Files 1A and 3A.	2010	NA

Note: The time period of data displayed throughout ECHO can vary:

- The past **five years** of facility inspection and enforcement data (from the date of extraction from the source database) are presented.
- The past **three years** of facility compliance data are presented as quarters of compliance (three-month periods) based on the federal fiscal year.
- All years of EPA formal enforcement action data from ICIS are available via the EPA Enforcement Case Search.
- Additional years of data are available in the ECHO Downloads.

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Data Synchronization

- ECHO data represent "snapshots" of the original source databases and reflect the data as they existed when the data were extracted.
- Although data are routinely updated, a lag time exists (anywhere from a week up to three months) between when data are entered into the source database and when they appear in ECHO.

Data Completeness

ECHO presents data as-reported to the original source databases. Data contained in EPA national databases generally are more complete for larger facilities. When conducting analyses, understand that the types of facilities that tend to have more complete data are described differently in each source database:

- Clean Air Act facilities: active, "federally-reportable" sources.
- Clean Water Act facilities: active, "major" permittees.
- Hazardous waste facilities: operating treatment, storage, and disposal facilities and active large quantity generators.

Data for smaller facilities can vary widely (i.e., nonexistent, a partial representation, voluntarily entered by some states and not by others). Understanding the mix of required and non-required data helps with interpreting whether ECHO information is complete. Additionally, it can be helpful to consult state environmental agencies or state databases.

Additional information is available to gain a better understanding of the variability among data reporting requirements for regulated facilities:

- Data Entry Requirements – A matrix illustrating the variability of reporting requirements for the major EPA program systems utilized by ECHO (AFS, ICIS, RCRAInfo, and SDWIS). For example, states are not required to report violations occurring at Clean Water Act non-major facilities, thus data regarding violations at those facilities may not be available via ECHO. This matrix describes such requirements.
- Inspection frequencies are typically based on the size of the facility, though regulators have options for determining inspection frequency:
    - For example, large or "major" facilities may be inspected/evaluated annually, on a two-year cycle, or even several times during a year
    - Smaller facilities may be inspected/evaluated every five years
    - Compliance may be determined through means other than on-site inspections/evaluations
    - Many facilities are required to self-report certain violations
    - Inspections for smaller CAA and CWA facilities may only be tracked in a state's database and not reflected in the national database
- Information available for enforcement actions can vary:
    - Enforcement actions that have not been concluded are not displayed in ECHO (however, underlying violations are normally reported prior to completed government enforcement)
    - Criminal enforcement actions are not displayed in ECHO (although ECHO does link to the EPA criminal enforcement cases search page)
    - Note that not all violations receive formal enforcement actions - in fact, many minor violations are corrected by facilities without the need for formal action
    - Enforcement actions taken more than five years ago are not included in facility searches; however, the EPA Enforcement Cases Search (coming soon) will allow searching beyond the past five years, as will other anticipated features

  - The relevant state environmental agency may have additional information
- Data often are not complete for CWA non-major facilities, because EPA has not finalized regulations requiring entry of such data.
- Generate a comparative map by selecting the Water tab, choose "Facilities Reporting Discharge Monitoring Reports" and click "Refresh Map" to view completeness of compliance information presented in ECHO.
- Annual Noncompliance Reports provide summary noncompliance data for CWA non-major facilities. Data from recent reports are displayed on ECHO, as are links to the reports.
- Guide to Regulated Facilities
- More State Data through state environmental agency websites

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Data Quality

EPA, authorized or delegated states, tribal and local jurisdictions conduct compliance assurance and enforcement activities related to federal environmental laws. Each level of government works to ensure that information contained in national databases is accurate. The migration of data from many jurisdictions to multiple national program databases is a challenging task. Some state and local jurisdictions directly enter data to national databases, while others maintain their own databases and transfer data to EPA through batch processing. Under both approaches, steps are taken to ensure that the data are of the highest quality (e.g., each national database maintains standards and procedures for ensuring data integrity on a day-to-day basis).

Data are continuously evaluated. Through periodic analysis, conference calls, and national meetings, database managers at all levels of government work to ensure quality information. Additionally:

- Error reporting is available in ECHO to communicate and correct errors that are identified while using the website.
- Known data problems are noted on the site.

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Use of ECHO Data

The information contained in ECHO is made available to the public by the U.S. Environmental Protection Agency (EPA) for information purposes only. No warranty, express or implied, is made by EPA or any other agency of the U.S. Government regarding the accuracy or completeness of this information.

ECHO is not designed for large scale data transfers or robotic queries. EPA reserves the right to disable users that initiate robotic, programmed queries.

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291112 Part 2

United States
Environmental Protection
Agency

WATER ON TAP

what you need to know

Table of Contents

Chapter *Page No.*

Office of Water (4601)
EPA 816-K-09-002
www.epa.gov/safewater
December 2009

Printed on Recycled Paper

1. A Consumer's Guide To The Nation's Drinking Water

The United States enjoys one of the best supplies of drinking water in the world. Nevertheless, many of us who once gave little or no thought to the water that comes from our taps are now asking the question: "Is my water safe to drink?" While tap water that meets federal and state standards is generally safe to drink, threats to drinking water are increasing. Short-term disease outbreaks and water restrictions during droughts have demonstrated that we can no longer take our drinking water for granted.

Consumers have many questions about their drinking water. How safe is my drinking water? What is being done to improve security of public water systems? Where does my drinking water come from, and how is it treated? Do private **wells** receive the same protection as public water systems? What can I do to help protect my drinking water?

This booklet provides the answers to these and other frequently asked questions.

This booklet also directs you to more detailed sources of information. Often, you will be directed to a page on the EPA website. Additionally, the Safe Drinking Water Hotline is available to answer your questions. Please also see Appendix C for more resources. Refer to the Glossary (Appendix D) for definitions of words in bold font.

What you need to know to protect your family

Sensitive Subpopulations

Some people may be more vulnerable to contaminants in drinking water than the general population. People undergoing chemotherapy or living with HIV/AIDS, transplant patients, children and infants, the frail elderly, and pregnant women and their fetuses can be particularly at risk for infections.

If you have special health care needs, consider taking additional precautions with your drinking water, and seek advice from your health care provider. For more information, see www.epa.gov/safewater/healthcare/special.html.

You will find information on bottled water and home water treatment units on page 16 of this booklet. You may also contact NSF International, Underwriter's Laboratory, or the Water Quality Association. Contact information is located in Appendix C.

2. How Safe Is My Drinking Water?

What Law Keeps My Drinking Water Safe?

Congress passed the Safe Drinking Water Act (SDWA) in 1974 to protect public health by regulating the nation's public drinking water supply and protecting sources of drinking water. SDWA is administered by the U.S. Environmental Protection Agency (EPA) and its state partners.

Highlights of the Safe Drinking Water Act

- Authorizes EPA to set enforceable health standards for contaminants in drinking water
- Requires public notification of water systems violations and annual reports (Consumer Confidence Reports) to customers on contaminants found in their drinking water - www.epa.gov/safewater/ccr
- Establishes a federal-state partnership for regulation enforcement
- Includes provisions specifically designed to protect underground sources of drinking water - www.epa.gov/safewater/uic
- Requires disinfection of surface water supplies, except those with pristine, protected sources
- Establishes a multi-billion-dollar state revolving loan fund for water system upgrades - www.epa.gov/safewater/dwsrf
- Requires an assessment of the vulnerability of all drinking water sources to contamination - www.epa.gov/safewater/protect

— Drinking Water: Past, Present, and Future EPA-816-F-00-002

What Is A Public Water System?

The Safe Drinking Water Act (SDWA) defines a **public water system (PWS)** as one that serves piped water to at least 25 persons or 15 service connections for at least 60 days each year. There are approximately 161,000 public water systems in the United States.[1] Such systems may be publicly or privately owned. **Community water systems (CWSs)** are public water systems that serve people year-round in their homes. Most people in the U.S. (268 million) get their water from a community water system. EPA also regulates other kinds of public water systems,

Public Water Systems

Community Water System (54,000 systems)—A public water system that serves the same people year-round. Most residences are served by Community Water Systems.

Non-Community Water System (approximately 108,000 systems)—A public water system that does not serve the same people year-round. There are two types of non-community systems:

- Non-Transient Non-Community Water System (almost 19,000 systems)—A non-community water system that serves the same people more than six months of the year, but not year-round. For example, a school with its own water supply is considered a non-transient system.
- Transient Non-Community Water System (more than 89,000 systems)—A non-community water system that serves the public but not the same individuals for more than six months. For example, a rest area or a campground may be considered a transient system.

such as those at schools, campgrounds, factories, and restaurants. Private water supplies, such as household wells that serve one or a few homes, are not regulated by EPA. For information on household wells, see "How Safe Is The Drinking Water In My Household Well?" on page 18 of this booklet.

Cost of Making Water Safe Continues to Rise

Much of the existing water infrastructure (underground pipes, treatment plants, and other facilities) was built many years ago. In 1999, EPA conducted the second Drinking Water Infrastructure Needs Survey, and found that drinking water systems will need to invest $150 billion over a 20-year period to ensure clean and safe drinking water.

Will Water Systems Have Adequate Funding In The Future?

Nationwide, drinking water systems have spent hundreds of billions of dollars to build drinking water treatment and **distribution systems**. From 1995 to 2000, more than $50 billion was spent on capital investments to fund water quality improvements.[2]

With the aging of the nation's infrastructure, the clean water and drinking water industries face a significant challenge to sustain and advance their achievements in protecting public health. EPA's *Clean Water & Drinking Water Infrastructure Gap Analysis*[3] has found that if present levels of spending do not increase, there will be a significant funding gap by the year 2019.

Where Can I Find Information About My Local Water System?

Since 1999, water suppliers have been required to provide annual Consumer Confidence Reports to their customers. These reports are due by July 1 each year, and contain information on contaminants found in the drinking water, possible health effects, and the water's source. Some Consumer Confidence Reports are available at *www.epa.gov/safewater/dwinfo.htm.*

Water suppliers must promptly inform you if your water has become contaminated by something that can cause immediate illness. Water suppliers have 24 hours to inform their customers of **violations** of EPA standards "that have the potential to have serious adverse effects on human health as a result of short-term exposure." If such a violation occurs, the water system will announce it through the media, and must provide information about the potential adverse effects on human health, steps the system is taking to correct the violation, and the need to use alternative water supplies (such as boiled or bottled water) until the problem is corrected.

Systems will inform customers about violations of less immediate concern in the first water bill sent after the violation, in a Consumer Confidence Report, or by mail within a year. In 1998, states began compiling information on individual systems, so you can evaluate the overall quality of drinking water in your state. Additionally, EPA must compile and summarize the state reports into an annual report on the condition of the nation's drinking water. To view the most recent annual report, see *www.epa.gov/safewater/annual.*

How Often Is My Water Supply Tested?

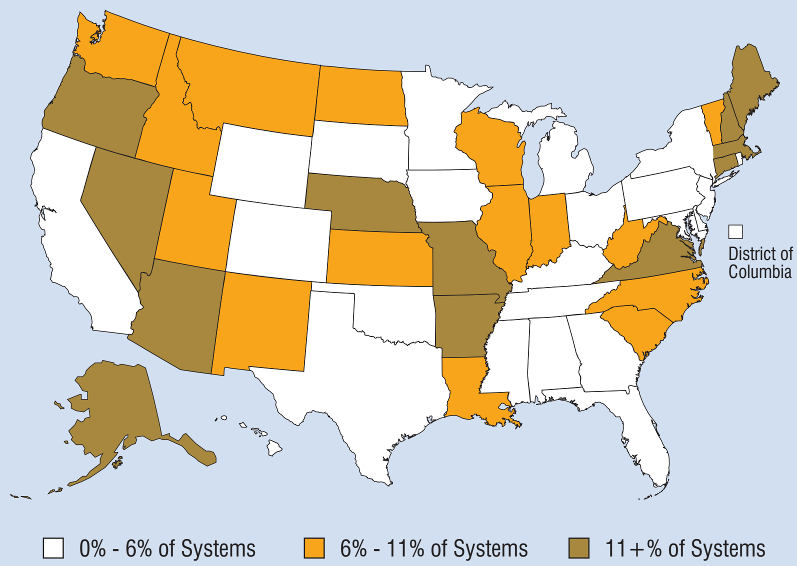
EPA has established pollutant-specific minimum testing schedules for public water systems. To find out how frequently your drinking water is tested, contact your water system or the agency in your state in charge of drinking water.

If a problem is detected, immediate retesting requirements go into effect along with strict instructions about how the system informs the public. Until the system can reliably demonstrate that it is free of problems, the retesting is continued.

In 2001, one out of every four community water systems did not conduct testing or report the results for all of the monitoring required to verify the safety of their drinking water.[4] Although failure to monitor does not necessarily suggest safety problems, conducting the required reporting is crucial to ensure that problems will be detected. Consumers can help make sure certain monitoring and reporting requirements are met by first contacting their state drinking water agency to determine if their water supplier is in compliance. If the water system is not meeting the requirements, consumers can work with local and state officials and the water supplier to make sure the required monitoring and reporting occurs.

A network of government agencies monitor tap water suppliers and enforce drinking water standards to ensure the safety of public water supplies. These agencies include EPA, state departments of health and environment, and local public health departments.

Reported Community Water Systems Violating Maximum Contaminant Levels or Treatment Standards in FY 2002



Nevertheless, problems with local drinking water can, and do, occur.

Common Sources of Pollution

Naturally Occurring: microorganisms (wildlife and soils), radionuclides (underlying rock), nitrates and nitrites (nitrogen compounds in the soil), heavy metals (underground rocks containing arsenic, cadmium, chromium, lead, and selenium), fluoride.

Human Activities: bacteria and nitrates (human and animal wastes—septic tanks and large farms), heavy metals (mining construction, older fruit orchards), fertilizers and pesticides (used by you and others (anywhere crops or lawns are maintained)), industrial products and wastes (local factories, industrial plants, gas stations, dry cleaners, leaking underground storage tanks, landfills, and waste dumps), household wastes (cleaning solvents, used motor oil, paint, paint thinner), lead and copper (household plumbing materials), water treatment chemicals (wastewater treatment plants).

What Problems Can Occur?

Actual events of drinking water contamination are rare, and typically do not occur at levels likely to pose health concerns. However, as development in our modern society increases, there are growing numbers of activities that can contaminate our drinking water. Improperly disposed-of chemicals, animal and human wastes, wastes injected underground, and naturally occurring substances have the potential to contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or that travels through an improperly maintained distribution system, may also pose a health risk. Greater vigilance by you, your water supplier, and your government can help prevent such events in your water supply.

Contaminants can enter water supplies either as a result of human and animal activities, or because they occur naturally in the environment. Threats to your drinking water may exist in your neighborhood, or may occur many miles away. For more information on drinking water threats, see *www.epa.gov/safewater/*

publicoutreach/landscapeposter.html. Some typical examples are microbial contamination, chemical contamination from fertilizers, and lead contamination.

Boil Water Notices for Microbial Contaminants

When microorganisms such as those that indicate fecal contamination are found in drinking water, water suppliers are required to issue "Boil Water Notices." Boiling water for one minute kills the microorganisms that cause disease. Therefore, these notices serve as a precaution to the public. www.epa.gov/safewater/faq/emerg.html

Microbial Contamination:

The potential for health problems from microbial-contaminated drinking water is demonstrated by localized outbreaks of waterborne disease. Many of these outbreaks have been linked to contamination by bacteria or viruses, probably from human or animal wastes. For example, in 1999 and 2000, there were 39 reported disease outbreaks associated with drinking water, some of which were linked to public drinking water supplies.[5]

Certain **pathogens** (disease-causing **microorganisms**), such as ***Cryptosporidium***, may occasionally pass through water filtration and disinfection processes in numbers high enough to cause health problems, particularly in vulnerable members of the population. *Cryptosporidium* causes the gastrointestinal disease, cryptosporidiosis, and can cause serious, sometimes fatal, symptoms, especially among sensitive members of the population. (See box on Sensitive Subpopulations on page 1.) A serious outbreak of cryptosporidiosis occurred in 1993 in Milwaukee, Wisconsin, causing more than 400,000 persons to be infected with the disease, and resulting in at least 50 deaths. This was the largest recorded outbreak of waterborne disease in United States history.[6]

Excessive levels of nitrates can cause "blue baby syndrome," which can be fatal without immediate medical attention.

Chemical Contamination From Fertilizers:

Nitrate, a chemical most commonly used as a fertilizer, poses an immediate threat to infants when it is found in drinking water at levels above the national standard. Nitrates are converted to nitrites in the intestines. Once absorbed into the bloodstream, nitrites prevent hemoglobin from transporting oxygen. (Older children have an enzyme that restores hemoglobin.) Excessive levels can cause "blue baby syndrome," which can be fatal without immediate medical attention. Infants most at risk for blue baby syndrome are those who are already sick, and while they are sick, consume food that is high in nitrates or drink water or formula mixed with water that is high in nitrates. Avoid using water with high nitrate levels for drinking. This is especially important for infants and young children, nursing mothers, pregnant women and certain elderly people.

Nitrates: Do NOT Boil

Do NOT boil water to attempt to reduce nitrates. Boiling water contaminated with nitrates increases its concentration and potential risk. If you are concerned about nitrates, talk to your health care provider about alternatives to boiling water for baby formula.

Lead Contamination:

Lead, a metal found in natural deposits, is commonly used in household plumbing materials and water service lines. The greatest exposure to lead is swallowing lead paint chips or breathing in lead dust. But lead in drinking water can also cause a variety of adverse health effects. In babies and children, exposure to lead in drinking water above the **action level** of lead (0.015 milligram per liter) can result in delays in physical and mental development, along with slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Lead is rarely found in source water, but enters tap water through corrosion of plumbing materials. Very old and poorly maintained homes may be more likely to have lead pipes, joints, and solder. However, new homes are also at risk: pipes legally considered to be "lead-free" may contain up to eight percent lead. These pipes can leach significant amounts of lead in the water for the first several months after their installation. For more information on lead contamination, see *www.epa.gov/safewater/contaminants/dw_contamfs/lead.html.*

Lead: Do NOT Boil

Do NOT boil water to attempt to reduce lead. Boiling water increases lead concentration. Always use water from the cold tap for preparing baby formula, cooking, and drinking. Flush pipes first by running the water before using it. Allow the water to run until it's cold. If you have high lead levels in your tap water, talk to your health care provider about alternatives to using boiled water in baby formula.

For more information on drinking water contaminants that are regulated by EPA, see Appendix A, or visit *www.epa.gov/safewater/mcl.html.*

Where Can I Find More Information About My Drinking Water?

Drinking water varies from place to place, depending on the water's source and the treatment it receives. If your drinking water comes from a community water system, the system will deliver to its customers annual drinking water quality reports (or Consumer Confidence Reports). These reports will tell consumers what contaminants have been detected in their drinking water, how these detection levels compare to drinking water standards, and where their water comes from. The reports must be provided annually before July 1, and, in most cases, are mailed directly to customers' homes. Contact your water supplier to get a copy of your report, or see if your report is posted online at *www.epa.gov/safewater/dwinfo.htm.* Your state's department of health or environment can also be a valuable source of information. For help in locating these agencies, call the Safe Drinking Water Hotline. Further resources can be found in Appendix C. Information on testing household wells is on page 19.

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1 *Factoids: Drinking Water & Ground Water Statistics for 2002, 2003.*

2 *Community Water Systems Survey 2000, Volume I, 2001.*

3 *The Clean Water and Drinking Water Infrastructure Gap Analysis,* EPA 816-R-02-020.

4 *Factoids: Drinking Water and Ground Water Statistics for 2001,* EPA 816-K-02-004.

5 *Morbidity and Mortality Weekly Report: Surveillance for Waterborne Disease Outbreaks, United States 1999-2000, 2002.*

6 *25 Years of the Safe Drinking Water Act, 1999.*

3. Where Does My Drinking Water Come From And How Is It Treated?

Your drinking water comes from **surface water** or **ground water**. The water that systems pump and treat from sources open to the atmosphere, such as rivers, lakes, and reservoirs is known as surface water. Water pumped from wells drilled into underground **aquifers**, geologic formations containing water, is called ground water. The quantity of water produced by a well depends on the nature of the rock, sand, or soil in the aquifer from which the water is drawn. Drinking water wells may be shallow (50 feet or less) or deep (more than 1,000 feet). More water systems have ground water than surface water as a source (approx. 147,000 v. 14,500), but more people drink from a surface water system (195 million v. 101,400). Large-scale water supply systems tend to rely on surface water resources, while smaller water systems tend to use ground water. Your water utility or public works department can tell you the source of your public water supply.

How Does Water Get To My Faucet?

An underground network of pipes typically delivers drinking water to the homes and businesses served by the water system. Small systems serving just a handful of households may be relatively simple, while large metropolitan systems can be extremely complex—sometimes consisting of thousands of miles of pipes serving millions of people. Drinking water must meet required health standards when it leaves the treatment plant. After treated water leaves the plant, it is monitored within the distribution system to identify and remedy any problems such as water main breaks, pressure variations, or growth of microorganisms.

How Is My Water Treated To Make It Safe?

Water utilities treat nearly 34 billion gallons of water every day.[1] The amount and type of treatment applied varies with the source and quality of the water. Generally, surface water systems require more treatment than ground water systems because they are directly exposed to the atmosphere and runoff from rain and melting snow.

Water suppliers use a variety of treatment processes to remove contaminants from drinking water. These individual processes can be arranged in a "treatment train" (a series of processes applied in a sequence). The most commonly used processes include coagulation (flocculation and sedimentation), filtration, and disinfection. Some water systems also use ion exchange and adsorption. Water utilities select the treatment combination most appropriate to treat the contaminants found in the **source water** of that particular system.

Coagulation (Flocculation & Sedimentation):

Flocculation: This step removes dirt and other particles suspended in the water. Alum and iron salts or synthetic organic polymers are added to the water to form tiny sticky particles called "floc," which attract the dirt particles.

All sources of drinking water contain some naturally occurring contaminants. At low levels, these contaminants generally are not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and may even have nutritional value at low levels.

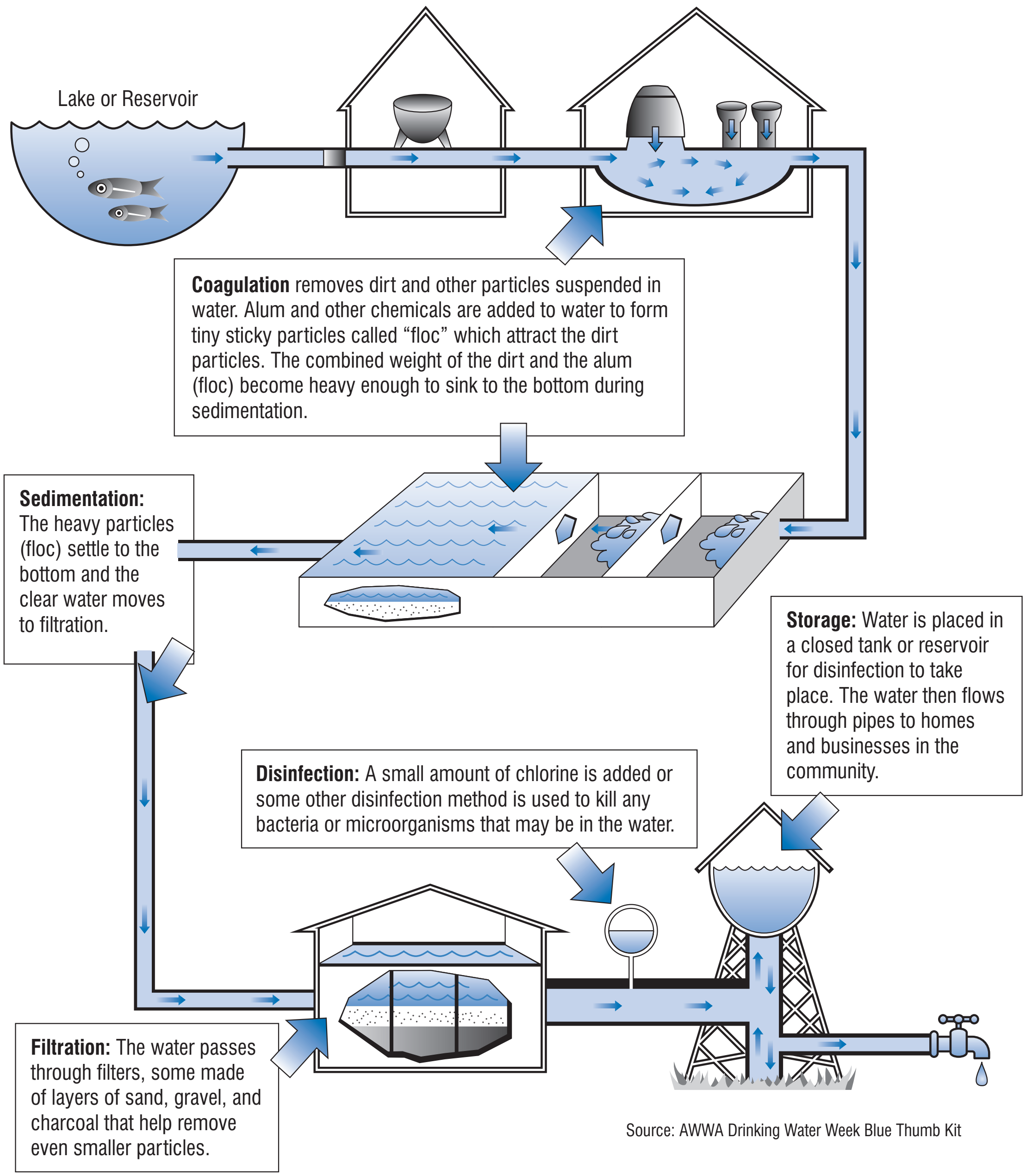
Sedimentation: The flocculated particles then settle naturally out of the water.

Filtration:

Many water treatment facilities use filtration to remove all particles from the water. Those particles include clays and silts, natural organic matter, precipitates from other treatment processes in the facility, iron and manganese, and microorganisms. Filtration clarifies the water and enhances the effectiveness of disinfection.

Water Treatment Plant

Follow a drop of water from the source through the treatment process. Water may be treated differently in different communities depending on the quality of the water which enters the plant. Groundwater is located underground and typically requires less treatment than water from lakes, rivers, and streams.



Source: AWWA Drinking Water Week Blue Thumb Kit

Disinfection:

Disinfection of drinking water is considered to be one of the major public health advances of the 20th century. Water is often disinfected before it enters the distribution system to ensure that dangerous microbial contaminants are killed. Chlorine, chlorinates, or chlorine dioxides are most often used because they are very effective **disinfectants**, and residual concentrations can be maintained in the water system.

Water System Filtration Tank

Why Is My Water Bill Rising?

The cost of drinking water is rising as suppliers meet the needs of aging infrastructure, comply with public health standards, and expand service areas. In most cases, these increasing costs have caused water suppliers to raise their rates. However, despite rate increases, water is generally still a bargain compared to other utilities, such as electricity and phone service. In fact, in the United States, combined water and sewer bills average only about 0.5 percent of household income.[2]

1 *Protect Your Drinking Water*, 2002.

2 *Congressional Budget Office Study: Future Investment in Drinking Water & Wastewater Infrastructure, 2002.*

Disinfection Byproducts

Disinfection of drinking water is one of the major public health advances of the 20th century. However, sometimes the disinfectants themselves can react with naturally occurring materials in the water to form unintended byproducts, which may pose health risks. EPA recognizes the importance of removing microbial contaminants while simultaneously protecting the public from disinfection byproducts, and has developed regulations to limit the presence of these byproducts. For more information, see www.epa.gov/safewater/mdbp.html.

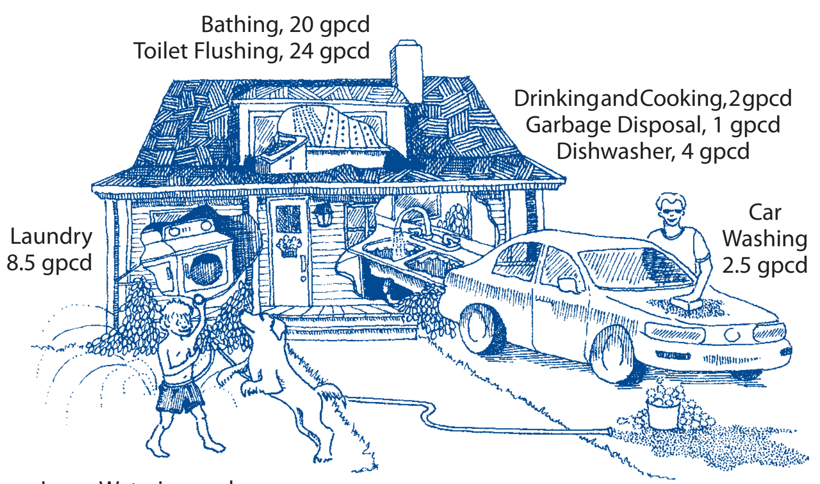
Water passes through charcoal, sand, and gravel layers in a water system's filtration tank.

4. How Do We Use Drinking Water In Our Homes?

We take our water supplies for granted, yet they are limited. Only one percent of all the world's water can be used for drinking. Nearly 97 percent of the world's water is salty or otherwise undrinkable, and the other two percent is locked away in ice caps and glaciers. There is no "new" water: whether our source water is a stream, river, lake, spring, or well, we are using the same water the dinosaurs used millions of years ago.

Common Household Uses of Drinking Water*

(*Gallons per Capita per Day)



Source: Van Der Leeden, F., F. L. Troise, and D. K. Todd. The Water Encyclopedia. Lewis Publishers, Inc. Second Edition, 1990.

The average American uses about 90 gallons of water each day in the home, and each American household uses approximately 107,000 gallons of water each year.[1] For the most part, we use water treated to meet drinking water standards to flush toilets, water lawns, and wash dishes, clothes, and cars. In fact, 50-70 percent of home water is used for watering lawns and gardens.[2] Nearly 14 percent of the water a typical homeowner pays for is never even used—it leaks down the drain.[3]

How Much Water Do Homes In The U.S. Use Compared To Other Countries?

Americans use much more water each day than individuals in both developed and undeveloped countries: For example, the average European uses 53 gallons; the average Sub-Saharan citizen, 3-5 gallons.[4]

Water efficiency plays an important role in protecting water sources and improving water quality. By using water wisely, we can save money and help the environment. Water efficiency means using less water to provide the same benefit. Using water-saving techniques could save you hundreds of dollars each year, while also reducing the amount of pollutants entering our waterways.

How Do Drinking Water Utilities Conserve Water?

Water utilities forecast water source availability, growth in population, and water demand to ensure adequate future water supplies during normal conditions, as well as periods of drought. When water shortages are predicted or experienced, water utilities have many options for conserving water. Temporary cutbacks or permanent operating adjustments can help conserve water.

Temporary cutbacks may include:

- Reduction of system-wide operating pressure, and
- Water use bans, restrictions, and rationing.

Permanent conservation measures may include:

- Subsidizing use of water-efficient faucets, toilets, and showerheads,
- Public education and voluntary use reduction,
- Billing practices that impose higher rates for higher amounts of water use,
- Building codes that require water-efficient fixtures and appliances,
- Leak detection surveys and meter testing, repair, and replacement, and
- Reduction in use and increase in recycling of industrial water.

How Can Businesses Conserve Water?

The industrial and commercial sectors can conserve water through recycling and waste reduction. Industry has implemented conservation measures to comply with state and federal water pollution controls. Evaluation of industrial plant data may show that a particular process or manufacturing step uses the most water or causes the greatest contamination. Such areas can be targeted for water conservation. Also, water that is contaminated by one process may be usable in other plant processes that do not require high-quality water.

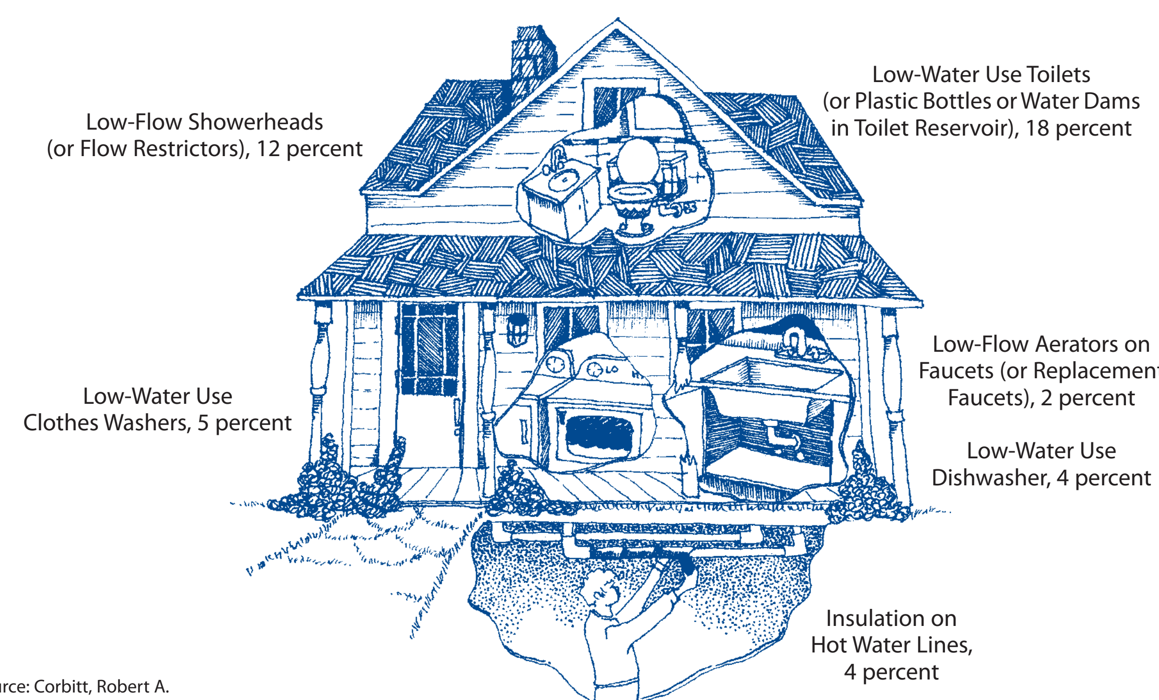
How Can I Conserve Water?

The national average cost of water is $2.00 per 1,000 gallons. The average American family spends about $474 each year on water and sewage charges.[5] American households spend an additional $230 per year on water heating costs.[6] By replacing appliances such as the dishwasher and inefficient fixtures such as toilets and showerheads, you can save a substantial amount each year in water, sewage, and energy costs.

There are many ways to save water in and around your home. Here are the five that might get the best results:

Ways To Save Water At Home*

(*Water Savings as Percent of Total Interior Water Use)



Source: Corbitt, Robert A. Standard Handbook of Environmental Engineering. McGraw-Hill, Inc. 1989.

- *Stop Leaks.*
- *Replace Old Toilets* with models that use 1.6 gallons or less per flush.
- *Replace Old Clothes Washers* with EPA Energy Star certified models.
- *Plant the Right Kind of Garden* that requires less water.
- *Provide Only the Water Plants Need.*

For more information on ways to conserve water in the home, see *www.epa.gov/water/waterefficiency.html* or *www.h2ouse.org.*

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1 *Water Trivia Facts,* EPA 80-F-95-001.

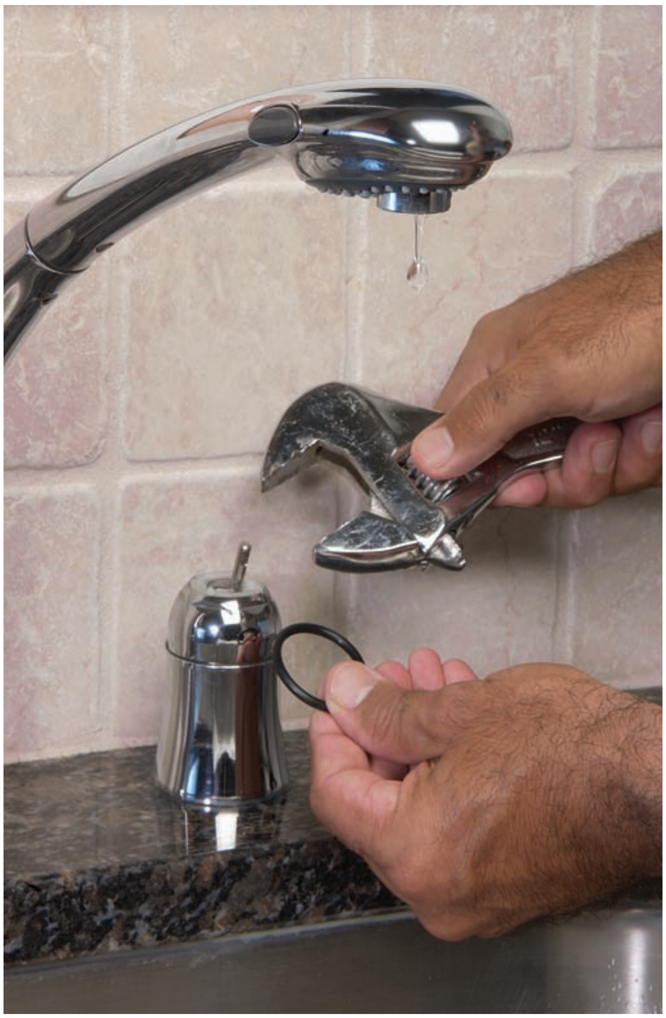
2 AWWA *Stats on Tap.*

3 *Using Water Wisely in the Home,* 2002.

4 *The Use of Water Today,* World Water Council.

5 *Investing in America's Water Infrastructure*, 2002.

6 *Using Water Wisely in the Home*, 2002.



Nearly 14 percent of the water a typical homeowner pays for is never even used—it leaks down the drain.

Using Water Wisely in the Home, 2002

5. What's Being Done To Improve Water Security?

What Security Measures Are In Place To Protect Water Systems?

Drinking water utilities today find themselves facing new responsibilities due to concerns over water system security and counter-terrorism. EPA is committed to the safety of public drinking water supplies and has taken numerous steps to work with utilities, other government agencies, and law enforcement to minimize threats.

The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 requires that all community water systems serving more than 3,300 people evaluate their susceptibility to potential threats and identify corrective actions. EPA has provided assistance to help utilities with these **Vulnerability Assessments** by giving direct grants to large systems, supporting self-assessment tools, and providing technical help and training to small and medium utilities. For more information on water system security, see *www.epa.gov/safewater/security.*

How Can I Help Protect My Drinking Water?

Local drinking water and wastewater systems may be targets for terrorists and other would-be criminals

wishing to disrupt and cause harm to your community water supplies or wastewater facilities.

Because utilities are often located in isolated areas, drinking water sources and wastewater collection systems may cover large areas that are difficult to secure and patrol. Residents can be educated to notice and report any suspicious activity in and around local water utilities. Any residents interested in protecting their water resources and community as a whole can join together with law enforcement, neighborhood watch groups, water suppliers, wastewater operators, and other local public health officials. If you witness suspicious activities, report them to your local law enforcement authorities.

Examples of suspicious activity might include:

- People climbing or cutting a utility fence
- People dumping or discharging material to a water reservoir

- Unidentified truck or car parked or loitering near waterway or facilities for no apparent reason
- Suspicious opening or tampering with manhole covers, fire hydrants, buildings, or equipment

- People climbing or on top of water tanks
- People photographing or videotaping utility facilities, structures or equipment
- Strangers hanging around locks or gates

Report suspicious activity to local authorities

Do not confront strangers. Instead report suspicious activities to local authorities.

When reporting an incident:

- State the nature of the incident
- Identify yourself and your location
- Identify location of activity
- Describe any vehicle involved (color, make, model, plate number)
- Describe the participants (how many, sex, race, color of hair, height, weight, clothing)

For emergencies, dial 9-1-1 or other local emergency response numbers.

For more information on water security, visit:
www.epa.gov/safewater/security

6. What Can I Do If There Is A Problem With My Drinking Water?

Local incidents, such as spills and treatment problems, can lead to short-term needs for alternative water supplies or in-home water treatment. In isolated cases, individuals may need to rely on alternative sources for the long term, due to their individual health needs or problems with obtaining new drinking water supplies.

What Alternative Sources Of Water Are Available?

Bottled water is sold in supermarkets and convenience stores. Some companies lease or sell water dispensers or bubblers and regularly deliver large bottles of water to homes and businesses. It is expensive compared to water from a public water system. The bottled water quality varies among brands, because of the variations in the source water used, costs, and company practices.

The U.S. Food and Drug Administration (FDA) regulates bottled water used for drinking. While most consumers assume that bottled water is at least as safe as tap water, there are still potential risks. Although required to meet the same safety standards as public water supplies, bottled water does not undergo the same testing and reporting as water from a treatment facility. Water that is bottled and sold in the same state may not be subject to any federal standards at all. Those with compromised immune systems may want to read bottled water labels to make sure more stringent treatments have been used, such as reverse osmosis, distillation, UV radiation, or filtration by an absolute 1 micron filter.

Check with NSF International to see if your bottled water adheres to FDA and international drinking water standards. The International Bottled Water Association can also provide information on which brands adhere to even more stringent requirements. Contact information is listed in Appendix C.

Can I Do Anything In My House To Improve The Safety Of My Drinking Water?

Most people do not need to treat drinking water in their home to make it safe. However, a home water treatment unit can improve water's taste, or provide a factor of safety for those people more vulnerable to waterborne disease. There are different options for home treatment systems. Point-of-use (POU) systems treat water at a single tap. Point-of-entry (POE) systems treat water used throughout the house. POU systems can be installed in various places in the home, including the counter top, the faucet itself, or under the sink. POE systems are installed where the water line enters the house.

POU and POE devices are based on various contaminant removal technologies. Filtration, ion exchange, reverse osmosis, and distillation are some of the treatment methods used. All types of units are generally available from retailers, or by mail order. Prices can reach well into the hundreds and sometimes thousands of dollars, and depending on the method and location of installation, plumbing can also add to the cost.

TREATMENT DEVICE	WHAT IT DOES TO WATER	TREATMENT LIMITATIONS
Activated Carbon Filter (includes mixed media that remove heavy metals)	√ Adsorbs organic contaminants that cause taste and odor problems. √ Somedesigns remove chlorination byproducts; √ Some types remove cleaning solvents and pesticides	Is efficient in removing metals such as lead and copper Does not remove nitrate, bacteria or dissolved minerals
Ion Exchange Unit (with activated alumina)	√ Removes minerals, particularly calcium and magnesium that make water "hard" √ Some designs remove radium and barium √ Removes fluoride	If water has oxidized iron or iron bacteria, the ion-exchange resin will become coated or clogged and lose its softening ability
Reverse Osmosis Unit (with carbon)	√ Removes nitrates, sodium, other dissolved inorganics and organic compounds √ Removes foul tastes, smells or colors √ May also reduce the level of some pesticides, dioxins and chloroform and petrochemicals	Does not remove all inorganic and organic contaminants
Distillation Unit	√ Removes nitrates, bacteria, sodium, hardness, dissolved solids, most organic compounds, heavy metals, and radionucleides √ Kills bacteria	Does not remove some volatile organic contaminants, certain pesti-cides and volatile solvents Bacteria may recolonize on the cool-ing coils during inactive periods

Activated carbon filters adsorb **organic contaminants** that cause taste and odor problems. Depending on their design, some units can remove chlorination byproducts, some cleaning solvents, and pesticides. To maintain the effectiveness of these units, the carbon canisters must be replaced periodically. Activated carbon filters are efficient in removing metals such as lead and copper if they are designed to absorb or remove lead.

Because ion exchange units can be used to remove minerals from your water, particularly calcium and magnesium, they are sold for water softening. Some ion exchange softening units remove radium and barium from water. Ion exchange systems that employ activated alumina are used to remove fluoride and arsenate from water. These units must be regenerated periodically with salt.

Reverse osmosis treatment units generally remove a more diverse list of contaminants than other systems. They can remove nitrates, sodium, other dissolved inorganics, and organic compounds.

Distillation units boil water and condense the resulting steam to create distilled water. Depending on their design, some of these units may allow vaporized organic contaminants to condense back into the product water, thus minimizing the removal of organics.

You may choose to boil your water to remove microbial contaminants. Keep in mind that boiling reduces the volume of water by about 20 percent, thus concentrating those contaminants not affected by the temperature of boiling water, such as nitrates and pesticides. For more information on boiling water, see page 5 of this booklet.

No one unit can remove everything. Have your water tested by a certified laboratory prior to purchasing any device. Do not rely on the tests conducted by salespeople that want to sell you their product.

Maintaining Treatment Devices

All POU and POE treatment units need maintenance to operate effectively. If they are not maintained properly, contaminants may accumulate in the units and actually make your water worse. In addition, some vendors may make claims about their effectiveness that have no merit. Units are tested for their safety and effectiveness by two organizations, NSF International and Underwriters Laboratory. In addition, the Water Quality Association represents the household, commercial, industrial and small community treatment industry and can help you locate a professional that meets their code of ethics. EPA does not test or certify these treatment units.

Where Can I Learn More About Home Treatment Systems?

Your local library has articles, such as those found in consumer magazines, on the effectiveness of these devices.

The U.S. General Accounting Office published a booklet called *Drinking Water: Inadequate Regulation of Home Treatment Units Leaves Consumers At Risk* (December 1991). To read this booklet, visit *www.gao.gov* and search for **document number RCED-92-34**, or call (202) 512-6000.

This treatment device is for point of use (POU). For more information on different types of devices contact NSF International, Underwriters Laboratory, or the Water Quality Association See Appendix C for contact information.

7. How Safe Is The Drinking Water In My Household Well?

EPA regulates public water systems; it does not have the authority to regulate private wells. Approximately 15 percent of Americans rely on their own private drinking water supplies (*Drinking Water from Household Wells,* 2002), and these supplies are not subject to EPA standards. Unlike public drinking water systems serving many people, they do not have experts regularly checking the water's source and its quality before it is sent to the tap. These households must take special precautions to ensure the protection and maintenance of their drinking water supplies.

Drinking Water from Household Wells is an EPA publication available to specifically address special concerns of a private drinking water supply. To learn more, or to obtain a copy, visit *www.epa.gov/safewater/privatewells,* or call the Safe Drinking Water Hotline.

How Much Risk Can I Expect?

The risk of having problems depends on how good your well is—how well it was built and located, and how well you maintain it. It also depends on your local environment. That includes the quality of the aquifer from which your water is drawn and the human activities going on in your area that can affect your well.

Several sources of pollution are easy to spot by sight, taste, or smell. However, many serious problems can be found only by testing your water. Knowing the possible threats in your area will help you decide the kind of tests you may need.

What Should I Do?

There are six basic steps you can take to help protect your private drinking water supply:

1. Identify potential problem sources.
2. Talk with local experts.
3. Have your water tested periodically.
4. Have the test results interpreted and explained clearly.
5. Set and follow a regular maintenance schedule for your well, and keep up-to-date records.
6. Immediately remedy any problems.

Identify Potential Problem Sources

Understanding and spotting possible pollution sources is the first step to safeguarding your drinking water. If your drinking water comes from a well, you may also have a **septic system**. Septic systems and other on-site wastewater disposal systems are major potential sources of contamination of private water supplies if they are poorly maintained or located improperly, or if they are used for disposal of toxic chemicals. Information on septic systems is available from local health departments, state agencies, and the National Small Flows Clearinghouse *(www.epa.gov/owm/mab/smcomm/nsfc.htm*) at (800) 624-8301. A septic system design manual and guidance on system maintenance are available from EPA (*www.epa.gov/OW-OWM.html/mtb/decent/homeowner.htm*).

Talk With Local Experts

Ground water conditions vary greatly from place to place, and local experts can give you the best information about your drinking water supply. Some examples are your health department's "sanitarian," local water-well contractors, public water system officials, county extension agents of the Natural Resources Conservation Service (NRCS), local or county planning commissions, and your local library.

Have Your Water Tested Periodically

Test your water every year for total **coliform** bacteria, nitrates, total dissolved solids, and pH levels. If you suspect other contaminants, test for these as well. As the tests can be expensive, limit them to possible problems specific to your situation. Local experts can help you identify these contaminants. You should also test your water after replacing or repairing any part of the system, or if you notice any change in your water's look, taste, or smell.

Often, county health departments perform tests for bacteria and nitrates. For other substances, health departments, environmental offices, or county governments should have a list of state-certified laboratories. Your State Laboratory Certification Officer can also provide you with this list. Call the Safe Drinking Water Hotline for the name and number of your state's certification officer. Any laboratory you use should be certified to do drinking water testing.

Have Your Test Results Interpreted And Explained Clearly

Compare your well's test results to federal and state drinking water standards (see Appendix A, or visit *www.epa.gov/safewater/mcl.html* or call the Safe Drinking Water Hotline). You may need to consult experts to aid you in understanding your results, such as the state agency that licenses water well contractors, your local health department, or your state's drinking water program.

Protecting Your Ground Water Supply

- Periodically inspect exposed parts of the well for problems such as:
  - Cracked, corroded, or damaged well casing
  - Broken or missing well cap
  - Settling and cracking of surface seals.
- Slope the area around the well to drain surface runoff away from the well.
- Install a well cap or sanitary seal to prevent unauthorized use of, or entry into, the well.
- Disinfect drinking water wells at least once per year with bleach or hypochlorite granules, according to the manufacturer's directions.
- Have the well tested once a year for coliform bacteria, nitrates, and other constituents of concern.
- Keep accurate records of any well maintenance, such as disinfection or sediment removal, that may require the use of chemicals in the well.
- Hire a certified well driller for any new well construction, modification, or abandonment and closure.
- Avoid mixing or using pesticides, fertilizers, herbicides, degreasers, fuels, and other pollutants near the well.
- Do not dispose of wastes in dry wells or in abandoned wells.
- Do not cut off the well casing below the land surface.
- Pump and inspect septic systems as often as recommended by your local health department.
- Never dispose of hazardous materials in a septic system.

Set A Regular Maintenance Schedule For Your Well And Your Septic System

Proper well and septic system construction and continued maintenance are keys to the safety of your water supply. Your state water well and septic system contractor licensing agency, local health department, or local public water system professional can provide information on well construction. Make certain your contractors are licensed by the state, if required, or certified by the National Ground Water Association.

Maintain your well, fixing problems before they reach crisis levels, and keep up-to-date records of well installation and repairs, as well as plumbing and water costs. Protect your own well area from contamination.

Immediately Remedy Any Problems

If you find that your well water is contaminated, fix the problem as soon as possible. Consider connecting into a nearby community water system, if one is available. You may want to install a water treatment device to remove impurities. Information on these devices is provided on page 16. If you connect to a public water system, remember to close your well properly.

Animal waste can contaminate your water supply

After A Flood-Concerns And Advisories

- Stay away from well pump to avoid electric shock.
- Do not drink or wash from a flooded well.
- Pump the well until water runs clear.
- If water does not run clear, contact the county or state health department or extension service for advice.

8. What You Can Do To Protect Your Drinking Water

Drinking water protection is a shared responsibility. Many actions are underway to protect our nation's drinking water, and there are many opportunities for citizens to become involved.

Be Involved!

EPA activities to protect drinking water include setting drinking water standards and overseeing the work of states that enforce federal standards—or stricter ones set by the individual state. EPA holds many public meetings on issues ranging from proposed drinking water standards to the development of databases. You can also comment on proposed drafts of other upcoming EPA documents. A list of public meetings and regulations open for comment can be found at *www.epa.gov/safewater/pubinput/html.*

Be Informed!

- Read the annual Consumer Confidence Report provided by your water supplier. Some Consumer Confidence Reports are available at *www.epa.gov/safewater/dwinfo.htm*.
- Use information from your state's Source Water Assessment to learn about potential threats to your water source.
- If you are one of the 15 percent of Americans who uses a private source of drinking water—such as a well, cistern, or spring—find out what activities are taking place in your **watershed** that may impact your drinking water; talk to local experts/test your water periodically; and maintain your well properly.
- Find out if the Clean Water Act standards for your drinking water source are intended to protect water for drinking, in addition to fishing and swimming.

Be Observant!

- Look around your watershed and look for announcements in the local media about activities that may pollute your drinking water.
- **Form and operate** a citizens watch network within your community to communicate regularly with law enforcement, your public water supplier and wastewater operator. **Communication** is key to a safer community!
- **Be alert**. Get to know your water/wastewater utilities, their vehicles, routines and their personnel.
- **Become aware of your surroundings**. This will help you to recognize suspicious activity as opposed to normal daily activities.

Other Ways To Get Involved

- Attend public hearings on new construction, storm water permitting, and town planning.
- Keep your public officials accountable by asking to see their environmental impact statements.
- Ask questions about any issue that may affect your water source.
- Participate with your government and your water system as they make funding decisions.
- Volunteer or help recruit volunteers to participate in your community's contaminant monitoring activities.
- Help ensure that local utilities that protect your water have adequate resources to do their job.

- If you see any suspicious activities in or around your water supply, please notify local authorities or call 9-1-1 immediately to report the incident.

Stormwater runoff threatens our sources of drinking water. As this water washes over roofs, pavement, farms and grassy areas, it picks up fertilizers, pesticides and litter, and deposits them in surface water and ground water. Here are some other threats to our drinking water:

Every year:

- We apply 67 million pounds of pesticides that contain toxic and harmful chemicals to our lawns.
- We produce more than 230 million tons of municipal solid water—approximately five pounds of trash or garbage per person per day—that contain bacteria, nitrates, viruses, synthetic detergents, and household chemicals.
- Our more than 12 million recreational and houseboats and 10,000 boat marinas release solvents, gasoline, detergents, and raw sewage directly into our rivers, lakes and streams.

Don’t Contaminate!

- Reduce paved areas: use permeable surfaces that allow rain to soak through, not run off.
- Reduce or eliminate pesticide application: test your soil before applying chemicals, and use plants that require little or no water, pesticides, or fertilizers.
- Reduce the amount of trash you create: reuse and recycle.
- Recycle used oil: 1 quart of oil can contaminate 2 million gallons of drinking water—take your used oil and antifreeze to a service station or recycling center.
- Take the bus instead of your car one day a week: you could prevent 33 pounds of carbon dioxide emissions each day.
- Keep pollutants away from boat marinas and waterways: keep boat motors well-tuned to prevent leaks, select nontoxic cleaning products and use a drop cloth, and clean and maintain boats away from the water.

For more information on how you can help protect your local drinking water source, call the Safe Drinking Water Hotline, or check *www.epa.gov/safewater/publicoutreach*. Additional resources are listed in Appendix C.

National Primary Drinking Water Regulations

Contaminant		MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
OC	Acrylamide	TT[4]	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/ wastewater treatment	zero
OC	Alachlor	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
R	Alpha/photon emitters	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
IOC	Antimony	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
IOC	Arsenic	0.010	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes	0
IOC	Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
OC	Atrazine	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
IOC	Barium	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
OC	Benzene	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
OC	Benzo(a)pyrene (PAHs)	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
IOC	Beryllium	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	0.004
R	Beta photon emitters	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
DBP	Bromate	0.010	Increased risk of cancer	Byproduct of drinking water disinfection	zero
IOC	Cadmium	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
OC	Carbofuran	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04
OC	Carbon tetrachloride	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
D	Chloramines (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort; anemia	Water additive used to control microbes	MRDLG=4[1]
OC	Chlordane	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
D	Chlorine (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4[1]
D	Chlorine dioxide (as ClO_2)	MRDL=0.8[1]	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Water additive used to control microbes	MRDLG=0.8[1]
DBP	Chlorite	1.0	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Byproduct of drinking water disinfection	0.8
OC	Chlorobenzene	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
IOC	Chromium (total)	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	0.1
IOC	Copper	TT[5]; Action Level = 1.3	Short-term exposure: Gastrointestinal distress. Long-term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
M	*Cryptosporidium*	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero

LEGEND

D	Disinfectant	IOC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

Contaminant		MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
IOC	Cyanide (as free cyanide)	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
OC	2,4-D	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	0.07
OC	Dalapon	0.2	Minor kidney changes	Runoff from herbicide used on rights of way	0.2
OC	1,2-Dibromo-3-chloropropane (DBCP)	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	zero
OC	o-Dichlorobenzene	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
OC	p-Dichlorobenzene	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
OC	1,2-Dichloroethane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC	1,1-Dichloroethylene	0.007	Liver problems	Discharge from industrial chemical factories	0.007
OC	cis-1,2-Dichloroethylene	0.07	Liver problems	Discharge from industrial chemical factories	0.07
OC	trans-1,2-Dichloroethylene	0.1	Liver problems	Discharge from industrial chemical factories	0.1
OC	Dichloromethane	0.005	Liver problems; increased risk of cancer	Discharge from drug and chemical factories	zero
OC	1,2-Dichloropropane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC	Di(2-ethylhexyl) adipate	0.4	Weight loss, liver problems, or possible reproductive difficulties	Discharge from chemical factories	0.4
OC	Di(2-ethylhexyl) phthalate	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	zero
OC	Dinoseb	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables	0.007
OC	Dioxin (2,3,7,8-TCDD)	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	zero
OC	Diquat	0.02	Cataracts	Runoff from herbicide use	0.02
OC	Endothall	0.1	Stomach and intestinal problems	Runoff from herbicide use	0.1
OC	Endrin	0.002	Liver problems	Residue of banned insecticide	0.002
OC	Epichlorohydrin	TT[4]	Increased cancer risk; stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	zero
OC	Ethylbenzene	0.7	Liver or kidney problems	Discharge from petroleum refineries	0.7
OC	Ethylene dibromide	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries	zero
M	Fecal coliform and *E. coli*	MCL[6]	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes may cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.	Human and animal fecal waste	zero[6]
IOC	Fluoride	4.0	Bone disease (pain and tenderness of the bones); children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	4.0
M	*Giardia lamblia*	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC	Glyphosate	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
DBP	Haloacetic acids (HAA5)	0.060	Increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
OC	Heptachlor	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide	zero
OC	Heptachlor epoxide	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor	zero
M	Heterotrophic plate count (HPC)	TT[7]	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	n/a

LEGEND

D Disinfectant	IOC Inorganic Chemical	OC Organic Chemical
DBP Disinfection Byproduct	M Microorganism	R Radionuclides

	Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
OC	Hexachlorobenzene	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	zero
OC	Hexachlorocyclopentadiene	0.05	Kidney or stomach problems	Discharge from chemical factories	0.05
IOC	Lead	TT5; Action Level=0.015	Infants and children: Delays in physical or or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
M	*Legionella*	TT7	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	zero
OC	Lindane	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens	0.0002
IOC	Mercury (inorganic)	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands	0.002
OC	Methoxychlor	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	0.04
IOC	Nitrate (measured as Nitrogen)	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10
IOC	Nitrite (measured as Nitrogen)	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
OC	Oxamyl (Vydate)	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
OC	Pentachlorophenol	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood-preserving factories	zero
OC	Picloram	0.5	Liver problems	Herbicide runoff	0.5
OC	Polychlorinated biphenyls (PCBs)	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
R	Radium 226 and Radium 228 (combined)	5 pCi/L	Increased risk of cancer	Erosion of natural deposits	zero
IOC	Selenium	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	0.05
OC	Simazine	0.004	Problems with blood	Herbicide runoff	0.004
OC	Styrene	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills	0.1
OC	Tetrachloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
IOC	Thallium	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
OC	Toluene	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
M	Total Coliforms	5.0 percent[8]	Coliforms are bacteria that indicate that other, potentially harmful bacteria may be present. See fecal coliforms and *E. coli*	Naturally present in the environment	zero
DBP	Total Trihalomethanes (TTHMs)	0.080	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
OC	Toxaphene	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
OC	2,4,5-TP (Silvex)	0.05	Liver problems	Residue of banned herbicide	0.05
OC	1,2,4-Trichlorobenzene	0.07	Changes in adrenal glands	Discharge from textile finishing factories	0.07
OC	1,1,1-Trichloroethane	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.2
OC	1,1,2-Trichloroethane	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
OC	Trichloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	zero

LEGEND

- D Disinfectant
- DBP Disinfection Byproduct
- IOC Inorganic Chemical
- M Microorganism
- OC Organic Chemical
- R Radionuclides

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
M Turbidity	TT[7]	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause short term symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a
R Uranium	30µg/L	Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero
OC Vinyl chloride	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	zero
M Viruses (enteric)	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC Xylenes (total)	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	10

LEGEND

D Disinfectant	IOC Inorganic Chemical	OC Organic Chemical
DBP Disinfection Byproduct	M Microorganism	R Radionuclides

NOTES

1 Definitions

- Maximum Contaminant Level Goal (MCLG)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- Maximum Contaminant Level (MCL)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- Maximum Residual Disinfectant Level Goal (MRDLG)—The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Maximum Residual Disinfectant Level (MRDL)—The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Treatment Technique (TT)—A required process intended to reduce the level of a contaminant in drinking water.

2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

3 Health effects are from long-term exposure unless specified as short-term exposure.

4 Each water system must certify annually, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05 percent dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01 percent dosed at 20 mg/L (or equivalent).

5 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

6 A routine sample that is fecal coliform-positive or *E. coli*-positive triggers repeat samples--if any repeat sample is total coliform-positive, the system has an acute MCL violation. A routine sample that is total coliform-positive and fecal coliform-negative or *E. coli*-negative triggers repeat samples--if any repeat sample is fecal coliform-positive or *E. coli*-positive, the system has an acute MCL violation. See also Total Coliforms.

7 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- *Cryptosporidium*: 99 percent removal for systems that filter. Unfiltered systems are required to include Cryptosporidium in their existing watershed control provisions.
- Giardia lamblia: 99.9 percent removal/inactivation
- Viruses: 99.99 percent removal/inactivation
- *Legionella*: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated according to the treatment techniques in the surface water treatment rule, *Legionella* will also be controlled.
- Turbidity: For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelolometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.
- HPC: No more than 500 bacterial colonies per milliliter
- Long Term 1 Enhanced Surface Water Treatment; Surface water systems or ground water systems under the direct influence of surface water serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
- Long Term 2 Enhanced Surface Water Treatment; This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storages facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts. (Monitoring start dates are staggered by system size. The largest systems (serving at least 100,000 people) will begin monitoring in October 2006 and the smallest systems (serving fewer than 10,000 people) will not begin monitoring until October 2008. After completing monitoring and determining their treatment bin, systems generally have three years to comply with any additional treatment requirements.)
- Filter Backwash Recycling: The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

8 No more than 5.0 percent samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli*. If two consecutive TC-positive samples, and one is also positive for *E. coli* or fecal coliforms, system has an acute MCL violation.

9 Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:

- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
- Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

Appendix B: References

US EPA Publications

25 Years of the Safe Drinking Water Act: History & Trends
EPA 816-R-99-007

Community Water Systems Survey 2000, Volume I
EPA 815-R-02-0054

Drinking Water Costs and Federal Funding
EPA 810-F-99-014

Drinking Water from Household Wells
EPA 816-K-02-003

Drinking Water Priority Rulemaking: Microbial and Disinfection Byproduct Rules
EPA 816-F-01-012

Drinking Water Treatment
EPA 810-F-99-013

Factoids: Drinking Water and Ground Water Statistics for 2001
EPA 815-K-02-004

Factoids: Drinking Water and Ground Water Statistics for 2002
EPA 816–K-03-001

Fact Sheet: 1999 Drinking Water Infrastructure Needs Survey
EPA 816-F-01-001

"Investing in America's Water Infrastructure" Keynote Address by G. Tracy Mehan III to the Schwab Capital Markets' Global Water Conference
Protect Your Drinking Water
EPA 816-F-02-012

Public Access to Information & Public Involvement
EPA 810-F-99-021

Report to Congress: EPA Studies on Sensitive Subpopulations and Drinking Water Contaminants
EPA 815-R-00-015
Safe Drinking Water Act-Protecting America's Public Health
EPA 816-H-02-003

Safe Drinking Water Act: Underground Injection Control Program: Protecting Public Health and Drinking Water Resources
EPA 816-H-01-003

The Clean Water and Drinking Water Infrastructure Gap Analysis
EPA 816-F-02-017

The Drinking Water State Revolving Fund: Protecting the Public Through Drinking Water Infrastructure Improvements
EPA 819-F-00-028

Understanding the Safe Drinking Water Act
EPA 810-F-99-008

Using Water Wisely in the Home
EPA 800-F-02-001

Featured Consumer Information Resources

Download the following documents from EPA's New Drinking Water Consumer Information Web site: http://www.epa.gov/safewater/consumerinformation/

Or order hard copies from EPA's National Service Center for Environmental Publications: HYPERLINK "http://www.epa.gov/nscep" http://www.epa.gov/nscep or 1-800-490-9198

Public Health and Emergency Information:

Bottled Water Basics, 816-K-05-003

Filtration Facts, 816-K-05-002

Emergency Disinfection of Drinking Water
English, 816-F-06-027
Spanish, EPA 816-F-06-028
French, 816-F-06-045
Arabic, 816-F-06-030
Vietnamese, 816-F-06-029

What to Do After the Flood
English, 816-F-05-021
Spanish, 816-F-05-021
Vietnamese, 816-F-05-025

Is There Lead In My Drinking Water?
816-F-05-001

Guidance for People with Severely Weakened Immune Systems,
816-F-99-005

Public Involvement in Water Security Web site, a compilation of resources to help increase public awareness of water security issues and to give citizens information and guidance to help them prepare for potential emergency incidents and incorporate security activities into their daily lives, http://cfpub.epa.gov/safewater/watersecurity/publicInvolve.cfm

Environmental Education:

Thirstin's Drinking Water Games and Activities (CD-ROM), 816-C-04-008

Virtual Tour of a Water Treatment Plant (CD-ROM), 816-C-06-002

Find answers to your questions about drinking water and ground water programs authorized under the Safe Drinking Water Act in EPA's dynamic question and answer database, http://www.epa.gov/safewater/drinklink.html.

Publications From Outside Sources

Centers for Disease Control and Prevention. Morbidity and Mortality Weekly Report: Surveillance for Waterborne-Disease Outbreaks-United States-1999-2000.

Congressional Budget Office. Future Investment in Drinking Water & Wastewater Infrastructure

Appendix C: Sources of Additional Information

American Water Works Association
Public Affairs Department
6666 West Quincy Avenue
Denver, CO 80235
Phone (303) 794-7711
www.awwa.org

Association of Metropolitan Water Agencies
1620 I Street NW
Suite 500
Washington, DC 20006
Phone (202) 331-2820
Fax (202) 785-1845
www.amwa.net

Association of State Drinking Water Administrators
1401 Wilson Blvd.
Suite 1225
Arlington, VA 22209
Phone (703) 812-9505
www.asdwa.org

Clean Water Action
4455 Connecticut Avenue NW Suite A300
Washington, DC 20008
Phone (202) 895-0420
www.cleanwater.org

Consumer Federation of America
1620 I Street NW
Suite 200
Washington, DC 20006
Phone (202) 387-6121
www.consumerfed.org

The Groundwater Foundation
P.O. Box 22558
Lincoln, NE 68542
Phone (800) 858-4844
www.groundwater.org

The Ground Water Protection Council
13308 N. Mac Arthur
Oklahoma City, OK 73142
Phone (405) 516-4972
www.gwpc.org

International Bottled Water Association
1700 Diagonal Road
Suite 650
Alexandria, VA 22314
Phone (703) 683-5213
Information Hotline 1-800-WATER-11
ibwainfo@bottledwater.org

National Association of Regulatory Utility Commissioners
1101 Vermont Ave NW
Suite 200
Washington, DC 20005
Phone (202) 898-2200
www.naruc.org

National Association of Water Companies
2001 L Street NW
Suite 850
Washington, DC 20036
Phone (202) 833-8383
www.nawc.org

National Drinking Water Clearinghouse
West Virginia University
P.O. Box 6064
Morgantown, WV 26506
Phone (800) 624-8301
www.ndwc.wvu.edu

National Ground Water Association
601 Dempsey Rd
Westerville, OH 43081-8978
Phone: (800) 551-7379
www.ngwa.org

National Rural Water Association
2915 South 13th Street
Duncan, OK 73533
Phone (580) 252-0629
www.nrwa.org

Natural Resources Defense Council
40 West 20th Street
New York, NY 10011
Phone (212) 727-2700
www.nrdc.org

NSF International
P.O. Box 130140
789 North Dixboro Road
Ann Arbor, MI 48113
Phone (800) NSF-MARK
www.nsf.org

Rural Community Assistance Program
1522 K Street NW
Suite 400
Washington, DC 20005
Phone (800) 321-7227
www.rcap.org

Underwriters Laboratories
Corporate Headquarters
2600 N.W. Lake Road
Camas, WA 98607
Phone (877) 854-3577
www.ul.com

Water Quality Association
4151 Naperville Road
Lisle, IL 60532
Phone (630) 505-0160
www.wqa.org

U.S. Environmental Protection Agency Water Resource Center
1200 Pennsylvania Avenue NW
RC-4100T
Washington, DC 20460
SDWA Hotline (800) 426-4791
www.epa.gov/safewater

Water Systems Council
National Programs Office
101 30th Street NW
Suite 500
Washington, D.C. 20007
Phone: (202) 625-4387
Wellcare Hotline 888-395-1033
www.watersystems council.org

EPA Region 1
(CT, ME, MA, NH, RI, VT)
Phone (888) 372-7341
Phone (617) 918-1614

EPA Region 2
(NJ, NY, PR, VI)
Phone (212) 637-3000

EPA Region 3
(DE, DC, MD, PA, VA, WV)
Phone (215) 814-5000

EPA Region 4
(AL, FL, GA, KY, MS, NC, SC, TN)
Phone (404) 562-9900

EPA Region 5
(IL, IN, MI, MN, OH, WI)
Phone (312) 353-2000

EPA Region 6
(AR, LA, NM, OK, TX)
Phone (214) 665-2200

EPA Region 7
(IA, KS, MO, NE)
Phone (913) 551-7003

EPA Region 8
(CO, MT, ND, SD, UT, WY)
Phone (303) 312-6312

EPA Region 9
(AZ, CA, HI, NW, AS GU)
Phone (415) 947-8000

EPA Region 10
(AK, ID, OR, WA)
Phone (206) 553-1200

Appendix D: Glossary

Action Level

The level of lead and copper which, if exceeded, triggers treatment or other requirements that a water system must follow.

Aquifer

A natural underground layer, often of sand or gravel, that contains water

Coliform

A group of related bacteria whose presence in drinking water may indicate contamination by disease-causing microorganisms

Community Water System (CWS)

A water system that supplies drinking water to 25 people or more year-round in their residences

Contaminant

Anything found in water (including microorganisms, radionuclides, chemicals, minerals, etc.) which may be harmful to human health

Cryptosporidium

Microorganism found commonly in lakes and rivers which is highly resistant to disinfection.

Disinfectant

A chemical (commonly chlorine, chloramines, or ozone) or physical process (e.g., ultraviolet light) that kills microorganisms such as viruses, bacteria, and protozoa

Distribution System

A network of pipes leading from a treatment plant to customers' plumbing systems

Ground Water

Water that is pumped and treated from an aquifer

Inorganic Contaminants

Mineral-based compounds such as metals, nitrates, and asbestos; naturally occurring in some water, but can also enter water through human activities

Maximum Contaminant Level

The highest level of a contaminant that EPA allows in drinking water (legally enforceable standard)

Maximum Contaminant Level Goal

The level of a contaminant at which there would be no risk to human health (not a legally enforceable standard)

Microorganisms

Tiny living organisms that can be seen only under a microscope; some can cause acute health problems when consumed in drinking water

Non-Transient Non-Community Water System

A non-community water system that serves the same people more than six months of the year, but not year-round

Organic Contaminants

Carbon-based chemicals, such as solvents and pesticides, which enter water through cropland runoff or discharge from factories

Pathogen

Disease-causing organism

Public Water System (PWS)

A water system which supplies drinking water to at least 25 people, at least 60 days each year

Sensitive Subpopulation

People who may be more vulnerable to drinking water contamination, such as infants, children, some elderly, and people with severely compromised immune systems

Septic System

Used to treat sanitary waste; can be a significant threat to water quality due to leaks or runoff

Source Water

Water in its natural state, prior to any treatment for drinking (i.e., lakes, streams, ground water)

Surface Water

Water that is pumped and treated from sources open to the atmosphere, such as rivers, lakes, and reservoirs

Transient Non-Community Water System

A non-community water system that serves the public but not the same individuals for more than six months

Violation

Failure to meet any state or federal drinking water regulation

Vulnerability Assessment

An evaluation of drinking water source quality and its vulnerability to contamination by pathogens and toxic chemicals

Watershed

The land area from which water drains into a stream, river, or reservoir

Well

A bored, drilled or driven shaft whose depth is greater than the largest surface dimension, a dug hole whose depth is greater than the largest surface dimension, an improved sinkhole, or a subsurface fluid distribution system

291112 Part 2

El Dorado Hills
Naturally Occurring Asbestos
Multimedia Exposure Assessment
El Dorado Hills, California

Preliminary Assessment and Site Inspection Report
Interim Final

Contract No.: 68-W-01-012
TDD No.: 09-04-01-0011
Job No.: 001275.0440.01CP

May 2005

Prepared for:

United States Environmental Protection Agency
Region IX

Prepared by:
Karen Ladd, START
Ecology and Environment, Inc.

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List of Acronyms and Abbreviations

AAMS	Ambient Air Monitoring Station
AHERA	Asbestos Hazard Emergency Response Act
cc	cubic centimeter
CARB	California Air Resources Board
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CoEMD	El Dorado County Environmental Management Department
CSD	El Dorado Hills Community Services District
DQO	Data Quality Objective
DTSC	California Department of Toxic Substances Control
E & E	Ecology and Environment, Inc.
ERT	Emergency Response Team
f/cc	fibers per cubic centimeter
FSP	Field Sampling Plan
HRS	Hazard Ranking System
mg/m^3	milligrams per cubic meter
µm	micrometer or micron
NPL	National Priorities List
NRA	Northern Reference Area
PA	preliminary assessment
PA/SI	preliminary assessment/site inspection
PE	performance evaluation
PCM	phase contrast microscopy
PCME	phase contrast microscopy equivalents
PLM	polarized light microscopy
PPE	personal protective equipment
QA	quality assurance
QAO	Quality Assurance Office

List of Acronyms and Abbreviations (Cont.)

QAPP	Quality Assurance Project Plan
QC	quality control
SARA	Superfund Amendments and Reauthorization Act
s/cc	structures per cubic centimeter
SI	site inspection
SOP	standard operating procedure
SOW	statement of work
SRA	Southern Reference Area
START	Superfund Technical Assessment and Response Team
STEL	short-term exposure limit
TEM	transmission electron microscopy
TWA	time-weighted average
U.S. EPA	U.S. Environmental Protection Agency

Definitions

activity-based air sampling: Collecting air samples while engaging in dust generation activities (e.g., those that could disturb asbestos fibers and release them into the air).

ambient air: Generally, the surrounding air present throughout a vicinity. For the El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, ambient air is specifically defined as outdoor air (as opposed to indoor air) collected from the general vicinity of the various subject sites, and which may be used for reference samples. These samples may variably be upwind, downwind, or crosswind from locations that activity-based sampling scenarios are conducted, and they may or may not be influenced by sampling activities. In addition, some of the ambient air samples were collected under normal conditions (i.e., while no activity-based sampling was conducted).

amphibole: One of the two groups of minerals (serpentine and amphibole) that can crystallize as asbestos. The regulated asbestiform minerals of this group are crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos.

analytical sensitivity: The sample-specific lowest concentration of asbestos the laboratory can reliably detect.

asbestos: Asbestos is the generic name used for a group of naturally occurring mineral silicate fibers of the serpentine and amphibole series. Asbestos is composed of fiber bundles that are made up of extremely long and thin fibers that are easily separated from one another. For the purposes of this project, asbestos encompasses not only the six regulated varieties, but also the non-regulated asbestiform minerals.

asbestiform: Fibrous or tending to break into fibers.

aspect ratio: Length to width ratio.

Definitions (Cont.)

breathing height: A height representing a typical height of a person's nose/mouth area.

chrysotile: A regulated mineral in the serpentine group of minerals that can crystallize as asbestos. Chrysotile is also known as serpentine asbestos.

fixed sample pump: An air sample pump whose position is constant throughout the entire duration of the sampling effort. A fixed sample pump remains in its fixed location on a long-term basis over a period longer than 1 day. Typically a high-flow sample pump is used where a fixed sample pump is needed.

high-flow sample pump: Also known as a high-volume sample pump, this is an air sample pump that is capable of drawing up to about 30 liters per minute of air. This type of sample pump is not generally portable and is typically used for sampling from fixed and stationary positions.

hi-vol: Shorthand for high-volume or high-flow (sample pump).

infield skin: The non-grass infield area of a baseball or softball field; also commonly referred to as infield "dirt" or "base pad."

levels of personal protection: When sampling is conducted where contamination may exist, personal protective equipment (PPE) must be worn to prevent or reduce skin and eye contact, inhalation, and ingestion of the substance. Protective equipment to protect the body against contact with known or anticipated chemical hazards has been divided into four categories known as Levels A, B, C, and D:

- **Level D** is primarily a work uniform and is used for nuisance contamination only. Level D generally includes basic work clothing with steel-toed and steel-shanked boots, and may include coveralls, a hard hat, gloves, ear plugs, and safety goggles.
- **Level C** protection is worn when the type of airborne substance is known, concentration measured, criteria for using air-purifying respirators (APR) met, and skin and eye exposure is unlikely. Level C generally includes everything used for Level D, with the addition of an APR or powered APR for inhalation protection.
- **Level B** protection is worn when the highest level of respiratory protection is needed, but a lesser level of skin and eye protection. Level B also generally includes everything

Definitions (Cont.)

used for Level D; and in addition includes appropriate chemical-resistant coveralls and gloves for dermal protection, and a full-faced mask and self-contained breathing apparatus (SCBA) or supplied air for eye protection and complete respiratory protection.

- **Level A** protection is worn when the highest level of respiratory, skin, eye and mucous membrane protection is needed. Level A protection includes a fully encapsulated suit for total skin, eye and mucous membrane protection and an SCBA for complete respiratory protection.

naturally occurring asbestos: Asbestos minerals that occur in rock and soil as the result of natural geologic processes, often in veins near earthquake faults in the coast ranges and the foothills of the Sierra Nevada mountains and other areas of California.

personal sample pump: Also known as a low-flow or low-volume sample pump, this is an air sample pump that is portable so that it can be worn by a member of the sampling team during activity-based sample collection. The air flow for a personal sample pump is typically 1 to 5 liters per minute.

phase contrast microscopy (PCM): A light-enhancing microscope technology that employs an optical mechanism to translate small variations in phase into corresponding changes in amplitude, resulting in high-contrast images. This method was used traditionally to measure airborne fibers in occupational environments; however, it cannot distinguish between asbestos fibers and other fibers.

phase contrast microscopy equivalent (PCME): This refers to asbestiform structures identified through transmission electron microscopy (TEM) analysis that are equivalent to those that would be identified in the same sample through phase contrast microscopy analysis, with the main difference being that TEM additionally permits the specific identification of asbestos fibers. PCME structures are asbestiform structures greater than 5 microns in length having at least a 3 to 1 length to width (aspect) ratio.

polarized light microscopy (PLM): A microscope technology that uses the polarity (or orientation) of light waves to provide better images than a standard optical microscope.

Definitions (Cont.)

reference sample: An ambient air sample from outside the specific area of concern collected concurrently with the activity-based samples; it is used as a reference for comparison with the activity-based air samples.

stationary sample pump: An air sample pump that is placed in a single location and is not moved during a sampling event. A stationary sample pump remains in its stationary location during one or more sample events. Typically a high-flow sample pump will be used where a stationary sample pump is needed.

transmission electron microscopy (TEM): A microscope technology that uses the properties of electrons to provide more detailed images than even polarized light microscopy.

ultramafic rock: An igneous rock containing mainly dark, ferromagnesian minerals (i.e., greater than 90% of olivine, pyroxene, or hornblende). Commercial deposits of asbestos have been associated with ultramafic rocks.

1 Introduction

U.S. EPA
U.S. Environmental Protection Agency

CERCLA
Comprehensive Environmental Response, Compensation, and Liability Act of 1980

SARA
Superfund Amendments and Reauthorization Act of 1986

E & E
Ecology and Environment, Inc.

START
Superfund Technical Assessment and Response Team

PA/SI
preliminary assessment/site inspection

HRS
U.S. EPA's Hazard Ranking System

NPL
National Priorities List

The **U.S. Environmental Protection Agency** (U.S. EPA), Region IX, under the authority of the **Comprehensive Environmental Response, Compensation, and Liability Act of 1980** (CERCLA) and the **Superfund Amendments and Reauthorization Act of 1986** (SARA), tasked the **Ecology and Environment, Inc.,** (E & E) **Superfund Technical Assessment and Response Team** (START) to conduct a multimedia assessment of community areas and schools in El Dorado Hills in El Dorado County, California, to assess the potential for exposure from naturally occurring asbestos present in soils that have been disturbed. This **preliminary assessment** and **site inspection** (PA/SI) report identifies the subject area, describes the data-gathering activities that have been conducted to date, and summarizes the results of those activities.

As part of the PA/SI, the site is evaluated using U.S. EPA's **Hazard Ranking System** (HRS) criteria. The HRS assesses the relative threat associated with actual or potential releases of hazardous substances to the environment and has been adopted by the U.S. EPA to assist in setting priorities for further evaluation and eventual remedial action. The HRS is the primary method for determining a site's eligibility for placement on the **National Priorities List** (NPL). The NPL identifies sites where the U.S. EPA may conduct remedial response actions.

2 Apparent Problem

ultramafic
A type of igneous rock containing mainly dark, ferromagnesian minerals

ambient air
The surrounding air present throughout a vicinity

DTSC
California Department of Toxic Substances Control

CARB
California Air Resources Board

Exposure risk from naturally occurring asbestos, particularly an exposure occurring as a result of construction activities, has been a concern in El Dorado County for some time. (See *Findings and Recommendations on Naturally-Occurring Asbestos to El Dorado County*, State of California Asbestos Task Force, March 11, 1999.) Naturally occurring asbestos is found in **ultramafic** rock formations in many locations in El Dorado County, California. In El Dorado Hills, the location of this assessment, asbestos is found in association with the West Bear Mountains Fault Zone, which runs north to south across El Dorado County.

In El Dorado Hills the presence of asbestos in exposed soil and **ambient air** has already been documented through previous investigations as well as visual inspection conducted by the U.S. EPA, the **California Department of Toxic Substances Control** (DTSC), the **California Air Resources Board** (CARB), and the El Dorado Union High School District. These previous investigations were conducted in a residential area on Woedee Drive and at Oak Ridge High School, located at 1120 Harvard Way. Mitigation activities to address asbestos contamination in disturbed soils on the campus of Oak Ridge High School have been conducted by El Dorado Union High School District, with oversight by El Dorado County and the state and by U.S. EPA.

PA
preliminary assessment

CERCLIS
Comprehensive Environmental Response, Compensation, and Liability Information System

In September 2003, a citizen petitioned U.S. EPA to conduct a **preliminary assessment** at the El Dorado Hills Community Park, Silva Valley Elementary School, Rolling Hills Middle School, and other locations in the community where the suspected presence of naturally occurring asbestos in exposed and disturbed soil may be causing releases to air. After review of the petition and discussions with the petitioner, the U.S. EPA defined the study area (called El Dorado Hills Naturally Occurring Asbestos) to include the El Dorado Hills Community Park, Silva Valley Elementary School, Rolling Hills Middle School, Jackson Elementary School, and the New York Creek Nature Trail. The U.S. EPA entered the El Dorado Hills Naturally Occurring Asbestos site into the **Comprehensive Environmental Response, Compensation, and Liability Information System** (CERCLIS) with U.S. EPA Identification Number CAN000906083 on April 7, 2004.

3 Site Description and History

3.1 SITE LOCATION

El Dorado Hills is approximately 20 miles east of Sacramento, California. The community is within an unincorporated area of El Dorado County that is commonly referred to as the Western County Region. With a current population of about 31,000, El Dorado Hills has become a "bedroom" community, with a growing number of residents commuting to work in Sacramento.

A number of areas throughout El Dorado Hills are the subject of the El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment. These areas, addressed in this PA/SI report and shown on Figure 3-1 (Sites Location Map), include the following:

- The El Dorado Hills Community Park, including several play areas and the New York Creek Nature Trail;
- Silva Valley Elementary School;
- Jackson Elementary School;
- Rolling Hills Middle School, including the dirt embankment inside the school's eastern boundary (Dirt Embankment); and
- An unpaved lot used for parking on public property adjacent to and in front of Rolling Hills Middle School (Dirt Parking Area).

Figure 3-1

3.2 SITE DESCRIPTION

El Dorado Hills Community Park and New York Creek Nature Trail. The El Dorado Hills Community Park at 1021 Harvard Way is situated on about 40 acres of property along El Dorado Hills Boulevard between Harvard Way and St. Andrews Drive (Latitude 38E 40' 59" North, Longitude 121E04' 28" West). The Community Park property, which is transected by New York Creek, contains three baseball diamonds, soccer playing fields, a children's playground, a swimming pool, community center structures, the southern end of the New York Creek Nature Trail, other picnic and recreational areas, and parking areas. The New York Creek Nature Trail is an unpaved trail adjacent to New York Creek. From Harvard Way, the trail runs north almost 2 miles through the Community Park property and residential neighborhoods to Art Weisberg Park, which is opposite Jackson Elementary School on Francisco Drive.

Silva Valley Elementary School. Silva Valley Elementary School is located at 3001 Golden Eagle Lane (Latitude 38E 40' 40" North, Longitude 121E04' 11" West). With about 650 students, it is a year-round K-5 elementary school in the Buckeye Union School District. Some of the school's facilities include six classroom buildings, a multipurpose room, an administration building, a library, a computer laboratory, a grass-covered playing field, a grass-infield baseball diamond, a "Life Lab" garden area, and play structures.

Jackson Elementary School. Jackson Elementary School is located at 2561 Francisco Drive (Latitude 38E 42' 14" North, Longitude 121E04' 51" West). With almost 500 students, it is a traditional K-5 elementary school in the Rescue Union School District. Some of the school's facilities include approximately 26 classrooms (all carpeted), an administration building, a library, a computer laboratory, a grass-covered playing field with grass-infield baseball diamonds, an outdoor classroom and garden, two paved play areas with basketball courts and tetherball, and play structures. The outdoor classroom and garden area is a place where students participate in gardening activities as part of the educational program.

Rolling Hills Middle School and the Dirt Embankment. Rolling Hills Middle School is located at 7141 Silva Valley Parkway (Latitude 38E 40' 54" North, Longitude 121E04' 07" West). Built in its current location in 1998, the school is a year-round middle school (6th to 8th grades) with about 800 students. The school is part of the Buckeye Union School District. Some of the school's facilities include classrooms, an administration building, a library, a grass-covered soccer field, and a paved basketball play area. The Dirt Embankment is a dirt embankment/hillside behind Rolling Hills Middle School and inside its eastern boundary.

The Dirt Parking Area. The Dirt Parking Area is an unpaved lot used for parking on public property in front of Rolling Hills Middle School, outside its western boundary. The property is said to be used regularly as a parking lot primarily by high school students who attend the nearby Oak Ridge High School.

3.3 SITE HISTORY

On May 21, 1962, the El Dorado County Board of Supervisors adopted Resolution #98-62 creating the **El Dorado Hills Community Services District** (CSD). The CSD is governed by a five-member elected Board of Directors and is the primary provider of parks and recreation services to residents of El Dorado Hills, in addition to a variety of other community services.

CSD
El Dorado Hills Community Services District

The population of El Dorado Hills has grown rapidly in the last two decades. For example, the population jumped 81 percent in ten years, from an estimated 12,105 people in 1991 to 21,917 people in 2001. According to the State Department of Finance, by August 2001 the population was 23,013, and in January 2005 the population was about 31,000. Prior to this expansive growth, much of the land in the community was undeveloped open space.

The El Dorado Hills Community Park is one of almost two dozen neighborhood and community parks provided by the El Dorado Hills CSD. The CSD main office is at the Community Park, and there are about 26 full-time and 8 part-time workers on staff there year-round.

The southern end of the New York Creek Nature Trail begins in the Community Park, and the northern end is in Art Weisberg Park near Jackson Elementary School. The trail, which is considered an educational opportunity for local schools, provides botanical settings and views of native wildlife within the approximately 28-acre New York Creek Nature Area.

El Dorado Hills CSD received part of the area that is now the New York Creek Nature Trail in 1972 as a gift deed. In 1986 the area was enlarged when an 11-acre parcel along New York Creek was conveyed to the CSD for use as an open space natural area. The New York Creek Stewardship Committee was formed to encourage local community involvement in the protection, conservation, care and use of New York Creek.

The Community Park grounds are maintained by both in-house and contracted maintenance workers who perform such duties as mowing lawns using a riding mower, grooming the baseball diamond infields using an electric maintenance cart (i.e., golf cart) and drag chains, and using a leaf blower to clear walkways and parking areas and to clean playground structures.

Silva Valley Elementary School and Rolling Hills Middle School are within the Buckeye Union School District. Built in 1992, Silva Valley Elementary School was once surrounded by empty fields, but new homes now flank the property. There are about 650 students currently enrolled at the year-round school, with about 29 teachers and 20 staff members, including maintenance staff. At Rolling Hills Middle School, which moved to its current permanent facilities in August 1998, there are about 800 students, 30 teachers, and 20 to 25 staff members, including maintenance staff. School district staff maintain the grounds at both schools, with the exception of mowing the playing fields, which is done by a contractor to the district.

The Dirt Parking Area, which sits adjacent to Rolling Hills Middle School, is apparently maintained by and under the jurisdiction of the El Dorado County Department of Transportation.

Jackson Elementary School, part of the Rescue Union School District, is a traditional elementary school. In the fall, there will be 22 teachers, about nine staff members, and about 470 students. The school grounds (along with the grounds of other schools in the district) are maintained by two district groundsmen; this number is expected to increase to three in June.

While Oak Ridge High School is not part of the El Dorado Hills Naturally Occurring Multimedia Assessment, it is centrally located between the majority of the locations that are included in the assessment, and it is in a geologically similar region. In February

2002, construction began of two soccer fields along the southwest border of Oak Ridge High School. During construction, veins of asbestos-bearing minerals were disturbed.

CoEMD
El Dorado County Environmental Management Department

The El Dorado Union High School District reportedly encountered difficulties in acquiring reclaimed irrigation water for the project, so the soccer fields were left without landscaping for more than a year while a solution was sought. Subsequent erosion of disturbed, potentially asbestos-bearing soils from the unfinished fields caused by winter rains in 2002/2003 impacted classrooms and locker rooms downslope. In addition, the El Dorado Union High School District, in coordination with the **El Dorado County Environmental Management Department** (CoEMD) and DTSC, identified other areas of concern on the campus. This led the school district to undertake mitigation activities at Oak Ridge High School in the summer of 2003. See Section 4, Regulatory Involvement, for a brief discussion of activities subsequent to this mitigation effort.

4 Regulatory Involvement

f/cc
fibers per cubic centimeter

The CARB has conducted air monitoring in several locations in California to determine levels of asbestos in air at selected sites. In April 1999, the CARB measured ambient asbestos concentrations in air at seven monitoring locations at and near Silva Valley Elementary School. Of the 20 samples collected at the school, four of the samples contained detectable levels of asbestos; the highest level detected (in two of the samples) was 0.0019 **fibers per cubic centimeter** (f/cc).

While there has been no other regulatory involvement to date related to the locations that are the subject of the El Dorado Hills Naturally Occurring Exposure Multimedia Assessment, the El Dorado Union High School District has been working with several agencies at the Federal, State and local levels to address the exposed asbestos at the nearby Oak Ridge High School. Mitigation actions undertaken by the school district are described in the *El Dorado Union High School District Oak Ridge High School Naturally Occurring Asbestos (NOA) Operations and Maintenance (O&M) Plan*, dated December 2003, prepared by MACTEC Federal Programs.

The CARB conducted air sampling in June and July 2003 to assess the type and quantity of asbestos fibers released to ambient air during mitigation activities at the soccer fields. The CARB sam-

s/cc
structures per cubic centimeter

pling documented the presence of asbestos in ambient air samples collected during mitigation activities, with a maximum asbestos level recorded in air of 0.0039 **structures per cubic centimeter** (s/cc) and an average concentration at the mitigation fence line of 0.001 s/cc. A complete description of the CARB sampling locations, methodology and findings is available in the November 6, 2003, CARB report *Sampling for Airborne Naturally Occurring Asbestos at Oak Ridge High School June 2003*.

Due to citizens' concerns about asbestos on the Oak Ridge High School campus, the U.S. EPA and START conducted an assessment of surficial soil at the high school in November 2003 to determine whether additional mitigation efforts were required in areas other than those related to the soccer fields. During the assessment exposed soils throughout the campus were sampled, particularly those areas where observed or expected student or public traffic could disturb asbestos-containing soil or rock. Sampling documented that asbestos was present in exposed soils throughout the campus ranging from less than 0.0001 to 8.8 percent by weight. U.S. EPA subsequently performed remediation at Oak Ridge High School by covering exposed soil with landscaping, concrete, or pavement.

activity-based air sampling
Collecting air samples while engaging in dust generation activities (e.g., those that could disturb asbestos fibers and release them into the air.)

personal air sampler
Also known as a low-flow or low-volume sample pump, this is an air sample pump that is portable so that it can be worn by a member of the sampling team during activity-based sample collection. The air flow for a personal sample pump is typically 1 to 5 liters per minute.

stationary air sampler
An air sample pump that is placed in a single location and is not moved during a sampling event. A stationary sample pump remains in its stationary location during one or more sample events. Typically a high-flow sample pump will be used where a stationary sample pump is needed.

fixed air sampler
An air sample pump whose position is constant throughout the entire duration of the sampling effort. A fixed sample pump remains in its fixed location on a long-term basis over a period longer than 1 day. Typically a high-flow sample pump is used where a fixed sample pump is needed.

ambient air
Generally, the surrounding air present throughout a vicinity.

reference sample
An ambient air sample from outside the specific area of concern collected concurrently with the activity-based samples; it is used as a reference for comparison with the activity-based air samples.

Summary of Investigative Efforts

5.1 OBJECTIVES

As part of the El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, the START collected outdoor air and soil samples to assist the U.S. EPA in identifying and estimating associated exposure levels for locations in El Dorado Hills where there is a potential for exposure to asbestos from disturbed areas of naturally occurring asbestos.

- The START collected **activity-based** outdoor air samples from the Community Park, the New York Creek Nature Trail, and three schools in El Dorado Hills. This was to document whether and at what concentrations asbestos fibers were present in outdoor air during activities conducted at sampled locations on the days of sampling. Activity-based outdoor air samples were collected under conditions ranging from minimal activity to dust generation activities while members of the sampling team wore **personal sample pumps**. In addition, **stationary air samplers** were set up in and around the activity areas during most of the activity-based sampling.
- The START also set up **fixed air samplers** at the Community Park and schools to collect **ambient** outdoor air samples collected from outside activity areas to serve as **reference** samples.

- The START collected surface soil samples at the Community Park, the Dirt Embankment, the Dirt Parking Area and the schools to document whether and at what concentrations asbestos fibers were present in soil at sampled locations. At the baseball playing fields at the Community Park, where the **infield skin** is imported material, the START also collected shallow subsurface soil samples from at and below the interface of the infield fill and the soil beneath (down to about 1½ to 2 feet below ground surface).

infield skin
The non-grass infield area of a baseball or softball field; also commonly referred to as infield "dirt" or "base pad"

QAPP
Quality Assurance Project Plan

FSP
Field Sampling Plan

DQO
Data Quality Objective

SOW
Statement of Work

5.2 SCOPE OF WORK

The U.S. EPA directed the START to develop a **Quality Assurance Project Plan** (QAPP) and **Field Sampling Plans** (FSPs), conduct ambient outdoor air sampling, activity-based outdoor air sampling, dust monitoring, soil sampling, meteorological data collection, video monitoring of fugitive dust present during outdoor air sampling, and limited video documentation of the soil sampling. The START assisted the U.S. EPA with the project objectives planning, including the development of data quality related objectives using the U.S. EPA's **Data Quality Objective** (DQO) planning process. The START developed the *El Dorado Hills Naturally Occurring Asbestos, Multimedia Exposure Assessment, El Dorado Hills, California, Quality Assurance Project Plan* based upon the DQO planning process and developed supporting FSP and analytical **Statement of Work** (SOW) documents.

The START conducted ambient and activity-based air sampling for asbestos fibers in outdoor air, real-time air monitoring to measure total dust, soil sampling for asbestos fibers, meteorological data collection, and video monitoring to document dust generation and sampling. For logistical reasons, the START did not conduct video monitoring of the soil sampling effort, but photographed many of the locations of soil samples collected for asbestos analysis. The START procured subcontractors as needed to aid in the collection of the air samples, preparation and analysis of samples, and validation of generated data. The U.S. EPA **Quality Assurance Office** (QAO) is over-seeing the data validation of the analytical results.

QAO
Quality Assurance Office

ERT
U.S. EPA's Environmental Response Team

The START is using the Scribe data management system to manage asbestos and meteorological data generated as part of the project. Scribe is a software tool developed by the U.S. EPA's **Environmental Response Team** (ERT) to assist in the process of managing environmental data.

5.3 SCHEDULE

Outdoor air sampling activities began in late September 2004. The START conducted ambient air reference sampling between September 27 and October 12, 2004. The activity-based air sampling took place between October 2 and October 10, 2004. The START collected soil samples for asbestos analysis between October 8 and October 11, 2004.

5.4 AIR SAMPLING

5.4.1 Ambient Outdoor Air Sampling

The START conducted ambient outdoor air sampling according to the *El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, El Dorado Hills, California, Fixed Ambient Outdoor Reference Air Sampling Field Sampling Plan* and the *El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, El Dorado Hills, California, Activity-Based Outdoor Air Sampling of Community Park and Schools Field Sampling Plan*.

The START collected fixed ambient outdoor reference air samples from locations that were selected so as to collect from areas nearby but primarily outside of the influence of activity-based outdoor air sampling activities. These fixed ambient outdoor reference air sampling locations were in the following areas:

- Five locations, referred to as the Southern Reference Area, at the El Dorado Hills Community Park, Silva Valley Elementary School, and Rolling Hills Middle School, and
- Five locations, referred to as the Northern Reference Area, around Jackson Elementary School.

In addition to these reference air sampling locations, the START placed one fixed ambient outdoor air sampler co-located with a temporary meteorological station positioned in a secure location west of the children's playground at the El Dorado Hills Community Park. This location is referred to as the Ambient Air Monitoring Station.

Finally, along the New York Creek Nature Trail, the START placed stationary air samplers to conduct ambient outdoor air monitoring on two days when there was public activity on the trail but no activity-based sampling conducted there.

Except for the Ambient Air Monitoring Station (which was enclosed by a cyclone fence), the air sample pumps used for ambient outdoor air sampling generally were in locations that had public access. To ensure the integrity of the samples, either a member of the sampling team or a security guard watched the air sample pumps while they were operating. The START also conducted regular checks throughout the day to make sure the pumps were operating and the power source was adequate and continuous.

5.4.1.1 Fixed Ambient Air Sampling at the Community Park

Beginning on September 27, several days prior to conducting activity-based outdoor air sampling, the START positioned and began operating a temporary meteorological station, a high-volume (i.e., high-flow, approximately 10 liters/minute) air sample pump, and a dust monitor within an existing small fenced area west of the children's playground at the El Dorado Hills Community Park. The location of this area is shown as the Ambient Air Meteorological Station (AAMS) on Figure 5-1 (Fixed Ambient Outdoor Air Sampling Locations). The START operated the meteorological station, the air sample pump, and the dust monitor at this location daily through October 12.

The meteorological station was set up as a base station for the project to monitor wind speed, wind direction, humidity, temperature, and other meteorological conditions. Due to equipment malfunction, the electronic set of data collected from the meteorological base station was lost for the period from October 5 through October 8, 2004; however the START did collect some of the meteorological data for this period through manual periodic logging. In addition, a second mobile meteorological station was used to collect meteorological data during some of the activity-based air sampling scenarios that were conducted during this period. The weather during the week leading up to the sampling was generally dry, and it was dry during most of the first week of sampling, but it drizzled on October 9, 2004. See Appendix A for a summary of meteorological data collected from the base station and from the mobile station.

The START collected air samples on air filters from the Ambient Air Meteorological Station fixed air sampler each day over an approximately 8-hour time interval. The daily time interval gener-

Figure 5-1

breathing height
A height representing a typical height of a person's nose/mouth area

ally coincided with activity-based scenario sampling time periods. The primary focus of the investigative efforts is the potential for exposure of asbestos to children, so the intake of the air collection filter cassette at this location was positioned at a height of about 3 feet above the ground surface to represent the **breathing height** of a child. A summary of results for the ambient air samples from this monitoring station is shown in Table 5-1 (Ambient Air Monitoring Station Air Sample Summary Results).

The dust monitor, used to measure total dust, was positioned at the same height as the air collection filter cassette. See Appendix B for a summary of the results from the dust monitor from this location and from other dust monitors used during sampling.

5.4.1.2 Fixed Ambient Air Sampling for Activity-Based Reference Level Determinations

<u>Southern Reference Area at the El Dorado Hills Community Park, Silva Valley Elementary School, and Rolling Hills Middle School</u>

One day prior to starting the activity-based outdoor air sampling at the El Dorado Hills Community Park, Silva Valley Elementary School, and Rolling Hills Middle School, the START positioned and began operating five high-flow air sample pumps at the park and the two schools. The five fixed ambient outdoor reference air sample locations, which are shown as the Southern Reference Area on Figure 5-1 (Fixed Ambient Outdoor Air Sampling Locations), are the following:

SRA-R01	Community Park, west of main office
SRA-R02	Community Park courtyard between main office and pool area
SRA-R03	Rolling Hills Middle School at the southern end of the campus

Table 5-1
Ambient Air Monitoring Station Air Sample Summary Results

Sample ID	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
AAMS-D01-092704	9/27/04	0.00115	0.00172	0.000286
AAMS-D02-092804	9/28/04	<0.000872	0.00117	0.000292
AAMS-D03-092904	9/29/04	0.000570	0.000570	0.000285
AAMS-D04-093005	9/30/04	0.000860	0.00229	0.000287
AAMS-D05-100104	10/01/04	0.00197	0.00282	0.000282
AAMS-D06-100204	10/02/04	0.000582	0.00146	0.000291
AAMS-D07-100304	10/03/04	0.000306	0.000611	0.000306
AAMS-D107-100304[1]	10/03/04	0.000613	0.00245	0.000307
AAMS-D08-100404	10/04/04	<0.000871	<0.000871	0.000291
AAMS-D09-100504	10/05/04	results pending	results pending	results pending
AAMS-D10-100604	10/06/04	results pending	results pending	results pending
AAMS-D11-100704	10/07/04	0.000580	0.00174	0.000290
AAMS-D12-100804	10/08/04	0.000290	0.00232	0.000290
AAMS-D13-100904	10/09/04	<0.000851	<0.000851	0.000285
AAMS-D14-101004	10/10/04	0.000583	0.00612	0.000292
AAMS-D15-101104	10/11/04	<0.000894	0.00239	0.000299
AAMS-D16-101204	10/12/04	results pending	results pending	results pending
AAMS-1ZB-092904[2]	9/29/04	<0.000871	<0.000871	0.000291
AAMS-1ZB-100204[2]	10/02/04	<0.000871	<0.000871	0.000291
AAMS-2ZB-100204[2]	10/02/04	<0.000869	<0.000869	0.000291
AAMS-FB-093004[3]	9/30/04	<0.000974	<0.000974	0.000326

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter
[1] AAMS-D107-100304 is a duplicate sample for (i.e., co-located with) AAMS-D07-100304
[2] field blank sample
[3] filter blank sample

SRA-R04	Silva Valley Elementary School at the southwestern corner of the campus
SRA-R05	On Community Park property in open space west of the North Field baseball playing field

Location SRA-R01 was originally sited close to El Dorado Hills Boulevard under the flag pole (SRA-R01a). The location was later changed (October 4, 2004) to a spot closer to the main office (SRA-R01b) due to problems obtaining electrical power to operate the air sample pump at that location and because park personnel wanted to remove the turf covering the driveway that passes through that area since it had become muddy and posed a hazard to drivers.

The START collected air samples on air filters from these fixed locations in the Southern Reference Area daily over an approximately 8-hour time interval one day prior to, each day during, and the day after the activity-based outdoor air sampling was conducted at the Community Park (including along the New York Creek Nature Trail) and the southern two schools. The daily time interval generally coincided with the activity-based scenario sampling time periods at the park and schools. The intakes of the air collection filter cassettes were positioned at a height of about 3 feet above the ground surface. This height was selected so as to be the same as that of the air collection filter cassette intakes that were used during activity-based sampling to represent the breathing height of a child. A dust monitor was co-located with the air sample pump at Rolling Hills Middle School at the southern end of the campus (SRA-R03), and total dust concentrations were monitored. The dust monitor was positioned at the same height as the air collection filter cassette. A summary of results for the Southern Reference Area samples is shown in Table 5-2 (Southern Reference Area Air

Sample Summary Results). See Appendix B for a summary of the results from the dust monitor from these locations.

<u>Northern Reference Area Around Jackson Elementary School</u>

One day prior to conducting activity-based outdoor air sampling at Jackson Elementary School, the START positioned five high-flow air sample pumps at five locations in the vicinity of the school. The five fixed ambient outdoor reference air sample locations, which are shown as the Northern Reference Area on Figure 5-1 (Fixed Ambient Outdoor Air Sampling Locations), are the following:

NRA-R01	St. Andrews Park
NRA-R02	Art Weisberg Park, on the east side of the park in a grassy area among the trees
NRA-R03	Art Weisberg Park, on the west side of the park in an open grassy area next to Pendleton Drive
NRA-R04	Adjacent to the walkway that joins the nearby residential neighborhood to the northern end of the New York Creek Nature Trail
NRA-R05	On the median of El Dorado Hills Boulevard just north of Campbell Ranch Drive

The START collected air samples on air filters from these fixed locations daily over an approximately 8-hour time interval one day prior to, the day of, and the day after the activity-based outdoor air sampling was conducted at Jackson Elementary School. The daily time interval generally coincided with the activity-based scenario sampling time periods at the school. The intakes of the air collection filter cassettes were positioned at a height of about 3 feet above the ground surface. This height was selected so as to be the same as that of the air collection filter cassette intakes that were used during activity-based sampling to represent the breathing

Table 5-2
Southern Reference Area Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SRA-R01-100104	SRA-R01	Community Park, west of main office	10/01/04	0.000859	0.00229	0.000286
SRA-R02-100104	SRA-R02	Community Park courtyard between main office and pool area	10/01/04	0.00198	0.00368	0.000283
SRA-R03-100104	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/01/04	0.000269	0.00188	0.000269
SRA-R04-100104	SRA-R04	Silva Valley Elementary School at the southwestern corner of the campus	10/01/04	0.000870	0.00377	0.000290
SRA-R05-100104	SRA-R05	On Community Park property in open space west of the North Field baseball playing field	10/01/04	0.00113	0.00113	0.000283
SRA-R01-100204	SRA-R01	Community Park, west of main office	10/02/04	0.000289	0.00375	0.000289
SRA-R101-100204	SRA-R01	Community Park, west of main office	10/02/04	<0.000853	0.000856	0.000285
SRA-R02-100204	SRA-R02	Community Park courtyard between main office and pool area	10/02/04	0.000570	0.00256	0.000285
SRA-R03-100204	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/02/04	0.000287	0.00115	0.000287
SRA-R04-100204	SRA-R04	Silva Valley Elementary School at the southwestern corner of the campus	10/02/04	0.000583	0.00204	0.000292
SRA-R05-100204	SRA-R05	On Community Park property in open space west of the North Field baseball playing field	10/02/04	0.000582	0.00233	0.000291
SRA-R01-100304	SRA-R01	Community Park, west of main office	10/03/04	<0.000895	0.00180	0.000299

Table 5-2
Southern Reference Area Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SRA-R02-100304	SRA-R02	Community Park courtyard between main office and pool area	10/03/04	<0.000894	0.000897	0.000299
SRA-R03-100304	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/03/04	<0.000840	0.000281	0.000281
SRA-R04-100304	SRA-R04	Silva Valley Elementary School at the southwestern corner of the campus	10/03/04	0.000584	0.00234	0.000292
SRA-R05-100304	SRA-R05	On Community Park property in open space west of the North Field baseball playing field	10/03/04	<0.000891	0.000894	0.000298
SRA-R01-100404	SRA-R01	Community Park, west of main office	10/04/04	<0.000882	0.000885	0.000295
SRA-R02-100404	SRA-R02	Community Park courtyard between main office and pool area	10/04/04	0.000589	0.00118	0.000294
SRA-R03-100404	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/04/04	<0.000894	0.000897	0.000299
SRA-R04-100404	SRA-R04	Silva Valley Elementary School at the southwestern corner of the campus	10/04/04	0.000290	0.00290	0.000290
SRA-R05-100404	SRA-R05	On Community Park property in open space west of the North Field baseball playing field	10/04/04	<0.000888	0.000891	0.000297
SRA-R01-100504	SRA-R01	Community Park, west of main office	10/05/04	0.000889	0.00356	0.000296
SRA-R02-100504	SRA-R02	Community Park courtyard between main office and pool area	10/05/04	0.000585	0.00205	0.000292

Table 5-2
Southern Reference Area Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SRA-R103-100504	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/05/04	0.000863	0.00259	0.000288
SRA-R03-100504	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/05/04	0.000289	0.00173	0.000289
SRA-R04-100504	SRA-R04	Silva Valley Elementary School at the southwestern corner of the campus	10/05/04	<0.000888	0.00267	0.000297
SRA-R05-100504	SRA-R05	On Community Park property in open space west of the North Field baseball playing field	10/05/04	0.000291	0.00204	0.000291
SRA-R01-100604	SRA-R01	Community Park, west of main office	10/06/04	0.00440	0.00586	0.000293
SRA-R02-100604	SRA-R02	Community Park courtyard between main office and pool area	10/06/04	<0.000851	0.00285	0.000285
SRA-R102-100604	SRA-R02	Community Park courtyard between main office and pool area	10/06/04	0.00115	0.00288	0.000288
SRA-R03-100604	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/06/04	0.00145	0.00347	0.000290
SRA-R04-100604	SRA-R04	Silva Valley Elementary School at the southwestern corner of the campus	10/06/04	0.000907	0.00574	0.000302
SRA-R05-100604	SRA-R05	On Community Park property in open space west of the North Field baseball playing field	10/06/04	0.00177	0.00325	0.000296

Table 5-2
Southern Reference Area Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SRA-R01-100704	SRA-R01	Community Park, west of main office	10/07/04	results pending	results pending	results pending
SRA-R02-100704	SRA-R02	Community Park courtyard between main office and pool area	10/07/04	0.000575	0.00402	0.000287
SRA-R03-100704	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/07/04	<0.000844	0.000282	0.000282
SRA-R04-100704	SRA-R04	Silva Valley Elementary School at the southwestern corner of the campus	10/07/04	0.000866	0.00115	0.000289
SRA-R05-100704	SRA-R05	On Community Park property in open space west of the North Field baseball playing field	10/07/04	0.000285	0.000856	0.000285
SRA-R01-100804	SRA-R01	Community Park, west of main office	10/08/04	<0.000883	0.00118	0.000295
SRA-R02-100804	SRA-R02	Community Park courtyard between main office and pool area	10/08/04	0.000577	0.00289	0.000289
SRA-R03-100804	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/08/04	<0.000883	0.000590	0.000295
SRA-R103-100804	SRA-R03	Rolling Hills Middle School at the southern end of the campus	10/08/04	0.000295	0.00412	0.000295
SRA-R04-100804	SRA-R04	Silva Valley Elementary School at the southwestern corner of the campus	10/08/04	0.000564	0.00169	0.000282

Table 5-2
Southern Reference Area Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SRA-R05-100804	SRA-R05	On Community Park property in open space west of the North Field baseball playing field	10/08/04	0.000877	0.00205	0.000292
SRA-1ZB-100804	field blank	field blank	10/08/04	<0.000853	<0.000853	0.000285
SRA-2ZB-100804	field blank	field blank	10/08/04	<0.000846	<0.000846	0.000283

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

height of a child. A dust monitor was co-located with the air sample pump at Art Weisberg Park, on the west side of the park in an open grassy area next to Pendleton Drive (NRA-R03), and total dust concentrations were monitored. The dust monitor was positioned at the same height as the air collection filter cassette. A summary of results for the Northern Reference Area samples is shown in Table 5-3 (Northern Reference Area Air Sample Summary Results). See Appendix B for a summary of the results from the dust monitor from these locations.

5.4.1.3 Perimeter Monitoring on the New York Creek Nature Trail

On October 3 and October 9, 2004, the START placed five high-flow air sample pumps along the New York Creek Nature Trail to collect ambient outdoor air samples during those two days. The START was not conducting activity-based air sampling in the immediate vicinity on those two days, but members of the public were active in the park and on the trail. On October 3, a dog-walk event was held in the park, and on October 9 the trail was open to normal activity for a Saturday.

The locations of the five stationary sample pumps that were operated on the trail on October 3 are shown as CC2-1CT, CC2-2CT, CC2-3CT, CC2-4CT, and CC2-5CT, and the locations of the five sample pumps that operated on October 9 are shown as TRA-1TR/TRA11TR, TRA-2TR, TRA-3TR, TRA-4TR, and TRA-5TR on Figure 5-2 (New York Creek Nature Trail Perimeter Monitoring Locations). The START collected air samples on air filters from these stationary locations over an approximately 8-hour time interval on these two days. The intakes of the air collection filter cassettes in stationary locations along the trail were

Table 5-3
Northern Reference Area Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
NRA-R01-100904	NRA-R01	St. Andrews Park	10/09/04	<0.000854	<0.000854	0.000286
NRA-R02-100904	NRA-R02	Art Weisberg Park, on the east side of the park in a grassy area among the trees	10/09/04	<0.000879	0.00118	0.000294
NRA-R03-100904	NRA-R03	Art Weisberg Park, on the west side of the park in an open grassy area next to Pendleton Drive	10/09/04	<0.000880	<0.000880	0.000294
NRA-R04-100904	NRA-R04	Adjacent to the walkway that joins the nearby residential neighborhood to the northern end of the New York Creek Nature Trail	10/09/04	<0.000866	0.00145	0.000289
NRA-R05-100904	NRA-R05	On the median of El Dorado Hills Boulevard just north of Campbell Ranch Drive	10/09/04	0.000582	0.00204	0.000291
NRA-R01-101004	NRA-R01	St. Andrews Park	10/10/04	0.00114	0.00142	0.000285
NRA-R101-101004	NRA-R01	St. Andrews Park	10/10/04	0.000593	0.00119	0.000297
NRA-R02-101004	NRA-R02	Art Weisberg Park, on the east side of the park in a grassy area among the trees	10/10/04	0.00146	0.00205	0.000292
NRA-R03-101004	NRA-R03	Art Weisberg Park, on the west side of the park in an open grassy area next to Pendleton Drive	10/10/04	0.000294	0.00529	0.000294
NRA-R04-101004	NRA-R04	Adjacent to the walkway that joins the nearby residential neighborhood to the northern end of the New York Creek Nature Trail	10/10/04	0.000284	0.00114	0.000284
NRA-R05-101004	NRA-R05	On the median of El Dorado Hills Boulevard just north of Campbell Ranch Drive	10/10/04	0.000876	0.00233	0.000292

Table 5-3
Northern Reference Area Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
NRA-R01-101104	NRA-R01	St. Andrews Park	10/11/04	0.000578	0.00116	0.000289
NRA-R02-101104	NRA-R02	Art Weisberg Park, on the east side of the park in a grassy area among the trees	10/11/04	0.000855	0.00257	0.000285
NRA-R03-101104	NRA-R03	Art Weisberg Park, on the west side of the park in an open grassy area next to Pendleton Drive	10/11/04	0.000891	0.00624	0.000297
NRA-R04-101104	NRA-R04	Adjacent to the walkway that joins the nearby residential neighborhood to the northern end of the New York Creek Nature Trail	10/11/04	0.00177	0.00354	0.000295
NRA-R05-101104	NRA-R05	On the median of El Dorado Hills Boulevard just north of Campbell Ranch Drive	10/11/04	<0.000860	0.00115	0.000288
NRA-1ZB-101104	field blank	field blank	10/11/04	<0.000905	<0.000905	0.000303
NRA-2ZB-101104	field blank	field blank	10/11/04	<0.000929	<0.000929	0.000311
NRA-1ZB-101204	field blank	field blank	10/12/04	<0.000905	<0.000905	0.000303

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

Figure 5-2

positioned at a height of about 5 feet above the ground surface to represent the breathing height of an adult. A summary of results for the trail perimeter samples is shown in Table 5-4 (New York Creek Nature Trail Perimeter Monitoring Air Sample Summary Results).

Dust monitors were co-located with two of the air sample pumps (CC2-1CT and CC2-3CT) on October 3 and with all five air sample pumps on October 9. These dust monitors measured total dust concentrations along the trail. The dust monitors were positioned at the same height as the air collection filter cassettes. See Appendix B for a summary of the results from the dust monitor from these locations.

5.4.2 Activity-Based Air Sampling

The START conducted activity-based air sampling according to the *El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, El Dorado Hills, California, Activity-Based Outdoor Air Sampling of Community Park and Schools Field Sampling Plan* and the *El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, El Dorado Hills, California, Activity-Based Outdoor Air Sampling of Community Park Children's Playground Field Sampling Plan*. The types of activities the START conducted during activity-based outdoor air sampling included simulating work and play on baseball fields, soccer fields, basketball courts, playgrounds, and a hiking trail. Changes to these plans, if any, are noted in the discussion below.

The START conducted activity-based outdoor air sample collection at the following locations during 19 different activity-based sampling events or scenarios. These areas are illustrated on Figure 5-3 (Scenarios Location Map):

Table 5-4
New York Creek Nature Trail Perimeter Monitoring Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
CC2-H8-1CT-100304	CC2-1CT	trail position #1CT hi-vol	10/03/04	0.000883	0.00353	0.000294
CC2-H8-2CT-100304	CC2-2CT	trail position #2CT hi-vol	10/03/04	0.000583	0.00321	0.000291
CC2-H8-3CT-100304	CC2-3CT	trail position #3CT hi-vol	10/03/04	<0.000892	0.00328	0.000298
CC2-H8-4CT-100304	CC2-4CT	trail position #4CT hi-vol	10/03/04	0.000830	0.00277	0.000277
CC2-H8-5CT-100304	CC2-5CT	trail position #5CT hi-vol	10/03/04	0.000955	0.00573	0.000955
TRA-H8-1TR-100904	TRA-1TRA	trail position #TRA1 hi-vol	10/09/04	0.000294	0.00118	0.000294
TRA-H8-11TR-100904	TRA-1TRA	duplicate of trail position #TRA1 hi-vol	10/09/04	<0.000867	<0.000867	0.000290
TRA-H8-2TR-100904	TRA-2TRA	trail position #TRA2 hi-vol	10/09/04	0.000286	0.000286	0.000286
TRA-H8-3TR-100904	TRA-3TRA	trail position #TRA3 hi-vol	10/09/04	<0.000881	<0.000881	0.000295
TRA-H8-4TR-100904	TRA-4TRA	trail position #TRA4 hi-vol	10/09/04	<0.000879	0.000879	0.000294
TRA-H8-5TR-100904	TRA-5TRA	trail position #TRA5 hi-vol	10/09/04	<0.000875	<0.000875	0.000293
TRA-H2-1ZP-100904	performance evaluation	performance evaluation	10/09/04	0.0380	0.313	0.00316
TRA-L2-1ZP-100904	performance evaluation	performance evaluation	10/09/04	0.252	1.21	0.0126

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

- The New York Creek Nature Trail;
- The New York Creek baseball playing field at the Community Park;
- The north baseball playing field at the Community Park;
- The south baseball playing field at the Community Park;
- The (lower) soccer playing field between the north and south baseball playing fields at the Community Park;
- The children's playground at the Community Park;
- The baseball playing field at Silva Valley Elementary School;
- The basketball court area at Rolling Hills Middle School;
- The soccer playing field at Rolling Hills Middle School;
- Playing fields and paved play areas at Jackson Elementary School; and
- The garden and outdoor classroom at Jackson Elementary School.

Level C personal protective equipment
Protective equipment to protect the body against contact with known or anticipated chemical hazards has been divided into four categories known as Levels A, B, C, and D. Level C generally includes the use of an air purifying respirator for inhalation protection.

Members of the sampling team wore personal air monitoring pumps and **Level C personal protective equipment** while conducting activities within scripted scenarios to collect samples on air collection filter cassettes. The majority of the scenarios were designed to simulate primarily the activities of children, with simulation of adult activities as a small component. Some of the scenarios included simulation of only child activities, and some scenarios included simulation of only adult activities. Air collection filter cassettes were placed at a height of about 3 feet above ground surface to represent the breathing height of a child and about 5 feet above ground surface to represent the breathing height of an adult.

At each of the areas of concern the sampling team conducted the scenarios for the duration of the event, engaging in dust generation

Figure 5-3

activities that could disturb asbestos fibers and release them into the air. The level of activity ranged from minimal to aggressive dust generation. Except as noted, the sampling team conducted each scenario for 2 hours. For all baseball and soccer scenarios, members of the sampling team who participated as players wore baseball cleats.

Activities within each scenario area were conducted by a specific number of people (either five, six, or seven, depending on the activity). When a member of the sampling team took a break from the activity, another member of the sampling team took his or her place in the scenario so that the number of people conducting scenario activities remained constant. The sample pumps and dust monitors were carried in removable work belts to facilitate the exchange of sampling team members as needed.

In addition to the personal air sample pumps worn by members of the sampling team, and except as noted, the START positioned several stationary air sample pumps within each scenario activity and upwind and downwind of scenario activity. For activity-based sampling scenarios conducted at the baseball playing fields at the Community Park, the START also positioned stationary sampling pumps at the Children's Playground at the Community Park. The intakes for the air collection filter cassettes of the stationary sample pumps were set at a height of about 3 feet, except as noted.

Field conditions required the START to make several changes to the FSPs, most of which are related to the sampling schedule. Table 5-5 (Final Schedule of Field Work) shows the final sampling schedule as conducted.

Table 5-5 Final Schedule of Field Work

Date	Scenario 1	Scenario 2	Scenario 3	Reference Sample Areas
9/27/2005				Ambient Air Monitoring Station (AAMS)
9/28/2005				AAMS
9/29/2005				AAMS
9/30/2005				AAMS
10/1/2005	Rehearsal All Day and Press Availability 1:00 pm to 3:00 pm			AAMS, Southern Reference Area
10/2/2005	Silva Valley Baseball Field Maintenance	Silva Valley Baseball (A)		AAMS, Southern Reference Area
10/3/2005	Silva Valley Baseball (B)	Rolling Hills Soccer	Rolling Hills Basketball	AAMS, Southern Reference Area
	New York Creek Nature Trail 8-Hour Perimeter Sampling (CC2-#CT)			
10/4/2005	Community Park Children's Playground - Typical Scenario	Community Park Children's Playground - Aggressive Scenario		AAMS, Southern Reference Area
10/5/2005	New York Creek Nature Trail Biking	Community Park Baseball North Field	Community Park Baseball South Field (A)	AAMS, Southern Reference Area
10/6/2005	New York Creek Nature Trail Jogging (A)	Community Park Baseball South Field (B)	Community Park Baseball South Field–without maintenance (C)	AAMS, Southern Reference Area
10/7/2005	New York Creek Nature Trail Jogging (B)	Community Park Baseball New York Creek Field	Community Park Soccer Lower Field	AAMS, Southern Reference Area
10/8/2005	Soil Sampling - Community Park, New York Creek Nature Trail			AAMS, Southern Reference Area
10/9/2005	Soil Sampling - Silva Valley Elementary School, Rolling Hills Middle School			AAMS, Northern Reference Area
	New York Creek Nature Trail 8-Hour Perimeter Sampling (TRA-#TR)			
10/10/2005	Jackson School Garden and Outdoor Classroom	Jackson School Soccer	Jackson School Basketball and Kindergarten Play Area	AAMS, Northern Reference Area
10/11/2005	Soil Sampling - Dirt Parking Area			AAMS, Northern Reference Area
10/12/2005				AAMS

5.4.2.1 Silva Valley Elementary School

Field Maintenance Scenario. The baseball playing field at Silva Valley Elementary School is ordinarily maintained by parent volunteers during the playing season. The school district closed the field to Little League play during 2004. The field was mowed routinely, but grass had been allowed to grow over the basepaths and pitcher's mound areas. To conduct the baseball scenarios, the pitcher's mound and basepaths had to be cleared to bare soil, so the START added a new "field maintenance" scenario to the schedule. In doing so, the START was able to collect samples representing activities of parent volunteers while restoring the field to a condition suitable for conducting baseball play scenarios.

The START conducted the field maintenance scenario on October 2, 2004. The field maintenance scenario was conducted with six members of the sampling team simulating adult/parent volunteers who used rakes, hoes, and other garden tools to clear the basepaths and the pitcher's mound area. Sampling team members removed the grass and weeds from the areas cleared, shaking loose the dirt from the roots as needed, then placed the material that was removed in plastic garbage bags, which were later taken to the local dump in accordance with appropriate disposal procedures.

During the field maintenance scenario each member of the sampling team wore a personal air monitoring pump whose intake was set at a height of about 5 feet above ground surface to approximate the breathing height of parent volunteers. The intakes were also set at a height of about 5 feet for the air collection filter cassettes of the stationary sample pumps for the field maintenance scenario.

The outline of the field and the positions of the stationary air sample pumps operating during the field maintenance scenario are shown as SVM-1FD, SVM-2FD, SVM-3FD, SVM-4FD, and SVM-5FD on Figure 5-4 (Silva Valley Elementary School Baseball Playing Field Activity-Based Outdoor Air Sampling Locations–Maintenance Scenario). The position of the mobile meteorological station is shown as SVM-MS. A summary of results for the field maintenance scenario samples is shown in Table 5-6 (Silva Valley Elementary School Baseball Playing Field Maintenance Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

Baseball Scenario A. The playing field at Silva Valley Elementary School was initially wet when the START arrived, and after clearing the basepaths and pitcher's mound the soil was still fairly moist. The purpose of the sampling during the baseball scenarios was to simulate baseball play on the field during the dry season, so instead of conducting two more baseball play scenarios immediately after the maintenance scenario, the START revised the planned sampling schedule. The START conducted one baseball play scenario on the field on the afternoon following the maintenance scenario (October 2, 2004), but then waited until the next morning to conduct the second baseball play scenario to allow the soil to dry out somewhat. This change impacted the schedule for scenarios that had been planned for the following day, so one of the three jogging/walking scenarios on the New York Creek Nature Trail was dropped from the schedule.

Prior to conducting the baseball play scenarios at Silva Valley Elementary School, to test the moisture level of the field the START collected three soil samples from dispersed locations on

Figure 5-4

Table 5-6
Silva Valley Elementary School Baseball Playing Field Maintenance Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SVM-H2-1FD-100204	SVM-1FD	pitcher's mound hi-vol	10/02/04	0.000998	0.00200	0.000998
SVM-H2-2FD-100204	SVM-2FD	downwind hi-vol	10/02/04	0.00194	0.00291	0.000968
SVM-H2-3FD-100204	SVM-3FD	offset downwind hi-vol	10/02/04	0.000994	0.000994	0.000994
SVM-H2-4FD-100204	SVM-4FD	upwind hi-vol	10/02/04	<0.00289	<0.00289	0.000967
SVM-H2-5FD-100204	SVM-5FD	far downwind hi-vol	10/02/04	0.00387	0.00580	0.000967
SVM-L2-1AD-100204	SVM-1AD	adult #1	10/02/04	<0.00299	0.00500	0.000999
SVM-L2-2AD-100204	SVM-2AD	adult #2	10/02/04	0.00299	0.00498	0.000995
SVM-L2-3AD-100204	SVM-3AD	adult #3	10/02/04	0.00499	0.00699	0.000998
SVM-L2-4AD-100204	SVM-4AD	adult #4	10/02/04	0.000992	0.00298	0.000992
SVM-L2-5AD-100204	SVM-5AD	adult #5	10/02/04	0.00299	0.00498	0.000997
SVM-L2-15AD-100204	SVM-5AD	duplicate of adult #5	10/02/04	<0.00300	0.00100	0.00100
SVM-L2-6AD-100204	SVM-6AD	adult #6	10/02/04	0.000991	0.00297	0.00297
CC1-L6-1CA-100204	adult #1	composite sample collected during the 100204 scenarios	10/02/04	0.000992	0.00595	0.000992
CC1-L6-1CB-100204	adult/child #1	composite sample collected during the 100204 scenarios	10/02/04	0.000972	0.00389	0.000972
CC1-L6-2CB-100204	adult/child #2	composite sample collected during the 100204 scenarios	10/02/04	0.00202	0.00808	0.00101

Table 5-6 Silva Valley Elementary School Baseball Playing Field Maintenance Scenario Air Sample Summary Results						
Sample ID	**Location**	**Location Description**	**Date**	**PCME Structures (s/cc)**	**AHERA-like Total Structures (s/cc)**	**Sensitivit y (s/cc)**
CC1-L6-3CB-100204	adult/child #3	composite sample collected during the 100204 scenarios	10/02/04	results pending	results pending	results pending

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

the field just below the top ¼ to ½ inch of soil. The START also collected soil moisture samples similarly from other playing fields and areas where activity-based sampling was conducted throughout the week. Many of these soil moisture samples were collected just prior to conducting activity-based sampling; in a few cases they were collected after activity-based sampling had already been conducted. Table 5-7 (Moisture Levels in Activity Area Soils) shows the results of the soil moisture tests conducted for the Silva Valley Elementary School baseball playing field, as well as for the other playing fields.

The START conducted activity-based outdoor air sampling during this scenario according to the following scripted schedule:

- For the entire 2-hour scenario, one member of the sampling team simulated the activities of an adult/parent spectator walking and standing behind the backstop and sitting in the dugouts. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.
- For the first 30 minutes, five other members of the sampling team used rakes and brooms to perform types of field maintenance activities that might be conducted prior to a game. One team member swept in the dugouts, three used rakes on the dirt areas of the infield, and one observed the maintenance activities at close range to the others who were performing the work. The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 3 feet.
- For the remaining 90 minutes, the five other members of the sampling team alternately sat in the dugouts for 10 minutes then played baseball (infield practice) for 20 minutes; this pattern was repeated three times in the 90 minutes.

Table 5-7
Moisture Levels in Activity Area Soils

Sample Location	sample #	Collection Date	Collection Time	Scenario Date	Scenario Start Time	Moisture Concentration	RL
Silva Valley Elementary School Baseball Playing Field (Baseball Scenario A)	1	10/02/04	2:00 PM	10/02/04	4:24 PM	19.2	0.1
	2	10/02/04	2:04 PM			10.8	0.1
	3	10/02/04	2:08 PM			20.0	0.1
Silva Valley Elementary School Baseball Playing Field (Baseball Scenario B)	1	10/03/04	9:45 AM	10/03/04	10:06 AM	17.7	0.1
	2	10/03/04	9:48 AM			15.0	0.1
	3	10/03/04	9:50 AM			17.7	0.1
Rolling Hills Middle School Soccer Field	1	10/03/04	2:20 PM	10/03/04	2:50 PM	70.5	0.1
	2	10/03/04	2:23 PM			37.0	0.1
	3	10/03/04	2:25 PM			9.1	0.1
Community Park North Field Baseball Playing Field	1	10/07/04	3:19 PM	10/05/04	2:36 PM	1.3	0.1
	2	10/07/04	3:21 PM			1.9	0.1
	3	10/07/04	3:22 PM			1.8	0.1
Community Park South Field Baseball Playing Field (Baseball Scenario A)	1	10/07/04	3:10 PM	10/05/04	5:23 PM	2.2	0.1
	2	10/07/04	3:12 PM			3.0	0.1
	3	10/07/04	3:14 PM			1.8	0.1
Community Park South Field Baseball Playing Field (Baseball Scenario B)	*			10/06/04	1:05 PM	*	
	*					*	
	*					*	
Community Park South Field Baseball Playing Field (Baseball Scenario C)	*			10/06/04	3:58 PM	*	
	*					*	
	*					*	
New York Creek Baseball Playing Field	1	10/07/04	12:09 PM	10/07/04	12:39 PM	1.2	0.1
	2	10/07/04	12:11 PM			1.2	0.1
	3	10/07/04	12:13 PM			1.3	0.1
Community Park Lower Soccer Field	1	10/07/04	1:57 PM	10/07/04	3:45 PM	18.2	0.1
	2	10/07/04	1:59 PM			22.3	0.1
	3	10/07/04	2:02 PM			7.3	0.1
Jackson Elementary School Garden and Outdoor Classroom	1	10/11/04	8:06 AM	10/10/04	9:14 AM	3.2	0.1
	2	10/11/04	8:10 AM			2.4	0.1
	3	10/11/04	8:13 AM			6.1	0.1
Jackson Elementary School Grass-Covered Playing Field	1	10/11/04	11:39 AM	10/10/04	12:06 PM	6.6	0.1
	2	10/11/04	11:26 AM			6.3	0.1
	3	10/11/04	11:48 AM			14.0	0.1

Method: ASTM D 2216-90
Matrix: soil
Analysis: moisture
units: % by weight
RL = reporting limit
* = samples from South Field collected only one time on 10/07/04 (see results for South Field Baseball Scenario A)

- During the last 30 minutes of infield practice play, a seventh member of the sampling team who was not wearing a sample pump entered the scenario to run bases and slide toward bases. This member of the sampling team was allowed to engage in more vigorous physical activity than the other members of the sampling team without having to worry about damaging the equipment or having the pumps fall out of the belts.

The outline of the field and the positions of the stationary air sample pumps operating during the first baseball scenario are shown as SVBA-1FD, SVBA-2FD, SVBA-3FD, SVBA-4FD, and SVBA-5FD on Figure 5-5 (Silva Valley Elementary School Baseball Playing Field Activity-Based Outdoor Air Sampling Locations–Baseball Scenario A). The position of the mobile meteorological station is shown as SVBA-MS. A summary of results for *Baseball Scenario A* samples is shown in Table 5-8 (Silva Valley Elementary School Baseball Scenario A Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

Baseball Scenario B. The START collected soil samples to test the moisture level again immediately prior to conducting the second baseball play scenario at Silva Valley Elementary School (see Table 5-7: Moisture Levels in Activity Area Soils).

The START conducted *Baseball Scenario B* on October 3, 2004. The START conducted activity-based outdoor air sampling during the second baseball play scenario according to the same scripted schedule that was used for *Baseball Scenario A*.

The outline of the field and the positions of the stationary air sample pumps operating during the second baseball scenario are

Figure 5-5

Table 5-8
Silva Valley Elementary School Baseball Scenario A Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SVBA-H2-1FD-100204	SVBA-1FD	pitcher's mound hi-vol	10/02/04	0.000994	0.0169	0.000994
SVBA-H2-2FD-100204	SVBA-2FD	downwind hi-vol	10/02/04	0.00300	0.00900	0.00100
SVBA-H2-3FD-100204	SVBA-3FD	offset downwind hi-vol	10/02/04	<0.00294	0.00295	0.000984
SVBA-H2-4FD-100204	SVBA-4FD	upwind hi-vol	10/02/04	0.000967	0.00193	0.000967
SVBA-H2-5FD-100204	SVBA-5FD	far downwind hi-vol	10/02/04	0.000964	0.00289	0.000964
SVBA-L2-1CH-100204	SVBA-1CH	child #1	10/02/04	0.0101	0.0202	0.00101
SVBA-L2-11CH-100204	SVBA-1CH	duplicate of child #1	10/02/04	0.00498	0.0189	0.000997
SVBA-L2-2CH-100204	SVBA-2CH	child #2	10/02/04	<0.00296	0.0139	0.000992
SVBA-L2-3CH-100204	SVBA-3CH	child #3	10/02/04	0.00199	0.00897	0.000997
SVBA-L2-4CH-100204	SVBA-4CH	child #4	10/02/04	0.00697	0.0110	0.000996
SVBA-L2-5CH-100204	SVBA-5CH	child #5	10/02/04	0.00393	0.0137	0.000981
SVBA-L2-1NA-100204	SVBA-1NA	non-active adult	10/02/04	<0.00298	<0.00298	0.000995
CC1-L6-1CA-100204	adult #1	composite sample collected during the 100204 scenarios	10/02/04	0.000992	0.00595	0.000992
CC1-L6-1CB-100204	adult/child #1	composite sample collected during the 100204 scenarios	10/02/04	0.000972	0.00389	0.000972
CC1-L6-2CB-100204	adult/child #2	composite sample collected during the 100204 scenarios	10/02/04	0.00202	0.00808	0.00101
CC1-L6-3CB-100204	adult/child #3	composite sample collected during the 100204 scenarios	10/02/04	results pending	results pending	results pending
SVBA-L2-1ZB-100204	field blank	field blank	10/02/04	<0.00296	<0.00296	0.000991

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

shown as SVBB-1FD, SVBB-2FD, SVBB-3FD, SVBB-4FD, and SVBB-5FD on Figure 5-6 (Silva Valley Elementary School Baseball Playing Field Activity-Based Outdoor Air Sampling Locations–Baseball Scenario B). The position of the mobile meteorological station is shown as SVBB-MS. A summary of results for the field maintenance scenario samples is shown in Table 5-9 (Silva Valley Elementary School Baseball Scenario B Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

5.4.2.2 Rolling Hills Middle School

The logistics of conducting one scenario at Silva Valley Elementary School in the morning, and then moving all the equipment and personnel to Rolling Hills Middle School to conduct two more scenarios took more time than was anticipated. In order to complete scenarios at both the soccer field and the basketball play area at Rolling Hills Middle School before dark, the START cut the length of time the soccer scenario was performed; instead of 2 hours the soccer scenario was stopped after about 1.5 hours of activity had been completed.

Soccer Scenario. The START collected soil samples to test the moisture level immediately prior to conducting the soccer scenario at Rolling Hills Middle School (see Table 5-7: Moisture Levels in Activity Area Soils). The soccer scenario activity was conducted on a rectangular area toward the southern end of the field where the START observed bare areas in the grass.

The START conducted activity-based outdoor air sampling during the soccer scenario on October 3, 2004, according to the following scripted schedule:

Figure 5-6

Table 5-9
Silva Valley Elementary School Baseball Scenario B Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SVBB-H2-1FD-100304	SVBB-1FD	pitcher's mound hi-vol	10/03/04	<0.00302	0.00202	0.00101
SVBB-H2-2FD-100304	SVBB-2FD	downwind hi-vol	10/03/04	<0.00294	<0.00294	0.000983
SVBB-H2-12FD-100304	SVBB-2FD	duplicate of downwind hi-vol	10/03/04	<0.00297	0.00199	0.000994
SVBB-H2-3FD-100304	SVBB-3FD	offset downwind hi-vol	10/03/04	<0.00297	<0.00297	0.000994
SVBB-H2-4FD-100304	SVBB-4FD	upwind hi-vol	10/03/04	0.000958	0.00192	0.000958
SVBB-H2-5FD-100304	SVBB-5FD	far downwind hi-vol	10/03/04	0.000998	<0.00298	0.000998
SVBB-L2-1CH-100304	SVBB-1CH	child #1	10/03/04	0.00299	0.00699	0.000998
SVBB-L2-2CH-100304	SVBB-2CH	child #2	10/03/04	0.000999	0.00999	0.000999
SVBB-L2-12CH-100304	SVBB-2CH	duplicate of child #2	10/03/04	<0.00296	0.00396	0.000989
SVBB-L2-3CH-100304	SVBB-3CH	child #3	10/03/04	0.00293	0.00586	0.000977
SVBB-L2-4CH-100304	SVBB-4CH	child #4	10/03/04	0.00296	0.00888	0.00148
SVBB-L2-5CH-100304	SVBB-5CH	child #5	10/03/04	0.000997	0.00399	0.000997
SVBB-L2-1NA-100304	SVBB-1NA	non-active adult	10/03/04	<0.00294	<0.00294	0.000984
CC2A-L6-1CA-100304	adult #1	composite sample collected during the 100304 scenarios	10/03/04	0.000995	0.0109	0.000995
CC2-L6-1CC-100304	child #1	composite sample collected during the 100304 scenarios	10/03/04	<0.00292	0.00195	0.000976

Table 5-9
Silva Valley Elementary School Baseball Scenario B Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
CC2-L6-11CC-100304	duplicate of child #1	composite sample collected during the 100304 scenarios	10/03/04	0.000982	0.00295	0.000982
CC2-L6-2CC-100304	child #2	composite sample collected during the 100304 scenarios	10/03/04	<0.00298	<0.00298	0.000996
CC2-L6-3CC-100304	child #3	composite sample collected during the 100304 scenarios	10/03/04	0.00491	0.0108	0.000982
CC2-L6-4CC-100304	child #4	composite sample collected during the 100304 scenarios	10/03/04	0.00300	0.0150	0.000999
SVBB-L2-1ZB-100304	field blank	field blank	10/03/04	<0.00298	<0.00298	0.000998

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

- For the entire 1.5-hour scenario, one member of the sampling team simulated the activities of an adult/parent spectator sitting near the edge or walking around and occasionally within the area of play. This member of the sampling team would sometimes retrieve a ball kicked out of the area of play. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.
- For the entire 1.5-hour scenario, five other members of the sampling team passed soccer balls back and forth to each other. They sometimes formed a small circle to practice passing; other times they dribbled the ball across the field with other sampling team members close by. The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 3 feet.

The area within which the START conducted the activity is outlined and the positions of the stationary air sample pumps operating during the soccer scenario are shown as RHS-1FD, RHS-2FD, RHS-3FD, RHS-4FD, and RHS-5FD on Figure 5-7 (Rolling Hills Middle School Soccer Field Activity-Based Outdoor Air Sampling Locations–Soccer Scenario). The position of the mobile meteorological station is shown as RHS-MS. A summary of results for the soccer scenario samples is shown in Table 5-10 (Rolling Hills Middle School Soccer Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

Basketball Scenario. The START conducted the basketball scenario on a half court of one of the basketball courts at Rolling Hills Middle School on October 3, 2004.

Figure 5-7

Table 5-10
Rolling Hills Middle School Soccer Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
RHS-H2-1FD-100304	RHS-1FD	on-field hi-vol	10/03/04	0.000988	0.00198	0.000988
RHS-H2-2FD-100304	RHS-2FD	on-field hi-vol	10/03/04	<0.00295	0.00197	0.000986
RHS-H2-3FD-100304	RHS-3FD	on-field hi-vol	10/03/04	<0.00295	<0.00295	0.000987
RHS-H2-4FD-100304	RHS-4FD	upwind hi-vol	10/03/04	<0.00284	<0.00284	0.000951
RHS-H2-5FD-100304	RHS-5FD	far downwind hi-vol	10/03/04	<0.00283	0.00189	0.000947
RHS-L2-1CH-100304	RHS-1CH	child #1	10/03/04	<0.00298	<0.00298	0.000998
RHS-L2-2CH-100304	RHS-2CH	child #2	10/03/04	0.000994	0.00398	0.000994
RHS-L2-3CH-100304	RHS-3CH	child #3	10/03/04	0.000999	0.000999	0.000999
RHS-L2-4CH-100304	RHS-4CH	child #4	10/03/04	0.000996	0.000996	0.000996
RHS-L2-14CH-100304	RHS-4CH	duplicate of child #4	10/03/04	0.000990	0.000990	0.000990
RHS-L2-5CH-100304	RHS-5CH	child #5	10/03/04	<0.00296	0.00198	0.000991
RHS-L2-1NA-100304	RHS-1NA	non-active adult	10/03/04	<0.00298	<0.00298	0.000998
CC2A-L6-1CA-100304	adult #1	composite sample collected during the 100304 scenarios	10/03/04	0.000995	0.0109	0.000995
CC2-L6-1CC-100304	child #1	composite sample collected during the 100304 scenarios	10/03/04	<0.00292	0.00195	0.000976
CC2-L6-11CC-100304	duplicate of child #1	composite sample collected during the 100304 scenarios	10/03/04	0.000982	0.00295	0.000982

Table 5-10
Rolling Hills Middle School Soccer Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
CC2-L6-2CC-100304	child #2	composite sample collected during the 100304 scenarios	10/03/04	<0.00298	<0.00298	0.000996
CC2-L6-3CC-100304	child #3	composite sample collected during the 100304 scenarios	10/03/04	0.00393	0.0108	0.000982
CC2-L6-4CC-100304	child #4	composite sample collected during the 100304 scenarios	10/03/04	0.00300	0.0150	0.000999

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

The START conducted activity-based outdoor air sampling during the basketball scenario according to the following scripted schedule:

- For the entire 2-hour scenario, one member of the sampling team simulated the activities of an adult/parent spectator sitting near the edge or walking around and occasionally within the area of play. This member of the sampling team would sometimes retrieve a ball that bounced out of the area of play. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.
- For the first 10 minutes, two other members of the sampling team used brooms to sweep the half-court, two dribbled basketballs around the half-court, and one walked close by those sweeping or dribbling. The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 3 feet.
- For the remaining 110 minutes, these five other members of the sampling team played basketball and conducted practice drills according to the following 10-minute activity modules:
    - Layups
    - Top of the Key
    - Half-Court Game
    - Foul Line Shots
    - Layups
    - Top of the Key
    - Half-Court Game
    - Foul Line Shots
    - Layups
    - Top of the Key
    - Free Shots

The area within which the START conducted the activity is outlined and the positions of the stationary air sample pumps operating during the basketball scenario are shown as RHB-1FD, RHB-2FD, RHB-3FD, RHB-4FD, and RHB-5FD on Figure 5-8 (Rolling Hills Middle School Activity-Based Outdoor Air Sampling Locations–Basketball Scenario). The position of the mobile meteorological station is shown as RHB-MS. A summary of results for the basketball scenario samples is shown in Table 5-11 (Rolling Hills Middle School Basketball Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

5.4.2.3 Children's Playground at the Community Park

The START conducted two scenarios at the Children's Playground at the Community Park on October 4, 2004: a *Typical Activity Scenario* and an *Aggressive Activity Scenario*. The plan for these scenarios, as described in the *El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, El Dorado Hills, California, Activity-Based Outdoor Air Sampling of Community Park Children's Playground Field Sampling Plan*, had called for members of the sampling team to simulate typical levels of children's play activity during the *Typical Activity Scenario* and a slightly more vigorous level of activity during the *Aggressive Activity Scenario*. To limit the variables between the two scenarios, however, U.S. EPA directed members of the sampling team to simulate children's play at about the same level of activity for both scenarios. The primary differences between the two scenarios were the addition of the following for the *Aggressive Activity Scenario*:

- A leaf blower was used just prior to conducting scenario activity on each side of the playground.

Figure 5-8

Table 5-11
Rolling Hills Middle School Basketball Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
RHB-H2-1FD-100304	RHB-1FD	on basketball court hi-vol	10/03/04	0.000974	0.000974	0.000974
RHB-H2-2FD-100304	RHB-2FD	on basketball court hi-vol	10/03/04	0.00297	0.00594	0.000990
RHB-H2-3FD-100304	RHB-3FD	on basketball court hi-vol	10/03/04	<0.00303	0.00203	0.00101
RHB-H2-4FD-100304	RHB-4FD	upwind hi-vol	10/03/04	<0.00286	0.00478	0.000957
RHB-H2-5FD-100304	RHB-5FD	far downwind hi-vol	10/03/04	<0.00293	0.000981	0.000981
RHB-L2-1CH-100304	RHB-1CH	child #1	10/03/04	0.00300	0.00900	0.000999
RHB-L2-2CH-100304	RHB-2CH	child #2	10/03/04	0.000995	0.00299	0.000995
RHB-L2-3CH-100304	RHB-3CH	child #3	10/03/04	0.000996	0.000996	0.000996
RHB-L2-4CH-100304	RHB-4CH	child #4	10/03/04	0.000989	0.00395	0.000989
RHB-L2-14CH-100304	RHB-4CH	duplicate of child #4	10/03/04	0.000991	0.00495	0.000991
RHB-L2-5CH-100304	RHB-5CH	child #5	10/03/04	0.000999	0.00400	0.000999
RHB-L2-1NA-100304	RHB-1NA	non-active adult	10/03/04	0.00100	0.00502	0.00100
CC2A-L6-1CA-100304	adult #1	composite sample collected during the 100304 scenarios	10/03/04	0.000995	0.0109	0.000995
CC2-L6-1CC-100304	child #1	composite sample collected during the 100304 scenarios	10/03/04	<0.00292	0.00195	0.000976
CC2-L6-11CC-100304	duplicate of child #1	composite sample collected during the 100304 scenarios	10/03/04	0.000982	0.00295	0.000982

Table 5-11
Rolling Hills Middle School Basketball Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
CC2-L6-2CC-100304	child #2	composite sample collected during the 100304 scenarios	10/03/04	<0.00298	<0.00298	0.000996
CC2-L6-3CC-100304	child #3	composite sample collected during the 100304 scenarios	10/03/04	0.00393	0.0108	0.000982
CC2-L6-4CC-100304	child #4	composite sample collected during the 100304 scenarios	10/03/04	0.00300	0.0150	0.000999
RHB-L2-1ZB-100304	field blank	field blank	10/03/04	<0.00277	<0.00277	0.000925

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

- Several box fans were set up in rings around each side of the playground to blow air toward the center of the playground during the scenario.

For both scenarios, the intakes for the air collection filter cassettes worn by the sampling team members were set at a height of about 3 feet. No stationary air sample pumps were operated during the either of the Children's Playground scenarios.

Typical Activity Scenario. The START performed the *Typical Activity Scenario* first. The START conducted activity-based outdoor air sampling during the scenario according to the following scripted schedule (see Table 5-12: Children's Playground Scenario Activities):

- For the first hour of the scenario five members of the sampling team simulated the activities of children playing in the western portion of the Children's Playground, which has a wood chip ground cover. One member of the sampling team conducted solitary play activities during the scenario, while the other four sampling team members conducted activities in two pairs. They alternated activities every 10 minutes, as shown in Table 5-12 (Children's Playground Scenario Activities).
- For the second hour of the scenario five members of the sampling team simulated the activities of children playing in the eastern portion of the Children's Playground, which has rubber-like playground surface in most of the area and a sand box in one corner. One member of the sampling team continued to conduct solitary play activities during the scenario, while the other four sampling team members conducted activities in two pairs. They alternated activities every 10 minutes, as shown in Table 5-12 (Children's Playground Scenario Activities).

Table 5-12 Children's Playground Scenario Activities						
Western Portion of Playground (with wood chip ground cover)						
	0 to 10 minutes	**10 to 20 minutes**	**20 to 30 minutes**	**30 to 40 minutes**	**40 to 50 minutes**	**50 to 60 minutes**
Pair A	swings	spinners	ball	play structure	ball	walk/run
Pair B	ball	play structure	walking/ running (some foot-dragging)	swings	spinners	ball and climbing
Solitary Player	play structure	climbing	swings	ball/foot-dragging	play structure (also sliding with wood chips on slide)	mix of activities
Eastern Portion of Playground (with rubber-like ground surface and sand box)						
	60 to 70 minutes	**70 to 80 minutes**	**80 to 90 minutes**	**90 to 100 minutes**	**100 to 110 minutes**	**110 to 120 minutes**
Pair A	play structure	sand box	ball	play structure	sand box	ball
Pair B	sand box	ball	play structure	sand box	ball	play structure
Solitary Player	ball	play structure	sand box	ball	play structure	sand box

<u>*Aggressive Activity Scenario*</u>. The START performed the *Aggressive Activity Scenario* second, with a break of more than an hour between the *Typical Activity Scenario* and the *Aggressive Activity Scenario*. The START conducted activity-based outdoor air sampling during the scenario according to the following scripted schedule:

- For about 20 minutes prior to starting the scenario, one member of the sampling team used a leaf blower in the western portion of the Children's Playground, which has a wood chip ground cover. The START placed several box fans in a ring around this portion of the playground facing the center of the area. The team member using the leaf blower turned on each of the fans as he walked around in that portion of the playground blowing toward the ground, at the play structures, and up toward the shade canopy. See Table 5-13: Status of Leaf Blower and Fans During Aggressive Activity Scenario.
- The leaf blower was turned off but the fans remained turned on, and for the first hour of the scenario five members of the sampling team simulated the activities of children playing in the western portion of the Children's Playground. As was done during the *Typical Activity Scenario*, one member of the sampling team conducted solitary play activities during the scenario, while the other four sampling team members conducted activities in two pairs. They alternated activities every 10 minutes, as shown in Table 5-12 (Children's Playground Scenario Activities).

Table 5-13
Status of Leaf Blower and Fans During Aggressive Activity Scenario

20 minutes before start of scenario	0 to 40 minutes	40 to 60 minutes	60 to 120 minutes
use leaf blower in western portion; turn on fans in western portion	leaf blower off; fans remain on in western portion	use leaf blower in eastern portion; turn on fans in eastern portion; fans still on in western portion or in transit to eastern portion	leaf blower off; fans on in eastern portion; fans off in western portion
no activity-based sampling	activity-based sampling in western portion	activity-based sampling in western portion	activity-based sampling in eastern portion

- For about the last 20 minutes of the first hour, while the five members of the sampling team were still conducting scenario activities in the western portion of the Children's Playground, another member of the sampling team used a leaf blower in the eastern portion of the playground. This side of the playground has a rubber-like ground surface and a sand box. The START placed several other box fans in a circle around this portion of the playground, and the team member using the leaf blower turned on each of the fans as he walked around in that portion of the playground blowing toward the ground and at the play structures.
- The leaf blower was then turned off while the fans remained turned on, and for the second hour of the scenario five members of the sampling team simulated the activities of children playing in the eastern portion of the Children's Playground. One member of the sampling team continued to conduct solitary play activities during the scenario, while the other four sampling team members conducted activities in two pairs.

They alternated activities every 10 minutes, as shown in Table 5-12 (Children's Playground Scenario Activities).

The outline of the Children's Playground is shown on Figure 5-9 (Community Park Children's Playground Activity-Based Outdoor Air Sampling Area–Typical and Aggressive Activity Scenarios). The position of the mobile meteorological station (which was used only during the Typical Activity Scenario) and the Ambient Air Monitoring Station are shown as TPG-MS and AAMS, respectively. The position of the mobile meteorological station is shown as RHB-MS. A summary of results for the playground scenario samples is shown in Table 5-14 (Community Park Children's Playground Typical and Aggressive Activity Scenarios Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during these scenarios.

5.4.2.4 Playing Fields at the Community Park

During the baseball and soccer scenarios conducted on the playing fields at the Community Park, the START operated additional stationary high-flow air sample pumps at the Children's Playground.

North Field Baseball Playing Field. The START conducted activity-based outdoor air sampling at the North Field on October 5. The START intended to collect soil samples to test the moisture level of the field prior to conducting the scenario, but this was inadvertently overlooked. The soil moisture samples were collected instead on October 7, 2004 (see Table 5-7: Moisture Levels in Activity Area Soils).

The START conducted activity-based outdoor air sampling at the North Field, according to the following scripted schedule:

Figure 5-9

Table 5-14
Community Park Children's Playground Typical and Aggressive Activity Scenarios Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
TPG-L2-1CH-100404	TPG-1CH	child #1	10/04/04	0.00701	0.0260	0.00100
TPG-L2-11CH-100404	TPG-1CH	duplicate of child #1	10/04/04	0.00400	0.0140	0.00100
TPG-L2-2CH-100404	TPG-2CH	child #2	10/04/04	0.00624	0.108	0.00208
TPG-L2-3CH-100404	TPG-3CH	child #3	10/04/04	0.000998	0.0220	0.000998
TPG-L2-4CH-100404	TPG-4CH	child #4	10/04/04	<0.0161	0.264	0.00539
TPG-L2-5CH-100404	TPG-5CH	child #5	10/04/04	0.00389	0.0557	0.00130
TPG-L2-1ZB-100404	field blank	field blank	10/04/04	<0.00297	<0.00297	0.000995
APG-L2-1CH-100404	APG-1CH	child #1	10/04/04	results pending	results pending	results pending
APG-L2-2CH-100404	APG-2CH	child #2	10/04/04	0.00999	0.0190	0.000999
APG-L2-3CH-100404	APG-3CH	child #3	10/04/04	0.000998	0.00889	0.000988
APG-L2-13CH-100404	APG-3CH	duplicate of child #3	10/04/04	results pending	results pending	results pending
APG-L2-4CH-100404	APG-4CH	child #4	10/04/04	0.00399	0.00997	0.000997
APG-L2-5CH-100404	APG-5CH	child #5	10/04/04	0.00100	0.00603	0.00100
APG-L2-1ZB-100404	field blank	field blank	10/04/04	<0.00319	<0.00319	0.00107

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

- For the entire 2-hour scenario, one member of the sampling team simulated the activities of an adult/parent spectator walking and standing behind the backstop and sitting on the bleachers and in the dugouts. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.
- For the first 10 minutes, another member of the sampling team drove an electric maintenance cart towing a steel drag mat around to groom the infield. The cart and drag mat are the same equipment the CSD maintenance staff use to groom the infields prior to games. Use of the cart and drag mat mimicked CSD infield maintenance procedures, except that the START did not wet the infield down, as would normally be done prior to dragging, in an attempt to capture the upper end of exposure levels. During the infield dragging, two other members of the sampling team sat in the dugouts, and another two members of the sampling team walked around the infield, occasionally within or near the cloud of dust created by the drag mat. The intakes for the air collection filter cassettes worn by these five sampling team members were set at a height of about 3 feet.
- For the next 20 minutes, the electric cart and drag mat were set aside, and these five members of the sampling team walked around in the infield and spectator areas and used hand tools to perform field grooming tasks. One member of the sampling team swept the dugouts, one swept behind the backstops near the spectator bleachers, one used a dirt rake on the infield dirt, one walked around the bases, and one used a dirt tamp to tamp around the pitcher's mound and home plate.
- For the remaining 90 minutes, the five members of the sampling team simulating the activities of children alternately sat in the dugouts for 10 minutes then played baseball (infield prac-

tice) for 20 minutes; this pattern was repeated three times in the 90 minutes.

- During the last 30 minutes of infield practice play, a seventh member of the sampling team who was not wearing a sample pump entered the scenario to run bases and slide toward bases. This member of the sampling team was allowed to engage in more vigorous physical activity than the other members of the sampling team without having to worry about damaging the equipment or having the pumps fall out of the belts.

The outline of the field and the positions of the stationary air sample pumps operating during the North Field baseball scenario are shown as NFB-1FD, NFB-2FD, NFB-3FD, NFB-4FD, NFB-5FD, NFB-1PG, NFB-2PG, NFB-3PG, NFB-4PG, and NFB-5PG on Figure 5-10 (Community Park North Field Activity-Based Outdoor Air Sampling Locations–Baseball Scenario). Two composite samples collected during both baseball scenarios conducted on October 5 are shown as CC2-05-1CP and CC2-05-2CP. The position of the mobile meteorological station is shown as NFB-MS. A summary of results for the baseball scenario samples is shown in Table 5-15 (Community Park North Field Baseball Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

<u>*South Field Baseball Playing Field*</u>. The START conducted three baseball scenarios on the South Field at the Community Park. One scenario was conducted on October 5 (*Baseball Scenario A*), and two were conducted on October 6, 2004 (*Baseball Scenario B* and *Baseball Scenario C*). The START intended to collect soil samples to test the moisture level of the field prior to conducting each scenario, but this was inadvertently overlooked. Instead, a single set of soil moisture samples was collected for the South Field on

Figure 5-10

Table 5-15
Community Park North Field Baseball Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
NFB-H2-1FD-100504	NFB-1FD	pitcher's mound hi-vol	10/05/04	<0.00299	0.00899	0.000998
NFB-H2-2FD-100504	NFB-2FD	downwind hi-vol (somewhat crosswind)	10/05/04	0.00692	0.0198	0.000988
NFB-H2-3FD-100504	NFB-3FD	offset downwind hi-vol (somewhat crosswind)	10/05/04	results pending	results pending	results pending
NFB-H2-4FD-100504	NFB-4FD	upwind hi-vol (somewhat crosswind)	10/05/04	0.00490	0.00979	0.000979
NFB-H2-5FD-100504	NFB-5FD	far downwind hi-vol (somewhat crosswind)	10/05/04	0.00293	0.00489	0.000977
NFB-H2-1PG-100504	NFB-1PG	children's playground hi-vol	10/05/04	0.000958	0.00383	0.000958
NFB-H2-2PG-100504	NFB-2PG	children's playground hi-vol	10/05/04	<0.00294	0.000983	0.000983
NFB-H2-3PG-100504	NFB-3PG	children's playground hi-vol	10/05/04	0.00196	0.00490	0.000981
NFB-H2-4PG-100504	NFB-4PG	children's playground hi-vol	10/05/04	0.00196	0.00393	0.000982
NFB-H2-5PG-100504	NFB-5PG	children's playground hi-vol	10/05/04	0.00297	0.00396	0.000991
NFB-L2-1CH-100504	NFB-1CH	child #1	10/05/04	results pending	results pending	results pending
NFB-L2-2CH-100504	NFB-2CH	child #2	10/05/04	0.00761	0.0399	0.000951
NFB-L2-3CH-100504	NFB-3CH	child #3	10/05/04	0.0169	0.0627	0.000995
NFB-L2-4CH-100504	NFB-4CH	child #4	10/05/04	results pending	results pending	results pending
NFB-L2-5CH-100504	NFB-5CH	child #5	10/05/04	results pending	results pending	results pending

Table 5-15
Community Park North Field Baseball Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
NFB-L2-15CH-100504	NFB-5CH	duplicate of child #5	10/05/04	results pending	results pending	results pending
NFB-L2-1NA-100504	NFB-1NA	non-active adult	10/05/04	0.00697	0.0159	0.000996
CC2-H6-1CP-100504	CC2-05-1CP	children's playground hi-vol composite sample collected during the 100504 scenarios	10/05/04	0.000991	0.0129	0.000991
CC2-H6-2CP-100504	CC2-05-2CP	children's playground hi-vol composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
CC2-L6-1CA-100504	adult #1	composite sample collected during the 100504 scenarios	10/05/04	0.000995	0.0229	0.000995
CC2-L6-1CC-100504	child #1	composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
CC2-L6-11CC-100504	child #1	duplicate of child #1 composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
CC2-L6-2CC-100504	child #2	composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
CC2-L6-3CC-100504	child #3	composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
NFB-L2-1ZB-100504	field blank	field blank	10/05/04	<0.00296	<0.00296	0.000991

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

October 7, 2004 (see Table 5-7: Soil Moisture Levels in Activity Area Soils).

The START conducted *Baseball Scenario A* and *Baseball Scenario B* according to the same scripted schedule used for the North Field. For *Baseball Scenario C*, however, the START conducted it entirely as a baseball infield practice scenario. The first 30 minutes of field maintenance activity (including the use of the steel drag mat) was replaced with infield practice play, so the scenario was still 2 hours in length.

South Field *Baseball Scenario A*. The START conducted activity-based outdoor air sampling during *Baseball Scenario A* at the South Field according to the same scripted schedule that was used for the North Field.

The outline of the field and the positions of the stationary air sample pumps operating during the South Field *Baseball Scenario A* are shown as SFBA-1FD, SFBA-2FD, SFBA-3FD, SFBA-4FD, SFBA-5FD, SFBA-1PG, SFBA-2PG, SFBA-3PG, SFBA-4PG, and SFBA-5PG on Figure 5-11 (Community Park South Field Activity-Based Outdoor Air Sampling Locations–Baseball Scenario A). Two composite samples collected during both baseball scenarios conducted on October 5 are shown as CC2-05-1CP and CC2-05-2CP. The position of the mobile meteorological station is shown as SFBA-MS. A summary of results for *Baseball Scenario A* samples is shown in Table 5-16 (Community Park South Field Baseball Scenario A Air Sample Summary Results).

Figure 5-11

Table 5-16
Community Park South Field Baseball Scenario A Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SFBA-H2-1FD-100504	SFBA-1FD	pitcher's mound hi-vol	10/05/04	results pending	results pending	results pending
SFBA-H2-2FD-100504	SFBA-2FD	downwind hi-vol	10/05/04	0.00481	0.0786	0.00160
SFBA-H2-3FD-100504	SFBA-3FD	offset downwind hi-vol	10/05/04	0.0195	0.195	0.00390
SFBA-H2-4FD-100504	SFBA-4FD	upwind hi-vol	10/05/04	0.000982	0.0177	0.000982
SFBA-H2-5FD-100504	SFBA-5FD	far downwind hi-vol	10/05/04	0.00493	0.00691	0.000987
SFBA-H2-1PG-100504	SFBA-1PG	children's playground hi-vol	10/05/04	0.00369	0.0194	0.000923
SFBA-H2-2PG-100504	SFBA-2PG	children's playground hi-vol	10/05/04	results pending	results pending	results pending
SFBA-H2-3PG-100504	SFBA-3PG	children's playground hi-vol	10/05/04	0.000964	0.00675	0.000964
SFBA-H2-4PG-100504	SFBA-4PG	children's playground hi-vol	10/05/04	results pending	results pending	results pending
SFBA-H2-5PG-100504	SFBA-5PG	children's playground hi-vol	10/05/04	0.00958	0.0249	0.000958
SFBA-L2-1CH-100504	SFBA-1CH	child #1	10/05/04	results pending	results pending	results pending
SFBA-L2-2CH-100504	SFBA-2CH	child #2	10/05/04	results pending	results pending	results pending
SFBA-L2-3CH-100504	SFBA-3CH	child #3	10/05/04	<0.0430	0.762	0.0144
SFBA-L2-4CH-100504	SFBA-4CH	child #4	10/05/04	0.0109	0.177	0.00362
SFBA-L2-5CH-100504	SFBA-5CH	child #5	10/05/04	0.0251	0.653	0.0126

Table 5-16
Community Park South Field Baseball Scenario A Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SFBA-L2-1NA-100504	SFBA-1NA	non-active adult	10/05/04	0.00999	0.0799	0.000999
SFBA-L2-11NA-100504	SFBA-1NA	duplicate of non-active adult	10/05/04	0.00881	0.0509	0.000979
CC2-H6-1CP-100504	CC2-05-1CP	children's playground hi-vol composite sample collected during the 100504 scenarios	10/05/04	0.000991	0.0129	0.000991
CC2-H6-2CP-100504	CC2-05-2CP	children's playground hi-vol composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
CC2-L6-1CA-100504	adult #1	composite sample collected during the 100504 scenarios	10/05/04	0.000995	0.0229	0.000995
CC2-L6-1CC-100504	child #1	composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
CC2-L6-11CC-100504	child #1	duplicate of child #1 composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
CC2-L6-2CC-100504	child #2	composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
CC2-L6-3CC-100504	child #3	composite sample collected during the 100504 scenarios	10/05/04	results pending	results pending	results pending
SFBA-L2-1ZB-100504	field blank	field blank	10/05/04	<0.00290	<0.00290	0.000970

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

South Field *Baseball Scenario B*. The START conducted activity-based outdoor air sampling during *Baseball Scenario B* at the South Field according to the same scripted schedule that was used for the North Field.

The outline of the field and the positions of the stationary air sample pumps operating during the South Field *Baseball Scenario B* are shown as SFBB-1FD/SFBB-11FD/SFBB-21FD, SFBB-2FD, SFBB-3FD, SFBB-4FD, SFBB-5FD, SFBB-1PG/SFBB-11PG, SFBB-2PG, SFBB-3PG, SFBB-4PG, and SFBB-5PG on Figure 5-12 (Community Park South Field Activity-Based Outdoor Air Sampling Locations–Baseball Scenario B). Two composite samples collected during both baseball scenarios conducted on October 6 are shown as CC5-1CP and CC5-2CP. The position of the mobile meteorological station is shown as SFBB-MS. A summary of results for *Baseball Scenario B* samples is shown in Table 5-17 (Community Park South Field Baseball Scenario B Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

South Field *Baseball Scenario C* (Without Field Maintenance). The START conducted activity-based outdoor air sampling during *Baseball Scenario C* at the South Field according to the same scripted schedule that was used for the North Field, except that the maintenance component of the scenario was eliminated. Instead, during the first 30 minutes the five other sampling team members (i.e., all but the sampling team member simulating a parent/adult spectator) conducted infield practice. For the remaining 90 minutes of the scenario, activities were conducted in the same manner as for the North Field.

Figure 5-12

Table 5-17
Community Park South Field Baseball Scenario B Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SFBB-H2-1FD-100604	SFBB-1FD	pitcher's mound hi-vol	10/06/04	results pending	results pending	results pending
SFBB-H2-11FD-100604	SFBB-1FD	duplicate of pitcher's mound hi-vol	10/06/04	0.00488	0.229	0.00488
SFBB-H2-21FD-100604	SFBB-1FD	duplicate of pitcher's mound hi-vol, but with 0.45 µm filter	10/06/04	<0.0202	0.330	0.00674
SFBB-H2-2FD-100604	SFBB-2FD	downwind hi-vol	10/06/04	results pending	results pending	results pending
SFBB-H2-3FD-100604	SFBB-3FD	offset downwind hi-vol	10/06/04	0.00393	0.0167	0.000981
SFBB-H2-4FD-100604	SFBB-4FD	upwind hi-vol	10/06/04	0.00390	0.00586	0.000976
SFBB-H2-5FD-100604	SFBB-5FD	far downwind hi-vol	10/06/04	<0.00314	0.00944	0.00105
SFBB-H2-1PG-100604	SFBB-1PG	children's playground hi-vol	10/06/04	0.00294	0.0128	0.000981
SFBB-H2-11PG-100604	SFBB-1PG	duplicate of children's playground hi-vol	10/06/04	0.00399	0.0270	0.000998
SFBB-H2-2PG-100604	SFBB-2PG	children's playground hi-vol	10/06/04	results pending	results pending	results pending
SFBB-H2-3PG-100604	SFBB-3PG	children's playground hi-vol	10/06/04	<0.00298	0.00798	0.000998
SFBB-H2-4PG-100604	SFBB-4PG	children's playground hi-vol	10/06/04	results pending	results pending	results pending
SFBB-H2-5PG-100604	SFBB-5PG	children's playground hi-vol	10/06/04	results pending	results pending	results pending
SFBB-L2-1CH-100604	SFBB-1CH	child #1	10/06/04	0.00510	0.0510	0.00102
SFBB-L2-2CH-100604	SFBB-2CH	child #2	10/06/04	results pending	results pending	results pending

Table 5-17
Community Park South Field Baseball Scenario B Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SFBB-L2-3CH-100604	SFBB-3CH	child #3	10/06/04	0.00772	0.0965	0.00193
SFBB-L2-13CH-100604	SFBB-3CH	duplicate of child #3	10/06/04	0.0114	0.190	0.00380
SFBB-L2-4CH-100604	SFBB-4CH	child #4	10/06/04	0.00336	0.168	0.00336
SFBB-L2-5CH-100604	SFBB-5CH	child #5	10/06/04	0.00967	0.161	0.00322
SFBB-L2-1NA-100604	SFBB-1NA	non-active adult	10/06/04	0.0123	0.123	0.00123
CC5-H6-1CP-100604	CC5-1CP	children's playground hi-vol composite sample collected during the 100604 scenarios	10/06/04	results pending	results pending	results pending
CC5-H6-2CP-100604	CC5-2CP	children's playground hi-vol composite sample collected during the 100604 scenarios	10/06/04	results pending	results pending	results pending
CC5-L6-1CA-100604	adult #1	composite sample collected during the 100604 scenarios	10/06/04	0.000980	0.0235	0.000980
CC5-L6-1CB-100604	adult/child #1	composite sample collected during the 100604 scenarios	10/06/04	0.00698	0.0605	0.00116
CC5-L6-2CB-100604	adult/child #2	composite sample collected during the 100604 scenarios	10/06/04	results pending	results pending	results pending
SFBB-L2-1ZB-100604	field blank	field blank	10/06/04	<0.00296	<0.00296	0.000989

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

The outline of the field and the positions of the stationary air sample pumps operating during the South Field *Baseball Scenario C* are shown as SFBC-1FD/SFBC-11FD, SFBC-2FD, SFBC-3FD, SFBC-4FD, SFBC-5FD, SFBC-1PG, SFBC-2PG, SFBC-3PG, SFBC-4FD, and SFBC-5FD on Figure 5-13 (Community Park South Field Activity-Based Outdoor Air Sampling Locations–Baseball Scenario C [Without Field Maintenance]). Two composite samples collected during both baseball scenarios conducted on October 6 are shown as CC5-1CP and CC5-2CP. The position of the mobile meteorological station is shown as SFBC-MS. A summary of results for *Baseball Scenario C* samples is shown in Table 5-18 (Community Park South Field Baseball Scenario C [Without Field Maintenance] Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

New York Creek Field Baseball Playing Field. The START collected soil samples to test the moisture level of the field just prior to conducting the scenario at the New York Creek Field (see Table 5-7: Soil Moisture Levels in Activity Area Soils).

The START conducted activity-based outdoor air sampling during the baseball scenario at the New York Creek Field according to the same scripted schedule that was used for the North Field.

The outline of the field and the positions of the stationary air sample pumps operating during the New York Creek Field baseball scenario are shown as NYB-1FD, NYB-2FD/NYB-12FD/NYB-22FD, NYB-3FD, NYB-4FD, NYB-1PG, NYB-2PG, NYB-3PG/NYB-13PG, NYB-4PG, and NYB-5PG on Figure 5-14 (Community Park New York Creek Field Activity-Based Outdoor Air

Figure 5-13

Table 5-18
Community Park South Field Baseball Scenario C (Without Field Maintenance) Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SFBC-H2-1FD-100604	SFBC-1FD	pitcher's mound hi-vol	10/06/04	0.00194	0.031	0.00101
SFBC-H2-11FD-100604	SFBC-1FD	duplicate of pitcher's mound hi-vol	10/06/04	<0.00296	0.00396	0.000990
SFBC-H2-2FD-100604	SFBC-2FD	downwind hi-vol	10/06/04	results pending	results pending	results pending
SFBC-H2-3FD-100604	SFBC-3FD	offset downwind hi-vol	10/06/04	0.00402	0.0381	0.00100
SFBC-H2-4FD-100604	SFBC-4FD	upwind hi-vol	10/06/04	0.00194	0.00388	0.000969
SFBC-H2-5FD-100604	SFBC-5FD	far downwind hi-vol	10/06/04	0.00675	0.0125	0.000965
SFBC-H2-1PG-100604	SFBC-1PG	children's playground hi-vol	10/06/04	<0.00293	0.0648	0.000981
SFBC-H2-2PG-100604	SFBC-2PG	children's playground hi-vol	10/06/04	0.000971	0.0495	0.000971
SFBC-H2-3PG-100604	SFBC-3PG	children's playground hi-vol	10/06/04	<0.00300	0.0692	0.00100
SFBC-H2-4PG-10-06-04	SFBC-4PG	children’s playground hi-vol	10/06/04	results pending	results pending	results pending
SFBC-H2-5PG-100604	SFBC-5PG	children's playground hi-vol	10/06/04	0.00784	0.0343	0.000981
SFBC-L2-1CH-100604	SFBC-1CH	child #1	10/06/04	results pending	results pending	results pending
SFBC-L2-2CH-100604	SFBC-2CH	child #2	10/06/04	0.0242	0.175	0.00173
SFBC-L2-3CH-100604	SFBC-3CH	child #3	10/06/04	results pending	results pending	results pending

Table 5-18
Community Park South Field Baseball Scenario C (Without Field Maintenance) Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
SFBC-L2-4CH-100604	SFBC-4CH	child #4	10/06/04	results pending	results pending	results pending
SFBC-L2-5CH-100604	SFBC-5CH	child #5	10/06/04	results pending	results pending	results pending
SFBC-L2-1NA-100604	SFBC-1NA	non-active adult	10/06/04	0.00993	0.0546	0.000993
CC5-H6-1CP-100604	CC5-1CP	children's playground hi-vol composite sample collected during the 100604 scenarios	10/06/04	results pending	results pending	results pending
CC5-H6-2CP-100604	CC5-2CP	children's playground hi-vol composite sample collected during the 100604 scenarios	10/06/04	results pending	results pending	results pending
CC5-L6-1CA-100604	adult #1	composite sample collected during the 100604 scenarios	10/06/04	0.000980	0.0235	0.000980
CC5-L6-1CB-100604	adult/child #1	composite sample collected during the 100604 scenarios	10/06/04	0.00698	0.0605	0.00116
CC5-L6-2CB-100604	adult/child #2	composite sample collected during the 100604 scenarios	10/06/04	results pending	results pending	results pending
SFBC-L2-1ZB-100604	field blank	field blank	10/06/04	<0.00296	<0.00296	0.000991

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

Sampling Locations–Baseball Scenario). Two composite samples collected during both baseball scenarios conducted on October 7 are shown as CC6-1CP and CC6-2CP. The position of the mobile meteorological station is shown as NYB-MS. A summary of results for the baseball scenario samples is shown in Table 5-19 (Community Park New York Creek Field Baseball Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

Lower Soccer Field at the Community Park (Between North Field and South Field. The START collected soil samples to test the moisture level of the field just prior to conducting the scenario at the Lower Soccer Field (see Table 5-7: Soil Moisture Levels in Activity Area Soils).

The soccer scenario activity was conducted in three 40-minute sequential sessions on three separate rectangular areas where the grass was noted to be slightly barer than on other parts of the field. The START conducted activity-based outdoor air sampling during the soccer scenario at the lower soccer field on October 7, 2004, according to the following scripted schedule:

- For the entire 2-hour scenario, one member of the sampling team simulated the activities of an adult/parent spectator sitting near the edge or walking around and occasionally within the area of play. This member of the sampling team would sometimes retrieve a ball kicked out of the area of play. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.

Figure 5-14

Table 5-19
Community Park New York Creek Field Baseball Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
NYB-H2-1FD-100704	NYB-1FD	pitcher's mound hi-vol	10/07/04	results pending	results pending	results pending
NYB-H2-2FD-100704	NYB-2FD	downwind hi-vol (somewhat crosswind)	10/07/04	results pending	results pending	results pending
NYB-H2-12FD-100704	NYB-2FD	duplicate of downwind hi-vol (somewhat crosswind)	10/07/04	results pending	results pending	results pending
NYB-H2-22FD-100704	NYB-2FD	duplicate of downwind hi-vol (somewhat crosswind), but with 0.45 μm filter	10/07/04	0.000983	0.00786	0.000983
NYB-H2-3FD-100704	NYB-3FD	offset downwind hi-vol (somewhat crosswind)	10/07/04	results pending	results pending	results pending
NYB-H2-4FD-100704	NYB-4FD	upwind hi-vol (somewhat crosswind)	10/07/04	<0.00297	<0.00297	0.000992
NYB-H2-5FD-100704	NYB-5FD	far downwind hi-vol (somewhat crosswind)	10/07/04	0.00194	0.00291	0.000971
NYB-H2-1PG-100704	NYB-1PG	children's playground hi-vol	10/07/04	<0.00290	<0.00290	0.000969
NYB-H2-2PG-100704	NYB-2PG	children's playground hi-vol	10/07/04	<0.00291	0.000973	0.000973
NYB-H2-3PG-100704	NYB-3PG	children's playground hi-vol	10/07/04	<0.00294	0.000983	0.000983
NYB-H2-13PG-100704	NYB-3PG	duplicate of children's playground hi-vol	10/07/04	<0.00289	0.000968	0.000968
NYB-H2-4PG-100704	NYB-4PG	children's playground hi-vol	10/07/04	<0.00287	<0.00287	0.000960
NYB-H2-5PG-100704	NYB-5PG	children's playground hi-vol	10/07/04	0.000982	0.000982	0.000982

Table 5-19
Community Park New York Creek Field Baseball Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
NYB-L2-1CH-100704	NYB-1CH	child #1	10/07/04	results pending	results pending	results pending
NYB-L2-11CH-100704	NYB-1CH	duplicate of child #1	10/07/04	results pending	results pending	results pending
NYB-L2-2CH-100704	NYB-2CH	child #2	10/07/04	0.04	0.032	0.00101
NYB-L2-3CH-100704	NYB-3CH	child #3	10/07/04	results pending	results pending	results pending
NYB-L2-4CH-100704	NYB-4CH	child #4	10/07/04	results pending	results pending	results pending
NYB-L2-5CH-100704	NYB-5CH	child #5	10/07/04	results pending	results pending	results pending
NYB-L2-1NA-100704	NYB-1NA	non-active adult	10/07/04	0.000995	0.00597	0.000995
CC6-H6-1CP-100704	children's playground hi-vol	composite sample collected during the 100704 scenarios	10/07/04	<0.00296	<0.00296	0.000992
CC6-H6-2CP-100704	children's playground hi-vol	composite sample collected during the 100704 scenarios	10/07/04	0.000985	0.00197	0.000985
CC6-L6-1CA-100704	adult #1	composite sample collected during the 100704 scenarios	10/07/04	0.000965	0.00579	0.000965

Table 5-19
Community Park New York Creek Field Baseball Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
CC6-L6-1CB-100704	adult/child #1	composite sample collected during the 100704 scenarios	10/07/04	results pending	results pending	results pending
CC6-L6-2CB-100704	adult/child #2	composite sample collected during the 100704 scenarios	10/07/04	results pending	results pending	results pending
CC6-L6-3CB-100704	adult/child #3	composite sample collected during the 100704 scenarios	10/07/04	results pending	results pending	results pending
NYB-H2-1ZP-100704	performance evaluation	performance evaluation	10/07/04	0.0375	0.174	0.00170
NYB-L2-1ZP-100704	performance evaluation	performance evaluation	10/07/04	0.110	1.09	0.0110
NYB-L2-1ZB-100704	field blank	field blank	10/07/04	<0.00299	<0.00299	0.00100

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

- For the entire 2-hour scenario, five other members of the sampling team passed soccer balls back and forth to each other. They sometimes formed a small circle to practice passing; other times they dribbled the ball across the field with other sampling team members close by. They spent 40 minutes on each of three areas of the field. The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 3 feet.

The three areas within which the START conducted the activity are outlined and the positions of the stationary air sample pumps operating during the soccer scenario are shown as CPS-1FD, CPS-2FD, CPS-3FD, CPS-4FD, CPS-5FD, CPS-1PG, CPS-2PG, CPS-3PG, CPS-4PG, and CPS-5PG on Figure 5-15 (Community Park Lower Soccer Field Activity-Based Outdoor Air Sampling Locations–Soccer Scenario). Two composite samples collected during both baseball scenarios conducted on October 7 are shown as CC6-1CP and CC6-2CP. The position of the mobile meteorological station is shown as CPS-MS. A summary of results for the baseball scenario samples is shown in Table 5-20 (Community Park Lower Soccer Field Soccer Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

Figure 5-15

Table 5-20
Community Park Lower Soccer Field Soccer Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
CPS-H2-1FD-100704	CPS-1FD	on-field hi-vol	10/07/04	0.000933	0.000933	0.000933
CPS-H2-2FD-100704	CPS-2FD	on-field hi-vol	10/07/04	0.00199	0.000994	0.000994
CPS-H2-3FD-100704	CPS-3FD	on-field hi-vol	10/07/04	<0.00294	0.00491	0.000982
CPS-H2-4FD-100704	CPS-4FD	upwind hi-vol	10/07/04	0.00193	0.00675	0.000965
CPS-H2-14FD-100704	CPS-4FD	duplicate of upwind hi-vol	10/07/04	0.000974	0.00292	0.000974
CPS-H2-5FD-100704	CPS-5FD	far downwind hi-vol	10/07/04	0.000977	0.00391	0.000977
CPS-H2-1PG-100704	CPS-1PG	children's playground hi-vol	10/07/04	<0.00319	0.00531	0.000971
CPS-H2-2PG-100704	CPS-2PG	children's playground hi-vol	10/07/04	<0.00299	0.00300	0.000999
CPS-H2-3PG-100704	CPS-3PG	children's playground hi-vol	10/07/04	<0.00292	0.00195	0.000977
CPS-H2-4PG-100704	CPS-4PG	children's playground hi-vol	10/07/04	0.00192	0.00383	0.000959
CPS-H2-5PG-100704	CPS-5PG	children's playground hi-vol	10/07/04	0.00193	0.00770	0.000963
CPS-L2-1CH-100704	CPS-1CH	child #1	10/07/04	0.00683	0.0234	0.000988
CPS-L2-2CH-100704	CPS-2CH	child #2	10/07/04	0.00300	0.00699	0.000999
CPS-L2-3CH-100704	CPS-3CH	child #3	10/07/04	0.00501	0.0240	0.00100
CPS-L2-4CH-100704	CPS-4CH	child #4	10/07/04	0.00400	0.0110	0.000999
CPS-L2-5CH-100704	CPS-5CH	child #5	10/07/04	0.00695	0.0149	0.000993
CPS-L2-15CH-100704	CPS-5CH	duplicate of child #5	10/07/04	0.00996	0.0249	0.000996

Table 5-20
Community Park Lower Soccer Field Soccer Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
CPS-L2-1NA-100704	non-active adult	non-active adult	10/07/04	0.000994	0.00298	0.000994
CC6-H6-1CP-100704	children's playground hi-vol	composite sample collected during the 100704 scenarios	10/07/04	<0.00296	<0.00296	0.000992
CC6-H6-2CP-100704	children's playground hi-vol	composite sample collected during the 100704 scenarios	10/07/04	0.000985	0.00197	0.000985
CC6-L6-1CA-100704	adult #1	composite sample collected during the 100704 scenarios	10/07/04	0.000965	0.00579	0.000965
CC6-L6-1CB-100704	adult/child #1	composite sample collected during the 100704 scenarios	10/07/04	results pending	results pending	results pending
CC6-L6-2CB-100704	adult/child #2	composite sample collected during the 100704 scenarios	10/07/04	results pending	results pending	results pending
CC6-L6-3CB-100704	adult/child #3	composite sample collected during the 100704 scenarios	10/07/04	results pending	results pending	results pending
CPS-H2-1ZB-100704	field blank	field blank	10/07/04	<0.00288	<0.00288	0.000962
CPS-L2-FB-100704	filter blank	filter blank	10/07/04	<0.00297	<0.00297	0.000994

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

5.4.2.5 New York Creek Nature Trail

The START conducted activity-based outdoor air sampling during one biking and two jogging/walking scenarios along the New York Creek Nature Trail. The trail was officially closed to public use during the activity-based sampling, but a few members of the public did enter the trail during sampling in spite of its closure.

The plan for the trail scenarios, as described in the *El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, El Dorado Hills, California, Activity-Based Outdoor Air Sampling of Community Park and Schools Field Sampling Plan*, had called for the START to conduct three jogging/walking scenarios. Changes to the schedule for sampling at Silva Valley Elementary School impacted the schedule for scenarios that had been planned for the following day, necessitating that one of the three jogging/walking scenarios on the New York Creek Nature Trail be dropped.

Biking Scenario. During the biking scenario on the New York Creek Nature Trail, five members of the sampling team rode bicycles along the southern end of the trail from Harvard Way through the Community Park and slightly beyond its northern border at St. Andrews Drive. The START placed five high-flow stationary air sample pumps along the trail where the bicyclists rode. The START also placed two other high-flow stationary air sample pumps along the northern end of the trail where there was no activity from the bicyclists. The intakes for the high-flow stationary air sample pumps were positioned at a height of about 5 feet.

The START conducted the biking scenario on October 5, 2004, according to the following scripted schedule:

- For the entire 2-hour scenario, one member of the sampling team simulated the activities of an adult/parent walking and standing along the trail. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.
- For the entire 2-hour scenario, five other members of the sampling team rode bicycles along the trail. The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 3 feet. Four sampling team members rode in two separate pairs, and one rode alone, although the sets of riders passed one another periodically during the scenario. For the bicyclists who rode in pairs, the relative position (i.e., leader and follower) remained constant throughout the entire scenario. Table 5-21 (Biking Scenario Positions) shows the configuration of the bicyclists during the scenario.

Table 5-21
Biking Scenario Positions

Pair A	Leader Follower	BIK-2CH BIK-1CH
Pair B	Leader Follower	BIK-3CH BIK-5CH
Solitary Rider		BIK-4CH

The portion of the trail along which the START conducted the biking activity is shown and the positions of the stationary air sample pumps operating during the biking scenario are shown as BIK-1TR/BIK-11TR, BIK-2TR, BIK-3TR, BIK-4TR, BIK-5TR, BIK-6TR, and BIK-7TR on Figure 5-16 (New York Creek Nature Trail Activity-Based Outdoor Air Sampling Locations–Biking Scenario). A summary of results for the biking scenario samples is

Figure 5-16

Table 5-22
New York Creek Nature Trail Biking Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
BIK-H2-1TR-100504	BIK-1TR	trail position #BIK1 hi-vol	10/05/04	0.000986	0.00197	0.00986
BIK-H2-11TR-100504	BIK-1TR	duplicate of trail position #BIK1 hi-vol	10/05/04	0.00192	0.00192	0.000960
BIK-H2-2TR-100504	BIK-2TR	trail position #BIK2 hi-vol	10/05/04	0.00487	0.0107	0.000974
BIK-H2-3TR-100504	BIK-3TR	trail position #BIK3 hi-vol	10/05/04	0.00200	0.00200	0.00100
BIK-H2-4TR-100504	BIK-4TR	trail position #BIK4 hi-vol	10/05/04	0.00576	0.00864	0.000960
BIK-H2-5TR-100504	BIK-5TR	trail position #BIK5 hi-vol	10/05/04	0.00482	0.00675	0.000965
BIK-H2-6TR-100504	BIK-6TR	trail position #BIK6 hi-vol	10/05/04	<0.00292	0.00293	0.000977
BIK-H2-7TR-100504	BIK-7TR	trail position #BIK7 hi-vol	10/05/04	0.00100	0.0110	0.00100
BIK-L2-1CH-100504	BIK-1CH	child #1	10/05/04	0.0668	0.145	0.00145
BIK-L2-2CH-100504	BIK-2CH	child #2	10/05/04	0.00694	0.0228	0.000991
BIK-L2-3CH-100504	BIK-3CH	child #3	10/05/04	0.000998	0.0170	0.000998
BIK-L2-13CH-100504	BIK-3CH	duplicate of child #3	10/05/04	0.0140	0.0470	0.000999
BIK-L2-4CH-100504	BIK-4CH	child #4	10/05/04	0.0178	0.0426	0.000991
BIK-L2-5CH-100504	BIK-5CH	child #5	10/05/04	0.0309	0.0639	0.00101
BIK-L2-1NA-100504	BIK-1NA	non-active adult	10/05/04	0.00198	0.00694	0.000992

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

shown in Table 5-22 (New York Creek Nature Trail Biking Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

<u>*Jogging/Walking Scenario A*</u>. During the first jogging/walking scenario on the New York Creek Nature Trail, five members of the sampling team jogged and walked along the entire length of the trail from Harvard Way through the Community Park and up to the end of the trail near Jackson Elementary School. The START placed five high-flow stationary air sample pumps along the length of the trail. The intakes for the high-flow stationary air sample pumps were positioned at a height of about 5 feet.

The START conducted the *Jogging/Walking Scenario A* on October 6, 2004, according to the following scripted schedule:

- For the entire 2-hour scenario, one member of the sampling team simulated the activities of an adult/parent walking and standing along the trail. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.
- For the entire 2-hour scenario, five members of the sampling team simulated the activities of an adult/parent jogging and walking along the trail. The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 5 feet. Three sampling team members jogged and walked in a group with one jogger in the lead position and two others following far behind (about 20 to 30 feet) but staying fairly close to one another. Two other sampling team members jogged as a pair close to each other.
- For each jogger/walker group of two or three sampling team members, the relative positions of the joggers remained the same throughout the scenario. That is, for the trio, the far

leader, second leader, and follower remained in those positions throughout the entire scenario. For the pair, the leader and the follower remained in those positions. Table 5-23 (Positions for Jogging/Walking Scenario A) shows the configuration of the jogger/walkers during the first jogging/walking scenario.

Table 5-23
Positions for Jogging/Walking Scenario A

Trio	Far Leader Second Leader Follower	JOGA-1AD JOGA-3AD JOGA-2AD
Pair	Leader Follower	JOGA-4AD JOGA-5AD

The entire length of the trail along which the START conducted the jogging/walking activity is shown and the positions of the stationary air sample pumps operating during *Jogging/Walking Scenario A* are shown as JOGA-1TR, JOGA-2TR, JOGA-3TR, JOGA-4TR, and JOGA-5TR on Figure 5-17 (New York Creek Nature Trail Activity-Based Outdoor Air Sampling Locations–Jogging/Walking Scenarios). A summary of results for *Jogging/Walking Scenario A* samples is shown in Table 5-24 (New York Creek Nature Trail Jogging/Walking Scenario A Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

Jogging/Walking Scenario B. The START conducted the *Jogging/Walking Scenario B* on October 7, 2004, according to the same scripted schedule that was used for *Jogging/Walking Scenario A*. Table 5-25 (Positions for Jogging/Walking Scenario B) shows the configuration of the jogger/walkers during the second jogging/walking scenario.

Figure 5-17

Table 5-24
New York Creek Nature Trail Jogging/Walking Scenario A Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
JOGA-H2-1TR-100604	JOGA-1TR	trail position #JOG1 hi-vol	10/06/04	0.00198	0.0109	0.000992
JOGA-H2-2TR-100604	JOGA-2TR	trail position #JOG2 hi-vol	10/06/04	0.00395	0.0128	0.000986
JOGA-H2-3TR-100604	JOGA-3TR	trail position #JOG3 hi-vol	10/06/04	0.0126	0.0416	0.000967
JOGA-H2-4TR-100604	JOGA-4TR	trail position #JOG4 hi-vol	10/06/04	0.00198	0.00990	0.000990
JOGA-H2-5TR-100604	JOGA-5TR	trail position #JOG5 hi-vol	10/06/04	<0.00295	0.00296	0.000986
JOGA-L2-1AD-100604	JOGA-1AD	adult #1	10/06/04	0.00299	0.0180	0.000998
JOGA-L2-2AD-100604	JOGA-2AD	adult #2	10/06/04	0.0249	0.0588	0.000996
JOGA-L2-3AD-100604	JOGA-3AD	adult #3	10/06/04	0.0208	0.0367	0.000992
JOGA-L2-4AD-100604	JOGA-4AD	adult #4	10/06/04	0.0110	0.0280	0.000998
JOGA-L2-5AD-100604	JOGA-5AD	adult #5	10/06/04	0.0180	0.0319	0.000998
JOGA-L2-1NA-100604	JOGA-1NA	non-active adult	10/06/04	0.0120	0.0240	0.00100

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

Table 5-25 Positions for Jogging/Walking Scenario B		
Trio	Far Leader Second Leader Follower	JOGB-1AD JOGB-2AD JOGB-3AD
Pair	Leader Follower	JOGB-4AD JOGB-5AD

The entire length of the trail along which the START conducted the jogging/walking activity is shown and the positions of the stationary air sample pumps operating during *Jogging/Walking Scenario B* are shown as JOGB-1TR, JOGB-2TR/JOGB-12TR, JOGB-3TR, JOGB-4TR, and JOGB-5TR on Figure 5-17 (New York Creek Nature Trail Activity-Based Outdoor Air Sampling Locations–Jogging/Walking Scenarios). A summary of results for *Jogging/Walking Scenario B* samples is shown in Table 5-26 (New York Creek Nature Trail Jogging/Walking Scenario B Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

5.4.2.6 Jackson Elementary School

The START conducted activity-based air sampling during three scenarios at the garden and outdoor classroom, the grass-covered playing field, and two paved play areas. Because the paved play areas selected for the activity were physically separate from one another, the START placed additional high-flow air sample pumps in stationary positions in each area, but only operated them within each area for the 1 hour of the scenario when activity was conducted there.

Table 5-26
New York Creek Nature Trail Jogging/Walking Scenario B Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
JOGB-H2-1TR-100704	JOGB-1TR	trail position #JOG1 hi-vol	10/07/04	0.00290	0.00484	0.000968
JOGB-H2-2TR-100704	JOGB-2TR	trail position #JOG2 hi-vol	10/07/04	0.00288	0.00288	0.000959
JOGB-H2-12TR-100704	JOGB-2TR	duplicate of trail position #JOG2 hi-vol	10/07/04	<0.00291	0.00292	0.000974
JOGB-H2-3TR-100704	JOGB-3TR	trail position #JOG3 hi-vol	10/07/04	0.000975	0.000975	0.000975
JOGB-H2-4TR-100704	JOGB-4TR	trail position #JOG4 hi-vol	10/07/04	<0.00293	0.00393	0.000982
JOGB-H2-5TR-100704	JOGB-5TR	trail position #JOG5 hi-vol	10/07/04	0.000980	0.00490	0.000980
JOGB-L2-1AD-100704	JOGB-1AD	adult #1	10/07/04	0.00701	0.0280	0.00100
JOGB-L2-2AD-100704	JOGB-2AD	adult #2	10/07/04	0.0159	0.0458	0.000995
JOGB-L2-12AD-100704	JOGB-2AD	duplicate of adult #2	10/07/04	0.0110	0.0330	0.00100
JOGB-L2-3AD-100704	JOGB-3AD	adult #3	10/07/04	0.0441	0.123	0.00227
JOGB-L2-4AD-100704	JOGB-4AD	adult #4	10/07/04	0.00792	0.0158	0.000990
JOGB-L2-5AD-100704	JOGB-5AD	adult #5	10/07/04	0.00598	0.0179	0.000997
JOGB-L2-1NA-100704	JOGB-1NA	non-active adult	10/07/04	<0.00295	0.00591	0.000985

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

<u>*Garden and Outdoor Classroom*</u>. The START collected samples to test the moisture level of the soil just prior to conducting the scenario at the Garden and Outdoor Classroom (see Table 5-7: Moisture Levels in Activity Area Soils).

The START conducted activity-based outdoor air sampling during the garden and outdoor classroom scenario on October 10, 2004, according to the following scripted schedule:

- For the entire 2-hour scenario, one member of the sampling team simulated the activities of an adult/teacher sitting, standing, walking, and gardening. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.
- For the entire 2-hour scenario, five other members of the sampling team simulated the activities of a students sitting, standing, walking, and gardening. The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 3 feet.
- Members of the sampling team conducted the activity in pairs, each pair spending 20 minutes twice during the 2 hours at each of three areas within the garden and outdoor classroom. The three areas included the garden plots and area in front of the garden shed in the northwest corner, the benches in front of the chalkboard, and the tables and area in front of the garden shed in the southwest corner.
- At the garden plots and area in front of the garden shed in the northwest corner, activity included using rakes and hoes and scooping dirt into a bucket and dumping it out. At the benches in front of the chalkboard, activity included sitting and shuffling feet and walking around. At the tables and area in front of the garden shed in the southwest corner, activity also included

using rakes and hoes and scooping dirt into a bucket and dumping it out.

The outline of the garden and outdoor classroom area and the positions of the stationary air sample pumps operating during the scenario are shown as JEG-1FD, JEG-2FD, JEG-3FD, JEG-4FD, and JEG-5FD on Figure 5-18 (Jackson Elementary School Garden and Outdoor Classroom Activity-Based Outdoor Air Sampling Locations–Garden/Outdoor Classroom Scenario). The position of the mobile meteorological station is shown as JEG-MS. A summary of results for the garden/outdoor classroom scenario samples is shown in Table 5-27 (Jackson Elementary School Garden/Outdoor Classroom Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

<u>*Grass-Covered Playing Field–Soccer Scenario*</u>. The START collected soil samples to test the moisture level just prior to conducting the soccer scenario at the grass-covered playing field at Jackson Elementary School (see Table 5-7: Moisture Levels in Activity Area Soils).

The soccer scenario activity was conducted in twelve 10-minute sequential sessions on three separate rectangular areas where the grass was noted to be slightly barer than on other parts of the field. (The sampling team members conducted four 10-minute sessions for a total of 40 minutes in each of the three areas.) The START conducted activity-based outdoor air sampling during the soccer scenario at the grass-covered playing field on October 10, 2004, according to the following scripted schedule:

Figure 5-18

Table 5-27
Jackson Elementary School Garden/Outdoor Classroom Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
JEG-H2-1FD-101004	JEG-1FD	garden area hi-vol	10/10/04	results pending	results pending	results pending
JEG-H2-2FD-101004	JEG-2FD	garden area hi-vol	10/10/04	results pending	results pending	results pending
JEG-H2-3FD-101004	JEG-3FD	garden area hi-vol	10/10/04	<0.00299	0.00100	0.00100
JEG-H2-4FD-101004	JEG-4FD	upwind hi-vol	10/10/04	0.000973	0.00292	0.000973
JEG-H2-5FD-101004	JEG-5FD	far downwind hi-vol	10/10/04	results pending	results pending	results pending
JEG-L2-1AD-101004	JEG-1AD	adult #1	10/10/04	results pending	results pending	results pending
JEG-L2-1CH-101004	JEG-1CH	child #1	10/10/04	results pending	results pending	results pending
JEG-L2-2CH-101004	JEG-2CH	child #2	10/10/04	results pending	results pending	results pending
JEG-L2-3CH-101004	JEG-3CH	child #3	10/10/04	results pending	results pending	results pending
JEG-L2-4CH-101004	JEG-4CH	child #4	10/10/04	results pending	results pending	results pending
JEG-L2-5CH-101004	JEG-5CH	child #5	10/10/04	results pending	results pending	results pending

Table 5-27
Jackson Elementary School Garden/Outdoor Classroom Scenario Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
JEG-L2-15CH-101004	JEG-5CH	duplicate of child #5	10/10/04	results pending	results pending	results pending
CC9-L6-1CA-101004	adult #1	composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
CC9-L6-11CA-101004	adult #1	duplicate of adult #1 composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
CC9-L6-1CC-101004	child #1	composite sample collected during the 101004 scenarios	10/10/04	<0.00297	0.000992	0.000992
CC9-L6-2CC-101004	child #2	composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
CC9-L6-3CC-101004	child #3	composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
JEG-L2-1ZB-101004	field blank	field blank	10/10/04	<0.00298	<0.00298	0.000997
JEG-L2-FB-101004	filter blank	filter blank	10/10/04	<0.00298	<0.00298	0.000995

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

- For the entire 2-hour scenario, one member of the sampling team simulated the activities of an adult/parent spectator sitting near the edge or walking around and occasionally within the area of play. This member of the sampling team would sometimes retrieve a ball kicked out of the area of play. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.
- For the entire 2-hour scenario, five other members of the sampling team passed soccer balls back and forth to each other. They sometimes formed a small circle to practice passing; other times they dribbled the ball across the field with other sampling team members close by. They spent 40 minutes on each of three areas of the field. The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 3 feet.

The three areas within which the START conducted the activity are outlined and the positions of the stationary air sample pumps operating during the soccer scenario are shown as JEP-1FD, JEP-2FD, JEP-3FD, JEP-4FD, and JEP-5FD/JEP-15FD on Figure 5-19 (Jackson Elementary School Grass-Covered Playing Field Activity-Based Outdoor Air Sampling Locations–Soccer Scenario). The position of the mobile meteorological station is shown as JEP-MS. A summary of results for the soccer scenario samples is shown in Table 5-28 (Jackson Elementary School Soccer Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

Figure 5-19

Table 5-28
Jackson Elementary School Soccer Scenario B Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
JEP-H2-1FD-101004	JEP-1FD	on-field hi-vol	10/10/04	<0.00271	<0.00271	0.000905
JEP-H2-2FD-101004	JEP-2FD	on-field hi-vol	10/10/04	0.00281	0.00281	0.000938
JEP-H2-3FD-101004	JEP-3FD	on-field hi-vol	10/10/04	0.00196	0.00294	0.000980
JEP-H2-4FD-101004	JEP-4FD	upwind hi-vol	10/10/04	<0.00297	<0.00297	0.000993
JEP-H2-5FD-101004	JEP-5FD	far downwind hi-vol	10/10/04	<0.00271	0.000907	0.000907
JEP-H2-15FD-101004	JEP-5FD	duplicate of far downwind hi-vol	10/10/04	<0.00294	0.000982	0.000982
JEP-L2-1CH-101004	JEP-1CH	child #1	10/10/04	<0.00298	0.00796	0.000995
JEP-L2-2CH-101004	JEP-2CH	child #2	10/10/04	0.000980	0.00588	0.000980
JEP-L2-3CH-101004	JEP-3CH	child #3	10/10/04	0.00299	0.00998	0.000998
JEP-L2-4CH-101004	JEP-4CH	child #4	10/10/04	0.00200	0.00399	0.000999
JEP-L2-5CH-101004	JEP-5CH	child #5	10/10/04	<0.00299	0.00499	0.000998
JEP-L2-1NA-101004	JEP-1NA	non-active adult	10/10/04	<0.00297	0.000993	0.000993
CC9-L6-1CA-101004	adult #1	composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
CC9-L6-11CA-101004	adult #1	duplicate of adult #1 composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
CC9-L6-1CC-101004	child #1	composite sample collected during the 101004 scenarios	10/10/04	<0.00297	0.000992	0.000992

Table 5-28
Jackson Elementary School Soccer Scenario B Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
CC9-L6-2CC-101004	child #2	composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
CC9-L6-3CC-101004	child #3	composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
JEP-L2-1ZB-101004	field blank	field blank	10/10/04	<0.00296	<0.00296	0.000989

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

<u>Basketball and Kindergarten Playground Scenario</u>. For the basketball and kindergarten playground scenario on October 10, 2004, the START conducted activity-based outdoor air sampling for 1 hour on a half court of one of the basketball courts at Jackson Elementary School and 1 hour in the paved portion of the kindergarten playground. The START did not perform a maintenance component of the basketball portion of the scenario. The upwind high-flow air sample pump (JEB-4FD) was operated for the entire 2 hours and serves as the upwind sample location for both halves of the scenario. The other high-flow air sample pumps were operated for 1 hour each (i.e., during each half of the scenario). The personal air sample pumps worn by sampling team members were operated for the entire 2-hour scenario.

The START conducted activity-based outdoor air sampling during the basketball portion of the scenario according to the following scripted schedule:

- For the entire hour of this half-scenario, one member of the sampling team simulated the activities of an adult/parent spectator sitting near the edge or walking around and occasionally within the area of play. This member of the sampling team would sometimes retrieve a ball that bounced out of the area of play. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.
- For the entire hour of this half-scenario, five other members of the sampling team played basketball and conducted practice drills according to the following 10-minute activity modules:
    - Half-Court Game
    - Layups
    - Top of the Key

- Foul Line Shots
- Layups
- Half-Court Game

The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 3 feet.

The area within which the START conducted the activity is outlined and the positions of the stationary air sample pumps operating during the basketball portion of the scenario are shown as JEB-1FD, JEB-2FD/JEB-12FD, JEB-3FD, JEB-4FD, and JEB-5EFD on Figure 5-20 (Jackson Elementary School Basketball Court Activity-Based Outdoor Air Sampling Locations–Basketball and Kindergarten Playground Scenario). The position of the mobile meteorological station is shown as JEB-MS. A summary of results for the basketball and kindergarten playground scenario samples is shown in Table 5-29 (Jackson Elementary School Basketball and Kindergarten Playground Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

For the kindergarten playground portion of the scenario, the START conducted activity-based outdoor air sampling according to the following scripted schedule:

- For the entire hour of this half-scenario, one member of the sampling team simulated the activities of an adult/teacher standing and walking near the other members of the sampling team. The intake for the air collection filter cassette worn by this sampling team member was set at a height of about 5 feet.

Figure 5-20

Table 5-29
Jackson Elementary School Basketball and Kindergarten Playground Scenario B Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
JEB-H1-1FD-101004	JEB-1FD	on basketball court (1-hour) hi-vol	10/10/04	<0.00289	<0.00289	0.000968
JEB-H1-2FD-101004	JEB-2FD	on basketball court (1-hour) hi-vol	10/10/04	<0.00295	0.00198	0.000988
JEB-H1-12FD-101004	JEB-2FD	duplicate on basketball court (1-hour) hi-vol	10/10/04	results pending	results pending	results pending
JEB-H1-3FD-101004	JEB-3FD	on basketball court (1-hour) hi-vol	10/10/04	results pending	results pending	results pending
JEB-H2-4FD-101004	JEB-4FD	upwind (of basketball court and kindergarten playground) hi-vol	10/10/04	<0.00291	0.000974	0.000974
JEB-H2-5EFD-101004	JEB-5EFD	far downwind (of basketball court) hi-vol	10/10/04	0.00196	0.00196	0.000982
JEB-H2-5WFD-101004	JEB-5WFD	far downwind (of kindergarten playground) hi-vol	10/10/04	0.000971	0.00194	0.000971
JEB-H1-6FD-101004	JEB-6FD	kindergarten playground hi-vol (1-hour)	10/10/04	0.00596	0.00993	0.000993
JEB-H1-7FD-101004	JEB-7FD	kindergarten playground hi-vol (1-hour)	10/10/04	<0.00290	0.00291	0.000970
JEB-L2-1CH-101004	JEB-1CH	child #1	10/10/04	0.00399	0.00599	0.000998
JEB-L2-2CH-101004	JEB-2CH	child #2	10/10/04	0.000992	0.00793	0.000992
JEB-L2-3CH-101004	JEB-3CH	child #3	10/10/04	0.000993	0.00695	0.000993
JEB-L2-4CH-101004	JEB-4CH	child #4	10/10/04	0.000998	0.00698	0.000998
JEB-L2-5CH-101004	JEB-5CH	child #5	10/10/04	0.00575	0.00958	0.000958

Table 5-29
Jackson Elementary School Basketball and Kindergarten Playground Scenario B Air Sample Summary Results

Sample ID	Location	Location Description	Date	PCME Structures (s/cc)	AHERA-like Total Structures (s/cc)	Sensitivity (s/cc)
JEB-L2-1NA-101004	JEB-1NA	non-active adult	10/10/04	<0.00299	<0.00299	0.000999
CC9-L6-1CA-101004	adult #1	composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
CC9-L6-11CA-101004	adult #1	duplicate of adult #1 composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
CC9-L6-1CC-101004	child #1	composite sample collected during the 101004 scenarios	10/10/04	<0.00297	0.000992	0.000992
CC9-L6-2CC-101004	child #2	composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
CC9-L6-3CC-101004	child #3	composite sample collected during the 101004 scenarios	10/10/04	results pending	results pending	results pending
JEB-L2-1ZP-101004	performance evaluation	performance evaluation	10/10/04	0.0775	1.21	0.0111

PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
AHERA-like total structures = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA structure definition)
Sensitivity = the sample-specific lowest concentration of asbestos the laboratory can reliably detect
s/cc = structures per cubic centimeter

- For the entire hour of this half-scenario, five other members of the sampling team played foursquare, dodgeball, and hopscotch in groups of two and three, alternating at 10-minute intervals from one side of the playground to the other. The intakes for the air collection filter cassettes worn by these sampling team members were set at a height of about 3 feet.

The area within which the START conducted the activity is outlined and the positions of the stationary air sample pumps operating during the kindergarten playground portion of the scenario are shown as JEB-4FD, JEB-5WFD, JEB-6FD, and JEB-7FD on Figure 5-21 (Jackson Elementary School Kindergarten Playground Activity-Based Outdoor Air Sampling Locations–Basketball and Kindergarten Playground Scenario). The position of the mobile meteorological station is shown as JEB-MS. A summary of results for the basketball and kindergarten playground scenario samples is shown in Table 5-29 (Jackson Elementary School Basketball and Kindergarten Playground Scenario Air Sample Summary Results). See Appendix B for a summary of the results from dust monitoring during this scenario.

5.5 SOIL SAMPLING

The START conducted soil sampling according to the *El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment, El Dorado Hills, California, Soil Sampling of Community Park, Schools, and Public Areas Field Sampling Plan*. At all of the locations where the START conducted soil sampling, surface soil samples were collected. In addition, the START collected subsurface soil samples at the same surface soil sample locations at all three baseball playing fields at the Community Park (i.e., North Field, South Field, and New York Creek Field). Soil sample locations are shown on Figures 5-21 through 5-31. The soil samples are still being analyzed by a laboratory, and U.S. EPA is currently evaluating preliminary data. No results are available for release at the time of this report.

Figure 5-21

Figure 5-22

Figure 5-23

Figure 5-24

Figure 5-25

Figure 5-26

Figure 5-27

Figure 5-28

Figure 5-29

Figure 5-30

Figure 5-31

6 Hazard Ranking System Factors

HRS
U.S. EPA's Hazard Ranking System

NPL
National Priorities List (also called Superfund List)

The **Hazard Ranking System** (HRS) is the principal mechanism EPA uses to place sites on the **National Priorities List** (NPL). It is a numerically-based screening system that uses information from initial, limited investigations to assess the relative potential of sites to pose a threat to human health or the environment.

The HRS uses a structured analysis approach to determining site scores. This approach assigns numerical values to factors that relate to risk based on conditions at the site. The factors are grouped into three categories:

- Likelihood that sources of contamination at a site have released or have the potential to release hazardous substances into the environment;
- Characteristics of the waste (e.g., toxicity and waste quantity); and
- People or sensitive environments (targets) affected by the release.

Four pathways can be scored under the HRS:

- Groundwater migration (drinking water);
- Surface water migration (drinking water, human food chain, sensitive environments);
- Soil exposure (resident population, nearby population, sensitive environments); and
- Air migration (population, sensitive environments).

6.1 SOURCES OF CONTAMINATION

6.1.1 Areas of Concern

In all the locations that are the subject of the El Dorado Hills Naturally Occurring Asbestos Multimedia Assessment, areas of concern are those areas where the presence of asbestos in exposed and disturbed soil may be causing releases to air. The original expectation at the outset of the project was that asbestos present in soils would be from naturally occurring sources and would pose a potential threat of exposure because of activities that disturbed it from its natural state. Several of the playing fields where START found asbestos during activity-based air sampling (e.g., baseball playing fields at the Community Park) have imported infield mix, however, so the possibility that not all of the asbestos is endemic to El Dorado Hills must be considered.

chrysotile
A regulated mineral in the serpentine group of minerals that can crystallize as asbestos. Chrysotile is also known as serpentine asbestos.

amphibole
One of the two groups of minerals (serpentine and amphibole) that can crystallize as asbestos. The regulated asbestiform minerals of this group are crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos.

6.1.2 Contaminant Types and Quantities

Types

In samples collected during activity-based air sampling, the laboratory identified **chrysotile** and **amphibole** asbestos. The following regulated (indicated with an asterisk) and non-regulated asbestiform minerals were in air samples above the laboratory levels of detection:

- actinolite*
- amosite*
- anthophyllite*
- chrysotile*
- edenite
- ferro-edenite
- richterite (one sample)
- tremolite*
- winchite

Quantities

The New York Creek Nature Trail runs almost 2 miles starting from Harvard Way, traversing through the El Dorado Hills Community Park, and ending near Jackson Elementary School.

The three baseball playing fields at the Community Park have “skinned” infields, which means that there is no grass in their infields. There is grass covering the outfield areas, which are also used as soccer playing fields. The baseball bases are set at 60 feet apart. Imported “infield mix,” which is composed of 50% topsoil and 50% crushed lava rock, is present within the infield.

The Dirt Embankment is about 1,200 feet along the downslope edge. The width of the Dirt Embankment varies, but is estimated from aerial photographs to be about 75 feet wide at its widest point.

The Silva Valley Elementary School baseball playing field has a grass infield. When the field is maintained, the outfield and the area inside the baselines is grass (except for the pitcher’s mound), and the rest of the infield is exposed dirt (e.g., see Figure 5-4: Silva Valley Elementary School Baseball Playing Field Activity-Based Outdoor Air Sampling Locations–Maintenance Scenario). According to school district personnel, imported “infield mix” would typically be used in the dirt areas of the infield including on the basepaths and pitcher’s mound. The baseball bases are set at 60 feet apart.

6.2 GROUNDWATER MIGRATION PATHWAY

In determining a score for the groundwater migration pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to groundwater; 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and 3) the people (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on the number of people who regularly obtain their drinking water from wells that are located within 4 miles of the site. The HRS emphasizes drinking water usage over other uses of groundwater (e.g., food crop irrigation and livestock watering), because, as a screening tool, it is designed to give the greatest weight to the most direct and extensively studied exposure routes.

According to the *Draft Water Resources Development and Management Plan* for El Dorado County, usable groundwater is limited in the western slope of the county. Groundwater quality in this region is said to be satisfactory but marginal. There are some wells, typically in the range of 100 to 200 feet below ground surface, but the amount of water they provide to serve the community's drinking water needs compared to surface water sources is minimal.

6.3 SURFACE WATER MIGRATION PATHWAY

In determining the score for the surface water pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to surface water (e.g., streams, rivers, lakes, and oceans); 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, persistence, bioaccumulation potential, and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on drinking water intakes, fisheries, and sensitive environments associated with surface water bodies within 15 miles downstream of the site.

The El Dorado Irrigation District is the primary water purveyor in El Dorado Hills. The water supply comes from a variety of sources, essentially all from surface water sources. The largest water supply source for El Dorado Hills Irrigation District is Jenkinson Lake (Sly Park Reservoir and Dam). In addition, Folsom Lake, the South Fork of the American River (at Kyburz), the North Fork of the Cosumnes River, and Clear Creek (Crawford Ditch) provide significant supply to the system. Of these sources, all except Folsom Lake are geographically upslope of the area of concern. The New York Creek, which is an ephemeral stream, flows through the Community Park along the New York Creek Nature Trail, past Jackson Elementary School to Folsom Lake, with the point of entry just over 3 miles from the northern boundary of the Community Park.

Folsom Lake State Recreation Area is an 18,000-acre lake and recreation area offering opportunities for angling, hiking, biking, running, camping, picnicking, horseback riding, water-skiing and boating. The lake has trout, catfish, big and small mouth bass and perch.

6.4 SOIL EXPOSURE PATHWAY

In determining the score for the soil exposure pathway, the HRS evaluates: 1) the likelihood that there is surficial contamination associated with the site (e.g., contaminated soil that is not covered by pavement or at least 2 feet of clean soil); 2) the characteristics of the hazardous substances in the surficial contamination (i.e., toxicity and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, exposed to the contamination. For the targets component of the evaluation, the HRS focuses on populations that are regularly and currently present on or within 200 feet of surficial contamination. The four populations that receive the most weight are residents, students, daycare attendees, and terrestrial sensitive environments.

6.4.1 Contamination

The contaminant of concern is asbestos. The START collected soil samples from areas of concern within 2 feet of ground surface. The soil samples are still being analyzed by a laboratory, and U.S. EPA is currently evaluating preliminary data. The results are not available for release at the time of this report.

6.4.2 Population

According to the State Department of Finance, as of January 2005 there were about 31,000 residents in El Dorado Hills. The population of El Dorado Hills has grown rapidly in the last few decades. The residential area of El Dorado Hills is about 28 square miles.

There are about 800 students and 50 to 55 teachers and staff members at Rolling Hills Middle School. At Silva Valley Elementary School there are about 650 students and 49 teachers and staff members. Jackson Elementary School is reducing its size, and next fall there are expected to be about 470 students and 35 teachers and staff members. According to the California Department of Education, at the nearby Oak Ridge High School, there were reportedly 1,829 students and 87 staff members for the 2003-2004 school year.

There are 26 full-time and about 8 part-time year-round staff members at the CSD offices at the Community Park. There are seasonal changes in part-time staff (e.g., life guards) at the Community Park. About 35 to 40 children attend day camp at the Community Park during the school year, and about 150 attend during the summer. The Community Park and the schools have staff who maintain the play areas and the Dirt Embankment. The CSD is responsible for maintaining the New York Creek Nature Trail as well.

6.4.3 Sensitive Environments

Based on review of biological resources maps included in the draft *Environmental Impact Report for the El Dorado County General Plan* as well as the draft *Water Resources Development and Management Plan* for El Dorado County, there do not appear to be terrestrial or aquatic sensitive environments or special status species documented within 4 miles of the areas that are the subject of the El Dorado Hills Naturally Occurring Asbestos Multimedia Assessment.

6.5 AIR MIGRATION PATHWAY

In determining the score for the air migration pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to ambient outdoor air; 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on regularly occupied residences, schools, and workplaces within 4 miles of the site. Transient populations, such as customers and travelers passing through the area, are not counted.

6.5.1 Release of Asbestos to Air

The START collected activity-based air samples containing elevated levels of asbestos (i.e., relative to ambient reference air samples that were collected during the same time periods). Table 6-1 (Summary of Sample Results) shows a comparison of the results from the personal air monitors with results from ambient reference air samples collected simultaneously. The table shows 1) the ratio of the average personal asbestos exposure measurement to the average ambient air asbestos concentration measured simultaneously in the same general area, 2) the average personal asbestos exposure concentration as measured by the personal samplers during the simulated activity, and 3) the average concentration of asbestos measured in nearby ambient air at the same time the simulated activity was taking place. For most scenarios this value is the average asbestos concentration from five fixed air sample pumps collecting nearby ambient air on the same day each activity was occurring. Numeric ratios are presented only for those scenarios where the elevated exposure was determined to be significant by the Z-test statistical procedure specified in the **Asbestos Hazardous Emergency Response Act** (AHERA) regulations (40 CFR Part 763; October 30, 1987) covering asbestos in schools. The results showed that personal exposure levels of asbestos were significantly higher during most sports and play activities as compared to nearby asbestos air samples taken outside the areas of activity.

AHERA
Asbestos Hazardous Emergency Response Act

Table 6-1

Summary of Air Sample Results

U.S. EPA Activity-Based Asbestos Exposure Sampling - Community Park, Silva Valley School, Rolling Hills School, & Jackson School, El Dorado Hills, October 2004

Asbestos concentration used for cancer risk assessment.

Location & Activity Scenario	Long Fibers (PCME) [1, 4] Ratio: Personal Exposure to Reference [3]	Long Fibers (PCME) Average of Personal Exposure (f/cc) [6]	Long Fibers (PCME) Reference Concentration (f/cc) [6]	Total Structures (AHERA) [2, 4] Ratio: Personal Exposure to Reference [3]	Total Structures (AHERA) Average of Personal Exposure (s/cc) [7]	Total Structures (AHERA) Reference Concentration (s/cc) [7]	Comments
New York Trail, ► *Child Biking Scenario*	**43**	0.0336	0.0008	**23**	0.0564	0.0024	PCME & short fibers ~ all amphiboles.
New York Trail, ► *Adult Jogging Scenario-B*	**39**	0.0212	0.0005	**28**	0.0439	0.0016	PCME & short fibers ~ all amphiboles.
North Field Baseball Diamond, Community Park ► *Child Baseball Game*	**22**	0.0171	0.0008	**21**	0.0513	0.0024	PCME mostly amphiboles, including actinolite, amosite & anthrophylite.
South Field Baseball Diamond, Community Park ► *Child Baseball Game A*	**22**	0.0168	0.0008	**217**	0.5307	0.0024	PCME mostly amphiboles; short fibers mostly chrysotile.
North/South Soccer Field, Community Park ► *Child Soccer Game*	**16**	0.0087	0.0005	**11**	0.0175	0.0016	PCME ~ all amphiboles; short fibers mostly amphiboles.
New York Trail, ► *Adult Jogging Scenario-A*	**12**	0.0197	0.0017	**10**	0.0347	0.0036	PCME & short fibers ~ all amphiboles.
Community Park Baseball * ***Adult Observer Exposure***	**11**	0.0114	0.0010	**21**	0.0550	0.0026	PCME mostly amphiboles; short fibers mostly chrysotile.
South Field Baseball Diamond, Community Park ► *Pooled Child Baseball Games*	**10**	0.0118	0.0012	**95**	0.2823	0.0030	PCME mostly amphiboles; short fibers mostly chrysotile.
Toddler Playground, Community Park, ► *Typical Child Play Scenario*	**10**	0.0067	0.0007	**60**	0.0816	0.0014	PCME mostly amphiboles, some chrysotile, edenite & amosite.
Silva Valley Baseball Diamond, **Silva Valley Elem School** ► *Child Baseball Game A*	**9**	0.0062	0.0006	**7**	0.0144	0.0021	Wet conditions. PCME & short fibers ~ all amphiboles.
Silva Valley Baseball Diamond, **Silva Valley Elem School** ► *Child Baseball Game B*	**7**	0.0032	0.0005	**5**	0.0066	0.0012	Wet conditions. PCME & short fibers ~ all amphiboles.
South Field Baseball Diamond, Community Park (Game A) ► *Impact on Toddler Playground*	**6**	0.0047	0.0008	**7**	0.0170	0.0024	PCME ~ all amphiboles; short fibers mixed amphibole & chrysotile
Toddler Playground, Community Park, ► *Aggressive Child Play Scenario*	**6**	0.0040	0.0007	**8**	0.0110	0.0014	PCME & short fibers mostly amphiboles; some edenite & amosite observed.
New York Trail ► *Adult Observers*	**5**	0.0053	0.0010	**5**	0.0123	0.0026	PCME & short fibers ~ all amphiboles.
South Field Diamond, Community Park ► *Child Baseball Game B*	**5**	0.0089	0.0017	**37**	0.1333	0.0036	PCME mostly amphiboles; short fibers mostly chrysotile; wincherite observed.
Silva Valley Baseball Diamond, **Silva Valley Elem School** ► *Baseball & Maintenance*	**4**	0.0024	0.0006	**NS**	0.0041	0.0021	Wet conditions. PCME & short fibers ~ all amphiboles.
Rolling Hills Basketball Court, Rolling Hills Middle School ► *Child Basketball Game*	**4**	0.0017	0.0005	**3**	0.0043	0.0012	PCME & short fibers mostly amphiboles.
South Field Baseball Diamond, Community Park (Game C) ► *Impact on Toddler Playground*	**3**	0.0056	0.0017	**15**	0.0542	0.0036	PCME ~ all amphiboles; short fibers mostly chrysotile

Table 6-1

Summary of Air Sample Results

U.S. EPA Activity-Based Asbestos Exposure Sampling - Community Park, Silva Valley School, Rolling Hills School, & Jackson School, El Dorado Hills, October 2004

Asbestos concentration used for cancer risk assessment.

Location & Activity Scenario	*Long Fibers (PCME)* [1, 4]			Total Structures (AHERA) [2, 4]			Comments
	Ratio: Personal Exposure to Reference [3]	*Average of Personal Exposure (f/cc)* [6]	*Reference Concentration (f/cc)* [6]	*Ratio: Personal Exposure to Reference* [3]	*Average of Personal Exposure (s/cc)* [7]	*Reference Concentration (s/cc)* [7]	
North/South Soccer Field, Community Park ► *Impact on Toddler Playground*	***3***	***0.0016***	***0.0005***	***3***	***0.0044***	***0.0016***	PCME mostly amphiboles; short fibers mixed amphibole & chrysotile.
North Field Diamond, Community Park ► *Impact on Tot Lot*	*3*	*0.0021*	*0.0008*	***NS***	*0.0035*	*0.0024*	PCME & short fibers ~ all amphiboles.
Rolling Hills Soccer Field, Rolling Hills Middle School ► *Child Soccer Game*	***3***	***0.0013***	***0.0005***	***NS***	***0.0017***	***0.0012***	PCME & short fibers mostly amphiboles
Jackson Elem School Basketball Game	*3*	*0.0026*	*0.0010*	*3*	*0.0075*	*0.0022*	PCME ~ all amphiboles; short fibers mostly amphiboles.
New York Baseball Diamond, Community Park ► *Impact on Toddler Playground*	***2***	***0.0013***	***0.0005***	***NS***	***0.0011***	***0.0016***	PCME ~ all amphiboles; short fibers mixed amphibole & chrysotile
South Field Baseball Diamond, Community Park (Game B) ► *Impact on Toddler Playground*	***NS***	*0.0028*	*0.0017*	***4***	*0.0159*	*0.0036*	PCME ~ all amphiboles; short fibers mixed amphibole & chrysotile
New York Trail, ****South Perimeter Sampling***	***NS***	***0.0009***	***0.0005***	***3***	***0.0037***	***0.0012***	PCME ~ all amphiboles; short fibers mostly amphiboles.
New York Trail, ****North Perimeter Sampling***	***NS***	*0.0004*	*0.0005*	***NS***	*0.0006*	*0.0011*	PCME & short fibers ~ all amphiboles.
Rolling Hills School Basketball & Soccer ****Adult Observer Exposure***	***NS***	***0.0012***	***0.0005***	***NS***	***0.0033***	***0.0012***	PCME mostly amphiboles; short fibers mixed amphibole & chrysotile.
Overall mean - Northern reference samples.			***0.0009***			***0.0021***	
Overall mean - Southern reference samples.			***0.0008***			***0.0021***	
			(f/cc)			***(s/cc)***	

Notes:
Statistical significance of elevated exposure determined by Z-test (AHERA) - "NS" = not significant
[1] PCME fibers = fibers longer than 5 microns with a width between 0.25 and 3 microns, and an aspect ratio (length to width) greater than 3:1
[2] "AHERA structures" = structures longer than 0.5 microns with an aspect ratio greater than 3:1 (Note this differs somewhat from the strict AHERA fiber definition.)
[3] Ratio = average asbestos concentration from personal samples collected during simulated activity divided by the average asbestos concentration from "reference" samples collected
[4] Fiber counts are from direct analysis of PCM filters using ISO 10312 procedure.
[5] Reference Concentration refers to the average asbestos concentration measured on the same day by 5 stationary monitoring stations.
These reference stations were located in the general study area, but outside of the zone of influence by the activity.
[6] f/cc = fibers per cubic centimeter
[7] s/cc = structures per cubic centimeter

6.5.2 Population

See discussion of population for the soil exposure pathway in Section 6.4.2.

6.5.3 Sensitive Environments

See discussion of sensitive environments for the soil exposure pathway in Section 6.4.3.

7 Emergency Response Considerations

The National Contingency Plan (40 CFR 300.415 (b) (2)), authorizes the U.S. EPA to consider emergency response actions at sites that pose an imminent threat to human health or the environment. U.S. EPA is continuing to evaluate whether asbestos in disturbed soils at the locations that are the subject of this PA/SI poses an imminent threat requiring mitigative measures.

The U.S. EPA has met with local, state, and federal agencies; the El Dorado Hills Community Services District; and the schools to discuss preliminary results from the sampling. The U.S. EPA has initiated efforts to convene a science advisory panel of health and asbestos experts to evaluate the data and answer a series of questions about the significance of the exposures.

8 Summary

To assess the potential for exposure from naturally occurring asbestos present in soils that have been disturbed, the U.S. Environmental Protection Agency (U.S. EPA), Region IX, tasked the Ecology and Environment, Inc., (E & E) Superfund Technical Assessment and Response Team (START) to conduct a multimedia assessment of community areas and schools in El Dorado Hills in El Dorado County, California.

The START collected activity-based air samples, reference air samples, and soil samples at and around the following areas in El Dorado Hills:

- The El Dorado Hills Community Park, including several play areas and the New York Creek Nature Trail;
- Silva Valley Elementary School;
- Jackson Elementary School;
- Rolling Hills Middle School, including the dirt embankment inside the school's eastern boundary (Dirt Embankment); and
- An unpaved lot used for parking on public property adjacent to and in front of Rolling Hills Middle School (Dirt Parking Area).

The most significant HRS factors associated with the El Dorado Hills Naturally Occurring Asbestos Multimedia Assessment site are as follows:

- Asbestos is known to be naturally occurring in soils in El Dorado Hills.
- Activity-based sampling through disturbing soils at schools and recreation areas within El Dorado Hills shows the presence of asbestos at elevated levels in air at breathing heights for children and adults.
- In addition to asbestos that occurs naturally in soil, asbestos may be present in non-native soils used as “infield mix” on some or all of the playing fields that were studied.

A Meteorological Data

B

Dust Monitoring Results

C References

Appendix C
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UCDAVIS
CENTER FOR WATERSHED SCIENCES

MANAGING SURFACE WATER-GROUNDWATER TO RESTORE FALL FLOWS IN THE COSUMNES RIVER

Title	Managing Surface Water-Groundwater to Restore Fall Flows in the Cosumnes River
Publication Type	Journal Article
Year of Publication	2004
Authors	Fleckenstein J, Anderson M, Fogg G, Mount JF
Journal	ASCE Journal of Water Resources Planning and Management
Volume	130
Issue	4
Date Published	06/04
ISSN	0733-9496/2004/4-301-310
Abstract	Declining fall flows are limiting the ability of the Cosumnes River to support large fall runs of Chinook salmon. Management scenarios linking surface water and groundwater alternatives to provide sufficient fall flows are examined using groundwater flow and channel routing models. Results show that groundwater overdraft in the basin has converted the river to a predominantly losing stream, practically eliminating base flows. Management alternatives to increase net recharge (for example, pumping reductions) were examined along with surface water augmentation options. Using a minimum depth standard for fish passage, average surface water flow deficits were computed for the migration period of Chinook salmon. Groundwater deficits were evaluated by comparing simulated current groundwater conditions with conditions under various scenarios. Increases in net recharge on the order of 200 to 300 million m3/year would be required to reconnect the regional aquifer with the channel and in turn reestablish perennial base flows. Options that combine surface water augmentation with groundwater management are most likely to ensure sufficient river flows in the short term and to support long-term restoration of regional groundwater levels.
URL	http://baydelta.ucdavis.edu/files/crg/reports/Fleckenstein_WRPM_2004.pdf

CITY OF FOLSOM

FOLSOM SPECIFIC PLAN AREA SB 610 WATER SUPPLY ASSESSMENT

291112 Part 2

Folsom Specific Plan Area Water Supply Assessment

PREPARED FOR CITY OF FOLSOM

JUNE 2011

FINAL

Prepared by:

Tully & Young
Comprehensive Water Planning

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GLOSSARY OF ABBREVIATIONS

AW	Applied Water
BMP	Best Management Practices
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
CFD	Community Facilities District
EID	El Dorado Irrigation District
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
ETo	Reference Evapotranpiration
FRWA	Freeport Regional Water Authority
IE	Irrigation Efficiency
LAFCO	Local Agency Formation Commission
MWELO	Model Water Efficient Landscape Ordinance
NCMWC	Natomas Central Mutual Water Company
NEPA	National Environmental Policy Act
PCWA	Placer County Water Agency
PF	Plant Factor
SBX7 7	Extraordinary Session Seven, Senate Bill 7
SCWA	Sacramento Couny Water Agency
SFP	South Folsom Properties
SPA	Specific Plan Area
SPA - RHA	Specific Plan Area - Reduce Hillside Development Alternative
SPA WSA	Specific Plan Area Water Supply Assessment
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
WFA	Water Forum Agreement
WSA	Specific Plan Area - Proposed Project Alternative

INTRODUCTION

The City of Folsom and the U.S. Army Corps of Engineers are preparing an Environmental Impact Report/Environmental Impact Statement for the proposed Folsom Specific Plan Area (Folsom SPA) development south of U.S. Highway 50.[1] The Folsom SPA qualifies as a "project" under California Water Code (CWC) § 10912 because it is a proposed residential development project of more than 500 units.[2] Pursuant to CWC § 10910 (b), the City of Folsom has identified two public water systems that will serve the project – the City of Folsom and El Dorado Irrigation District (EID).[3] Both the City of Folsom and EID are public water systems under CWC § 10912 because they both operate systems for providing piped water for public consumption to more than 3,000 service connections. Procedurally, the City of Folsom, as the land-use agency responsible for the Folsom SPA, and has prepared the Folsom SPA Water Supply Assessment (Folsom SPA WSA) for approval by both the Folsom City Council and EID's Board of Directors as the respective governing body of each public water system that will provide water to the project.[4]

Because the City of Folsom and EID are public water systems that may provide water service to the Folsom SPA and neither included the Folsom SPA in their respective 2005 UWMPs, the City of Folsom and EID have prepared this Folsom SPA WSA.[5] This Folsom SPA WSA determines whether the total projected water supplies for the Folsom SPA during normal, single dry, and multiple dry water years during a 20-year time period,

[1] Section 21151.9 of the Public Resources Code requires that any proposed "project" comply with California Water Code (CWC) sections 10910, et seq. Specifically, CWC § 10910(a) provides that "Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act ... shall comply with this part." CWC § 10912(a)(1) defines a "project" as "A proposed residential development of more than 500 dwelling units."

[2] As explained in Section 1.1, there are two project alternatives analyzed in the Folsom SPA WSA – the Proposed Project Alternative (Folsom SPA – PPA) and the Reduced Hillside Development Alternative (Folsom SPA – RHA). Both exceed the 500 unit threshold and therefore both qualify as a "project" pursuant to CWC § 10912.

[3] CWC § 10910(b) provides that "The city or county, at the time that it determines whether an environmental impact report ... is required for any project subject to the California Environmental Quality Act ..., shall identify any water system that is, ..., a public water system, as defined in Section 10912, that may supply water for the project.

[4] Pursuant to CWC § 10910(g)(1) "The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision [10910] (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting."

[5] Both the City of Folsom and EID are public water systems that may serve the project and would therefore be responsible for preparation of a water supply assessment.

will meet the projected Folsom SPA water demand.[6] As discussed in more detail, this WSA concludes that the total projected water supplies for the Folsom SPA are sufficient to meet the SPA's projected water demand, for both the Folsom SPA Proposed Project Alternative (Folsom SPA – PPA) and the Folsom SPA Reduced Hillside Development Alternative (Folsom SPA – RHA), during normal, single dry and multiple dry water years during a 20-year time period.

Under CWC sections 10910(a) and 10912(a), the project to be analyzed in a WSA is the project that is subject to review under the California Environmental Quality Act (Public Resources Code sections 21100-21177 (CEQA)). Under CEQA, project alternatives are not equivalent to the proposed project. (See Public Resources Code § 21100(b).)[7]

The EIR/EIS that this WSA supports is subject to the National Environmental Policy Act (42 USC 4321 et seq. (NEPA)), as well as CEQA. The EIR/EIS therefore analyzes project alternatives in the level of detail required by NEPA. (See 40 CFR § 1502.14.), The Folsom SPA – RHA would involve more residential units than the Folsom SPA. Because of this fact and because the EIR/EIS analyzes that alternative in the level of detail required by NEPA, out of an abundance of caution, the City in this WSA analyzes the Folsom SPA – RHA's water demands in comparison to the City's proposed water supplies even though CWC sections 10910(a) and 10912(a) do not require the City to prepare a WSA for the Folsom SPA – RHA or for the other land-use alternatives that the EIR/EIS considers. The other land-use alternatives considered by the EIR/EIS involve an equal or lower number of residential units and greater number of acres of non-irrigated open space than the Folsom SPA – PPA and therefore do not raise the same water-supply issues as the Folsom SPA – RHA.

Section 1 provides a description of the planned land uses for the Folsom SPA - PPA. **Section 2** provides a water demand projection methodology for both the Folsom SPA – PPA and the Folsom SPA – RHA and the water demand projection for the Folsom SPA – PPA. **Section 3** analyzes the water supply proposed for the Folsom SPA, assuming the same supply will be available regardless of the ultimate land-use alternative selected.

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[6]CWC § 10910(c)(4) provides that "If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, ..., the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

[7] Public Resources Code § 21100(b) provides, in relevant part: "The environmental impact report shall include a detailed statement setting forth all of the following . . . (4) Alternatives to the proposed project."

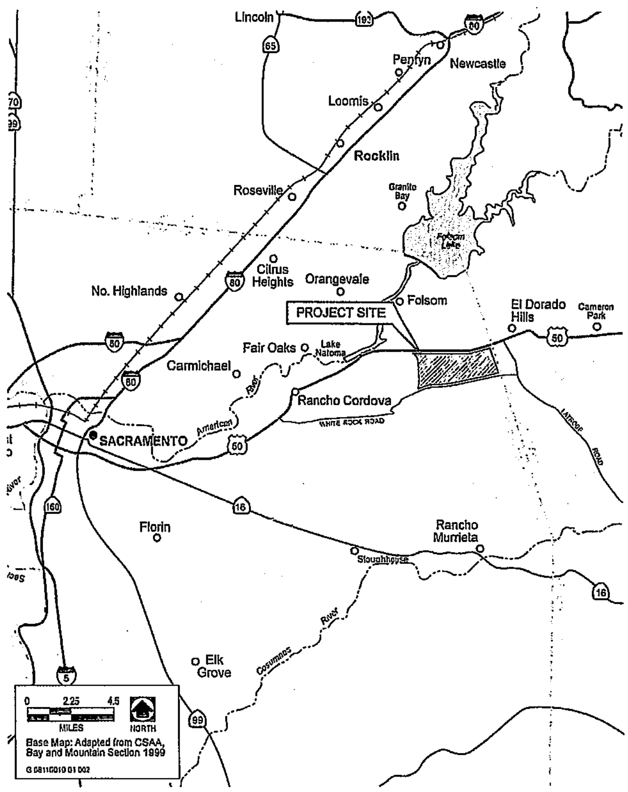
Section 4 presents a sufficiency analysis for the Folsom SPA – PPA. **Section 5** describes the Folsom SPA – RHA land-use plan. **Section 6** contains a unique water demand projection for the Folsom SPA – RHA. **Section 7** summarizes the water supply availability conclusions from **Section 3**. **Section 8** provides a sufficiency analysis for the Folsom SPA – RHA.

SECTION 1 PROJECT DESCRIPTION

As shown in **Figure 1**, the Folsom SPA is located in eastern Sacramento County south of U.S. Highway 50.[8] Currently, the land in the Folsom SPA is comprised of open non-irrigated natural grass hills with some native oak stands. Alder Creek runs through the project site along a portion of the site's northern boundary. The project site is surrounded by agricultural and rural residential land uses to the south. West of the project site is land which is owned by the Aerojet-General Corporation that the company plans to develop for residential and commercial uses. The eastern boundary is the El Dorado County line. The project site is located within the City of Folsom's sphere of influence and planning area boundary.

[8] General project land-use description as provided in Notice of Preparation of a Joint Draft Environmental Impact Report/Environmental Impact Statement for the Folsom South of U.S. Highway 50 Specific Plan Project, September 12, 2008. (Folsom SPA NOP)

Figure 1[9]
Folsom Specific Plan Area
Regional Location Map



1.1 Project Land Uses

Generally, at buildout, both the Folsom SPA – PPA and Folsom SPA – RHA envision a significant mixed-use project on approximately 3,500 acres, including approximately 1,500 acres of residential land uses, 1,000 acres of non-residential development, and 1,000 acres of open space. The City of Folsom will consider applying to the Sacramento County Local Agency Formation Commission (LAFCO) to annex the Folsom SPA to the City. But as indicated in the Introduction, the Folsom SPA lies within two separate retail water service jurisdictions. Most of the total Folsom SPA is within the City of Folsom's

[9] Exhibit 1, Folsom SPA NOP.

water service area and a portion is within the El Dorado Irrigation District's (EID) water service area.[10]

1.1.1 Folsom SPA - PPA Land Uses

The Folsom SPA - PPA land uses are presented in **Table 1-1**, and the land-use areas are depicted graphically in **Appendix B**. Total project acreage will be 3,510 acres, including a maximum of 10,210 dwelling units.

Table 1-1
Folsom SPA - PPA
Land Uses[11]

Land Use ID	Area, acres	Dwelling Unit Density DU/acre	Dwelling Units
Single-Family (SF)	557.8	3.0	1,687
Single-Family; High Density (SFHD)	532.5	5.5	2,933
Multi-Family; Low Density (MFLD)	266.7	9.1	2,434
Multi-Family; Med. Density (MFMD)	67.0	18.3	1,224
Multi-Family; High Density (MFHD)	49.9	25.1	1,251
Mixed Use - Res. (MU-R)	35.5	11.5	681
Mixed Use - Non. Res. (MU-NR)	23.6	--	--
Office Park (OP)	89.2	--	--
Community Commercial (CC)	38.8	--	--
General Commercial (GC)	212.9	--	--
Regional Commercial (RC)	110.8		
Park	118.2	--	--
Local Park (LP)	3.5	--	--
School (SCH)	179.3	--	--
Open Space (OS)	1,053.1	--	--
Major Circulation (MAJ CIRC)	171.6	--	--
Total Residential	**1,509.4**		**10,210**
Total Non-Res	**2,001.0**		**0**
Total:	**3,510.4**		**10,210**

For the purpose of understanding the extent of the water that the Folsom SPA - PPA could demand from EID, **Table 1-2** provides the land use assumptions for the portion of the Folsom SPA - PPA located in the EID service area. EID's service area portion of the Folsom SPA - PPA encompasses approximately 172 acres and is projected to realize

[10] Sacramento LAFCO approved the City of Folsom Sphere of Influence Amendment Application in 2001 by adopting Resolution No. LAFC 1196. A copy of Resolution No. LAFC 1196 is attached as **Appendix A**.
[11] From MacKay and Somps, Land Use Summary, May 20, 2009. A copy of the Land Use Summary is attached as **Appendix C**. This is an update from the Specific Plan Land Uses presented in Table 1 of the Folsom SPA NOP.

construction of 530 dwelling units. For comparison, **Table 1-3** provides the land uses and associated dwelling units planned for the City of Folsom's water service area. This Folsom SPA WSA identifies a source of water and conveyance facilities that will be used to deliver water supplies to both service areas. The water supply identified for the entire project is an entirely new source for both service areas and will therefore not impact any existing water supplies in the City of Folsom or EID service areas.

Table 1-2
Folsom SPA – PPA
EID Service Area Land Uses

Land Use ID	Area (Acres)	Dwelling Unit Density DU/acre)	Dwelling Units
Single-Family (SF)	33.8	3.1	106
Single-Family; High Density (SFHD)	31.0	5.5	171
Multi-Family; Low Density (MFLD)	27.9	9.1	253
General Commercial (GC)	29.5	--	--
Open Space (OS)	43.1	--	--
Major Circulation (MAJ CIRC)	6.8	--	--
Total Residential	**92.7**		**530**
Total Non-Res	**79.4**		**0**
Total	**172.1**		**530**

Table 1-3
Folsom SPA - PPA
Folsom Water Service Area Land Uses

Land Use ID	Area (Acres)	Dwelling Unit Density (DU/acre)	Dwelling Units
Single-Family (SF)	524.0	3.0	1,581
Single-Family; High Density (SFHD)	501.5	5.5	2,762
Multi-Family; Low Density (MFLD)	238.8	9.1	2,181
Multi-Family; Med. Density (MFMD)	67.0	18.3	1,224
Multi-Family; High Density (MFHD)	49.9	25.1	1,251
Mixed Use - Res. (MU-R)	35.5	19.2	681
Mixed Use - Non. Res. (MU-NR)	23.6	--	--
Office Park (OP)	89.2	--	--
Community Commercial (CC)	38.8	--	--
General Commercial (GC)	183.4	--	--
Regional Commercial (RC)	110.8		
Park	118.2	--	--
Local Park (LP)	3.5	--	--
School (SCH)	179.3	--	--
Open Space (OS)	1,010.0	--	--
Major Circulation (MAJ CIRC)	164.8	--	--
Total Residential	**1,416.7**		**9,680**
Total Non-Res	**1,921.6**		**0**
Total:	**3,338.3**		**9,680**

As mentioned above, the planned water supply for the Folsom SPA is separate from the water supplies currently serving the City of Folsom's and EID's existing service areas. Under the Folsom SPA WSA, the City of Folsom will control the wholesale water supply for the entire Folsom SPA. It will also control the retail water supply and associated infrastructure in the City of Folsom's portion of the Folsom SPA. All water facilities and retail water supplies delivered in EID's portion of the Folsom SPA will be controlled by EID.

Water Code section 10910 requires the sufficiency of water demands to be assessed during a twenty year period. Accordingly, the Folsom SPA WSA assumes construction of the necessary water infrastructure will be completed by 2013 in time to meet water demands for the Folsom SPA – PPA. Full water demand in the Folsom SPA – PPA will be achieved by 2033 upon project completion.

SECTION 2 FOLSOM SPA – PPA WATER DEMAND ESTIMATE

2.1 FOLSOM SPA DEMAND PROJECTION METHODOLOGY

Section 2 provides a water demand projection methodology for both the Folsom SPA – PPA and Folsom SPA – RHA and the water demand projection for the Folsom SPA - PPA.[12] **Section 2.1** provides a basis for the unit demand factors for the water demand estimates by reviewing the unit water demand factors of both the City of Folsom and other water purveyors in the region, as well as additional conservation drivers. Both the historic demand factor assessment and the conservation drivers provide a foundation for the water demand projection for the Folsom SPA – PPA contained in **Section 2.2** and the Folsom SPA – RHA projection contained in **Section 6.1**. **Section 2.3** identifies potential Folsom SPA – PPA demands that could be served by a non-potable supply. Neither the City of Folsom nor EID has developed a non-potable supply to deliver to the Folsom SPA. As such, this water supply assessment does not rely on a non-potable supply to meet any portion of the water demand projected for either the Folsom SPA – PPA.[13] **Section 2.4** provides the water demand projection for the Folsom SPA – PPA used for the sufficiency analysis in **Section 4**.

2.1.1 Historic Demand Factors

The demand projections for the Folsom SPA – PPA and Folsom SPA - RHA are based upon review of historic City of Folsom meter data, evaluation of meter data in neighboring water service jurisdictions and pending conservation mandates. The City of Folsom's 2005 Urban Water Management Plan (2005 UWMP) contains the most current unit water demand factors used by the City of Folsom to project land-use water demands. The unit demand factors used in the 2005 UWMP represent historic conditions with a range of housing ages, plumbing fixtures, and irrigation systems, and therefore do not reflect demand conditions for completely new construction. Since the 2005 UWMP was adopted, the City of Folsom has completed a five-year single-family residential meter reading project that has validated the unit demand factors used in the 2005 UWMP for the City's existing service areas. Specifically, in the 2005 UWMP, the

[12] CWC § 10910(c)(4) provides that "If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses."

[13] This does not preclude, however, an additional future non potable supply being made available to the project in the City's or EID's service area.

"Low Density Residential" land-use category was assigned a unit demand factor of 0.65 acre-feet per dwelling unit per year (af/du/yr), while the "Very Low Density Residential" category was assigned a unit demand factor of 0.59 af/du/yr.[14] The results of the 2003-2008 meter reading study support the use of 0.59 and 0.65 af/du/yr for the City's existing service area. The 2003-2008 meter-reading project entailed reading the meters of 3,909 single-family homes in August 2003 and again in July 2008 and calculating an annual average based upon the cumulative total. The average annual unit demand was 0.67 af/du/yr for all samples and 0.63 af/du/yr when the highest and lowest ten percent of samples were removed. These figures therefore support use of a historic figure between 0.60 and 0.70 af/du/yr as a basis for further refinement of the unit demand factors for both the Folsom SPA – PPA and Folsom SPA - RHA.

While the division between indoor and outdoor unit demands in the City of Folsom's meter study is not certain because dedicated irrigation meters did not exist on the accounts used for the study, it is possible to derive both indoor and outdoor unit demands using the meter data. The outdoor component calculation uses reference evapotranspiration (ETo), plant factor, and irrigation efficiency numbers that are appropriate for the City of Folsom's geography and climate.[15] In the City of Folsom, ETo is 53 inches per year, the average plant factor throughout a residential landscape is 0.7 and irrigation efficiency is about 70%.[16] Thus, total average applied water use to meet

[14] In the 2005 UWMP, the unit demand factor for the "Low Density" Residential category was comprised of an indoor factor of 0.20 af/du/yr and an outdoor factor of 0.45 af/du/yr. For the "Very Low Density" Residential category the unit demand factor was comprised of an indoor factor of 0.20 af/du/yr and an outdoor factor of 0.39 af/du/yr. These factors do not account for system losses.

[15] "Reference evapotranspiration" (ETo) is a standard measure of the environmental conditions, which affect the water use of plants. It is typically derived by measuring the evapotranspiration of cool-season grass and is expressed in inches over a specific period of time. A "plant factor" is used to determine plant water use relative to ETo. "Plant factors" are assigned to low, moderate and high water use plants. "Irrigation efficiency" (IE) is the measurement of the amount of water used by a plant divided by the amount of water applied.

[16] ETo is measured at the California Irrigation Management Information System (CIMIS) station located in Fair Oaks, California. The plant factor of 0.7 reflects the fact that the predominant landscape planting in the residential sector is cool-season grass, which has a plant factor of 0.8. A slight reduction is made to 0.7 to account for trees, shrubs, native landscapes, and non-living landscape cover. An irrigation efficiency of 70% was selected because, according to UC Cooperative Extension and the Department of Water Resources, "A representative range of efficiencies for landscape systems is proposed ... to be from 65% to 90%," and "A system which is well designed and operated can have an efficiency range of 80% to 90%." Because historic residential unit demand was estimated for homes built no later than 2003, it is unlikely the systems would be considered "well designed and operated" seven years later. Therefore, an irrigation efficiency rate on the lower end of the range was selected. *A Guide to Estimating Irrigation Water Needs from Landscape Plants in California*, University of California Cooperative Extension and California Department of Water Resources, August 2000.

outdoor demand is calculated at 4.30 acre-feet per acre (af/ac).[17] As shown in **Table 2-1**, assuming four units per acre (the mid range between the "Very Low" and "Low Density" categories), up to 35% building coverage, 15% for roads and right of ways, and about 10% for hardscapes, then landscape area would be about 40% per unit.[18] Total landscape demand per unit would be approximately 0.39 acre-feet per unit per year (af/unit/year).

Table 2-1
Outdoor Unit Demand Validation

Outdoor Unit Demand Derivation	
Parcel Area (sf)	10890
Landscape Area (sf)	3920
Landscape Area (ac)	0.09
Landscape Water Demand (af/yr)	0.39

If total annual unit demand is 0.61 af/unit/yr, the indoor demand component of total demand is approximately 0.22 af/unit/year after subtracting the outdoor demand component shown in **Table 2-1**. If there are 2.83 persons per unit per the 2005 UWMP, the indoor demand per person would be about 70 gallons/day, as shown in **Table 2-2**.

Table 2-2
Indoor Unit Demand Validation

Baseline Indoor Unit Demand	
Indoor Unit Demand (af/unit/yr)	0.22
Persons Per Unit	2.83
Indoor Per Capita Demand (gpcd)	69.4

[17] Applied Water (AW) = (ETo * Plant Factor)/IE. To convert ETo from inches to cubic feet, divide by 12. To convert cubic feet to gallons multiply by 7.481 gallons/cubic foot. To convert to gallons per acre, multiply by 43,560 ft/ac. To convert from gallons to acre-feet, divide by 325,851. (((((53/12)*7.481)*43560)/325851)*.7)/.7= 4.3 af/ac. This method does not account for "effective precipitation," (where effective precipitation is defined as the portion of annual rainfall that contributes to the outdoor demand) which may further reduce applied water. This constitutes a conservative estimate of applied water demand. For comparison, EID data provided by EID Staff indicates much lower outdoor unit demand factors (e.g. reported use of recycled water for recreational turf areas is about 2.2 acre-feet/acre). For purposes of the Folsom SBA – PPA outdoor demands, the higher outdoor factor is used as a baseline. The conservative estimate identified here is used for planning purposes.

[18] The estimate of landscaped area assumes the single-family lots in the meter study are similar to the City of Folsom's *Single Family Dwelling, Medium Lot District* category, which requires 10,000 square foot lots and maximum building coverage of 35%.

Thus, 70 gallons/day will be used as the base indoor per capita demand for the Folsom SPA – PPA and Folsom SPA – RHA, with refinements as explained in **Section 2.2.1.1** and **Section 6.1.**[19]

2.1.2 Regional Residential Unit Demand Factors

Dwelling unit demand factors for the Folsom SPA – PPA and Folsom SPA – RHA water demand estimates are also based on regional unit demand figures. Regional residential unit demand factors are presented in **Table 2-3** for comparison with unit demand factors used by the City of Folsom in its 2005 UWMP. Notably, EID, the City of Roseville and the Placer County Water Agency (PCWA) provide metered water service and Sacramento County Water Agency (SCWA) is a partially metered jurisdiction.[20] Much of the housing product mix in the El Dorado Hills portion of EID's service area, the City of Roseville, PCWA and SCWA service areas is similar to that in the City of Folsom. Overall, average unit demand for these jurisdictions are comparable to the City of Folsom's historic unit demand. Instances where demand factors are lower could be partially due to volumetrically billing in the residential sector, effective precipitation, smaller percentages of system losses, and other factors affecting demand variability. Because the City of Folsom plans to provide metered water service to single-family residential units in the Folsom SPA, unit demand factors below the unit demands factors used in the City of Folsom's 2005 UWMP are appropriate. Also, the fact that the average figures were developed based upon water use across a wide mix of housing ages and product types provides support for the case that a more modern uniform housing product with current conservation infrastructure - such as that which will exist in the Folsom SPA - should have lower unit water demand factors for each respective residential density category than the unit water demands used in the City of Folsom's 2005 UWMP.

[19] This indoor baseline per capita demand value is further supported by EID's historic data for "Single-Family Dual Potable" water use as reported in its annual Water Resources & Services Reliability Report (2006 through 2009, see Appendix Table A). In these annual reports, the estimated indoor use averages less than 0.20 acre-feet per dwelling unit.

[20] The PCWA service area is the geographic boundary in Placer County throughout which PCWA carries out a broad range of responsibilities including water resource planning and management, retail and wholesale supply of irrigation water and drinking water and production of hydroelectric energy. The SCWA service area includes eight zones of benefit. Each zone encompasses a unique geographic area of benefit to achieve SCWA's desired water management goals, including storm and floodwater control, diversion, storage and delivery of surface water, and regulation, production and distribution of groundwater. EID values are from Appendix Table A from recent Water Resources & Services Reliability Reports available on EID's website.

Table 2-3[21]
Regional Residential Unit Water Demand Comparison

Folsom SPA Land Use	Unit Density (units/ac)	Unit Water Demand Factors, AF/DU					
		Roseville	PCWA	SCWA	EID	Average	2005 UWMP
Residential							
Single Family	3.9	0.84	0.64	0.68	0.74	0.73	0.65
Single Family High Density	6.9	0.59	0.55	0.68	n/a	0.61	0.65
Multi Family Low Density	11.9	0.37	0.48	0.29	0.34	0.37	0.56
Multi Family Medium Density	17.9	0.33	0.35	0.29	0.34	0.33	0.40
Multi Family High Density	25	0.21	0.21	0.15	n/a	0.19	0.30
CCD-Residential	12	0.21	0.21	0.15	n/a	0.19	0.30

2.1.3 Current and Future Mandates

External forces may drive the City of Folsom to adopt policies that ensure future residential development in the City of Folsom achieves lower unit water demands than those seen historically in the City of Folsom. **Section 2.1.3** identifies and describes the key drivers that support use of unit demand factors that are lower than historically seen in the City of Folsom and either similar to or even more aggressive than those in neighboring jurisdictions.

2.1.3.1 Water Conservation Objectives

On November 10, 2009, Governor Arnold Schwarzenegger signed SBX7 7 which now requires each urban water supplier to select one of four water conservation targets in California Water Code § 10608.20 with the statewide goal of achieving a 20-percent reduction in urban per capita water use by 2020. The City of Folsom is not yet required to state a water conservation target pursuant to SBX7 7, but will do so in its 2010 Urban Water Management Plan (2010 UWMP). Pursuant to SBX7 7, the City of Folsom's deadline for adopting its 2010 UWMP is July 1, 2011. (CWC § 10608.20(a)(1), (i)).

[21] The unit water demands are the estimated end-use unit water demands only and do not include a non-revenue water component. Non-revenue water (NRW) is generally defined as water that has been produced (treated to accepted water quality standards for drinking water) and is "lost" before it reaches the customer. Losses can be real, through leaks, or apparent, through meter inaccuracies or unknown or unbilled connections and uses (e.g. fire hydrant flushing and construction water).

As required by SBX7 7, the city's ultimate target will require reductions in per capita urban water use from past levels. To reach its ultimate target under SBX7 7, the City of Folsom probably will need to institute water conservation measures in its existing service area, and also require new service areas to use efficient indoor infrastructure and landscape features. The state's intent is to achieve a statewide 20-percent reduction in urban per capita water use by 2020. SBX7 7's mandates to the City and the City's opportunity to help achieve the state's goal by requiring that development in the Folsom SPA incorporate state-of-the-art efficiency measures all indicate that per unit water demands under the Folsom SPA – PPA (and the Folsom SPA – RHA) will be at least 10% below historic per capita unit demand factors in the City's existing service area. The reduction will be reflected in the unit demand factors identified in **Section 2.2** and **Section 6.1**.

2.1.3.2 Indoor Infrastructure Requirements

In January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (CAL Green Code) which will require the installation of water-efficient indoor infrastructure for all new projects beginning on January 1, 2011. CAL Green Code is currently in draft form and will become law on January 1, 2011 when it is incorporated into Title 24 of the California Code of Regulations.[22] The CAL Green Code will apply to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure. Because the Folsom SPA will be applying for building permits from the City of Folsom after January 1, 2011 and the project will include new "buildings and structures" under the CAL Green Code, it will need to satisfy the indoor water use infrastructure standards necessary to meet the CAL Green Code.

The CAL Green Code requires residential and nonresidential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use in the building by 20%. The 20% water savings can be achieved in one of the following ways: (1) installation of plumbing fixtures and fittings that meet the 20% reduced flow rate specified in the CAL Green Code, or (2) by demonstrating a 20%

[22] The CAL Green Code will appear as Part 11 in Title 24 on January 1, 2011. All references in this WSA will be to the Chapter and Section numbers that appear in the Draft document which may be obtained by visiting the California Building Standards Commission web site at: http://www.documents.dgs.ca.gov/bsc/documents/2010/Draft-2010-CALGreenCode.pdf.

reduction in water use from the building "water use baseline."[23] This WSA assumes that the residential and nonresidential buildings constructed for the Folsom SPA will satisfy one of these two requirements. To be conservative, this WSA assumes that the water savings attributable to installation of the required infrastructure will provide indoor water savings of at least 10% compared to existing infrastructure standards – but not the full 20% considered above.

2.1.3.3 California Model Water Efficient Landscape Ordinance

In 2006, the California Legislature enacted, and the Governor signed, the Water Conservation in Landscaping Act (Gov. Code §§ 65591-65599), which requires the Department of Water Resources to update the Model Water Efficient Landscape Ordinance (MWELO). On September 10, 2009, the Office of Administrative Law (OAL) approved the updated MWELO, which requires that a local agency adopt the provisions of the MWELO. Because the City of Folsom is a "local agency" under the MWELO, it must require "project applicants" to prepare plans consistent with the requirements of MWELO for review and approval by the City of Folsom. The City of Folsom is in compliance with this state law.

The MWELO provisions likely to have a significant effect on the landscape design and resulting outdoor water demand include preparation of a Landscape Design Plan with a water budget that is 70% of reference evapotranspiration.[24] The provisions of the MWELO are applicable to new construction with a landscape area greater than 2,500 square feet.[25] The MWELO "highly recommends" use of a dedicated landscape meter on landscape areas smaller than 5,000 square feet, and requires weather-based irrigation controllers or soil-moisture based controllers or other self-adjusting irrigation controllers for irrigation scheduling in all irrigation systems.[26] The MWELO provides a

[23] See **Appendix D** which contains Chapter 4 and Chapter 5 from the Draft CAL Green Code. For Residential construction, Section 4.303.1 provides the residential water conservation standard and Table 4.303.2 identifies the infrastructure requirements to meet this standard. Table 4.303.1 and Worksheets WS-1 and WS-2 are to be used in calculating the baseline and the reduced water use if Option 2 is selected. For non-residential construction, Section 5.303.2 provides the water conservation standard as well as the baseline and reduced flow rate infrastructure standards. Note that Worksheets WS-1 and WS-2 incorporate both residential and non-residential fixtures, yet the water use is still to be analyzed by "building or structure" as specified in Chapter 1, Section 101.3.

[24] California Code of Regulations (CCR), Tit. 23, Div. 2, Ch. 27, Sec. 492.4. The MWELO provides the local agency discretion to calculate the landscape water budget assuming a portion of landscape demand is met by precipitation, which would further reduce the outdoor water budget. For purposes of this WSA, precipitation is not assumed to satisfy a portion of the outdoor landscape requirement because the determination of an appropriate effective precipitation factor is highly uncertain given the various landscape slopes, terrain composition, concurrent watering schedules, etc.

[25] CCR Tit. 23, Div. 2, Ch. 27, Sec. 490.1.

[26] CCR Tit. 23, Div. 2, Ch. 27, Sec. 492.7(a)(1)(A)-(B).

methodology to calculate total water use based upon a given plant factor and irrigation efficiency.[27] Finally, MWELO requires the landscape design plan to delineate hydrozones (based upon plant factor) and then assign a unique valve for each hydrozone (low, medium, high water use).[28]

It is difficult to predict the ultimate impact of the MWELO requirements on water demand. While the requirement is for development of a landscape design plan that uses plants and features that are estimated to use no more than 70% of ETo, some provision must be made for the inherent tendency to overwater even with irrigation controllers installed, piecemeal changes in landscape design, reductions in irrigation efficiency through product use, and limited resources for enforcement in the absence of dedicated irrigation meters.

For these reasons, outdoor water use is assumed to be about 85% ETo over a long-term period. 85% of ETo was selected based on a study that supports the assumption that customers tend to apply 16% more water to the landscape than it actually needs.[29] While weather-based irrigation controllers may reduce this number such that only about 2% more water is being applied than is needed, some consideration needs to be made for the factors described above that will impact water use, outside of a controlled study, even when using a weather-based irrigation controller. These factors will likely result in overuse somewhere between 2% and 16%. Given the uncertainty regarding these impacts, the "overuse" percentage of 16% was used to adjust the MWELO Landscape Plan requirement of 70% of ETo. Dividing 70% by 84% (difference between 1.0 and .16) results in an adjusted figure of approximately 85%.

2.1.3.4 Metering and Volumetric Pricing

In 2003, the California Legislature enacted, and the Governor signed, legislation that set in motion the requirement for the City of Folsom and other purveyors to install meters on all service connections to residential and nonagricultural commercial buildings constructed prior to January 1, 1992. As a result, Water Code § 526 now requires the City to charge for water based upon the actual volume of water delivered by March 1,

[27] In calculating Estimated Total Water Use, the MWELO requires use of at least a 71% irrigation efficiency factor. Assuming 71% irrigation efficiency, the average plant factor must be 0.50. It would be possible to stay within the water budget if the average plant factor were higher than 0.50 by designing a system with an irrigation efficiency higher than 71%. Again the relationship between a Plant Factor (PF) and Irrigation Efficiency (IE) in the Applied Water formula is: AW=(ETo*PF)/IE.

[28] CCR Tit. 23, Div. 2, Ch. 27, Secs. 492.3(a)(2)(A) and 492.7(a)(2).

[29] http://www.irwd.com/Conservation/FinalETRpt[1].pdf.

2013. Assuming construction of the Folsom SPA water infrastructure occurs in 2011, and water demand is realized in 2013, the City will be billing the Folsom SPA water users on a volumetric basis by the time water service commences, which could ultimately result in unit water demand factors less than those seen historically in the City of Folsom.

The California Urban Water Conservation Council (CUWCC) recommends assuming a 20% water savings for accounts with meter retrofits and volumetric rates.[30] Twenty percent is an appropriate level of water savings when these measures are applied to existing residential accounts. With new development such as that proposed by the Folsom SPA – PPA (and the Folsom SPA – RHA), however, metering and volumetric rates are unlikely to result in 20% reductions in demands that would otherwise occur in the affected units because those units would be built with more modern infrastructure and more efficient landscape design. Accordingly, based on the CUWCC's 20% standard and the difference between development analyzed in this WSA and existing communities to which the CUWCC's standard generally applies, this WSA conservatively assumes that per unit water demands for new units built in the Folsom SPA that are metered initially will be 10% lower than per unit demands in the existing City service area.

2.1.3.5 California Urban Water Conservation Council and Water Forum Agreement Conservation Element Best Management Practices

The City of Folsom is a signatory to the CUWCC Best Management Practices (BMP) Memorandum of Understanding (MOU). The City is also a signatory to the Water Forum Agreement (WFA), under which the City of Folsom would implement the WFA Conservation Element. Both the CUWCC MOU and the WFA Conservation Element commit the City of Folsom to implementing best management practices designed to achieve water conservation across existing demand sectors. While many of the CUWCC BMPs are focused on retrofitting existing infrastructure, some of the BMPs could be valuable for the City of Folsom as they relate to water conservation efforts in new developments such as the Folsom SPA.

In 2009, the WFA updated the WFA Conservation Element. Under that revised Element, signatories would replace their respective WFA water conservation plans with the

[30] BMP 1.3, Memorandum of Understanding Regarding Urban Water Conservation in California, California Urban Water Conservation Council, December 10, 2008.

CUWCC MOU, including the CUWCC BMPs. Thus, for this Folsom SPA WSA, it is assumed that the City of Folsom will be implementing the CUWCC BMPs exclusively.

Some of the CUWCC BMPs that support using per unit demands in the Folsom SPA that are lower than such demands in the City's existing service area include Landscape Surveys (BMP 3), which could be designed for the Folsom SPA in such a way as to try to ensure the MWELO Landscape Design requirements remain in place in the field.[31] BMP 3 also requires interior surveys for Single and Multi-Family Residential customers, which could help determine whether customers are continuing to use water-efficient indoor appliances (e.g., those meeting the CAL Green Code specifications discussed in **Section 2.1.3.2**), and would also provide an opportunity for the City of Folsom to tailor its incentive programs to encourage continued use of water-efficient appliances.[32]

Also, the CUWCC recommends identifying opportunities for installation of dedicated irrigation meters, monitoring progress through billing, and then providing site-specific assistance for accounts 20% over budget. (CUWCC BMP 5) Taking the CUWCC recommendation one step further, the recently adopted CAL Green Code requires installation of separate meters or submeters in nonresidential construction landscapes that are between 1000 and 2500 square feet. Thus, irrigation submeters will be in place at many, if not all, nonresidential sites. The City of Folsom can use this meter data and provide site-specific assistance which should help maintain a level of water use consistent with its water use planning assumptions.

Also, as a signatory to the CUWCC MOU, the City of Folsom conducts public information campaigns and school education programs.[33] These educational campaigns will help reinforce water conservation oriented behavior in the Folsom SPA which can help

[31] CUWCC BMP 3 provides that MOU signatories should perform site-specific landscape water surveys that shall include checking the irrigation system and timers for maintenance and repairs; estimating landscaped area; and developing a customer irrigation schedule based on precipitation, climate and landscape conditions.

[32] CUWCC BMP 3 specifically provides that an MOU signatory should offer site-specific leak detection assistance, including a water conservation survey, water efficiency suggestions and/or an inspection, as well as providing WaterSense rated showerheads and faucet aerators.

[33] CUWCC BMP 2.1 provides that a signatory should "Implement a public information program to promote water conservation, including providing speakers to employers and at public events, providing information on customers' bills showing use for the last billing period compared to the same period the year before." This BMP also requires a messaging campaign. BMP 2.2 requires implementation of a school education program to promote water conservation, including working with schools to provide instructional assistance, educational material and classroom presentations. Both of these BMPs provide for a regional agency to undertake the educational campaigns. The City of Folsom takes advantage of this provision by supporting the Regional Water Authority's efforts on behalf of purveyors in the Sacramento County region.

minimize year-round water use indoors and moderate outdoor use during the peak irrigation season.

Two additional BMPs that will help moderate water demands in the Folsom SPA are (1) the use of a water conservation coordinator, and (2) enactment and enforcement of a water waste prohibition.[34] The City of Folsom currently has both a water conservation coordinator and an adopted water waste ordinance.[35] Both will have an impact on the Folsom SPA, because upon the SPA's annexation, the coordinator will be assigned to manage water conservation programs and city staff will be authorized to enforce the ordinance.

The CUWCC BMPs should have a long-term impact on the City of Folsom's ability to manage water use throughout the Folsom SPA. Through targeted outreach the City of Folsom can encourage continued customer use of highly efficient appliances and irrigation systems, emphasize the need to retain efficient landscape plantings, and also minimize otherwise wasteful uses. The City of Folsom's commitment to implementing these agreements should help maintain water use efficiency. Implementation of the CUWCC BMPs in the Folsom SPA will ensure that the Folsom SPA maintains the lower than historic indoor and outdoor unit demand factors identified in **Section 2.2** and **Section 6.1**.

2.2 FOLSOM SPA – PPA DEMAND FACTORS

2.2.1 Residential

Unit demand factors, used to estimate demand for the Folsom SPA-PPA, are developed by first estimating per capita use to generate an indoor unit demand factor and then landscaping demands are considered to develop an outdoor unit demand factor. The indoor and outdoor components are ultimately combined into a total unit demand factor for the residential land-use categories.

[34] CUWCC BMP 1.1(A) provides that a signatory shall designate a person as the agency's responsible conservation coordinator for program management. BMP 1.1(A) also requires a signatory to enact, enforce or support ... ordinances ... that (1) prohibit water waste ... and (2) address irrigation, landscape, and industrial, commercial, and other design inefficiencies.

[35] The City of Folsom's water waste ordinance is codified in Chapter 13.26 of the Folsom Municipal Code.

2.2.1.1 Indoor

In light of the discussion of various water use drivers in **Section 2.1.3**, unit demand factors for indoor residential land-use categories are estimated accordingly.

- Single-Family and Single-Family High Density: Based upon the meter study described in **Section 2.1.1**, the historic single-family indoor unit demand factor in the City's existing service area is approximately 0.22 af/du/yr. At 2.83 persons per household, the per capita demand is about 70 gallons per person per day (gpd).[36] If the City of Folsom adopts indoor water-efficient infrastructure policies similar to those suggested in **Section 2.1.3.2** to implement its water conservation targets adopted under SBX7 7, and implements metering and volumetric billing as described in **Section 2.1.3.4**, the historic indoor per capita unit demand factor will be reduced by at least ten percent (10%). Therefore, the single-family unit demand factor of 63 gpd is used to calculate the indoor water demand for the Folsom SPA - PPA.[37]

- Multi-Family Low Density; Multi-Family Medium Density; Multi-Family High Density; Multi-Use-Residential: The same per capita indoor unit demand factor is used for the multi-family units as is used for the single-family units because each person has similar individual indoor demands regardless of the size of the unit – e.g., bathing, dishwashing, clothes washing, toilet flushing.[38] Therefore 63 gpd is used as the indoor per capita unit demand for the multi-family and multi-use categories.

For the Folsom SPA - PPA, the indoor unit demand numbers for the single and multiple-family residential classifications are provided in **Table 2-4**. Using the dwelling unit population number for the Single-Family categories of 2.9 persons/unit and 1.9 persons/unit for the Multi-Family categories in combination with the per capita per day estimate of 63 gallons, the annual indoor unit demand factor is calculated as well.[39]

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[36] See Table 2-2. [(.22af/du/yr)*(325851 gallons/af)/(2.83 persons/unit)/(365 days/yr)] The Folsom 2005 UWMP assumed 2.83 persons per household which is the per capita value that is used as the historical dwelling unit population density.

[37] For comparative purposes, EID has recorded indoor use values associated with projects in its El Dorado Hills service area that average about 60 gallons per person per day (see Appendix Table A, 2007 through 2009 Water Resources & Service Reliability Reports).

[38] The Folsom 2005 UWMP also assumed the multi-family indoor unit demand factor is the same as the single-family indoor unit demand factor.

[39] The dwelling unit population figure was calculated by dividing the estimated persons per unit by the total number of units for each land-use category as provided in **Appendix C**.

Table 2-4
Folsom SPA - PPA
Residential Unit Demands

Land Use	Capita per Household	Indoor gallons per capita / day	Indoor Unit Demand, AF/DU
SF	2.9	63	0.21
SFHD	2.9	63	0.21
MFLD	1.9	63	0.14
MFMD	1.9	63	0.14
MFHD	1.9	63	0.14
MU - Res	1.9	63	0.14

2.2.1.2 Outdoor

Review of historic City of Folsom data indicates a wide range of planning numbers for outdoor unit demand factors. As suggested in Section 2.2.1, based upon single-family meter data, outdoor usage in the residential sector is approximately 4.3 acre-feet/acre/ per year (af/ac/yr). An evapotranspiration-based turf demand was calculated in the Folsom Recycled Water Demand Technical Memorandum (TM) as 4.5 af/ac/yr.[40] The Folsom Recycled Water Demand TM also reviewed historic outdoor metered account usage and reported the average usage from 2000-2004 was 3.9 af/ac/yr. Thus, historic usage ranges between 3.9 – 4.5 af/ac/yr. While outdoor meters were only present in the non-residential sector when the unit demands were analyzed in the Recycled Water Demand TM, the unit demand factors from the non-residential sector provide an indication of historic outdoor unit demands in the residential sector given the general similarities in landscape design – specifically an emphasis on turf landscapes with accompanying plantings. Historic outdoor water use in the non-residential sector reflects a non-conservation based demand, as none of the City's parks or landscape and lighting accounts were implementing significant demand management measures at the time the Folsom Recycled Water Demand TM or 2005 UWMP was prepared. As explained below, post-2005 developments related to outdoor water demands support using outdoor unit demand factors for the Folsom SPA - PPA that are lower than the demands reflected in those two City documents.

[40] City of Folsom Recycled Water Demands Technical Memorandum. Brown and Caldwell, November 9, 2005.

The primary driver that could significantly change both residential and non-residential outdoor water demands is the MWELO. The MWELO provides that a landscape design plan should include plantings that use no more than seventy percent (70%) of reference evapotranspiration.[41] By requiring preparation of landscape plans for the Folsom SPA – PPA that use 70% of reference evapotranspiration, the long-term unit demand is likely to be somewhat greater than 70% ETo because of variations in plant and irrigation system maintenance. Therefore, this Folsom SPA – PPA demand estimate uses a "mid-point" between 100% ETo and that required in the MWELO - 85% of evapotranspiration, which is equivalent to 3.73 af/ac/yr. To achieve an outdoor unit demand of 3.73 af/ac/yr, consumptive demand would need to be approximately 2.6 af/ac/yr, assuming a 71% irrigation efficiency rate.[42] This would require an average plant factor of 0.6. The average plant factor could be higher if the efficiency rate were higher. For example, the plant factor could be 0.7 if the irrigation efficiency rate were at least 82%.

The outdoor unit demand factor of 3.73 af/ac/yr was developed based upon single-family lot size and associated landscape area for each lot in the Folsom SPA – PPA land-use plan. In the multi-family sector landscaped area is reflected as a percentage of total area for each multi-family category. The estimate of single-family lot area was made based upon the acreage and unit figures for the single-family land use categories as well as an estimate of the area necessary for roads and right-of-ways. For the Single-Family category, the planned unit density is three units per acre (1687 units/557.8 acres). If 25% of the area in the Single Family category is for roads and rights of ways, then the lot size is approximately 11,000 square feet (sf).[43] To estimate the landscaped area on each lot, the City of Folsom Zoning Code was used as a reference. Assuming the lots are 11,000 sf, they would likely have associated building standards similar to those in the City of Folsom's *Single Family Dwelling, Medium Lot District* category, which requires minimum 10,000 sf lots and maximum building coverage of 35%.[44] If 25% of the lot is used for hardscapes, then the remainder of the lot, as landscape area, would be approximately 40%.[45] For the Single-Family High Density Category, the planned unit density is approximately 5.5 units/acre (2933 units/532.5 acres). Again, using approximately 25% road and right-of-way dedication, then the average lot size would be

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[41] CCR Title 23, Div. 2, Chapter 2.7, Sec. 492.4.
[42] See Footnote 20 for formula. ((53/(12*7.481))*.6*43560)/325851 = 2.65 af/ac.
[43] 25% was selected for roads and right of ways in a single-family neighborhood based on surveys of recently constructed subdivisions in the City of Folsom.
[44] City of Folsom Zoning Code, § 17.12.060.
[45] 25% was selected for hardscape coverage in the single-family categories based on surveys of recently constructed subdivisions in the City of Folsom.

about 6,000 sf. And, if some of the hardscapes in the Single-Family High Density category will occupy an area similar to that in the Single-Family category (e.g., a standard two-car driveway), then the Folsom SPA – PPA is assigned a landscaped area that is a smaller percentage of total lot area in the Single-Family High Density category – 30%.

For the Multi-Family categories in the Folsom SPA – PPA land-use plan, total area is first reduced by 10% to account for roads and right of ways.[46] Then landscaped area is derived by assessing that the building coverage is approximately 40-50% for the Multi-Family Low and Medium Density categories to 55% for the Multi-Family High Density category.[47] Since hardscapes are about 15-25% of lot area, then landscaped areas cover between 25-30% of the lot.[48] For the Multi-Unit Residential category, the landscaped area is only 10% of lot area because the combined commercial uses (in the Multi-Unit Nonresidential category) reduce landscaped areas with more area dedicated to hardscapes connecting the residential and commercial components. All residential land-use coverage assumptions for the Folsom SPA – PPA are provided in **Table 2-5.**

Table 2-5
Folsom SPA – PPA
Residential Land Use Coverage Assumptions

Land Use Category	Building Coverage (% of area)	Hardscape Coverage (% of area)	Landscape Coverage (% of area)
SF	35-40%	20-25%	40%
SFHD	35-40%	30-35%	30%
MFLD	40-50%	15-25%	25%
MFMD	40-50%	15-25%	25%
MFHD	50-55%	15-25%	30%
MU - Res	55-60%	25-30%	10%

[46] Because multi-family units tend to be accessed by main arterial roads and have limited interior roadways, 10% was selected as a reasonable figure across the multi-family categories. This accounts for those complexes accessed entirely by arterial roads, which are already accounted for in the Folsom SPA land-use data and provides for some internal roadways in condominium type complexes.

[47] Land coverage percentages were estimated based upon comparison to existing City of Folsom Zoning Code definitions. The existing R-2, Two-Family Residence definition provides for up to 40% lot coverage and the existing R-3, Neighborhood Apartment District definition provides for coverage up to 50%. It is assumed that the Folsom SPA - PPA Multi-Family Low and Medium Density categories are similar to the existing R-2 and R-3 definitions, thus the use of the 40-50% coverage range. For the Folsom SPA - PPA Multi-Family High Density category, it is assumed that this category is more like the City of Folsom's existing R-M, Residential Multi-Family Dwelling District definition which provides for the building to cover 60% of the lot. (See City of Folsom Zoning Code §§ 17.14, 17.16 and 17.17.)

[48] Hardscape area coverage assessed through electronic surveys of various multi-family complexes in the City of Folsom.

Table 2-6 shows the lot area and landscaped area numbers used to develop the outdoor unit demand factor for the residential categories in the Folsom SPA – PPA land-use plan. Consistent with the approach described in **Section 2.1.3.3**, the unit demand factor was developed by applying provisions of the MWELO to irrigated areas in the residential land-use categories. The long-term outdoor unit demand factor for the residential categories is calculated as a percentage of evapotranspiration. Specifically, as previously discussed in this section, unit demands are 85% of ETo. The product of the landscape area and the ETo factor is the outdoor unit demand factor.

Table 2-6
Folsom SPA - PPA
Residential Outdoor Demand Factors

Land Use	Lot Area, ft^2	Lot Landscape Area, ft^2	Landscape Area (Total), Acres	ETo Turf Irrig. Demand, inches/yr	ETAF	Outdoor Unit Demand, AFY/DU
SF	11,000	4,400	n/a	53	85%	0.38
SFHD	6,000	1,800	n/a	53	85%	0.16
MFLD	n/a	n/a	54	53	85%	0.09
MFMD	n/a	n/a	15	53	85%	0.05
MFHD	n/a	n/a	13	53	85%	0.04
MU - Res	n/a	n/a	3	53	85%	0.02

2.2.2 Non-Residential

2.2.2.1 Non-Residential Land Use Coverage Percentages

The Non-Residential sector water demand for the Folsom SPA - PPA is evaluated on a land-area coverage basis. Each non-residential land-use is assigned an average coverage percentage for each non-residential land-use type – indoor, hardscape, and outdoor irrigation. Land-use coverage percentages were estimated based upon existing City land-use coverages as well as proposed Floor Area Ratios in the Commercial categories. First, for the Commercial categories, the Land Use Summary in **Appendix C** provides the target floor area ratios, which serve as an indicator of the "indoor" coverage percentage.[49] For this analysis, all commercial construction in the Community, General

[49] Because floor area may be comprised of building area on more than one story, the coverage percentage may be less than floor area, but without specific knowledge of the ultimate building design, the floor area serves as a reasonable approximation of the area that the building will cover.

and Regional Commercial categories is one story and the building footprint utilizes the maximum targeted floor area. For the Office Park category, some of the units have multiple stories and the indoor coverage percentage is reduced accordingly.[50]

Commercial: Generally, because the indoor coverage for the Commercial categories in the Folsom SPA - PPA is lower than the average historic figures used in the UWMP, coverage percentages for the hardscape and landscape categories are slightly higher than historic values. According to the Land Use Summary in **Appendix C**, in the Community, General and Regional Commercial categories, the floor area ratios are 25%, 25% and 28% respectively. Assuming equivalence between floor area ratio and indoor coverage, this is about 25-35% less than the indoor figures used in the 2005 UWMP. This "excess" indoor area was therefore assigned to the hardscape and landscape categories with about 15-20% to the landscape coverage and 10-15% to the hardscape coverage. While in some cases hardscape coverage is estimated to be as high as 45%, which is slightly higher than historic values, it is more consistent with recent trends towards maximizing parking and minimizing landscaping features.

For the Office Park category, **Appendix C** provides that target floor area ratio is 30%. Starting with this floor area ratio, a building coverage of 25% was estimated based on the previously stated assumption that some of the office park buildings will be more than one story. Again, because the floor area ratio is considerably less than the building coverage percentage assumed for the 2005 UWMP, the "excess" indoor area was assigned to the landscape category. Also, the hardscape coverage percentage was reduced from the 2005 UWMP value, with a percentage going to landscape coverage and also based on surveys of more modern office park complexes with a preference for significant landscape features.

Mixed Use: For the Mixed-Use Nonresidential category, the Land Use Summary in **Appendix C** indicates that the floor area ratio for the nonresidential component is 20%. Hardscape and landscape coverages are apportioned similar to Community Commercial, with slightly more landscape coverage in place of indoor coverage.

[50] While the City of Folsom Zoning Code (§ 17.22.050) would seem to provide for buildings in categories similar to the Commercial and Office Park categories for the Folsom SPA to have more than one story, it is not certain what type of businesses will ultimately be sited in the Office Park and Commercial categories. Therefore, the building area coverage estimate is driven primarily by windshield surveys by Tully & Young in new commercial and office park developments in the City of Folsom.

Schools: For the Schools category, Landscape coverage remains at 50%, consistent with historic values. Based upon an electronic map survey of the existing Folsom service area conducted by Tully & Young using Google Maps, indoor coverage was increased from the historic value of 10% to 25% and the hardscaped area is reduced accordingly to 25%.

Parks: For the Park and Local Park categories, minimal area is devoted to indoor uses and hardscapes. While these figures will vary depending on the location and purpose of the park space, on average, about 5% is devoted to the indoor and hardscape categories and 95% of the park space is landscaped.[51] This estimate provides a conservatively high demand total for the Park category because the landscape category has a higher unit demand factor than the indoor and hardscape categories.

Open Space and Circulation: As for the remaining two non-residential categories, natural non-irrigated landscape will comprise 100% of the Open Space category and so will create no project water demands. As for the Major Circulation category, 90% is dedicated to roads and 10% to irrigated medians and streetscapes.

All coverage percentages are provided in **Table 2-7**.

[51] Tully & Young assessed park coverage by using Google Maps to analyze parks in the City of Folsom.

Table 2-7
Folsom SPA - PPA
Non-Residential Coverage Percentages and Unit Demand Factors

Land-use Category	Acres	Use Class	Coverage %	Use Class Unit Demand (AF/AC/YR)	Land Use Unit Demand (AF/AC/YR)
Mixed Use - Non-Residential	23.6	Indoor	20%	1.66	0.33
		Hardscape	45%	0.00	0.00
		Landscape	35%	3.73	1.31
		Total	100%		1.64
Office Park	89.2	Indoor	25%	1.90	0.48
		Hardscape	35%	0.00	0.00
		Landscape	40%	3.73	1.49
		Total	100%		1.97
General Commercial	212.9	Indoor	25%	1.66	0.42
		Hardscape	45%	0.00	0.00
		Landscape	30%	3.73	1.12
		Total	100%		1.54
Community Commercial	38.8	Indoor	25%	1.66	0.42
		Hardscape	45%	0.00	0.00
		Landscape	30%	3.73	1.12
		Total	100%		1.54
Regional Commercial	110.8	Indoor	28%	1.90	0.53
		Hardscape	47%	0.00	0.00
		Landscape	25%	3.73	0.93
		Total	100%		1.47
Park	118.2	Indoor	2%	0.48	0.01
		Hardscape	3%	0.00	0.00
		Landscape	95%	3.73	3.55
		Total	100%		3.56
Local Park	3.5	Indoor	2%	0.48	0.01
		Hardscape	3%	0.00	0.00
		Landscape	95%	3.73	3.55
		Total	100%		3.56
Schools	179.3	Indoor	25%	2.85	0.71
		Hardscape	25%	0.00	0.00
		Landscape	50%	3.73	1.87
		Total	100%		2.58
Open Space	1053.1	Indoor	0%	0.00	0.00
		Hardscape	0%	0.00	0.00
		Landscape	100%	0.00	0.00
			100%		0.00
Major Circulation	171.6	Indoor	0%	0.48	0.00
		Hardscape	90%	0.00	0.00
		Landscape	10%	3.73	0.37
		Total	100%		0.37

2.2.2.2 Nonresidential Unit Water Demand Factors

Historic indoor unit water demand factors in the City's 2005 UWMP are revised, as explained in **Section 2.2.2.2**, to estimate baseline indoor unit water demands for the Folsom SPA – PPA. Working from the assumption that the City of Folsom must ultimately comply with the water conservation provisions of SBX7 7, which will require the City of Folsom to achieve 20% conservation relative to baseline use, historic non-residential indoor unit demands are conservatively reduced by 5%.[52] The Office Park and Regional Commercial Categories began with a baseline of 2 af/ac/yr, which was then reduced to 1.90 af/ac/yr. For the Community and General Commercial Categories, a common baseline of 1.75 af/ac/yr was used based upon averaging the historic Neighborhood and Regional Commercial categories in the UWMP. The baseline for the Community and General Commercial categories was also reduced by 5% to 1.66 af/ac/yr. The indoor baseline unit demand for Mixed Use – Nonresidential is assumed to be similar to Community Commercial – 1.75 af/ac/yr.

For the Schools categories, Tully & Young evaluated 2008 meter data for a mix of schools to determine whether the 2005 UWMP demand value of 3 af/ac/yr remains a reasonable average value. Based upon rough calculations of area and recent average annual water use, indoor water use was estimated to be about 2.6 af/ac/yr. Given the high degree of variability among the schools, the historic value of 3 af/ac/yr was retained as a conservative baseline. Similar to the Commercial categories, indoor unit demands were reduced by 5% to 2.85 af/ac/yr.

The landscape unit demand for all non-residential categories reflects the requirements of the MWELO as discussed in **Section 2.1.3**. Specifically unit demands are 85% of reference evapotranspiration (53 in.) Based upon review of recent meter data, reference evapotranspiration is a reasonable estimate of baseline landscape demand. Evaluation of recent park landscaping meter data indicates that average water use is about 4.3 af/ac/yr.[53] Approximately 85% of reference evapotranspiration is achieved both through the landscape design requirements in the MWELO as well as the irrigation design system requirements and recommendations for a weather-based controller and

[52] As explained in **Section 2.1.3.2.**, this WSA assumes that the nonresidential buildings and structures must comply with the water-efficient fixture requirements of the CAL Green Code. While the CAL Green Code water savings target is 20% compared to baseline use, this WSA assumes a 5% reduction in water use and adjustments to the indoor unit water demand factors are made accordingly.

[53] Tully & Young reviewed 2008 meter data for the City of Folsom's BT Collins, Cohn and Beach Hill Parks. The average 2008 unit demand was 4.2 acre-feet per acre.

dedicated irrigation meter. This is a conservative estimate appropriate for this planning stage.

A unit demand per acre is assigned for each coverage percentage as shown in **Table 2-7**.

2.3 Folsom SPA – PPA Non-Potable Water Demand

Currently, the City does not have a non-potable supply to serve any portion of the Folsom SPA. If non-potable water service is ultimately available, an indication of the scope of non-potable service may be found in the State Water Resources Control Board's *General Waste Discharge Requirements for Landscape Irrigation Uses of Municipal Recycled Water* (Recycled Water General Permit).[54] Under the Recycled Water General Permit, recycled water can be used in residential front or back yards if the municipality applies for, and obtains, an individual permit with the Regional Water Quality Control Board. According to the Recycled Water General Permit, specified uses of recycled water considered "landscape irrigation" projects include any of the following:

- Parks, greenbelts, and playgrounds;
- School yards;
- Athletic fields;
- Golf courses;
- Cemeteries;
- Residential landscaping, common areas;
- Commercial landscaping, except eating areas;
- Industrial landscaping, except eating areas; and
- Freeway, highway, and street landscaping.

If the City of Folsom were to require that the Folsom SPA - PPA demand categories corresponding to those eligible for non-potable service under the Recycled Water General Permit were to use non-potable water, then the land-use categories in **Table 2-8** would likely be eligible. The corresponding acreage and potential demand values are provided in **Table 2-8** as well.

[54] http://www.swrcb.ca.gov/water_issues/programs/water_recycling_policy/docs/wqo_2009_0006_general_permit.pdf. Non-potable supplies may be available in the future but they are not considered in this analysis.

Table 2-8[55]
Folsom SPA – PPA
Potential Non-Potable Water Demands

Land-Use Category	Landscape Acreage (AC)	Demand (AF/YR)
Parks	116	431
Streetscapes	17	64
C/I/O Landscape	147	549
Schools Landscape	90	334
Total	370	1379

2.4 PROJECTED WATER DEMANDS FOR FOLSOM SPA - PPA

Table 2-9 provides the annual water demands by land-use category for the Folsom SPA – PPA. The total estimated water demand for the Folsom SPA - PPA in a normal year is 5,422 AF, assuming a 10% non-revenue water factor.[56] In a dry-year, this total Folsom SPA - PPA demand is projected to increase to 5,577 acre-feet. The dry-year increase is a result of increasing the normal year outdoor demand for all residential and non-residential demand categories by 5% and then applying the non-revenue water factor of 10%.[57] The 5% increase is applied to the annual outdoor demand factor of 3.73 acre-feet/acre/year.

The portion of the Folsom SPA - PPA that is within the EID service area is projected to have a water demand of 255 AF in a normal year and 262 AF in a dry year, as shown in **Table 2-9**. Finally, **Table 2-9** also provides an indication of the balance between indoor and outdoor water demands for all land-use categories in both the Folsom and EID service areas.

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[55] The demand estimates are based on the outdoor unit demand factor of 3.73 acre-feet/acre/year as developed in Section 2.2.1.2. This is a conservatively high value when compared to recorded demand factors documented by EID in its annual Water Resources & Services Reliability Reports, which reported unit demands to be less than 3.0 acre-feet/acre/year. This conservatively high value is further supported, using the evapotranspiration data from a local weather station and comparing high and low values over the last 12 years. Based on the data the highest yearly value (representing the hottest year) is only 5% higher than the average for the period of record.

[56] As a signatory to the CUWCC MOU, the City of Folsom is committed, pursuant to BMP 1.2(f), to following American Water Works Association standards for system water audits, leak detection and repair. It is also committed to achieving non-revenue water losses no greater than 10% of total water introduced into its system (i.e., supply entering the treatment plant). Because the demand for the Folsom SPA-PPA is calculated from the end-user perspective, reflecting a 10% non-revenue water loss of the water entering the treatment plant translates to an equivalent of 11.11% of end-user demand. Thus, 5,422 AF/YR is the result of adding 11.11% to the end-user demand estimate.

[57] Outdoor demand is increased by 5 percent in dry years because a dry winter tends to motivate customers to begin irrigation sooner in the season.

Table 2-9
Folsom SPA - PPA
Normal and Dry-Year Demand Totals

Folsom Service Area

Residential Land Use	Normal Indoor Total (AFY)	Normal Outdoor Total (AFY)	Normal Total (AFY)	Dry-Year Total (AFY)
SF	362	666	1028	1061
SFHD	632	476	1108	1132
MFLD	332	224	556	567
MFMD	186	63	249	252
MFHD	190	56	247	249
MU - Res	104	13	117	118
Residential Totals	1806	1499	3305	3380

Non-Residential Land Use	Normal Indoor Total (AFY)	Normal Outdoor Total (AFY)	Normal Total (AFY)	Dry-Year Total (AFY)
MU-Non Res.	34	9	43	44
OP	47	148	195	203
CC	18	48	66	69
GC	85	228	313	324
RC	66	115	180	186
Park	1	466	467	490
LP	0	14	14	15
SCH (PQP)	142	372	514	533
OS	0	0	0	0
MAJ CIRC	0	68	68	72
Totals	393	1468	1861	1934
Folsom Totals	2199	2967	5166	5315

El Dorado Irrigation District Service Area

Residential Land Use	Normal Indoor Total (AFY)	Normal Outdoor Total (AFY)	Normal Total (AFY)	Dry-Year Total (AFY)
SF	24	45	69	71
SFHD	39	29	69	70
MFLD	38	26	65	66
Residential Totals	102	100	202	207

Non-Residential Land Use	Normal Indoor Total (AFY)	Normal Outdoor Total (AFY)	Normal Total (AFY)	Dry-Year Total (AFY)
GC	14	37	50	52
LP	0	0	0	0
OS	0	0	0	0
MAJ CIRC	0	3	3	3
Totals	14	40	53	55
EID Totals	116	140	255	262

Folsom SPA Total	2315	3107	5422	5577

Assuming Folsom SPA residential and non-residential construction starts in 2013 and the 20-year required projection is applied, then the projected water demand shown in Table 2-10 would be realized by 2033 for the Folsom SPA - PPA.

Table 2-10
Folsom SPA – PPA
Projected Water Demand at 2033

Water Year	2033
Normal Year (AF/YR)	5421
Dry Year (AF/YR)	5577

SECTION 3 FOLSOM SPA WATER SUPPLY

3.1 EXPLANATION OF THE PROPOSED WATER SUPPLY

Section 3 provides an explanation of the water supply that the City of Folsom will use to serve the Folsom SPA. [58] The City will meet the Folsom SPA water demands by securing an assignment of a Sacramento River surface water supply from the Natomas Central Mutual Water Company (NCMWC) pursuant to NCMWC's CVP settlement contract with the United States Bureau of Reclamation (USBR).[59] The water supply to be assigned is a long-term "Project Water" supply.[60] An initial purchase and sale agreement between South Folsom Properties LLC (SFP) and NCMWC is in place and identifies the conditions which ultimately need to be satisfied by both parties to finalize the sale, which will ultimately lead to an assignment to the City.

Currently, NCWMC diverts water and conveys it to its shareholders that apply water to agricultural lands in northern Sacramento County and southern Sutter County. NCMWC's contract provides for delivery of Project Water on an agricultural schedule, with the Project Water delivered during the late irrigation season in the months of July and August. The City will seek modification of the Project Water delivery schedule from the USBR such that water may be delivered to the City on a year-round municipal and industrial (M&I) schedule.[61] The City will divert the assigned Project Water at the Freeport Regional Water Authority's Freeport diversion facility on the Sacramento River

[58] CWC § 10910 (d) (1) requires that "The assessment ... include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts. (2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following: (A) Written contracts or other proof of entitlement to an identified water supply. (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system. (C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply. (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply."

[59] Contract No. 14-06-200-885A-R-1.

[60] "Project Water" is "... all surface water diverted ... each month during the period April through October ... from the Sacramento River which is in excess of Base Supply." "Base Supply" is "... the quantity of surface water ... which may be diverted ... from the Sacramento River each month during the period April through October of each year without payment to the United States for such quantities diverted." Article 1 of the 2005 Contract Between the United States and the Natomas Central Mutual Water Company (Renewal Contract), which is included in **Appendix G**

[61] A M&I schedule is generally one with the highest daily demands during the height of the outdoor irrigation season and lower daily demands in the spring and fall and even lower daily demands throughout the winter.

in southern Sacramento County.[62] Water will be conveyed from the Freeport diversion facility to the Folsom SPA via both FRWA facilities, which are already under construction, as well as facilities that will be constructed by the City of Folsom. The water may be either treated by SCWA or the City of Folsom pending further review of various conveyance and treatment alternatives.[63]

As explained in **Section 3.4**, the City of Folsom and the Sacramento County Water Agency (SCWA) have approved the *Memorandum of Understanding Between the City of Folsom and Sacramento County Water Agency Concerning the Folsom Sphere of Influence Area and Sharing of Freeport Project Capacity* (City - SCWA MOU). The City – SCWA MOU commits each party to try to find a mutually agreeable solution to the issue of system capacity in the FRWA facilities so that the City of Folsom can use some of that capacity to deliver Sacramento River water to the Folsom SPA. The water supply that will derive from the NCMWC assignment and be delivered under an agreement following the City – SCWA MOU will be used in both Folsom's and EID's service areas within the Folsom SPA.

The use of this water supply does not impact either the City's or EID's existing water supplies or conveyance facilities. Through SFP, the City intends to acquire water from NCMWC to serve only the Folsom SPA. Water treatment will occur at either newly constructed facilities that will not be connected to the City of Folsom's or EID's existing treatment and conveyance facilities or at third parties' treatment facilities. Thus, neither the water demands associated with land uses in the City of Folsom exclusive of the Folsom SPA, nor the water supplies used to serve these areas, are analyzed in this Folsom SPA WSA.

3.2 Surface Supply Analysis

3.2.1 NCMWC Water Supplies

Surface water will be obtained from the NCWMC pursuant to a series of agreements. Initial agreements include one between SFP and NCMWC, and the second between SFP and the City of Folsom. The agreement between SFP and the NCMWC has been

[62] The Freeport Regional Water Authority (FRWA) was created by a Joint Powers Agreement between the Sacramento County Water Agency (SCWA) and East Bay Municipal Utility District (EBMUD). FRWA guides the financing, ownership, development, construction, and operation of the Freeport Regional Water Project (FRWP). The FRWA Board of Directors is made up of two representatives from SCWA, and two representatives from EBMUD. The City of Sacramento is an Associate Member of FRWA.

[63] Conveyance alternatives are analyzed in the Draft EIR/EIS.

executed.[64] The City of Folsom and SFP have executed a non-binding memorandum of understanding.[65] The City and SFP cannot sign a binding legal agreement until after the environmental review – of which this WSA is a part – is completed. The ultimate goal is to complete an assignment of a portion of NCMWC's Project Water supply to the City of Folsom.[66] NCMWC's CVP settlement contract contemplates such an assignment.

NCMWC entered into Contract No. 14-06-200-885A (Settlement Contract) with the USBR in 1964. The Settlement Contract is based on NCMWC's pre-existing licenses and permit to divert water. The Settlement Contract provides for delivery of water to NCMWC during the months of April through October. Effective on May 10, 2005, the Settlement Contract was renewed for a 40-year term (Renewal Contract).

Under the Renewal Contract, in addition to its Base Supply, NCMWC is entitled to divert up to 22,000 acre-feet of "Project Water" which is available during July and August. Distribution of NCMWC's monthly diversion entitlements for Project Water is shown in **Table 3-1**. The Renewal Contract limits NCMWC's annual diversions of water from the Sacramento River to the total quantities included in its Base and Project Supplies regardless of the entitlement pursuant to which the water is diverted.[67]

Table 3-1
Natomas Central Mutual Water Company
Project Water Supply Allocation

Month	Project Water Supply (af)
April	0
May	0
June	0
July	7,200
August	14,800
September	0
October	0
Total	**22,000**

[64] On December 17, 2007, SFP and NCMWC entered into an agreement entitled *Terms and Conditions of Purchase and Sale of Water Entitlements*. (SFP-NCMWC Agreement) A copy of the SFP-NCMWC Agreement is included as **Appendix E.**
[65] A copy of the City-SFP MOU is attached as **Appendix F**.
[66] Assignments are allowed under Article 23 of the 2005 Contract Between the United States and the Natomas Central Mutual Water Company (Renewal Contract), which is included in **Appendix G**.
[67] NCMWC's Base Supply is not a water source for the City and is not considered in this WSA.

3.2.1.1 Reliability of NCMWC Surface Water Supplies

Annual water deliveries to the NCMWC from the USBR pursuant to the Renewal Contract are determined on the basis of natural inflow to Shasta Lake (the Shasta Index). In a normal year when there is ample water in the Central Valley Project (CVP) system, NCMWC receives 100% of its Renewal Contract entitlement. The maximum reduction in NCMWC's diversions during any "Critical Year" is 25% of both Base Supplies and Project Water.[68] A "Critical Year" means any year in which either of the following conditions exist:

(1) The forecasted full natural inflow to Shasta Lake for the current Water Year (October 1 through September 30), as such forecast is made by the United States on or before February 15 and reviewed as frequently thereafter as conditions and information warrant, is equal to or less than 3.2 million acre-feet; or

(2) The total accumulated actual deficiencies below 4 million acre-feet in the immediately prior Water Year or series of successive prior Water Years each of which had inflows of less than 4 million acre-feet, together with the forecasted deficiency for the current Water Year, exceed 800,000 acre-feet.

"Critical Years" occur relatively infrequently. Over 85 years of record (1921-2006), a Shasta Index "Critical Year" would have been triggered only nine times (1924, 1931, 1932, 1933, 1934, 1977, 1991, 1992, and 1994).[69] This results in the occurrence of a "Critical Year" less than once every nine years.

Table 3-2 provides the "Critical Year" water allocation assumption for the NCMWC Project Water supply. As shown, during a "Critical Year," NCMWC receives no less than 75% of its normal year Project Water entitlement, or 16,500 acre-feet.

[68] Article 5(a), Renewal Contract. Article 5(a) is the exclusive provision governing dry-year reductions of NCMWC's water supplies under the Renewal Contract. USBR's draft *2001 M&I Shortage Policy*, if implemented, will not apply to the NCMWC water supply because NCMWC is a settlement contractor, and its Renewal Contract therefore specifically defines the maximum reductions.

[69] www.usbr.gov 8/28/09

Table 3-2
NCMWC "Critical Year" Project Water Supply

Month	Project Water Supply (af)
April	0
May	0
June	0
July	5,400
August	11,100
September	0
October	0
Total	**16,500**

NCMWC's Renewal Contract, among many other Central Valley Project contracts, was challenged in *Natural Resources Defense Council v. Kempthorne*, Case No. 05-CV-01207 (E.D. Cal). In that case, the Honorable Oliver Wanger of the U.S. District Court for the Eastern District of California, upheld NCMWC's Renewal Contract. His decision has been appealed to the federal Court of Appeals for the Ninth Circuit. In certain orders, Judge Wanger ruled that the supply of "Project Water" under NCMWC's Renewal Contract could be reduced "to meet legal obligations" of USBR. If these orders were to be read conservatively, then they would impose on USBR, at most, a contractual obligation to comply with applicable laws, which is a standard element of most contracts. (See e.g., *Edwards v. Arthur Andersen LLC* (2008) 44 Cal.4th 937, 954.) These orders therefore do not adversely affect "Project Water" supplies under NCMWC's Renewal Contract for purposes of this WSA, any more than application of standard contract-law principles would. Because Judge Wanger upheld the Renewal Contract on the basis that USBR had no discretion to reduce NCMWC's water supplies in executing the Renewal Contract, the judge's "legal obligations" rulings probably will have less effect than would be indicated by the above conservative interpretation.

3.2.1.2 Modifications to the NCMWC Delivery Schedule

Tables 3-1 and 3-2 show the NCMWC's existing water delivery patterns in normal and critical years under its existing Renewal Contract with USBR. For the Project Water supply to serve as an effective water supply for the Folsom SPA, it will be necessary to obtain USBR approval for a modification to the delivery schedule to satisfy Folsom SPA demands on a traditional M&I pattern throughout the calendar year. According to the

Folsom SPA Notice of Preparation, "the City will work with Reclamation [USBR] or another CVP contractor to reschedule the delivery of the assigned Project Water Supply."

Table 3-3 provides an example of the delivery pattern that the City intends to seek for delivery of 5,577 AF over a twelve month period under the Folsom SPA – PPA land-use plan.[70] For planning purposes, not only does **Table 3-3** reflect the potential demand pattern, it addresses the potential capacity requirements in the FRWA and the proposed Folsom conveyance systems by providing monthly and annual average day demand, and maximum day demand. Because the maximum day demand may occur at any time throughout the year, maximum day demand is estimated by multiplying annual average day demand by 1.9.

Table 3-3
Demand Pattern for the Folsom SPA - PPA

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Pattern (% Total)	4.4%	3.9%	5.5%	6.5%	9.3%	11.5%	14.1%	13.5%	11.8%	9.1%	5.5%	4.7%	
Total (AF)	245.4	217.5	306.7	362.5	518.7	641.4	786.4	752.9	658.1	507.5	306.7	262.1	5577.0
Monthly Avg. Day (MG)	2.6	2.5	3.2	3.9	5.5	7.0	8.3	7.9	7.1	5.3	3.3	2.8	5.0
Maximum Day (Ann. Avg. Day x 1.9) (MG)													9.5

3.3 Agreements Supporting A Plan to Secure A Water Supply[71]

3.3.1 NCMWC – South Folsom Properties Agreement

Under the SFP-NCMWC Agreement, NCMWC agreed to permanently assign to the City, through SFP, not less than 8,000 acre-feet per year (AF/YR) of "Project Water" to which NCMWC has rights under the Renewal Contract. NCMWC did not exercise its option under Section 3.2 of the SFP-NCMWC Agreement to increase the amount of water from the initial amount of 8,000 AF/YR to be purchased by SFP, and therefore the total water supply to be assigned to the City of Folsom by NCMWC is 8,000 AF/YR. The SFP-NCMWC Agreement provides that the assigned water will be subject to a 25% reduction in a "Critical Year."(See discussion of "Critical Year" supply reductions in **Section 3.2.1.1** above.)

[70] Demand pattern obtained from analysis of the Historic Folsom Water Treatment Plan Flows prepared by the J. Crowley Group, December 2007.
[71] The agreements described in **Section 3.3** are intended to satisfy the requirement in CWC § 10910(d)(2)(A) to provide "Written contracts or other proof of entitlement to an identified water supply."

The SFP-NCMWC Agreement is effective until April 1, 2012, unless extended by SFP. Under that agreement, SFP may extend its term for up to five additional one-year periods. During the period that the SFP-NCMWC Agreement is effective, both NCMWC and SFP must satisfy specific obligations to ensure that water can ultimately be made available for use as a municipal and industrial supply in the Folsom SPA. Those obligations include, but are not limited to (1) preparation of an engineering study to ensure NCMWC may meet its future demands in the absence of the assigned supply; (2) approval from USBR to reschedule the assigned supply from an irrigation demand schedule to a municipal and industrial demand schedule; and (3) completion of all state and federal environmental review.[72]

3.3.2 City - South Folsom Area Group Agreement

On August 26, 2008, the City and SFP signed a memorandum of understanding that contemplates that SFP will assign the supply that SFP is acquiring under the SFP-NCMWC Agreement (Natomas Water) to the City for use as a new water supply for the Folsom SPA upon the completion of all legal requirements.[73] Specifically, the MOU contemplates that the City will evaluate the technical feasibility of delivering water on a year-round municipal and industrial pattern, diverting water from the Sacramento River at the FRWA facilities, and conveying water to the Folsom SPA using FRWA facilities. The MOU also contemplates that the City will identify alternatives identified in **Section 3.5** for conveying and treating Natomas Water.

3.4 Capacity Agreement

The City of Folsom and SCWA approved a City - SCWA MOU.[74] The purpose of this MOU is to establish principles and parameters to govern negotiations between the parties for City's purchase of a portion of the SCWA's capacity in the FRWA facilities in order to convey Natomas Water to supply the area encompassed by the SOI. The City – SCWA MOU indicates that the City and SCWA will cooperate during the MOU's term to develop conditions under which the City may convey the Natomas Water using SCWA's FRWA capacity, with the common goal of eventually executing a binding agreement (City-SCWA Agreement). The City – SCWA MOU therefore acknowledges that the average daily capacity in the FRWA facilities that would be available for purchase by the City is 6.5 mgd with consideration of an appropriate peaking factor.

[72] Specifically, SFP, in cooperation with the City, is to be responsible for obtaining all necessary approvals from USBR, including the scheduling approval and environmental review processes. Also, the City is to serve as the lead agency under CEQA and USBR will perform all duties under NEPA and the ESA. (See Sections 16 and 17 of the SFP-NCMWC Agreement.)

[73] See Appendix F.

[74] A copy is attached as **Appendix H.**

3.5 CONVEYANCE ALTERNATIVES

As for conveyance from the FRWA facilities, there are numerous routing alternatives considered in the Draft EIR/EIS:

Alternative 1 and 1A: Convey raw water from the FRWA Bifurcation to the Folsom SPA along Grant Line Road for the majority of the route with two potential approaches to the proposed Folsom Water Treatment Plant (WTP);

Alternative 2, 2A and 2B: Use the proposed SCWA Vineyard WTP to treat water and then convey to Florin Road, then north along either Excelsior or Eagles Nest Road to Douglas, then east to Grant Line Road, and north to the Folsom SPA;

Alternative 3 and 3A: Convey raw water from the FRWA Bifurcation to Florin Road, then north along either Excelsior or Eagles Nest Road to Douglas, then east to Grant Line Road, and north to the Folsom WTP at the Folsom SPA; and

Alternative 4 and 4A: Convey raw water from the FRWA Bifurcation north along either Excelsior or Eagles Nest Road to a proposed Folsom WTP on Folsom Boulevard, and ultimate conveyance to the Folsom SPA after treatment at the Folsom Boulevard location.[75]

No USACE Permit Off-site Water Facility Alternative: Convey raw water through the conveyance pipeline under Alternatives 1 and 3 above but would have no impact to waters of the United States.

The necessary easements and permits will need to be secured once an alternative is selected. Ultimately, the conveyance alternative selected will accommodate the supply secured from NCMWC.

3.6 FACILITIES COST AND FINANCING

3.6.1 Facility Costs

The Draft Project Facilities Financing Plan (PFFP) focuses on the costs of backbone infrastructure and community facilities for the Folsom SPA as well as the financing of these facilities. The Draft PFFP specifically addresses water infrastructure costs and

[75] A set of maps identifying the water conveyance alternatives is attached as **Appendix I.**

financing.[76] Because the scope of the current water infrastructure requirements and the associated cost estimates are comprehensive, the Draft PFFP provides considerable support for the City of Folsom's plan to secure a reliable water supply for the Folsom SPA. It is anticipated that the cost projections and financing strategies will be refined throughout the planning process.

Anticipated potable water improvements included in the Draft PFFP are an off-site transmission main, an on-site water treatment plant, storage tanks, booster stations, distribution mains, and laterals. Additionally, the Draft PFFP includes the cost associated with the City of Folsom acquiring conveyance capacity in the FRWA facilities. Taken together, by acquiring capacity in the FRWA system, and constructing the proposed City of Folsom conveyance, treatment and storage facilities, it will be possible to deliver the NCMWC supply to the Folsom SPA.

Complementing the potable water system, the Draft PFFP includes a recycled water system in the Project's initial design objectives and policies. To this end, the Draft PFFP includes a cost estimate for non-potable water deliveries. Yet, because the City does not have non-potable supplies available at this time, non-potable supplies are not considered to be available for purposes of estimating supply sufficiency in the WSA.

The gross cost estimate for potable and non-potable water facilities is approximately \$302.1 million. However, because the cost of the water supply (\$32 million) is to be funded with revenue bond proceeds and approximately 48% (based on City staff's estimate) of the water treatment plant costs relate to projects outside the plan area, the total net cost for potable and non-potable water facilities is estimated to be \$245.8 million.[77]

With a net project-specific cost totaling \$245.8 million, one-time burdens vary from \$6,301 per central commercial mixed use unit to \$38,882 per single family unit. Non-residential land use designations, meanwhile, are assigned a cost per acre ranging from \$80,331 per regional commercial acre to \$113,378 per office park acre.[78]

[76] The Draft PFFP assesses public facility feasibility based upon the land uses in the Folsom Plan Area Specific Plan, Administrative Review Draft, June 6, 2008. A discussion of the Draft PFFP is included in **Section 3.6** to satisfy the requirement to submit information regarding a capital outlay program to demonstrate entitlement to the identified water supply pursuant to CWC § 10910(d)(2)(B).
[77] Draft PFFP, p. 13.
[78] Draft PFFP, p. 18.

3.6.2 Financing Plan

The Draft PFFP identifies the basic components of the financing plan. Specifically, the plan includes development impact fees, utility revenue bonds, debt issued through the Mello-Roos Community Facilities Act, and developer capital.[79] If a Community Facilities District (CFD) is formed, special taxes will be collected to repay the bonds issued by the CFD. Also, an additional monthly charge included on property owners' utility bills will be collected to repay the utility revenue bonds.

Developer impact fees will fund the total net project-specific costs. A project-specific fee will ensure allocation of backbone and community facility costs among properties in the plan area.[80] The project applicant has proposed the use of revenue bonds to fund the anticipated cost to acquire rights to water supplies, and without revenue bonds, it would be necessary to increase developer impact fees. The Draft PFFP recommends establishment of a Mello-Roos CFD and issuance of tax-exempt bonds. The Draft PFFP earmarks special taxes for the public facilities to maximize available [bond] capacity. In total, $288.3 million in net CFD proceeds are expected to be generated through bonding.[81] Finally, the Draft PFFP assumes that developer capital will be required to close gaps between the time infrastructure is needed and revenues become available through the developer impact fees, utility revenue bonds and Mello-Roos CFD mechanisms.

3.7 Regulatory Approvals and Permits

Pursuant to CWC § 10910(d)(2)(C)-(D), the City shall identify, for its proposed water supply: (1) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply; and (2) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply. The anticipated federal, state and local permits are identified in the Draft EIR/EIS.[82] Based upon the ultimate quantity of water assigned, the capacity agreement with SCWA, the conveyance route selected and the treatment process chosen, the City of Folsom will obtain the appropriate approvals and permits from the suite listed in **Appendix J**.

3.8 Proof of Appropriation

CWC § 10910(e) requires that, if the water supplier has not received water from the designated source before, then the WSA has to contain "an identification" of the other

[79] Draft PFFP, p. 24.
[80] Draft PFFP, p. 24.
[81] Draft PFFP, p. 25.
[82] Draft EIR/EIS, Section 1.6.3. A copy of Section 1.6.3 is attached as **Appendix J**.

water suppliers "that receive a water supply or have existing water supply entitlements . . . or water service contracts, to the same source of water as the public water system . . . has identified as a source of water supply within its [WSA]." The City of Folsom has not previously received a water supply from either the NCMWC or the Sacramento River. The source of water from which the City will obtain its supplies is NCMWC's unique Renewal Contract, which is based on NCMWC's unique underlying water rights. The NCMWC has been entitled to divert Project Water under the Renewal Contract consistently since the contract took effect in 2005. Upon assignment, the City should be entitled to divert Project Water as well in a manner similar to that provided for under NCMWC's Renewal Contract, with an adjustment in the water delivery schedule to reflect the Folsom SPA's municipal and industrial demand pattern.

3.9 Supply Summary

Based upon the City of Folsom's plan to ultimately secure an assignment of a portion of NCMWC's Project Water supply, the normal year supply contractually available for the City of Folsom under the assignment is 8,000 AF/YR. The maximum diversion for the Folsom SPA will be 6,000 AF/YR. The existing agreement between SFP and NCMWC, and the existing non-binding memorandum of understanding between SFP and the City, provides the foundation for the City to obtain an entitlement to the water supply through an assignment approved by USBR. Consistent with the dry-year shortage provisions in the Renewal Contract, the supply ultimately assigned to the City of Folsom will be subject to a 25% reduction in "Critical Years." For purposes of the sufficiency analysis in **Section 4**, this reduction results in 6,000 AF being available in both single and multiple-dry year conditions.

In addition to the water supply agreements that have been signed, the City of Folsom is diligently pursuing conveyance and treatment options to use the supply to be assigned by NCMWC with specific focus on acquiring and using capacity in the FRWA facilities, which are already permitted and partially constructed. Moreover, the Draft PFFP provides cost estimates for the water supply and treatment infrastructure necessary to serve the Folsom SPA with the supply to be assigned by NCMWC. Given these efforts to date, the City of Folsom has a viable plan for a secure supply for the Folsom SPA.

SECTION 4 FOLSOM SPA – PPA SUPPLY SUFFICIENCY ANALYSIS

Section 4 provides analysis of the sufficiency of the designated water supply for the projected Folsom SPA – PPA water demands.[83] **Table 4-1** incorporates the demand projection in **Table 2-10**, including both normal and dry-year demand projections at 2033. It also contains the supply projections discussed in **Section 3**. Although 8,000 AF/YR is anticipated to be available to the City of Folsom under the assignment, for every normal water year between 2013 and 2033, the City will divert a maximum of 6,000 AF/YR to serve the Folsom SPA. For each single and multiple-dry year period, it is assumed that the 8,000 AF/YR base water supply is restricted pursuant to the "Shasta Critical" provisions discussed in **Section 3.2.1.1**, thereby reducing the base supply by 25% and resulting in a total supply of 6,000 AF.

Conveyance water infrastructure is expected to be complete by 2013 in time to make water deliveries to the project. Given the limited development anticipated in 2013, there will be a significant surplus of water. In a dry year at full project build out anticipated to be in 2033, supplies are still estimated to exceed demand by about 425 AF/YR because annual dry-year demand will be approximately 5,577 AF/YR and supplies will be approximately 6,000 AF/YR. Thus, based upon the information in **Table 4-1** and the supporting analyses in **Sections 1** through **3**, the Folsom SPA - PPA will have a sufficient water supply at full project buildout, even in single and multiple dry year periods.

Table 4-1
Folsom SPA – PPA
Supply/Demand Comparison

Year	Projected Baseline Water Demand (ac-ft/year)	Surface Water			Projected Surplus/ (Shortfall) (ac-ft/year)
		Hydrologic Year Type		Available Water Supply (ac-ft/year)	
2033	5,421	**Normal**		6,000	579
	5,577	**Single Dry**		6,000	423
		Multiple Dry	Year 1	6,000	423
			Year 2	6,000	423
			Year 3	6,000	423

[83] CWC § 10910 (c)(4) provides that "If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses."

SECTION 5 FOLSOM SPA – RHA LAND USE PLAN

5.1 LAND USE PLAN CHARACTERISTICS

The Folsom SPA - RHA land uses are provided in **Table 5-1**. The land uses are depicted graphically in **Appendix K.**[84] Total project acreage will be 3,502 acres, including 11,553 dwelling units. As discussed in the Introduction, the Folsom SPA-RHA is not the proposed project to be analyzed under CWC §§ 10910(a) and 10912(a), but rather is analyzed in this WSA because the EIR/EIS analyzes the Folsom SPA-RHA at the level of detail required by NEPA and the Folsom SPA-RHA contains more residential units than the Folsom SPA-PPA.

Table 5-1
Folsom SPA - RHA
Land Uses

Land Use ID	Area, acres	Dwelling Unit Density DU/acre	Dwelling Units
Single-Family (SF)	370.7	2.7	989
Single-Family; High Density (SFHD)	331.0	4.9	1,619
Multi-Family; Low Density (MFLD)	483.2	8.0	3,866
Multi-Family; Med. Density (MFMD)	144.6	16.0	2,314
Multi-Family; High Density (MFHD)	107.1	22.2	2,380
Mixed Use - Res. (MU-R)	21.7	10.7	385
Mixed Use - Non Residential (MU-NR)	14.4		
Office Park (OP)	111.8	--	--
Community Commercial (CC)	15.4	--	--
General Commercial (GC)	210.1	--	--
Regional Commercial (RC)	133.6		
Park	158.6	--	--
School (SCH)	188.3	--	--
Open Space (OS)	1,057.6	--	--
Major Circulation (MAJ CIRC)	154.5	--	--
Total Residential	**1,458.3**		**11,553**
Total Non-Res	**2,044.3**		**0**
Total:	**3,502.6**		**11,553**

The land uses planned for the Folsom SPA – RHA in the City of Folsom and EID service areas respectively are provided in **Tables 5-2 and 5-3**.

[84] See Appendix K, Folsom SPA – RHA Land Use Diagram.

Table 5-2
Folsom SPA – RHA
Folsom Water Service Area
Land Uses

Land Use ID	Area, acres	Dwelling Unit Density DU/acre	Dwelling Units
Single-Family (SF)	331.5	2.7	884
Single-Family; High Density (SFHD)	331.0	4.9	1,619
Multi-Family; Low Density (MFLD)	456.1	8.0	3,649
Multi-Family; Med. Density (MFMD)	144.6	16.0	2,314
Multi-Family; High Density (MFHD)	107.1	22.2	2,380
Mixed Use - Res. (MU-R)	21.7	10.7	385
Mixed Use - Non Residential (MU-NR)	14.4		
Office Park (OP)	111.8	--	--
Community Commercial (CC)	15.4	--	--
General Commercial (GC)	175.7	--	--
Regional Commercial (RC)	133.6		
Park	149.7	--	--
School (SCH)	188.3	--	--
Open Space (OS)	993.9	--	--
Major Circulation (MAJ CIRC)	149.0	--	--
Total Residential	**1,392.0**		**11,231**
Total Non-Res	**1,931.8**		**0**
Total:	**3,323.8**		**11,231**

Table 5-3
Folsom SPA – RHA
EID Water Service Area
Land Uses

Land Use ID	Area, acres	Dwelling Unit Density DU/acre	Dwelling Units
Single-Family (SF)	39.2	2.7	105
Multi-Family; Low Density (MFLD)	27.1	8.0	217
General Commercial (GC)	34.4	--	--
Park	8.9	--	--
Open Space (OS)	63.7	--	--
Major Circulation (MAJ CIRC)	5.5	--	--
Total Residential	**66.3**		**322**
Total Non-Res	**112.5**		**0**
Total:	**178.8**		**322**

SECTION 6 FOLSOM SPA – RHA WATER DEMAND ESTIMATE

Section 6 provides a water demand projection for the Folsom SPA - RHA.[85] The demand projection in **Section 6** uses the bases for the unit demand factors for the Folsom SPA - PPA outlined in **Section 2.1**. Both the historic demand factor assessment and the conservation drivers provide a foundation for the water demand projection in **Section 6.1**. **Section 6.2** identifies potential demands that could be served by a non-potable supply. **Section 6.3** provides the water demand projection used for the sufficiency analysis in **Section 8**.

6.1 FOLSOM SPA – RHA DEMAND FACTORS

6.1.1 Residential

The residential unit demand factors for the Folsom SPA - RHA include both an indoor and outdoor component. The indoor unit demand factor for both the single-family and multi-family residential categories remains the same as that used for the Folsom SPA – PPA as described in **Section 2.2.1.1**. Given the difference in the proposed unit densities for the Folsom SPA - RHA, unique residential outdoor unit demand factors were developed. The indoor and outdoor components are ultimately combined into a total unit demand factor for the residential land-use categories.

6.1.1.1 Indoor

For the Folsom SPA - RHA, the indoor unit demand factors for the single and multi-family residential classifications are provided in **Table 6-1**. Assuming the housing product type and the number of persons per unit is the same as the Folsom SPA - PPA for each land use classification, the indoor unit demand factors for the Folsom SPA – RHA are the same for each residential category.

[85] CWC § 10910(c)(4) provides that "If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses."

Table 6-1
Folsom SPA - RHA
Residential Unit Demands

Land Use	Capita per Household	Indoor gallons per capita / day	Indoor Unit Demand, AF/DU
SF	2.9	63	0.21
SFHD	2.9	63	0.21
MFLD	1.9	63	0.14
MFMD	1.9	63	0.14
MFHD	1.9	63	0.14
MU - Res	1.9	63	0.14

6.1.1.2 Outdoor

For the Folsom SPA - RHA, outdoor unit demand factors are projected to be higher than the Folsom SPA - PPA because the unit density for each residential land use category is lower. (Compare **Table 1-1** and **Table 5-1**.) Assuming each buildable acre has approximately 25% of the area devoted to roads and approximately 75% of the area for the lots, the area of the Single Family lots is assumed to increase from 11,000 square feet (sq. ft.) to 12,373 sq. ft., and the Single Family High Density lot area is assumed to increase from 6,000 sq. ft. to 6,749 sq. ft. A percentage of the difference in lot area for each category is assigned to both landscape coverage and hardscape coverage. For the Folsom SPA - RHA, 50% of the difference in lot area for the Single Family categories is assigned to landscape coverage for each category as shown in **Table 6-2**, and 50% is assigned to hardscape coverage.

By assigning 50% of the additional lot area in each Single-Family category to landscape area, unique landscape area totals were developed for each lot type as well as unique landscape area coverage percentages. Assuming the building size remains the same, then the original building coverage area remains the same and the hardscape area is adjusted accordingly to fill the remainder of the area not occupied by the building or landscape area.

Table 6-2
Folsom SPA - RHA
Building Acreage Assignment Assumptions[86]

Land Use Category	Assignment Percentages for Additional Residential Lot Area
SF	50% of difference to landscape
SFHD	50% of difference to landscape
MFLD	30% to landscape (up by 3.0%)
MFMD	30% to landscape (up by 3.0%)
MFHD	No Change
MU - Res	30% to landcape (up by 3.0%)

For the Multi-Family Low Density and Multi-Family Medium Density categories, 30% of the additional lot area is assigned to landscape area thereby increasing landscape coverage from 25% to 28%. For the Multi-Family High Density category, the layout may change most significantly with the possibility of fewer multi-level structures, thereby leading to similar building, landscape and hardscape coverages as those assumed in the Folsom SPA - PPA. For the Multi-Use Residential category, the landscape coverage is increased from 25% to 28% as well, under the assumption that more area than originally planned may be devoted to hardscapes that connect with the adjacent Multi-Use Nonresidential land uses (i.e., commercial uses). The land area coverage assumptions for the Folsom SPA – RHA are shown in **Table 6-3**.

Table 6-3
Folsom SPA - RHA
Residential Land Use Coverage

Land Use Category	Building Coverage (% of area)	Hardscape Coverage (% of area)	Landscape Coverage (% of area)
SF	36%	23%	41%
SFHD	36%	32%	32%
MFLD	47%	25%	28%
MFMD	47%	25%	28%
MFHD	55%	15%	30%
MU - Res	57%	30%	13%

[86] The remaining percentage under each land use coverage classification is assigned to hardscape, which has a demand factor of zero.

The increase in landscape coverage results in a higher outdoor unit demand factor than the Folsom SPA-PPA for each residential land classification. Consistent with the approach described in **Section 2.1.3.3**, the long-term outdoor unit demand factor for the single-family residential categories is calculated as a percentage of evapotranspiration. The landscape coverage has a demand per acre similar to that calculated for the Folsom SPA - PPA – 3.73 af/ac. The unit demand factor for each classification is provided in **Table 6-4**.

Table 6-4
Folsom SPA - RHA
Residential Outdoor Demand Factors

Land Use	Lot Area, ft^2	Lot Landscape Area, ft^2	Landscape Area (Total), Acres	ETo Turf Irrig. Demand, Inches/yr	ETAF	Outdoor Unit Demand AFY/DU
SF	12,373	5,087	n/a	53	85%	0.44
SFHD	6,749	2,175	n/a	53	85%	0.19
MFLD	n/a	n/a	122	53	85%	0.12
MFMD	n/a	n/a	36	53	85%	0.06
MFHD	n/a	n/a	29	53	85%	0.05
MU - Res	n/a	n/a	3	53	85%	0.02

6.1.2 Non-Residential Unit Demand Factors

6.1.2.1 Non-Residential Land Use Coverage Percentages

The Folsom SPA – RHA non-residential sector unit demand factors are based on land-use coverage area. With one exception, each non-residential land-use coverage area percentage is assumed to be same as that used for the Folsom SPA - PPA. (See **Section 2.2.2.1.**) For school property, 50 percent of the landscape area will include non-irrigated areas based on some of the areas that are traditionally landscaped are instead hardscaped. The non-residential landscape area coverage percentages are shown in **Table 6-5**.

Table 6-5
Folsom SPA - RHA
Non-Residential Unit Demand Factors

Land-use Category	Acres	Use Class	Coverage %	Use Class Unit Demand (AF/AC/YR)	Land Use Unit Demand (AF/AC/YR)
Mixed Use - Non-Residential	14.4	Indoor	20%	1.66	0.33
		Hardscape	45%	0.00	0.00
		Landscape	35%	3.29	1.15
		Total	100%		1.49
Office Park	111.8	Indoor	25%	1.90	0.48
		Hardscape	35%	0.00	0.00
		Landscape (Irr.)	40%	3.29	1.32
		Total	100%		1.79
General Commercial	175.7	Indoor	25%	1.66	0.42
		Hardscape	45%	0.00	0.00
		Landscape (Irr.)	30%	3.29	0.99
		Total	100%		1.40
Community Commercial	15.4	Indoor	25%	1.66	0.42
		Hardscape	45%	0.00	0.00
		Landscape (Irr.)	30%	3.29	0.99
		Total	100%		1.40
Regional Commercial	133.6	Indoor	28%	1.90	0.53
		Hardscape	47%	0.00	0.00
		Landscape (Irr.)	25%	3.29	0.82
		Total	100%		1.36
Park	149.7	Indoor	2%	0.48	0.01
		Hardscape	3%	0.00	0.00
		Landscape (Irr.)	95%	3.73	3.55
		Total	100%		3.56
Schools	188.3	Indoor	25%	2.85	0.71
		Hardscape	25%	0.00	0.00
		Landscape (Irr.)	25%	3.73	0.93
		Landscape (Non-Irr.)	25%	0.00	0.00
		Total	100%		1.65
Open Space	993.9	Indoor	0%	0.00	0.00
		Hardscape	0%	0.00	0.00
		Landscape	100%	0.00	0.00
			100%		0.00
Major Circulation	149	Indoor	0%	0.48	0.00
		Hardscape	90%	0.00	0.00
		Landscape (Irr.)	10%	3.29	0.33
		Total	100%		0.33

6.1.2.1 Nonresidential Unit Water Demand Factors

Nonresidential demand factors for the Folsom SPA - RHA were derived in a manner similar to those developed for the Folsom SPA - PPA. (See Section 2.2.2.2). All indoor unit demand factors are the same as those used for the Folsom SPA - PPA. The landscape unit demand factor for the commercial categories – Regional Commercial, Community Commercial, General Commercial, Office Park and Mixed-Use Non Residential – is 75 percent of ETo (compared to 85 percent of ETo for the Folsom SPA - PPA). The landscape unit demand for the Major Circulation category is also 75 percent of ETo. The reduction from 85 to 75 percent of ETo compared to the Folsom SPA - PPA will require the commercial categories to develop landscape plans that include more native and low-water using plantings as well as greater use of natural non-irrigated groundcover than in the Folsom SPA - PPA.[87] The landscape unit demand factor for the school and park categories remains at 85 percent of ETo because residents are most likely to demand grass covered areas in parks and in many of the non-playfield areas at schools.

The unit demand factors for each class per unit of land area for each land use category in the Folsom SPA - RHA are provided in **Table 6-5**.

6.2 FOLSOM SPA – RHA NON-POTABLE WATER DEMAND

If the City of Folsom were to require that the Folsom SPA – RHA demand categories corresponding to those eligible for non-potable service under the Recycled Water General Permit to use non-potable water, then the Folsom SPA - RHA land-use categories in **Table 6-6** would likely be eligible. The corresponding acreage and potential demand values are provided in **Table 6-6** as well.[88]

Table 6-6
Folsom SPA - RHA
Potential Non-Potable Water Demands

Land-Use Category	Landscape Acreage (AC)	Demand (AF/YR)
Parks	142	531
Streetscapes	15	49
C/I/O Landscape	141	463
Schools Landscape	47	176
Total	345	1,219

[87] See discussion in Section 2.1.3.3. A requirement to install low water using plants and weather-based irrigation controllers, as well as the use of dedicated landscape irrigation meters could reasonably achieve a reduction in water use from 85% to 75% of ETo. Monitoring use through a dedicated meter would provide a check on the efficacy of a landscape plan and the weather-based controller.
[88] See Section 2.3 for eligible non-potable water demand categories in the Recycled Water General Permit.

6.3 Projected Water Demands for Folsom SPA

Table 6-7 applies the land-use assumptions in **Table 5-2 and Table 5-3** to the unit demand values in **Tables 6-1, 6-4** and **6-5**. The total estimated water demand for the Folsom SPA RHA in a normal year is 5,395 AF, assuming a 10% non-revenue water factor.[89] In a dry-year, total Folsom SPA - RHA demand is projected to increase to 5,547 acre-feet. Similar to the Folsom SPA – PPA, the dry-year increase is a result of increasing the normal year outdoor demand for all residential and non-residential demand categories by 5% and then applying the non-revenue water factor of 10%. The portion of the Folsom SPA - RHA that is within the EID service area is projected to have a water demand of 228 AF in a normal year and 235 AF in a dry year, as shown in **Table 6-7**. Finally, **Table 6-7** also provides an indication of the balance between indoor and outdoor water demands for all land-use categories in both the Folsom and EID service areas.

[89] See footnote 43 for derivation of Non-Revenue Water factor.

Table 6-7
Folsom SPA - RHA
Normal and Dry-Year Demand Totals

Folsom Service Area				
Residential Land Use	Normal Indoor Total (AFY)	Normal Outdoor Total (AFY)	Normal Total (AFY)	Dry-Year Total (AFY)
SF	202	431	633	655
SFHD	371	337	708	724
MFLD	555	479	1,034	1,058
MFMD	352	152	504	512
MFHD	362	121	483	489
MU - Res	59	11	69	70
Residential Totals	1,901	1,530	3,431	3,508
Non Residential Land Use				
MU - Non Res.	5	19	24	25
OP	59	164	223	231
CC	7	17	24	25
GC	81	193	274	284
RC	79	122	201	207
Park	2	590	592	621
SCH	149	195	344	354
OS	0	0	0	0
MAJ CIRC	0	55	55	57
Non-Residential Totals	382	1,354	1,737	1,804
Folsom Service Area Total	2,283	2,884	5,168	5,312

El Dorado Irrigation District Service Area				
Residential Land Use	Normal Indoor Total (AFY)	Normal Outdoor Total (AFY)	Normal Total (AFY)	Dry-Year Total (AFY)
SF	24	51	75	78
MFLD	33	29	62	63
Residential Totals	57	80	137	141
Non-Residential Land Use				
GC	16	38	54	56
Park	0	35	35	37
OS	0	0	0	0
MAJ CIRC	0	2	2	2
Non-Residential Totals	16	75	91	95
EID Service Area Total	73	155	228	235
Total Demand	2,356	3,039	5,395	5,547

Assuming Folsom SPA - RHA residential and non-residential construction begins in 2013 and the 20-year required projection is applied, then the projected water demand shown in **Table 6-9** would be realized for the Folsom SPA-RHA.

Table 6-9
Folsom SPA – RHA
Projected Water Demands

Water Year	2033
Normal Year (AF/YR)	5395
Dry Year (AF/YR)	5547

SECTION 7 FOLSOM SPA – RHA WATER SUPPLY

The proposed water supply for the Folsom SPA – RHA is the same as the supply planned for the Folsom SPA – PPA that is analyzed in **Section 3**.[90] In summary, the City of Folsom plans to secure an assignment of a portion of NCMWC's Project Water supply. The existing agreement between SFP and NCMWC, and the existing non-binding memorandum of understanding between SFP and the City, provide the foundation for the City of Folsom to obtain an entitlement to the water supply through an assignment approved by the USBR. Consistent with the dry-year shortage provisions in the Renewal Contract, the supply ultimately assigned to the City of Folsom will be subject to a 25% reduction in "Critical Years." For purposes of the sufficiency analysis in **Section 8**, this reduction results in 6,000 AF being available in both single and multiple-dry year conditions. The normal year supply contractually available is projected to be 8,000 AF/YR, though the maximum diversion will be 6,000 AF/YR.

[90] The one difference that the Folsom SPA – RHA demand makes in the supply analysis is related to the demand pattern as explained in **Section 3.2.1.2**. Yet, because the dry-year demand estimate for the Folsom SPA – RHA is nearly the same (5,547 v. 5,577), 9.5 mgd is the projected maximum day demand estimate for the Folsom SPA – RHA.

SECTION 8 FOLSOM SPA – RHA WATER SUPPLY SUFFICIENCY ANALYSIS

Section 8 provides analysis of the sufficiency of the designated water supply for the projected demands for the Folsom SPA - RHA.[91] **Table 8-1** incorporates the demand projection in **Table 6-9**, including both normal and dry-year demand projections at 2033. It also contains the supply projections discussed in detail in **Section 3** and summarized in **Section 7**. Although 8,000 AF/YR is anticipated to be available through contract, for every normal water year between 2013 (start of demand) and 2033 (20-year projection), the City of Folsom will divert a maximum of 6,000 AF/YR to serve the Folsom SPA. For each single and multiple-dry year period, it is assumed that the 8,000 AF/YR base water supply is restricted pursuant to the "Shasta Critical" provisions discussed in **Section 3.2.1.1**, thereby reducing the base supply by 25% and resulting in a total supply of 6,000 AF.

Because construction of water infrastructure is expected to commence in 2011, and construction will continue for 2-3 years, water supplies will first need to be available some time in 2013. In a dry year in 2033, supplies are still estimated to exceed demand by about 450 AF/YR because annual dry-year demand will be approximately 5,547 AF/YR and supplies will be 6,000 AF/YR. Based upon the information in **Table 8-1** and the supporting analyses in **Sections 1, 5 and 6**, there will be a sufficient water supply for the Folsom SPA - RHA even in single and multiple dry year periods.

Table 8-1
Folsom SPA - RHA Supply/Demand Comparison

Year	Projected Baseline Water Demand (ac-ft/year)	Surface Water			Projected Surplus/ (Shortfall) (ac-ft/year)
		Hydrologic Year Type		Available Water Supply (ac-ft/year)	
2033	5,395	**Normal**		6,000	605
	5,547	**Single Dry**		6,000	453
		Multiple Dry	Year 1	6,000	453
			Year 2	6,000	453
			Year 3	6,000	453

[91] CWC § 10910 (c)(4) provides that "If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses."

291112 Part 2

CITY OF FOLSOM
UTILITIES DEPARTMENT

Sphere of Influence Specific Plan Area

Water Infrastructure Plan

DRAFT
October 1, 2007

J. CROWLEY GROUP, INC.
WATER RESOURCES PLANNING AND ENGINEERING

CITY OF FOLSOM
UTILITIES DEPARTMENT

Sphere of Influence Special Plan Area

Water Infrastructure Plan

DRAFT

October 1, 2007

Prepared by:

J. CROWLEY GROUP, INC.
WATER RESOURCES PLANNING AND ENGINEERING

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List of Acronyms and Abbreviations

AF	acre-feet
AF/acre/yr	acre-feet per acre per year
AF/DU/yr	acre-feet per dwelling unit per year
BPS	booster pump station
CC	Community Commercial
CCD	Central Commercial Mixed Use
eff	efficiency
EID	El Dorado Irrigation District
EIR	Environmental Impact Report
EIS	Environmental Impact Study
EXLC RW	Excluded Right of Way
ft	feet
GC	General Commercial
GIS	geographical information system
gpd	gallons per day
gpd/acre	gallons per day per acre
gpd/DU	gallons per day per dwelling unit
gpm	gallons per minute
hp	horsepower
HWY	highway
in-dia	inch-diameter
LAFCo	Local Area Formation Commission
LP	Local Park
MAJ CIRC	Major Circulation
MG	million gallons
mgd	million gallons per day
MHD	Multi Family High Density
MLD	Multi Family Low Density
MMD	Multi Family Medium Density
OP	Office Park
OS	Open Space
OSL	Landscaped Open Space
PARK	Park
PRV	pressure reducing valve
psi	pounds per square inch
Q	flow
SCH	School
SF	Single Family
SFHD	Single Family High Density
SOI	sphere of influence
TDH	total dynamic head
UWMP	urban water management plan

CHAPTER 1 Introduction

This water infrastructure plan provides a discussion and summary of anticipated water infrastructure needs to serve the Folsom Sphere of Influence (SOI) area. The area is currently undeveloped and no public water supply or distribution system exists in the area. The City of Folsom intends to annex the area and provide water, wastewater, and recycled water services, in addition to other City services. Additional infrastructure plans are developed under separate reports for wastewater and recycled water infrastructure requirements in the SOI area. This water infrastructure plan is utilized to support the parallel environmental impact report document prepared by others and will serve as the basis for completing a detailed water infrastructure master plan.

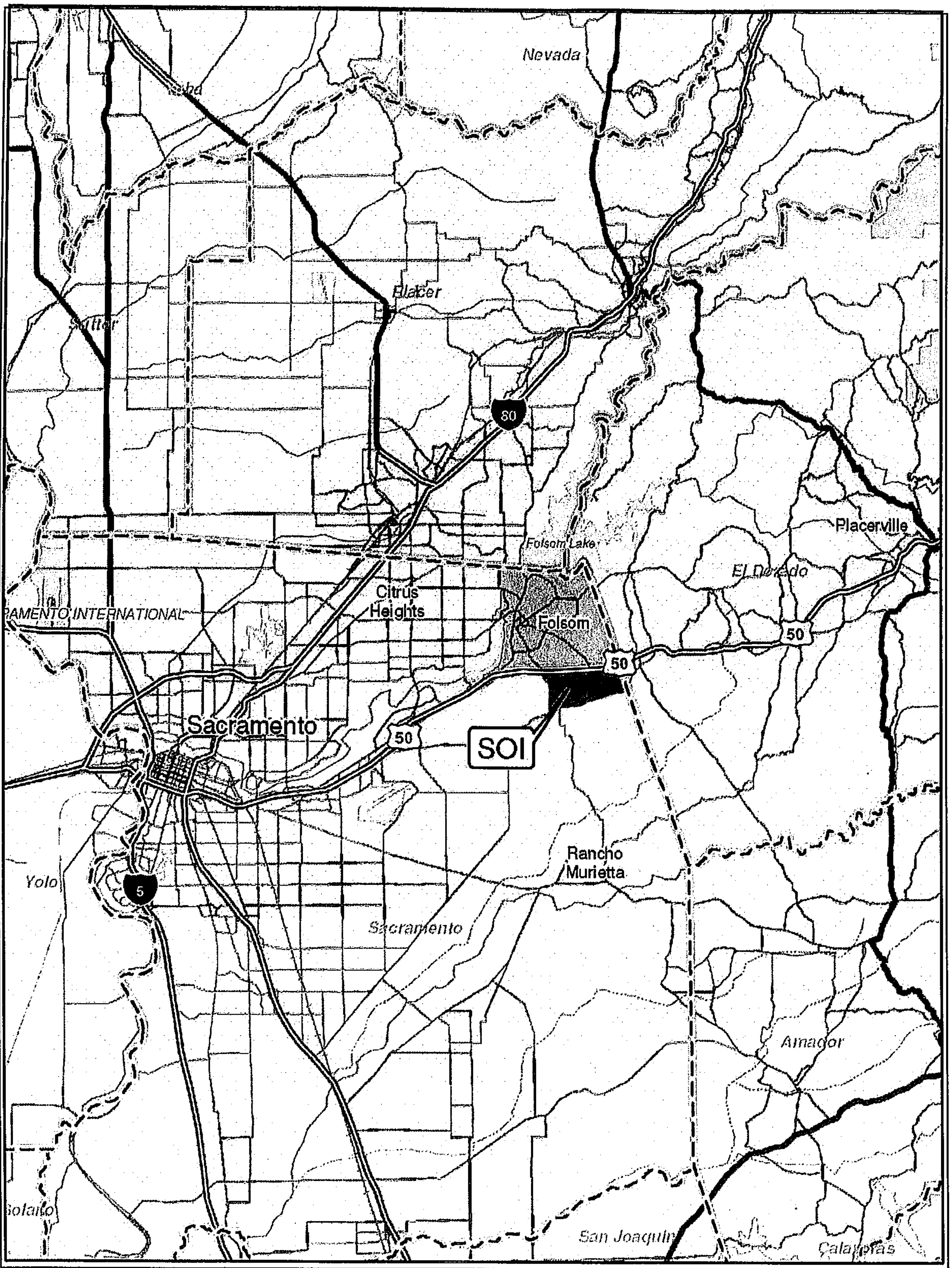
This draft report presents the analysis to date. There are many outstanding factors that will impact the water infrastructure requirements. As the development plans are refined, more detailed information is developed, and agency coordination continues, the infrastructure plan will be updated to reflect the changes.

1.1 SOI Background

The City of Folsom voters passed measure W in November 2004 to annex the SOI area. Adopted on July 27, 2004, the City has begun the process to annex the area through the Local Area Formation Commission (LAFCo), adopt a Specific Plan of the area, update the City's General Plan, and conduct an EIR/EIS process for the project. Currently seven property owners own all the land in the SOI area. The property owners have formed a group to coordinate and work with the City of Folsom and other entities to develop the project area.

1.2 Study Area Description

The SOI area consists of approximately 3,560 acres south of the existing Folsom southern boundary. The SOI area is bound by the El Dorado County Line on the east, White Rock Road on the south, Prairie City Road on the west, and Highway (HWY) 50/Folsom City limit on the north, as shown on Figure 1-1. The area is currently undeveloped and consists of rangeland and oak woodland areas. An aerial view of the project site is shown on Figure 1-2. Elevations range from 800 feet in the northeast corner, down to 300 feet in the southwest corner, and 240 feet in the northwest corner. Topography generally slopes down from east to west, although a main drainage feature runs from south to north in the eastern side of the area, discharging most of the study area drainage at the northwest corner of the project area. In addition, a ridge exists on the eastern side, such that the eastern most area is drained to the southeast corner of the project area. The eastern side consists of dry rangeland with a few stock ponds. The western side contains an oak woodland area and a few stock ponds.



City of Folsom Sphere of Influence Water Infrastructure Plan	**Figure 1-1** **Project Location**
J. CROWLEY GROUP SACRAMENTO, CA	***Figure provided by Mackay & Somps***

C:\Clients\City of Folsom\010-003 Folsom SOI\figure pdfs 092707

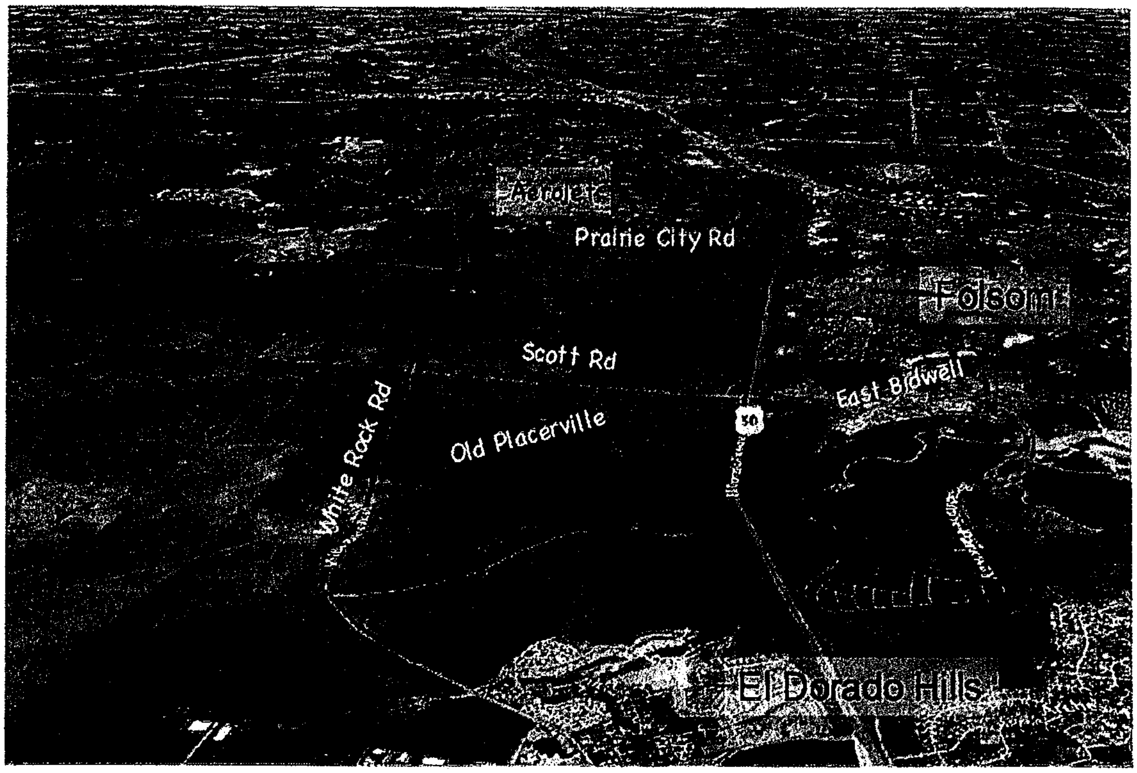


Figure 1-2. SOI Project Area

A small portion of the SOI is within the El Dorado Irrigation District (EID) service area boundary, as shown on Figure 1-1. Discussions with EID indicate they intend to maintain their service area boundary within Sacramento County. This analysis assumes that the SOI is not split into each respective service area, but remains as one system which will either be served entirely by Folsom or in part by EID. Folsom and EID will need to develop an agreement or memorandum of understanding regarding the customers whose water will be supplied and delivered by the other agency. The infrastructure needs with EID will not be completed within the time frame to submit this first version of the water plan. When the EID alternative is completed, either a revised water plan or a separate plan will be submitted.

CHAPTER 2 Land Use

Land use designations and proposed plans are provided in this chapter. The land use plan is provided by the landowners, and continues to be updated to address elements identified throughout the planning process. This document is based on the existing land use plan as of this date, but it is expected that some elements will change in the future and the resulting infrastructure requirements will require updating.

2.1 Land Use Designations

The proposed land use plan includes land uses for residential, commercial, office, public, and open space. Each land use is listed and defined below. The proposed land use categories are different than those presented in the Folsom 2005 Urban Water Management Plan (UWMP) (Tully and Young, 2006). Table 2-1 lists the proposed land use designations and the corresponding City of Folsom UWMP land use categories. This comparison is presented as the unit water demand factors from the 2005 UWMP are used to project water demands in this report.

Table 2-1. Land Use Category Comparison

SOI Land Owners Plan Land Use	Equivalent Folsom 2005 UWMP Land Use
SF – Single Family	Low Density Residential
SFHD – Single Family High Density	Medium Density Residential
MLD – Multi Family Low Density	Medium Density Residential
MMD – Multi Family Medium Density	Medium-High Density Residential
MHD – Multi Family High Density	High Density Residential
CCD – Central Commercial Mixed Use	High Density Residential
OP – Office Park	Moderate Intensity Office
CC – Community Commercial	Neighborhood Commercial/Office
GC – General Commercial	Regional Commercial/Office
PARK – Park	Park
LP – Local Park	Park
OS – Open Space	*none*
OSL – Landscaped Open Space	*none*
SCH –School	School
MAJ CIRC – Major Circulation	*none*
EXLC RW – Excluded Right of Way	*none*

SF (Single Family). Residential with dwelling unit (DU) densities of 2-3.9 DU/acre.

SFHD (Single Family High Density). Residential with densities of 4-6.9 DU/acre.

MLD (Multi Family Low Density). Multi family residential with densities of 7-11.9 DU/acre.

MMD (Multi Family Medium Density). Multi family residential with densities of 12-17.9 DU/acre.

MHD (Multi Family High Density). Multi family residential with densities of 18-25 DU/acre.

CCD (Central Commercial Mixed Use District). Residential mixed with commercial and retail usually on ground floor, located in central business district. Residential densities in range of 10-12 DU/acre.

OP (Office Park). Office parks.

CC (Community Commercial). Commercial land use with building usually only one story, located throughout area on arterial streets.

GC (General Commercial). Small commercial establishments, usually one story, located throughout development in smaller commercial areas such as intersections.

PARK (Parks). Regional and community parks, consisting of sports facilities, playgrounds, and/or turf areas.

LP (Parks – Neighborhood). A smaller park located in residential areas intended to serve immediately residential area.

OS (Open Space). Mostly void of structures and surface infrastructure, will contain greenway trails.

OSL (Landscaped Open Space). Open space land use category that is irrigated. Mostly median strips along arterial roadways.

SCH (School). High schools, junior high, elementary, and Country Day School sites with associated sports facilities and open space.

MAJ CIRC (Major Circulation). Arterial and other large secondary roadways with accompanying pavement, open space, and landscaped areas.

EXCL RW (Excluded Right of Way). Area within the SOI already owned by CalTrans as part of Highway 50.

2.2 Proposed Land Use

The proposed land use is shown on Figure 2-1 and summarized in Table 2-2. The largest land use by percentage is open space that is mostly located in the western side in the oak woodland area. Single family residential land uses are the next largest land use, followed by multi family land uses, and then the various commercial categories.

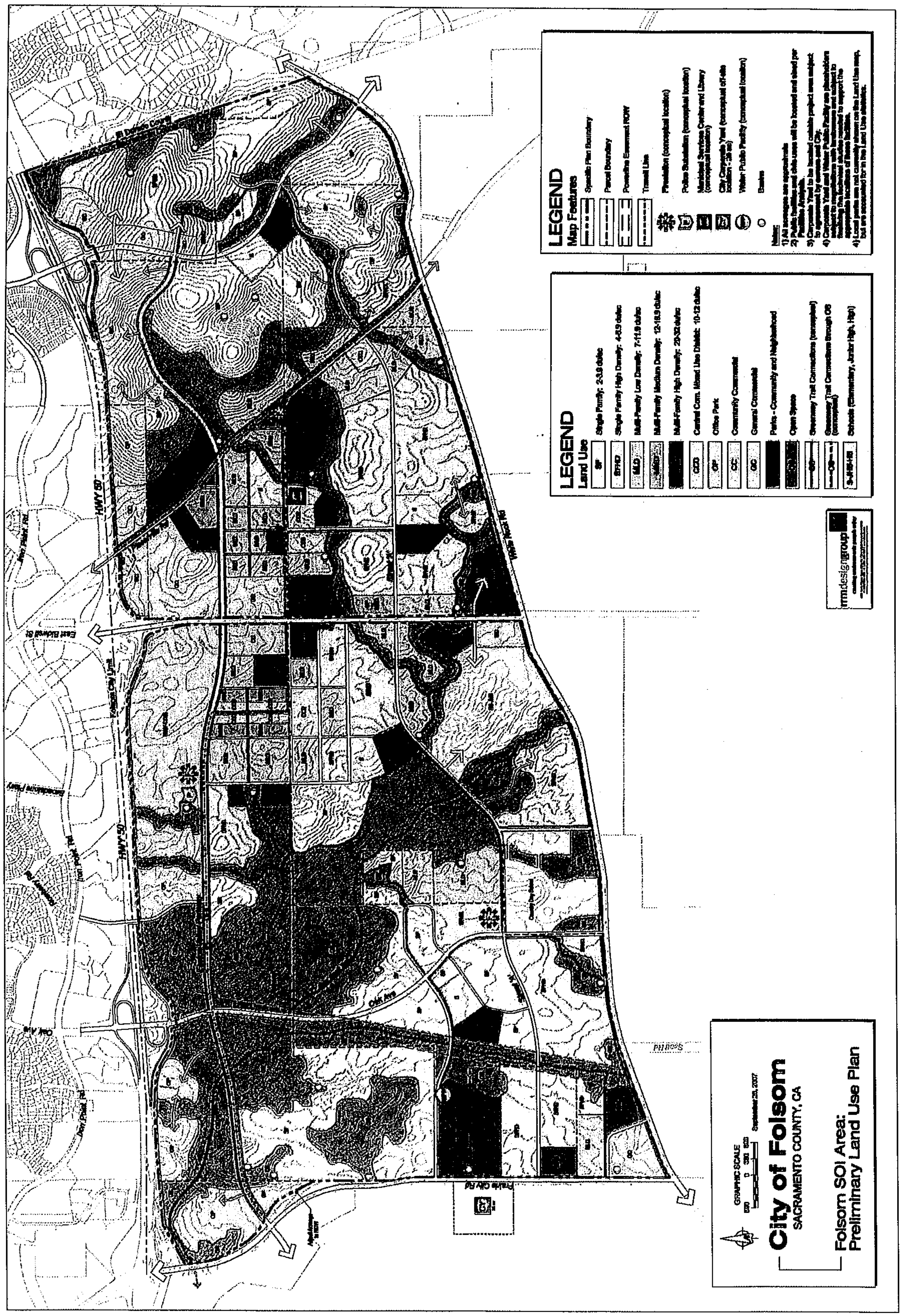

City of Folsom
SACRAMENTO COUNTY, CA
Folsom SOI Area:
Preliminary Land Use Plan
GRAPHIC SCALE
LEGEND
Land Use
LEGEND
Map Features
HWY 50
White Rock Rd
East Bidwell St
Prairie City Rd

Table 2-2. Proposed Land Use

Land Use	Acreage	Percent of Total
SF – Single Family	560	16%
SFHD – Single Family High Density	522	15%
MLD – Multi Family Low Density	251	7%
MMD – Multi Family Medium Density	28	1%
MHD – Multi Family High Density	100	3%
CCD – Central Commercial Mixed Use	41	1%
OP – Office Park	107	3%
CC – Community Commercial	139	4%
GC – General Commercial	203	6%
PARK - Park	118	3%
LP – Local Park	47	1%
OS – Open Space	991	28%
OSL – Landscaped Open Space	55	2%
SCH - School	181	5%
MAJ CIRC – Major Circulation	143	4%
EXCL RW – Excluded Right of Way	73	2%
Total	**3,559**	**100%**

2.3 Project Phasing

The current land owners are considering developing the project area in phases. However, actual phasing plans have not been developed at this time. It is likely that each landowner will determine their own phasing plans within their areas, as is common in other large-acreage developments with multiple land owners. The infrastructure requirements in this report are developed for the ultimate buildout conditions. As development in the first phase could be scattered throughout the project area, it is assumed that the basic infrastructure requirements will be required for the first phase. This analysis also examines the potential to integrate the SOI distribution system with the existing Folsom distribution system north of Highway 50 as well as the Aerojet Glenborough/Easton development to the west of the SOI.

CHAPTER 3 Potable Water Demand

This chapter presents the projected potable water demands for the proposed land use plan. The water demands estimated in this chapter include potential recycled water demand should recycled water not be available.

3.1 Unit Water Demands

Unit water demands are presented in the City of Folsom's 2005 UWMP. These unit water demands are used by Folsom for water planning efforts within the City's boundaries and the SOI area. The land use designations are matched to the UWMP designations in Chapter 2 of this report. Corresponding unit water demand designations are presented in Table 3-1. The UWMP listed demands as acre-feet per dwelling unit per year (AF/DU/yr) or acre-feet per acre per year (AF/acre/yr). Table 3-1 also converts the unit demand to a gallon per day per dwelling unit (gpd/DU) or per acre (gpd/acre) for comparison.

Table 3-1. Residential Unit Water Demands

Land Use	Indoor, AF/DU/yr	Outdoor, AF/DU/yr	Total, AF/DU/yr	Total, gpd/DU
SF	0.20	0.45	0.65	580
SFHD	0.20	0.36	0.56	500
MLD	0.20	0.36	0.56	500
MMD	0.20	0.20	0.40	357
MHD	0.20	0.10	0.30	268
CCD[a]	0.20	0.10	0.30	268

[a]CCD water demand estimate is split between non-residential and residential water use.

Table 3-2. Non-Residential Unit Water Demands

Land Use	Indoor, AF/acre/yr	Outdoor, AF/acre/yr	Total, AF/acre/yr	Total, gpd/acre
OP	2.0	4.0	6.0	5,357
CC	1.0	4.0	5.0	4,464
CCD[a]	1.0	4.0	5.0	4,464
GC	1.0	4.0	5.0	4,464
PARK	0.5	4.0	4.5	4,018
LP	0.5	4.0	4.5	4,018
OSL	0.0	4.0	4.0	3,571
SCH	3.0	4.0	7.0	6,250

[a]CCD water demand estimate is split between non-residential and residential water use.

3.2 Net Acre Factors

Unit water demands are applied to projected land use areas to identify total annual water demands. A net acre factor is used to reduce total acreage to actual acreage with water demands. This acreage reduction accounts for non-water demand areas, such as right of ways or pavement. The net acre factors also split water demands into indoor and outdoor water demands. The indoor/outdoor net acre factors are based on the indoor/outdoor unit water demands presented in the 2005 UWMP.

Table 3-3. Net Acre Factors

Land Use	Indoor	Outdoor	Total Net Acre Factor
OP	0.40	0.10	0.50
CC	0.40	0.05	0.45
CCD	0.40	0.05	0.45
GC	0.40	0.05	0.45
PARK	0.05	0.75	0.80
LP	0.05	0.75	0.80
OSL	0.00	0.75	0.75
SCH	0.10	0.50	0.60

3.3 Design Flow Peaking Factors

Design flow peaking factors are used to convert average annual demands to design flows used for sizing infrastructure. The City of Folsom recently updated their water master plan and hydraulic model. Design flow peaking factors are developed in Technical Memorandum No. 1 for the water master plan update (West Yost and Associates, February 10, 2006.) The design flow peaking factors selected are shown in Table 3-4. The maximum day peaking factor represents the maximum day to average day demand ratio and the peak hour peaking factor represents the peak hour to maximum day demand ratio.

Table 3-4. Design Flow Peaking Factors

Demand Condition	Peaking factor
Maximum day	1.9
Peak hour	1.8

3.4 Demand Projections

Water demand projections are summarized in Table 3-5. Potential recycled water demands are included in the total water demands should recycled water supply not be available. The demand projections in Table 3-5 are based on the maximum dwelling unit density of each of the residential land use categories. It is possible that the actual dwelling unit density of each of the residential land use categories may be less than the maximum. As a

Table 3-5. Total Water Demands

Land Use ID	Area, acres	Dwelling Unit Density, DU/acre	Dwelling Units	Indoor Unit Water Demand, AF/DU or AF/ac	Outdoor Unit Water Demand, AF/DU or AF/ac	Indoor Net Acre Factor	Outdoor Net Acre Factor	Water demand Avg. Annual, acre-feet	Max. Day, mgd	Peak Hour, gpm
SF	560	3.9	2,184	0.2	0.45	--	--	1,562	2.6	3,311
SFHD	522	6.9	3,604	0.2	0.45	--	--	2,577	4.4	5,464
MFLD	251	11.9	2,987	0.2	0.36	--	--	1,840	3.1	3,901
MFMD	28	17.9	499	0.2	0.2	--	--	220	0.4	466
MFHD	100	25	2,503	0.2	0.1	--	--	826	1.4	1,751
CCD-Residential		12	492	0.2	0.1	--	--			
CCD-Non residential	41			1	4	0.40	0.05	189	0.3	402
OP	107			2	4	0.40	0.10	141	0.2	298
CC	139			1.5	4	0.40	0.05	92	0.2	195
GC	203			1	4	0.40	0.05	134	0.2	284
Park	118			0.5	4	0.05	0.75	392	0.7	831
LP	47			0.5	4	0.05	0.75	157	0.3	333
OS	991			--	--	--	--	0	0.0	0
OSL	55			0	4	0	0.75	183	0.3	388
SCH	181			3	4	0.10	0.50	458	0.8	970
EXCL RW	73			--	--	--	--	--	--	--
MAJ CIRC	143			--	--	--	--	--	--	--
Total	**3,559**		**12,269**					**8,769**	**14.9**	**18,594**

result, the actual water demand may be less than the demand projected in Table 3-5. A comparison of the water demand and dwelling units projected in Table 3-5 based on maximum dwelling unit density with the water demand and dwelling units projected based on average dwelling unit density is provided in Table 3-6.

Table 3-6. Comparison of Projected Demand and Dwelling Units for Maximum and Average Dwelling Unit Density Assumptions

Dwelling Unit Density Assumption	Dwelling Units	Total SOI Demand, AF
Maximum	12,269	8,769
Average	9,924	7,331
Difference (maximum – average)	2,345	1,438

3.5 Potable Water Supply

The City of Folsom will obtain a new water source to serve the SOI area. Infrastructure requirements to deliver the supply to the SOI are currently under investigation. The projected annual demands for the land use plan area are approximately 8,769 acre-feet per year, including potential recycled water demands. As discussed in the previous section the projected annual demand in this report is based on the maximum dwelling unit density. Demands may be less if actual dwelling unit densities are less than the maximum. Demands may also be less if conservation efforts are implemented in the new development.

CHAPTER 4 Existing Water System and Other Adjacent Areas

This chapter describes the existing City of Folsom distribution system to provide a better understanding of the issues to consider when connecting the SOI system with the existing system. The pressure zones and operations are briefly discussed. A summary of the distribution system needs and planned improvements is provided. In addition, the Glenborough/Easton distribution system is discussed.

4.1 Existing Folsom Distribution System

The City of Folsom's distribution system is divided into two distinct systems. The system north of the American River is supplied by the San Juan Water District, and is not included further in this analysis. The larger water distribution system serves the largest area of the City that is located south of the American River and north of Highway 50. Water is treated at the City's water treatment plant on the north side of town. Treated water is pumped or flows by gravity into the pressure zones. There are six main pressure zones in the system, with some sub-zones. The zone elevation boundaries are summarized in Table 4-1. The SOI pressure zones are designed to mirror the service zone elevations of the existing system for ease of operations when integrating the SOI system with the existing system.

Table 4-1. Service Zone Elevations

Zone	Service Elevation Range, feet
Nimbus	Up to 180
1	Up to 280
2	280-380
3	341-466
4	466-616
5	591-716
6	716-790

Note: Reproduced from Draft TM No. 4 Water System Master Plan Update – Distribution System Analysis, West Yost & Associates, April 5, 2007.

Zone 1 serves the lower west side of Folsom. The system is mostly gravity fed from the finished water reservoirs at the treatment plant. In addition, there are five main pressure-reducing interconnections with Zone 2. The South Reservoir is filled by gravity from the Zone 1 system and provides pressure and storage needs for the zone. Zone 1 abuts the Highway 50 corridor in the southwest corner of the City.

Zone 2 is the largest of Folsom's service zones in terms of area and demand served. The Zone 2 Booster Pump Station (BPS) is located at the treatment plant site and pumps from the finished water reservoirs into the distribution system. The Tower Reservoir and the two East Reservoirs provide storage and pressure control. Zone 2 can also be fed through pressure-reducing stations from Zone 3. Zone 2 abuts the Highway 50 corridor along Iron Point Road from approximately Prairie City Road to Broadstone Parkway.

Zone 3 is a unique shape due to topography. Zone 3 covers the northeast section of Folsom to the east boundary, then wraps around in a narrow band, across East Bidwell Street to the Highway 50 corridor. The Zone 3 pumps, located at the water treatment plant, feed the system. Cimmaron Hills Reservoir provides storage and pressure control for the Zone 3 area in the northeast. Zone 3 is also fed by the East Area BPS. The East Area pumps also draw from the finished water reservoirs. The two Foothills Reservoirs provide storage and pressure control for the Zone 3 area in the southeast portion of the city.

The Zone 4 BPS is located on the east side of the City and draws from the East Area BPS fed system in Zone 3. The Broadstone Reservoir provides storage and pressure control.

The Zone 5 BPS pumps from the Zone 4 system, with Carpenter Hill Reservoir providing storage and pressure control.

The Zone 6 BPS in the southeast corner of the City draws from Zone 5, and is a hydropneumatic system due to the small service area of the zone.

4.2 Existing Distribution System Needs and Planned Improvements

The Water System Master Plan 2005 Update (West Yost and Associates, TM 1, 2, 3, and 4) evaluated future system improvements based on General Plan buildout conditions in 2009, when it is expected that residential land use will be substantially built out. Recommended improvements are discussed in Technical Memorandum No. 4 (West Yost and Associates, April 5, 2007). The recommendations call for an additional 10 million gallons (MG) of storage to meet emergency storage capacity goals, with at least 7 million gallons located at the treatment plant site, and at least 1.2 million gallons in Zone 2. Low pressure and low fire flow areas are identified with various recommendations to improve conditions through pipe replacement, relocating zone boundaries, or other localized actions.

System-wide zone issues are also addressed. Pressure-reducing valve stations are recommended to supply Zone 1 from Zone 2 during high demand periods. Zone 2 experiences storage issues due to the distance and head loss in the system that prevent utilization of stored water in the Tower Reservoir, and inhibit the ability to fill the East Reservoirs. A parallel main is recommended to reduce pumping heads and improve hydraulics, allowing the Tower Reservoir and East Reservoirs to operate as planned.

Recommendations for Zone 3 include isolating the Zone 3 Cimmaron system with pressure reducing valves (PRVs), which is expected to allow the rest of Zone 3 to operate correctly. Zones 4 through 6 do not have any high priority recommendations. However, results indicate the systems will be operated at the upper limit of flow and storage capabilities, and actual performance should be monitored and needs re-evaluated over time. Other second priority recommendations and infrastructure replacements projects consistent with normal asset management that are provided in the Water System Master Plan 2005 Update are not mentioned here.

4.3 Glenborough/Easton Distribution System

The Glenborough/Easton development will be served water supply by the City of Folsom. A parallel planning effort is underway to investigate supply connections to the existing Folsom distribution system. The development would logically connect to the City's Zone 1 and Zone 2 areas. However, the existing system may be capacity limited and not able to provide the entire development with its supply needs. The parallel analysis is investigating multiple connection points, with consideration of using the proposed SOI water treatment plant and pressures zones as a second supply source.

4.4 System Wide Planning Considerations

A summary of the existing system and infrastructure needs is discussed in this report to provide a better understanding of the issues and operations involved in integrating the SOI system with the existing system. The analysis also considers the needs of the future development, Glenborough/Easton, which will be served by the existing system for the first phases. System wide planning considerations may involve providing additional storage, treatment, and/or pumping capacity in the SOI or Glenborough/Easton developments for the purposes of improving operations for the system as a whole. Elements that support system-wide improvements will be identified and discussed.

CHAPTER 5 SOI Distribution System Analysis

This chapter develops infrastructure layout options for the water distribution system within the SOI area. The SOI distribution system is developed with consideration to demand locations, main pipe alignments, storage needs and locations, pressure zones, and pumping requirements. Integration of the new SOI system with the existing distribution system are discussed in Chapter 6 of this report.

A hydraulic model of the SOI system was developed in this analysis using MWSoft's Infowater software, the GIS-based version of H2ONet. The development of a computer hydraulic model makes it possible to analyze the expected system performance at varying demand conditions such as maximum day and peak hour. The EID service area within the SOI, SOI pressure zones, demand assignment, model assumptions, and system infrastructure design options and analysis are described in this chapter.

5.1 EID Service Area within the SOI

Approximately 150 acres on the northeast east end of the SOI area, adjacent to the Sacramento/El Dorado county line is part of the El Dorado Irrigation District service area. Folsom and EID are in the process of discussing this issue and evaluating potential service options. No service area splits have been performed for this analysis.

The EID service area is located within two of the pressure zones. Approximately one quarter of the Zone SOI 5 ground area and two-thirds of the Zone SOI 6 ground area is located within the EID service area. Approximately 430 acre-feet of demand is attributable to the EID service area. A recent EID supply analysis, "2007 Water Resources and Service Reliability Report, June 25, 2007", indicates the El Dorado Hills system contains 746 acre-feet per year of excess supply, which is equivalent to 933 new connections. The El Dorado Hills system serves all of the EID's eastern service area. Table 5-1 provides a comparison of the EID service area demand within the SOI.

Table 5-1. Comparison of EID Water Demands

Area	Average Annual Demand, AF	Dwelling units[a]	Notes
SOI EID service area	427	536	Water demand and dwelling units based on maximum dwelling unit density.
SOI total Zones SOI 5 and SOI 6	1,313	1,597	Water demand and dwelling units based on maximum dwelling unit density.

[a]Dwelling units estimated within the SOI are based on maximum dwelling unit density by residential land use category.

If EID were to serve their SOI area, a booster pump station would be required to boost water from the existing pressure zone at the El Dorado County line adjacent to the SOI. The adjacent EID service area is at a lower hydraulic grade line than what is required to serve Zones SOI 5 and SOI 6. It is assumed that only one agency will provide water service to this area; this prevents parallel construction of potable water facilities and pipelines immediately adjacent to one another. The proposed water system for the Folsom-only system is described in this chapter. The proposed system for the combined Folsom/EID service scenario is still under development with EID and will be amended to this report or submitted separately once coordination completed.

5.2 SOI Pressure Zones – General Description

The SOI pressure zones are designed to mirror the service zone elevations of the existing system for ease of operations when integrating the SOI system with the existing system. This section provides a general description of the pressure zones in the SOI as they exist in all infrastructure layout options. The infrastructure layout options are discussed later in this chapter.

Zone SOI 2 is the lowest elevated pressure zone in the SOI, and is located in western most area of the development from Prairie City Road to just west of Scott Road. It serves approximately half the total demand of the SOI. The Zone SOI 2 demand is served directly from the water treatment plant along Prairie City Road. A ground storage facility for Zone SOI 2 is located adjacent to the SOI water treatment plant. In option 1b (discussed later in this chapter), an additional Zone SOI 2 reservoir is added on the east side of Zone SOI 2. There is potential to connect Zone SOI 2 to the existing system Zone 2 by constructing a pipeline along the Prairie City Road crossing of HWY 50.

Zone SOI 3 is located in the central portion of the development from just west of Scott Road to just west of Placerville Road, and serves approximately one-fourth of the total demand of the SOI. A gravity storage facility for Zone SOI 3 is located just west of Placerville Road north of White Rock Road. There is potential to connect Zone SOI 3 to the existing system Zone 3 by constructing a pipeline along Placerville Road under HWY 50.

Zone SOI 4 is located along the Placerville Road corridor, and services approximately ten percent of the total demand of the SOI. A gravity storage facility for Zone SOI 4 is located just east of Empire Ranch Road. As discussed later in this chapter, the infrastructure is designed to maintain a system pressure between 40 and 80 pounds per square inch (psi) during maximum day demand conditions. The Zone SOI 4 is designed to mirror the existing system pressure Zone 4 ground elevations. The existing system Zone 4 ground elevation range is 466 ft to 616 ft, which is a large elevation range for a pressure zone (150ft). Because the ground elevations in Zone SOI 4 are at the bottom of the Zone 4 elevation range, the Zone SOI 4 maximum day demand pressure results in values around 100 psi in all infrastructure scenarios. This is higher than the City's typical design standards. In this analysis, it was the intent to maintain the same zone elevation range as the existing system Zone 4 for ease of existing system and SOI system integration.

Zone SOI 5 is located in the southeast area of the development, just east of Placerville Road to the Sacramento/El Dorado county line, and serves approximately 15 percent of the total demand of the SOI. A gravity storage facility for Zone SOI 5 is located just east of Empire Ranch Road, near Hwy 50. The Zone SOI 5 storage facility is also sized to serve Zone 6 peak hour demands. Approximately two thirds of the Zone SOI 5 ground area is located within the EID service area. It is assumed that only one agency will provide water service to this area; this prevents construction of two sets of potable water facilities and pipelines immediately adjacent to one another. The proposed water system for the Folsom-only system is described in this chapter. The proposed system for the combined Folsom/EID service scenario will be amended to this report or submitted separately once coordination with EID is complete. In addition, there is potential to connect Zone SOI 5 to the existing system Zone 5 by constructing a pipeline along the future Empire Ranch Road crossing of HWY 50.

Zone SOI 6, the highest elevated pressure zone, is located in the northeast corner of the development between Empire Ranch Road and the Sacramento/El Dorado county line. The Zone SOI 6 is the smallest pressure zone and serves approximately one percent of the total SOI demand. All demands in Zone SOI 6 are served through a booster facility from Zone SOI5. An additional booster pump sized for fire flow demands (3,000 gpm) is required because there is no storage tank within Zone SOI 6. The Zone SOI 6 equalization, emergency, and fire flow supply is included in the Zone SOI 5 storage tank volume. Approximately two-thirds the ground area of Zone SOI 6 is located within the EID service boundary. Similar to Zone SOI 5, it is assumed that only one agency will provide water service to this area; this prevents construction of two sets of potable water facilities and pipelines immediately adjacent to one another. The proposed water system for the Folsom-only system is described in this chapter. The proposed system for the combined Folsom/EID service scenario will be amended to this report or submitted separately once coordination with EID is complete.

5.3 Demand Assignment

The demands estimated by land use parcel in Chapter 3 are grouped into demand allocation areas and assigned to the nearest nodes. The demand by pressure zone and by land use is shown in Table 5-2. Appendix B contains a system map showing the maximum day demand per node.

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Table 5-2. Demand by Pressure Zone

Land Use ID	Total Area, acres	Total Annual Demand, AF	SOI Zone 2		SOI Zone 3		SOI Zone 4		SOI Zone 5		SOI Zone 6	
			Area, acres	Annual Demand, AF	Area, acres	Annual Demand, AF	Area, acres	Annual Demand, AF	Area, acres	Annual Demand, AF	Area, acres	Annual Demand, AF
SF	560	1,562	267	745			21	59	272	758		
SFHD	522	2,577	258	1,272	172	851	14	71	78	383		
MLD	251	1,840	130	952	49	359	72	529				
MMD	28	220	21	165	7	54						
MHD	100	826	33	269	47	384	21	172				
CCD	41	189	20	92	16	72	5	25				
OP	107	141	84	111			22	29				
CC	139	92	124	82	15	10						
GC	203	134	14	9	88	58	13	8	75	49	14	9
Parks	118	392	71	235	38	127			9	30		
LP	47	157	21	70	13	42	3	8	11	37		
OS	991	0	733	0	61	0	104	0	93	0		
OSL	55	183	24	80	18	59	7	23	6	20	183	
School	181	458	151	381	20	51			10	25		
EXCL RW	73	–	–	–	–	–	–	–	–	–		
MAJ CIRC	143	–	–	–	–	–	–	–	–	–		
Total	3,559	8,769	1,951	4,465	543	2,067	282	924	553	1,304	14	9
Average day demand, mgd	–	7.8	–	4.0	–	1.8	–	0.8	–	1.2	–	0.01
Maximum day demand, mgd	–	14.9	–	7.6	–	3.5	–	1.6	–	2.2	–	0.02
Maximum day demand, gpm	–	10,330	–	5,259	–	2,435	–	1,089	–	1,536	–	11
Peak hour demand, gpm	–	18,594	–	9,467	–	4,383	–	1,960	–	2,765	–	20

5.4 Model Assumptions

A distribution system consisting of storage, booster pumping stations, and transmission main pipelines was developed and input into the model. Sizing and modeling assumptions are based on factors presented in the Water System Master Plan 2005 Update Technical Memorandums No. 2 and 4 (West Yost and Associates, May 30, 2006, April 5, 2007), and are summarized in Table 5-3. A figure illustrating the ground elevation assumption at each SOI system node is presented in Appendix B.

Table 5-3. Infrastructure Sizing and Modeling Assumptions[a]

Element	Value
Storage requirement	Operational Storage at 25% maximum day demand plus Emergency storage at 75% maximum day demand plus Fire Flow based on largest fire flow requirements in zone
Pressure range	40 psi – 80 psi during normal max. day operations Minimum 30 psi during peak hour operations Minimum 20 psi in vicinity of fire
Pipeline velocity	7-8 feet per second maximum for daily operation up to 10 feet per second for fire flow operation
Pipeline roughness coefficient	130 for new pipes
Fire flows	
Single-Family	1,500 gpm for 2 hours, 0.18 million gallons storage
Multi-Family	2,500 gpm for 2 hours, 0.30 million gallons storage
Commercial/Industrial	3,000 gpm for 3 hours, 0.54 million gallons storage
Schools	4,000 gpm for 4 hours, 0.96 million gallons storage

[a]Values from Water System Master Plan 2005 Update Technical Memorandum No. 2, Draft Water System Computer Model Update May 30, 2006 and No. 4, Draft Distribution System Analysis.

5.5 SOI System Development

Four infrastructure layout options are developed. These infrastructure options assume that all demand within the SOI, including those within the EID service area, is served from the SOI water treatment plan. A second scenario investigates EID serving their service area on the east side of the SOI, and will either be amended to this document, or submitted separately, once the analysis and coordination with EID is completed.

Each of the SOI infrastructure layout options include major transmission mains, storage, and booster pumping requirements. The infrastructure layout options are listed as follows and described below:

Option 1a.	All supply through Zone SOI 2
Option 1b.	All supply through Zone SOI 2, Zone SOI 2 gravity storage
Option 2.	Transmission main to Zone SOI 3
Option 3.	Zone SOI 3 supply through Zone SOI 2, Transmission main to Zone SOI 4

<u>Option 1a. All supply through Zone SOI 2</u>

In this option, all SOI demand is supplied through in line boosting from one zone to the next highest zone. This option was developed to minimize the necessary transmission main pipeline by delivering water from the water treatment facility through each zone in series formation from the lowest zone (Zone 2) uphill to the highest zone (Zone 6). The Zone SOI 2 ground storage was located at the water treatment facility because this location is near the existing system and Glenborough/Easton. Additional storage volume could be added to the Zone SOI 2 ground tank to provide additional equalization, emergency, and fire flow supply and hydraulic head for the existing system Zone 2, and for the Glenborough/Easton system, adjacent to the SOI to the west. The Option 1a infrastructure layout is provided on Figure 5-1, and the hydraulic schematic is provided on Figure 5-2. Figures illustrating maximum day demand and peak hour demand pressure contours are provided in Appendix C.

Option 1b. All supply through Zone SOI 2, Zone SOI 2 gravity storage
This option is similar to Option 1a, all SOI demand is supplied through in line booster pumping to the next highest zone, with the addition of a Zone SOI 2 gravity storage tank located east of Placerville Road. In this option, the Zone SOI 2 ground tank adjacent to the water treatment facility is half the size of the other options (4.5 MG) and the gravity storage tank is 4.5 MG. This Zone SOI 2 storage variation was analyzed to examine the benefits of multiple storage locations within this large zone to provide adequate fire flow supplies and to allow for adequate system pressures during peak demand periods and fires. Ground storage at the water treatment facility, which is located close to the existing system Zone 2, could help issues in the existing system such as lack of Zone 2 storage and low pressure issues on the south side of the existing system. Further analysis of the benefits of one or multiple storage facilities in Zone SOI 2 is required when the system design has progressed to contain a more complete piping system. The Option 1b infrastructure layout is provided on Figure 5-3, and the hydraulic schematic is provided on Figure 5-4. Figures illustrating maximum day demand and peak hour demand pressure contours are provided in Appendix C.

Option 2. Transmission main to Zone SOI 3
Zone SOI 3 is fed through a dedicated transmission main from the SOI water treatment facility. Zones SOI 4, SOI 5, and SOI 6 are fed through in-line boosters from Zone SOI 3. Zone SOI 2 is not hydraulically connected to any other SOI zone and is fed directly from the SOI water treatment facility. Because Zone 2 feeds approximately half the SOI system demand, the intent of this infrastructure option was to eliminate additional dependency on Zone SOI 2 from the other zones as in Option 1a and 1b. This option increases system reliability from Option 1a and 1b because flow to Zones SOI 3, SOI 4, SOI5, and SOI 6 do not rely on Zone SOI 2 infrastructure or operations and is delivered to Zone SOI 3 directly from the water treatment facility. Additional transmission pipeline is required for this option due to the required approximately 15,000 feet of pipe of dedicated transmission main from the water treatment facility to Zone SOI 3. The Option 2 infrastructure layout is provided on Figure 5-5, and the hydraulic schematic is provided on Figure 5-6. Figures illustrating maximum day demand and peak hour demand pressure contours are provided in Appendix C.

Option 3. Zone SOI 3 supply through Zone SOI 2, Transmission main to Zone SOI 4
Zone SOI 3 is supplied through in-line boosters from Zone SOI 2. A dedicated transition main from the SOI water treatment plant delivers Zone SOI 4, Zone SOI 5, and Zone SOI 6 water to the Zone SOI 4 gravity storage facility just west of Empire Ranch Road. Zones SOI 5 and SOI 6 demand is boosted out of the Zone SOI 4 storage facility. The Zone SOI

4 demand is served from the Zone 4 gravity storage tank. Zones SOI 2 and SOI 3 are not hydraulically connected to Zones SOI 4, SOI 5, and SOI 6. Similar to Option 2, this option improves system reliability compared to Options 1a and 1b because the demand on the east side of the system is not delivered through Zones SOI 2 and SOI 3 on the west side of the system, but is delivered directly from the water treatment facility. This option requires the largest amount of transmission pipeline of all the infrastructure options due to the dedicated transmission pipeline from the water treatment plant to the Zone SOI 4 gravity storage tank. The Option 3 infrastructure layout is provided on Figure 5-7, and the hydraulic schematic is provided on Figure 5-8. Figures illustrating maximum day demand and peak hour demand pressure contours are provided in Appendix C.

Table 5-4 provides a comparison of the backbone pipeline required by infrastructure option.

Table 5-4. SOI Pipeline Requirements by Option

Pipe diameter	Option 1a	Option 1b	Option 2	Option 3
12	90,443 ft	90,443 ft	104,632 ft	90,150 ft
16	17,882 ft	17,699 ft	17,584 ft	14,523 ft
18	3,677 ft	3,677 ft	3,677 ft	3,677 ft
20	4,847 ft	4,847 ft	4,734 ft	27,527 ft
24	7,469 ft	11,798 ft	22,585 ft	6,679 ft
30	15,874 ft	15,874 ft	0 ft	15,874 ft
Total	**140,192 ft**	**144,338 ft**	**153,212 ft**	**158,430 ft**

5.6 SOI Storage Reservoirs

Table 5-5 provides the volume and base elevations of each reservoir including the pressure zone it serves. The storage tanks maintain and stabilize pressure as well as provide additional water supply during peak hour demand periods (equalization), emergencies, and fire flows. The storage reservoirs are sized based on the City's storage sizing requirements listed in Table 5-3. The SOI 5 gravity tank is sized to also provide equalization, emergency, and fire flow storage for Zone SOI 6. All reservoirs in the system are modeled as tanks.

Table 5-5. SOI Storage Reservoirs

Storage Reservoir	Pressure Zone Served	Option 1a		Option 1b		Option 2		Option 3	
		Volume, MG	Base Elevation, ft	Volume, MG	Base Elevation, ft	Volume, MG	Base Elevation, ft	Volume, MG	Base Elevation, ft
SOI 2 ground	SOI 2	9.0	320	4.5	320	9.0	320	9.0	320
SOI 2 gravity	SOI 2	--	--	4.5	472	--	--	--	--
SOI 3 gravity	SOI 3	4.5	558	4.5	558	4.5	558	4.5	558
SOI 4 gravity	SOI 4	2.5	708	2.5	708	2.5	708	3.0	708
SOI 5 gravity	SOI 5 and SOI 6	4.0	808	4.0	808	4.0	808	4.0	808

5.7 SOI Booster Pump Stations

The pressure zone served, capacity, and horsepower for each BPS are shown in Table 5-6. The booster pump stations are sized to provide maximum day demand for the zone being served as well as any additional zone drawing supply through the BPS. The zones being served by each BPS are noted for each option in Table 5-6. The Zone SOI 6 booster pump station is sized to provide maximum day and peak hour demand because there is no storage facility is Zone SOI 6. An additional booster pump is required to provide fire flow supply to Zone 6.

The horsepower (hp) required for each BPS is calculated based on the following equation:

$$\text{Required horsepower} = Q * TDH / (\text{eff}) * (3{,}960)$$

Where Q = required flow, gpm
TDH = total dynamic head, ft
eff = pump efficiency, assumed to be 0.75

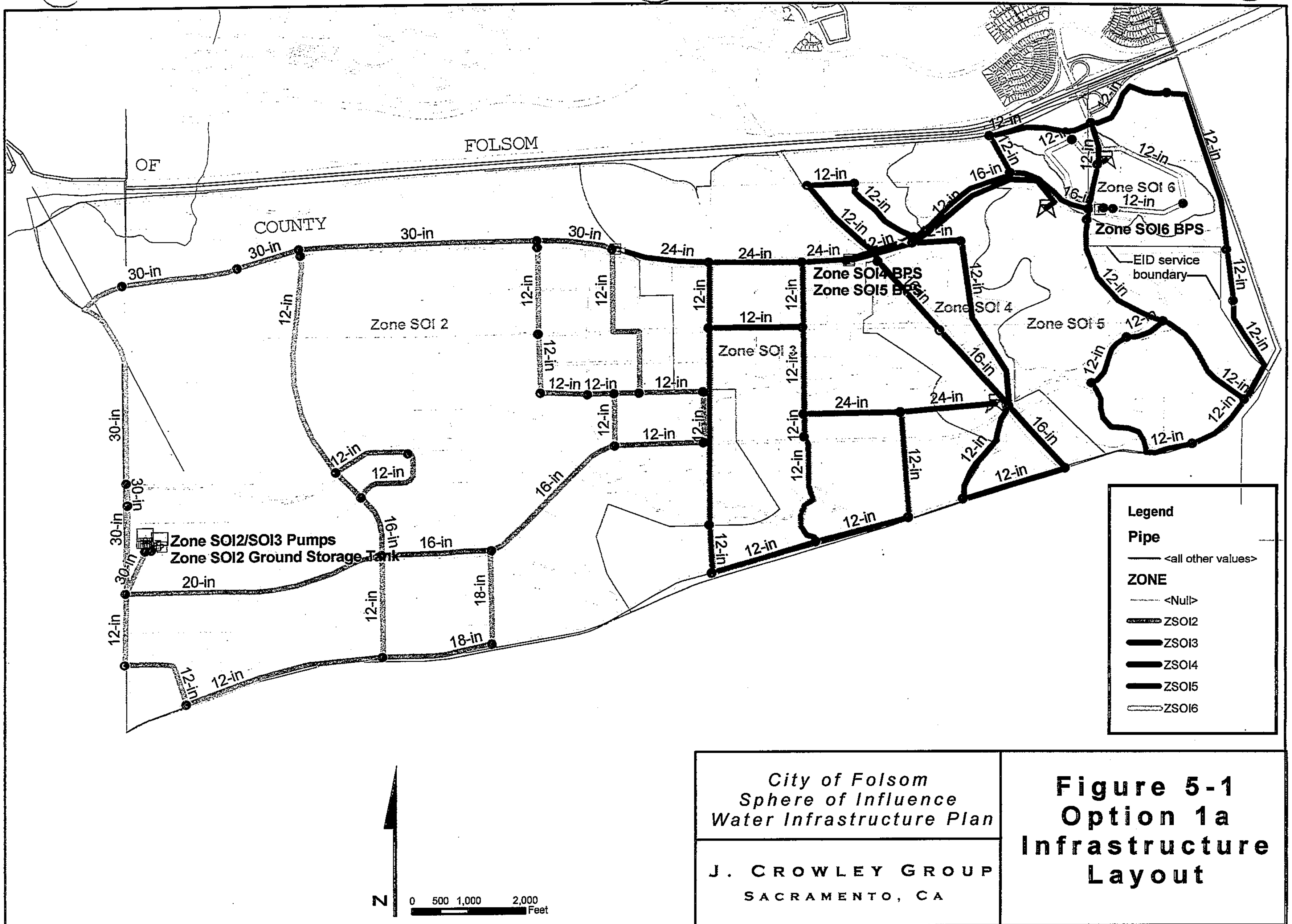
Table 5-6. SOI Booster Pump Stations Capacities by Zone

Booster Pump Station	Option 1a		Option 1b		Option 2		Option 3	
	Capacity, gpm	Power, hP	Capacity, gpm	Power, hP	Capacity, gpm	Power, hP	Capacity, gpm	Power, hP
SOI 2	10,200 gpm (serves all zones)	600 hp	10,200 gpm (serves all zones)	600 hp	5,200 gpm (serves SOI 2 only)	300 hp	7,600 gpm (serves SOI 2 and SOI 3)	400 hp
SOI 3	5,000 gpm (serves SOI 3, SOI 4, SOI 5, SOI 6)	400 hp	5,000 gpm (serves SOI 3, SOI 4, SOI 5, SOI 6)	400 hp	5,000 gpm (serves SOI 3, SOI 4, SOI 5, SOI 6)	450 hp	2,500 gpm (serves SOI 3 only)	400 hp
SOI 4	1,070 gpm (serves SOI 4 only)	100 hp	1,070 gpm (serves SOI 4 only)	100 hp	1,070 gpm (serves SOI 4 only)	100 hp	2,700 gpm (serves SOI 4, SOI 5, SOI 6)	450 hp
SOI 5	1,571 gpm (serves SOI 5 and SOI 6)	150 hp	1,571 gpm (serves SOI 5 and SOI 6)	150 hp	1,571 gpm (serves SOI 5 and SOI 6)	150 hp	1,571 gpm (serves SOI 5 and SOI 6)	150 hp
SOI 6[a]	20 gpm (serves SOI 6 only)	10 hp	20 gpm (serves SOI 6 only)	10 hp	20 gpm (serves SOI 6 only)	10 hp	20 gpm (serves SOI 6 only)	10 hp

[a]An additional fire flow booster pump of 3,000 gpm is required to supply fire flow to zone SOI 6.

5.8 SOI Water Treatment Facility

The SOI water treatment facility is to be located within the SOI area on the east side of Prairie City Road. The capacity of the treatment facility is based on the supply capacity of the Sacramento River supply source. It is estimated the treatment facility will require 20 acres based on conventional treatment including flocculation, sedimentation, and filtration, plus extra space required for on site raw water storage. The on site raw water storage element will significantly impact site area requirements. The City of Folsom may decide to increase raw water storage capabilities for system-wide reliability purposes. Total raw water storage requirements should be discussed and finalized soon so that the proper plant site area can be evaluated and identified.



City of Folsom
Sphere of Influence
Water Infrastructure Plan

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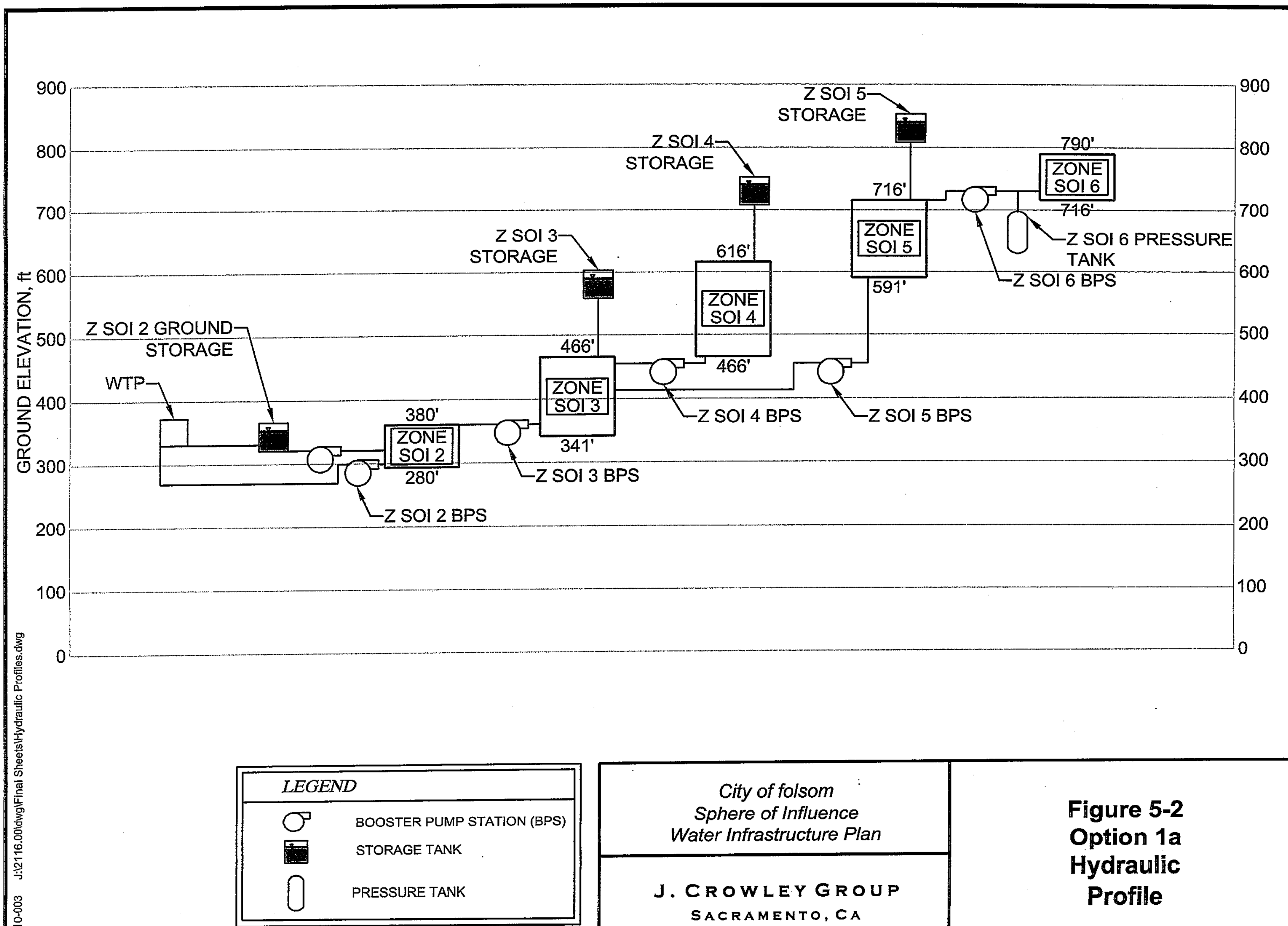
SACRAMENTO, CA

Figure 5-1
Option 1a
Infrastructure
Layout

C:\Clients\City of Folsom\010-003 Folsom SOI\Model\Water Model\Infowater\Inline booster scenarios\Option 1a_ground tank&Zsoi3 inline booster 4&5 inline boosters 092507



City of folsom
Sphere of Influence
Water Infrastructure Plan

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Figure 5-2
Option 1a
Hydraulic
Profile

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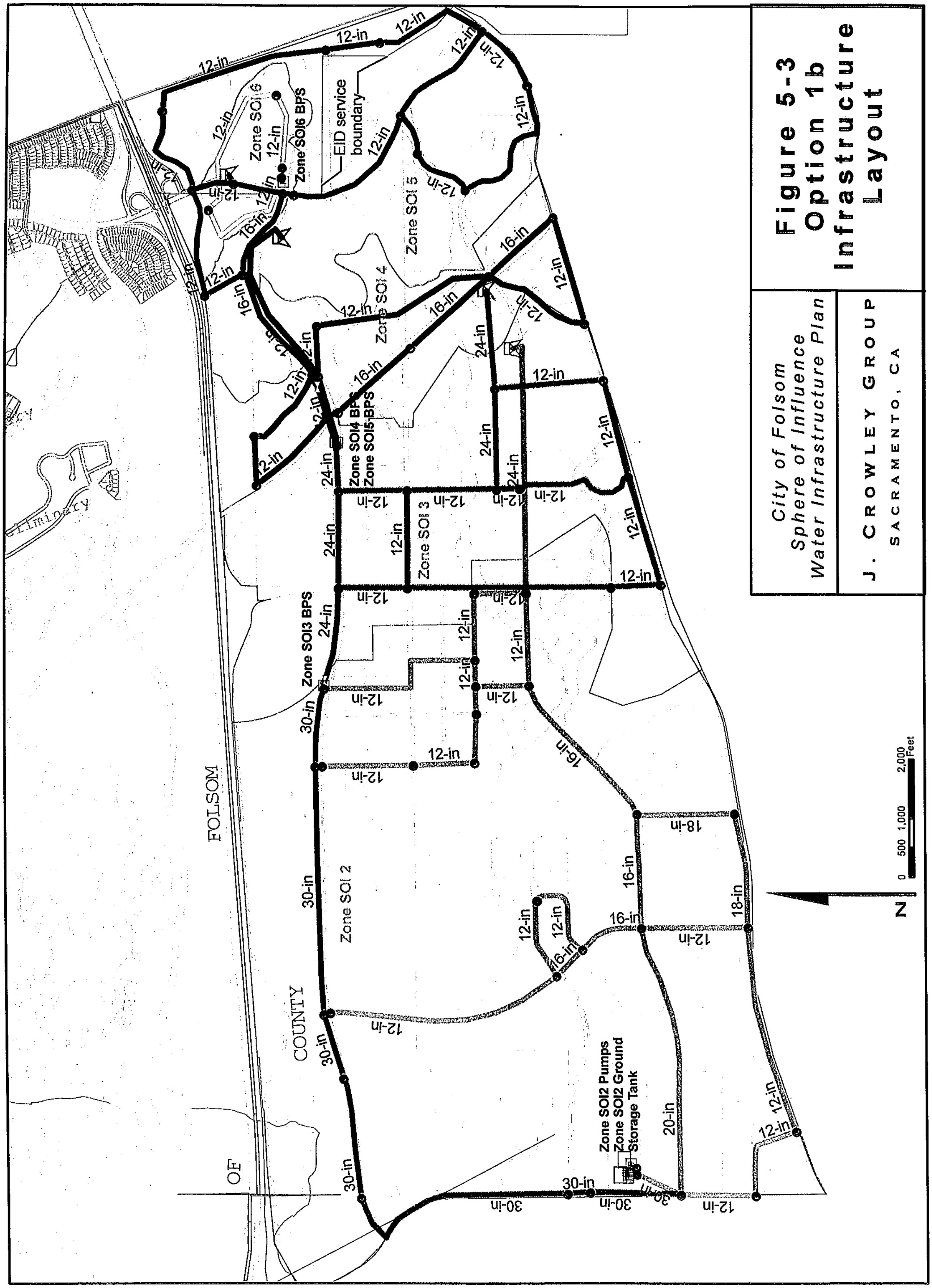

Figure 5-3
Option 1b
Infrastructure
Layout
City of Folsom
Sphere of Influence
Water Infrastructure Plan
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N
0 500 1,000 2,000 Feet
Zone SOI 6
Zone SOI6 BPS
EID service boundary
Zone SOI 5
Zone SOI 4
Zone SOI4 BPS
Zone SOI5 BPS
Zone SOI 3
Zone SOI3 BPS
Zone SOI 2
Zone SOI2 Pumps
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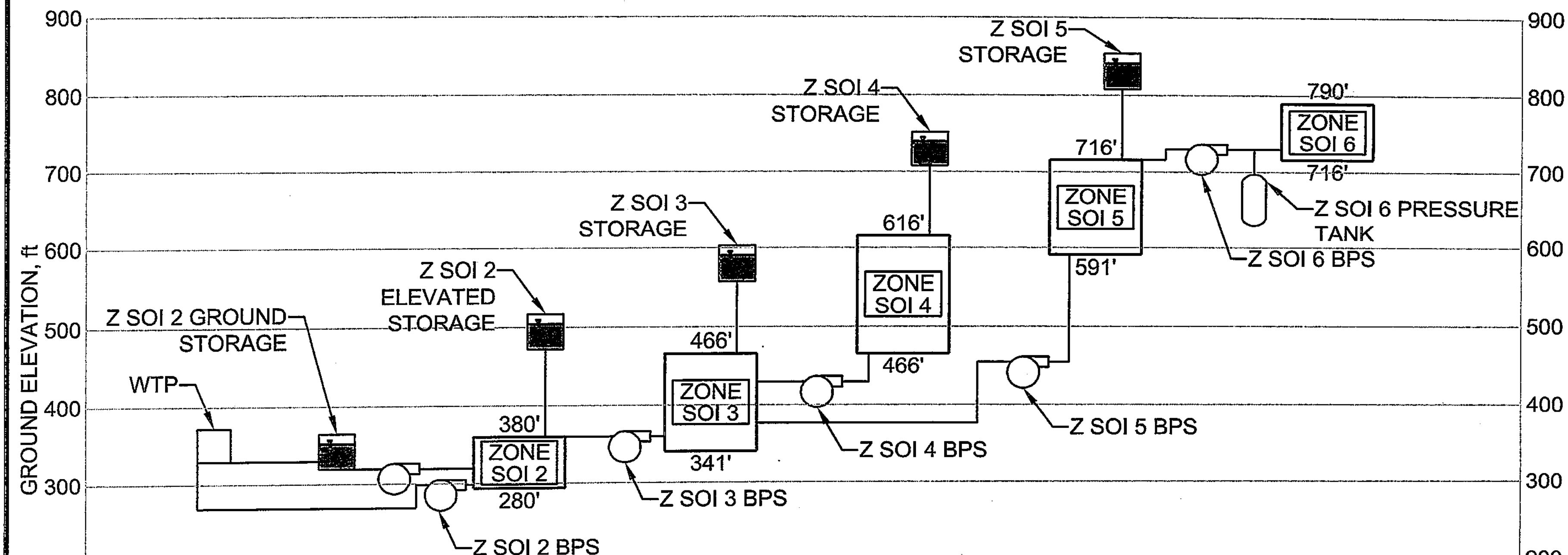
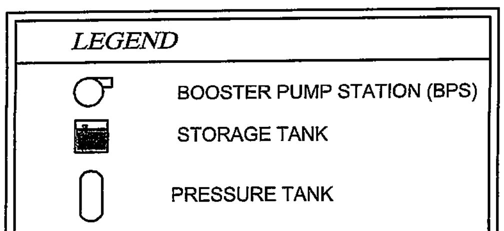
18-in
20-in
24-in
30-in





City of folsom
Sphere of Influence
Water Infrastructure Plan

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Figure 5-4
Option 1b
Hydraulic
Profile

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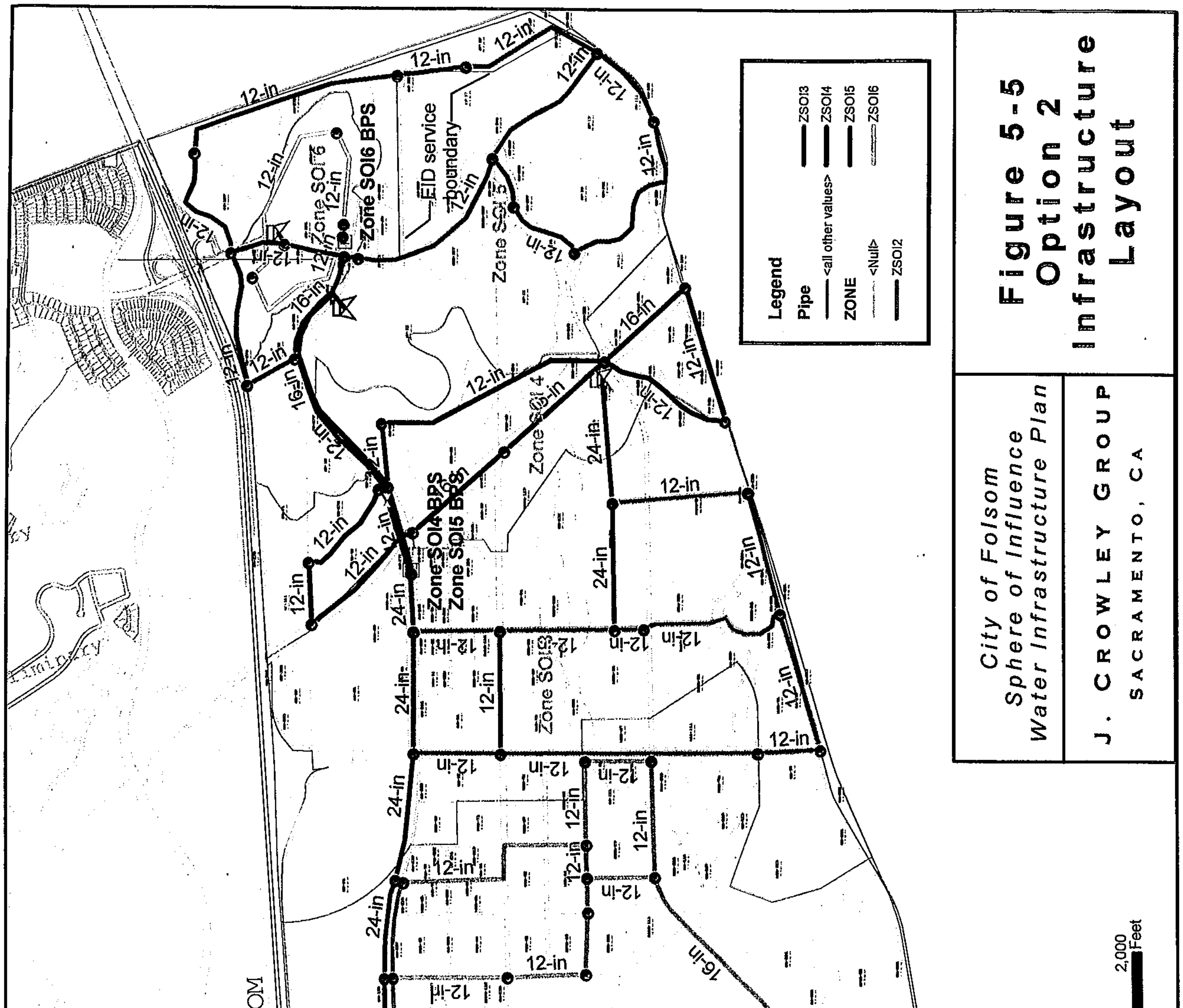

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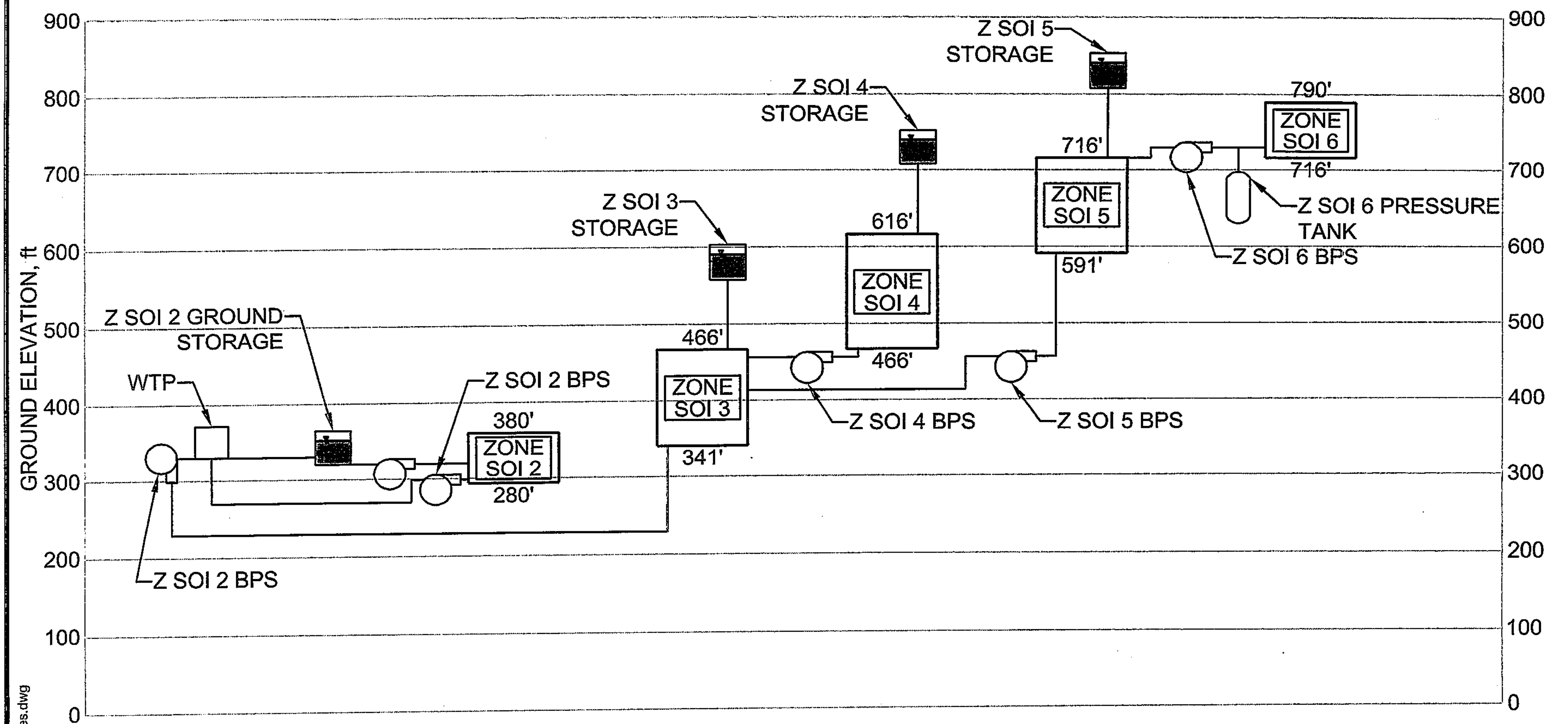

LEGEND

BOOSTER PUMP STATION (BPS)

STORAGE TANK

PRESSURE TANK

City of folsom
Sphere of Influence
Water Infrastructure Plan

J. CROWLEY GROUP
SACRAMENTO, CA

Figure 5-6
Option 2
Hydraulic
Profile

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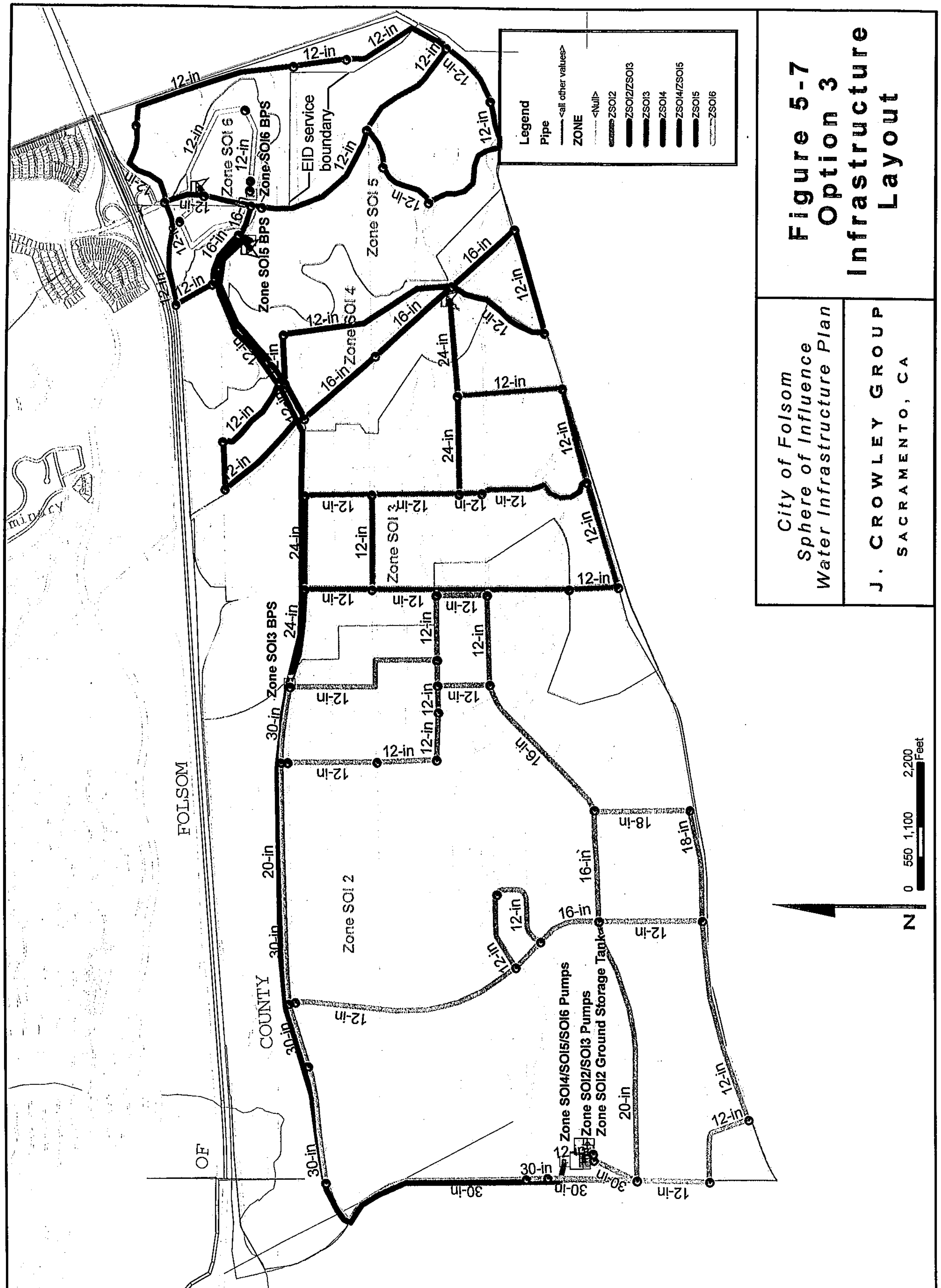
Figure 5-7
Option 3
Infrastructure
Layout
City of Folsom
Sphere of Influence
Water Infrastructure Plan
J. CROWLEY GROUP
SACRAMENTO, CA
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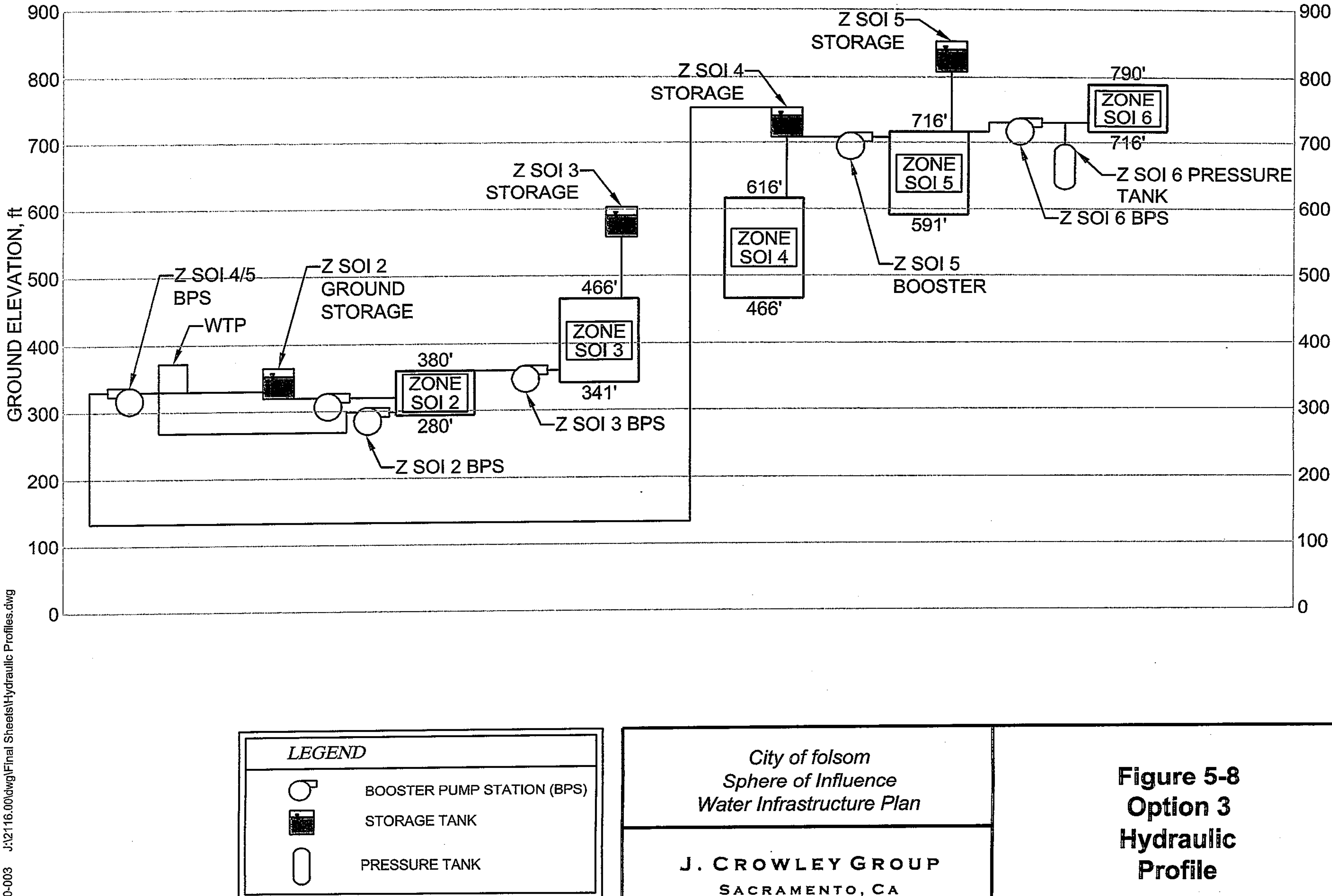
ZSOI2
ZSOI2/ZSOI3
ZSOI3
ZSOI4
ZSOI4/ZSOI5
ZSOI5
ZSOI6
0 550 1,100 2,200 Feet
N
EID service boundary
Zone SOI 6
Zone SOI6 BPS
Zone SOI 5
Zone SOI5 BPS
Zone SOI 4
Zone SOI 3
Zone SOI3 BPS
Zone SOI 2
Zone SOI4/SOI5/SOI6 Pumps
Zone SOI2/SOI3 Pumps
Zone SOI2 Ground Storage Tank
FOLSOM
COUNTY
OF



City of folsom
Sphere of Influence
Water Infrastructure Plan

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Figure 5-8
Option 3
Hydraulic
Profile

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CHAPTER 6 Integration of SOI and Existing System

This chapter describes the effort to-date regarding the integration of the SOI water system with the City's existing system. Also described are next steps required to complete the integration analysis.

6.1 Initial Analysis of Integration of SOI and Existing System

The City of Folsom's existing system H2ONet hydraulic model updated by West Yost and Associates in October 2006 was used to analyze the integration of the SOI system with the existing water system. The October 2006 model contains 2005 system demands. The City's existing system model was opened in MWSoft's Infowater, the GIS based version of H2ONet in order to integrate the existing model with the SOI system model. The SOI system was connected to the existing system at Zones 2, 3, and 5. Connecting the existing system to the SOI at these zones is the most practical due to HWY 50 crossing options and existing connecting pipe availability.

When the SOI system model was connected to the existing system 2005 demands model, the existing system typically pulled approximately 2,000 gpm from the SOI system; most of the flow passing from Zone SOI 2 to the existing Zone 2. The pressure in the south portion of the existing system Zone 2 near the SOI generally increased by 5 psi. It should be noted that based on an August 3, 2007 letter from West Yost and Associates to the City of Folsom, there may be inaccuracies in the existing system model due to the use of GIS shape files that did not incorporate several significant pipe upgrades that have been installed. The use of an updated existing system hydraulic model would enable this analysis to more accurately reflect SOI system impacts on the existing system.

Although the impacts of the future Glenborough/Easton system Phase 1 demands (2,000 gpm) have been analyzed against the existing system hydraulic model (2005 demands), the impacts of connecting the Glenborough/Easton system to the existing system at the same time as the SOI system is connected has not been analyzed. This model analysis has not been completed because this requires the use of the City of Folsom existing system hydraulic model with buildout demands as well as increased supply capacity and current infrastructure improvements. Buildout demands in the existing model are required because this reflects the demands that would be occurring in the existing system at the time of completion of the SOI and Glenborough/Easton developments. An analysis of an integrated system coordinating Glenborough/Easton, the existing system, and the SOI system would not be accurate if based on connecting to an existing system with 2005 demands and capacity. This analysis can be completed once the updated/buildout demands hydraulic model is completed.

6.2 Analysis Next Steps

In order to complete the analysis on the integration of the SOI and the City's existing system, the following next steps should be taken:

1. Update the existing system hydraulic model to reflect current infrastructure improvements that exist within the system.
2. Complete the City's hydraulic model for the existing system at buildout water demands and buildout supply and infrastructure capacity.
3. Integrate the Glenborough/Easton system demands to the existing system/SOI system integration analysis. Analyze the impacts on the existing system as a result of connecting to the Glenborough/Easton and SOI systems at buildout demand conditions. Examine the resulting pressure changes and significant hydraulic grade line impacts on the existing system.

CHAPTER 7 SOI Distribution System Cost Estimate

The estimated construction cost of the infrastructure options are developed at a conceptual level in this chapter.

7.1 Unit Costs

Table 7-1 provides a summary of the unit cost assumptions for this conceptual cost estimate. Also provided are the references and/or assumptions used to estimate the unit costs. The cost estimates are based on using construction unit costs of similar facilities when possible. When such costs are not available, construction cots are estimated from available cost curves or other assumptions.

Table 7-1. Unit Cost Assumptions

Infrastructure Component	Unit Cost	Reference/assumption
Pipeline	$18/in-dia/linear foot	Based on recent bid tabs and completed construction for projects for local water agencies, including Freeport Regional Water Authority.
Booster pump station	$250/gpm	Treated water. Based on construction costs of service water pumping stations cost curve (Robert L. Sanks, Pumping Station Design, 1989, Figure 29-6) and based on recent project costs for Sacramento area booster station projected to January 2007.
Treated water storage tank	$0.50/gallon	Based on discussions with local contractors and water agencies on recent reservoir construction with foundation and appurtenances.
Water treatment facility	$2.5/gallon	Based on letter regarding the Freeport/Folsom cost estimate provided by Brown and Caldwell on September 19, 2007.

7.2 Construction Cost Contingency

Because of limitations of costs estimates based on preliminary design, allowances must be made for variations in final length and depth of pipelines and other structures, adverse construction conditions, and other unforeseeable difficulties that may increase the final construction cost. A contingency allowance of 30 percent of the estimated construction contract cost is applied for this analysis.

7.3 Conceptual Construction Cost

The infrastructure requirements and conceptual level costs for Option 1a, 1b, 2, and 3 are provided in Table 7-2. These conceptual level cost estimates are considered to be a planning level estimate for the purposes of comparing infrastructure options. The cost of operations and maintenance for each alternative is not included in this analysis. In addition, this conceptual cost estimate does not include project costs such as engineering, construction management, and administration costs. Detailed conceptual construction cost tables by option are provided in Tables 7-3 through 7-6.

Table 7-2. Summary of Conceptual Cost Estimates

Cost Item	Cost, $ million			
	Option 1a	Option 1b	Option 2	Option 3
Water treatment plant[a]	$38	$38	$38	$38
Pipeline				
12-inch	$20	$20	$23	$19
16-inch	$5	$5	$5	$4
18-inch	$1	$1	$1	$1
20-inch	$2	$2	$2	$10
24-inch	$3	$5	$10	$3
30-inch	$9	$9	$0	$9
Pipeline subtotal	$39	$41	$40	$46
Booster pump station	$6	$5	$4	$5
Storage	$10	$11	$10	$9
Construction cost	$93	$95	$93	$97
Construction contingency (30%)	$28	$28	$28	$29
Total	**$121**	**$123**	**$120**	**$126**

[a]Costs include WTP costs based on required capacity for SOI, 15 mgd.

Table 7-4. SOI Infrastructure Option 1a Detailed Conceptual Cost Estimate

Item	Size/capacity		Unit cost, $	Option 1a. Pipe length, ft	Option 1a. Construction cost, $million
Water treatment plant	15	mgd	2.5		$38
Zone SOI 2					
Pipeline	12	inch	18	27,559	$6.0
	16	inch	18	6,914	$2.0
	18	inch	18	3,677	$1.2
	20	inch	18	4,756	$1.7
	24	inch	18		$0.0
	30	inch	18	15,874	$8.6
Booster pump station (treated water)					
Zone 2, 3, 4, 5, 6 MDD (Option 1a and 1b)	10,200	gpm	250		$2.6
Zone 2 MDD (Option 2)	5,200	gpm	250		
Zone 2 and 3 MDD (Option 3)	7,600	gpm	250		
Storage					
Ground tank (Option 1a, 2, and 3)	9	MG	0.5		$4.5
Ground tank booster (Option 1a, 2, and 3)	5,000	gpm	250		$1.3
Ground tank (Option 1b)	5	MG	0.5		
Ground tank booster (Option 1b)	2,500	gpm	250		
Elevated tank (Option 1b)	5	MG	0.5		
Zone SOI 2 subtotal				58,780	$27.7
Zone SOI 3					
Pipeline					
	12	inch	18	18,018	$3.9
	16	inch	18		$0.0
	20	inch	18	91	$0.0
	24	inch	18	7,469	$3.2
	30	inch	18		$0.0
Booster pump station (treated water)					
In-line from Zone SOI 2 (Option 1a and 1b)	5,000	gpm	250		$1.3
From WTP (Option 2)	5,000	gpm	250		
In-line from Zone SOI 2 (Option 3)	2,500	gpm	250		
Storage (elevated tank)	5	MG	0.5		$2.3
Zone SOI 3 subtotal				25,578	$10.7
Zone SOI 4					
Pipeline	12	inch	18	16,628	$3.6
	16	inch	18	4,995	$1.4
Booster pump station (treated water)					
In-line from Zone 3 (Option 1a, 1b, and 2)	1,070	gpm	250		$0.3
Storage (elevated tank)	3	MG	0.5		$1.5
Zone SOI 4 subtotal				21,622	$6.8
Zone SOI4/SOI5 (Option 3 only)					
Pipeline	20	inch	18		
Booster pump station (treated water)					
From WTP	2,600	gpm	250		
Storage (clearwell/Zone 4 storage)	4	MG	0.5		
Zone SOI4/SOI5 subtotal					
Zone SOI 5					
Pipeline	12	inch	18	21,814	$4.7
	16	inch	18	5,973	$1.7
Booster pump station (treated water)					
In-line from Zone 3 (Option 1a, 1b, and 2)	1,550	gpm	250		$0.4
From Zone SOI4/SOI5 Clearwell (Option 3)	1,550	gpm	250		
Storage (elevated tank)	4	MG	0.5		$2.0
Zone SOI 5 subtotal				27,787	$8.8
Zone SOI 6					
Pipeline	12	inch	18	6,425	$1.4
Booster pump station (treated water)	20	gpm	250		$0.0
Zone SOI 6 subtotal				6,425	$1.4
Total					
Water treatment plant					$38
Pipeline					
	12	inch	18	90,443	$20
	16	inch	18	17,882	$5
	18	inch	18	3,677	$1
	20	inch	18	4,847	$2
	24	inch	18	7,469	$3
	30	inch	18	15,874	$9
Total pipeline subtotal				140,192	$39
Booster pump station (treated water)					$6
Storage					$10
Construction cost subtotal					$93
Contingency (30%)					$28
Total				140,192	$121

Table 7-5. SOI Infrastructure Option 1b Detailed Conceptual Cost Estimate

Item	Size/capacity		Unit cost, $	Option 1b. Pipe length	Option 1b. Construction cost, $million
Water treatment plant	15	mgd	2.5		$37.5
Zone SOI 2					
Pipeline	12	inch	18	27,559	$6.0
	16	inch	18	6,731	$1.9
	18	inch	18	3,677	$1.2
	20	inch	18	4,766	$1.7
	24	inch	18	4,328	$1.9
	30	inch	18	15,874	$8.6
Booster pump station (treated water)					
Zone 2, 3, 4, 5, 6 MDD (Option 1a and 1b)	10,200	gpm	250		$2.6
Zone 2 MDD (Option 2)	5,200	gpm	250		
Zone 2 and 3 MDD (Option 3)	7,600	gpm	250		
Storage					
Ground tank (Option 1a, 2, and 3)	9	MG	0.5		
Ground tank booster (Option 1a, 2, and 3)	5,000	gpm	250		
Ground tank (Option 1b)	5	MG	0.5		$0.5
Ground tank booster (Option 1b)	2,500	gpm	250		$0.6
Elevated tank (Option 1b)	5	MG	0.5		$4.5
Zone SOI 2 subtotal				62,925	$29.4
Zone SOI 3					
Pipeline					
	12	inch	18	18,018	$3.9
	16	inch	18		$0.0
	20	inch	18	91	$0.0
	24	inch	18	7,469	$3.2
	30	inch	18		$0.0
Booster pump station (treated water)					
In-line from Zone SOI 2 (Option 1a and 1b)	5,000	gpm	250		$1.3
From WTP (Option 2)	5,000	gpm	250		
In-line from Zone SOI 2 (Option 3)	2,500	gpm	250		
Storage (elevated tank)	5	MG	0.5		$2.3
Zone SOI 3 subtotal				25,578	$10.7
Zone SOI 4					
Pipeline	12	inch	18	16,628	$3.6
	16	inch	18	4,995	$1.4
Booster pump station (treated water)					
In-line from Zone 3 (Option 1a, 1b, and 2)	1,070	gpm	250		$0.3
Storage (elevated tank)	3	MG	0.5		$1.5
Zone SOI 4 subtotal				21,622	$6.8
Zone SOI4/SOI5 (Option 3 only)					
Pipeline	20	inch	18		
Booster pump station (treated water)					
From WTP	2,600	gpm	250		
Storage (clearwell/Zone 4 storage)	4	MG	0.5		
Zone SOI4/SOI5 subtotal					
Zone SOI 5					
Pipeline	12	inch	18	21,814	$4.7
	16	inch	18	5,973	$1.7
Booster pump station (treated water)					
In-line from Zone 3 (Option 1a, 1b, and 2)	1,550	gpm	250		$0.4
From Zone SOI4/SOI5 Clearwell (Option 3)	1,550	gpm	250		
Storage (elevated tank)	4	MG	0.5		$2.0
Zone SOI 5 subtotal				27,787	$8.8
Zone SOI 6					
Pipeline	12	inch	18	6,425	$1.4
Booster pump station (treated water)	20	gpm	250		$0.0
Zone SOI 6 subtotal				6,425	$1.4
Total					
Water treatment plant					$38
Pipeline					
	12	inch	18	90,443	$20
	16	inch	18	17,699	$5
	18	inch	18	3,677	$1
	20	inch	18	4,847	$2
	24	inch	18	11,798	$5
	30	inch	18	15,874	$9
Total pipeline subtotal				144,338	$41
Booster pump station (treated water)					$5
Storage					$11
Construction cost subtotal					$95
Contingency (30%)					$28
Total				144,338	$123

Table 7-6. SOI Infrastructure Option 2 Detailed Conceptual Cost Estimate

Item	Size/capacity		Unit cost, $	Option 2. Pipe length	Option 2. Construction cost, $million
Water treatment plant	15	mgd	2.5		$37.5
Zone SOI 2					
Pipeline	12	inch	18	41,527	$9.0
	16	inch	18	6,616	$1.9
	18	inch	18	3,677	$1.2
	20	inch	18	4,643	$1.7
	24	inch	18	891	$0.4
	30	inch	18		$0.0
Booster pump station (treated water)					
Zone 2, 3, 4, 5, 6 MDD (Option 1a and 1b)	10,200	gpm	250		
Zone 2 MDD (Option 2)	5,200	gpm	250		$1.3
Zone 2 and 3 MDD (Option 3)	7,600	gpm	250		
Storage					
Ground tank (Option 1a, 2, and 3)	9	MG	0.5		$4.5
Ground tank booster (Option 1a, 2, and 3)	5,000	gpm	250		$1.3
Ground tank (Option 1b)	5	MG	0.5		
Ground tank booster (Option 1b)	2,500	gpm	250		
Elevated tank (Option 1b)	5	MG	0.5		
Zone SOI 2 subtotal				57,355	$21.2
Zone SOI 3					
Pipeline					
	12	inch	18	18,018	$3.9
	16	inch	18		$0.0
	20	inch	18	91	$0.0
	24	inch	18	21,694	$9.4
	30	inch	18		$0.0
Booster pump station (treated water)					
In-line from Zone SOI 2 (Option 1a and 1b)	5,000	gpm	250		
From WTP (Option 2)	5,000	gpm	250		$1.3
In-line from Zone SOI 2 (Option 3)	2,500	gpm	250		
Storage (elevated tank)	5	MG	0.5		$2.3
Zone SOI 3 subtotal				39,802	$16.8
Zone SOI 4					
Pipeline	12	inch	18	16,848	$3.6
	16	inch	18	4,995	$1.4
Booster pump station (treated water)					
In-line from Zone 3 (Option 1a, 1b, and 2)	1,070	gpm	250		$0.3
Storage (elevated tank)	3	MG	0.5		$1.5
Zone SOI 4 subtotal				21,843	$6.8
Zone SOI4/SOI5 (Option 3 only)					
Pipeline	20	inch	18		
Booster pump station (treated water)					
From WTP	2,600	gpm	250		
Storage (clearwell/Zone 4 storage)	4	MG	0.5		
Zone SOI4/SOI5 subtotal					
Zone SOI 5					
Pipeline	12	inch	18	21,814	$4.7
	16	inch	18	5,973	$1.7
Booster pump station (treated water)					
In-line from Zone 3 (Option 1a, 1b, and 2)	1,550	gpm	250		$0.4
From Zone SOI4/SOI5 Clearwell (Option 3)	1,550	gpm	250		
Storage (elevated tank)	4	MG	0.5		$2.0
Zone SOI 5 subtotal				27,787	$8.8
Zone SOI 6					
Pipeline	12	inch	18	6,426	$1.4
Booster pump station (treated water)	20	gpm	250		$0.0
Zone SOI 6 subtotal				6,426	$1.4
Total					
Water treatment plant					$38
Pipeline					
	12	inch	18	104,632	$23
	16	inch	18	17,584	$5
	18	inch	18	3,677	$1
	20	inch	18	4,734	$2
	24	inch	18	22,585	$10
	30	inch	18	0	$0
Total pipeline subtotal				153,212	$40
Booster pump station (treated water)					$4
Storage					$10
Construction cost subtotal					$93
Contingency (30%)					$28
Total				153,212	$120

Table 7-7. SOI Infrastructure Option 3 Detailed Conceptual Cost Estimate

Item	Size/capacity		Unit cost, $	Option 3. Pipe length	Option 3. Construction cost, $million
Water treatment plant	15	mgd	2.5		$37.5
Zone SOI 2					
Pipeline	12	inch	18	27,559	$6.0
	16	inch	18	6,914	$2.0
	18	inch	18	3,677	$1.2
	20	inch	18	4,756	$1.7
	24	inch	18		$0.0
	30	inch	18	15,874	$8.6
Booster pump station (treated water)					
Zone 2, 3, 4, 5, 6 MDD (Option 1a and 1b)	10,200	gpm	250		
Zone 2 MDD (Option 2)	5,200	gpm	250		
Zone 2 and 3 MDD (Option 3)	7,600	gpm	250		$1.9
Storage					
Ground tank (Option 1a, 2, and 3)	9	MG	0.5		$4.5
Ground tank booster (Option 1a, 2, and 3)	5,000	gpm	250		$1.3
Ground tank (Option 1b)	5	MG	0.5		
Ground tank booster (Option 1b)	2,500	gpm	250		
Elevated tank (Option 1b)	5	MG	0.5		
Zone SOI 2 subtotal				**58,780**	**$27.1**
Zone SOI 3					
Pipeline					
	12	inch	18	18,018	$3.9
	16	inch	18		$0.0
	20	inch	18		$0.0
	24	inch	18	6,679	$2.9
	30	inch	18		$0.0
Booster pump station (treated water)					
In-line from Zone SOI 2 (Option 1a and 1b)	5,000	gpm	250		
From WTP (Option 2)	5,000	gpm	250		
In-line from Zone SOI 2 (Option 3)	2,500	gpm	250		$0.6
Storage (elevated tank)	5	MG	0.5		$2.3
Zone SOI 3 subtotal				**24,697**	**$9.7**
Zone SOI 4					
Pipeline	12	inch	18	16,110	$3.5
	16	inch	18	4,995	$1.4
Booster pump station (treated water)					
In-line from Zone 3 (Option 1a, 1b, and 2)	1,070	gpm	250		
Storage (elevated tank)	3	MG	0.5		
Zone SOI 4 subtotal				**21,105**	**$4.9**
Zone SOI4/SOI5 (Option 3 only)					
Pipeline	20	inch	18	22,771	$8.2
Booster pump station (treated water)					
From WTP	2,600	gpm	250		$0.7
Storage (clearwell/Zone 4 storage)	4	MG	0.5		$2.0
Zone SOI4/SOI5 subtotal				**22,771**	**$10.8**
Zone SOI 5					
Pipeline	12	inch	18	22,039	$4.8
	16	inch	18	2,614	$0.8
Booster pump station (treated water)					
In-line from Zone 3 (Option 1a, 1b, and 2)	1,550	gpm	250		
From Zone SOI4/SOI5 Clearwell (Option 3)	1,550	gpm	250		$0.4
Storage (elevated tank)	4	MG	0.5		$2.0
Zone SOI 5 subtotal				**24,653**	**$7.9**
Zone SOI 6					
Pipeline	12	inch	18	6,425	$1.4
Booster pump station (treated water)	20	gpm	250		$0.0
Zone SOI 6 subtotal				**6,425**	**$1.4**
Total					
Water treatment plant					$38
Pipeline					
	12	inch	18	90,150	$19
	16	inch	18	14,523	$4
	18	inch	18	3,677	$1
	20	inch	18	27,527	$10
	24	inch	18	6,679	$3
	30	inch	18	15,874	$9
Total pipeline subtotal				158,430	$46
Booster pump station (treated water)					$5
Storage					$9
Construction cost subtotal					$97
Contingency (30%)					$29
Total				**158,430**	**$126**

CHAPTER 8 EID Service Alternatives

EID maintains a service area within the SOI area of approximately 150 acres. Infrastructure alternatives for EID to provide service to the east side of the SOI are under development in coordination with EID. Once completed, the alternatives will be inserted into this report.

CHAPTER 9 Next Steps

This draft report presents the analysis findings as of this date. Coordination continues with the other SOI-related projects and with neighboring agencies. The following lists items to address next as the environmental review process moves forward.

1. Continue coordination with EID to develop service scenarios for the east side of the SOI. Update analysis or prepare a separate plan once alternative is selected and agreed upon.
2. Continue coordination with EID on a parallel track to develop required policy and agreements to support the selected service scenario.
3. Coordinate review of draft report with environmental report efforts and modify analysis as necessary.
4. Continue coordination with landowners group to develop and refine infrastructure options as phasing and parcel information is updated.
5. Update SOI system demand estimates and required infrastructure based on a more detailed parcel analysis resulting in buildable dwelling unit densities.
6. Consider unit water demands, impacts on total water demand and infrastructure requirements, and potential policies that would reduce total demands.
7. Update the existing system hydraulic model to reflect current infrastructure improvements that exist within the system.
8. Complete the City's hydraulic model for the existing system at buildout water demands and buildout supply and infrastructure capacity.
9. Integrate the Glenborough/Easton system demands to the existing system/SOI system integration analysis. Analyze the impacts on the existing system as a result of connecting to the Glenborough/Easton and SOI systems at buildout demand conditions. Examine the resulting pressure changes and significant hydraulic grade line impacts on the existing system
10. Provide further analysis of the benefits of one or multiple storage facilities in Zone SOI 2 when the system design has progressed to contain a more complete pipe system.

Appendix A

References

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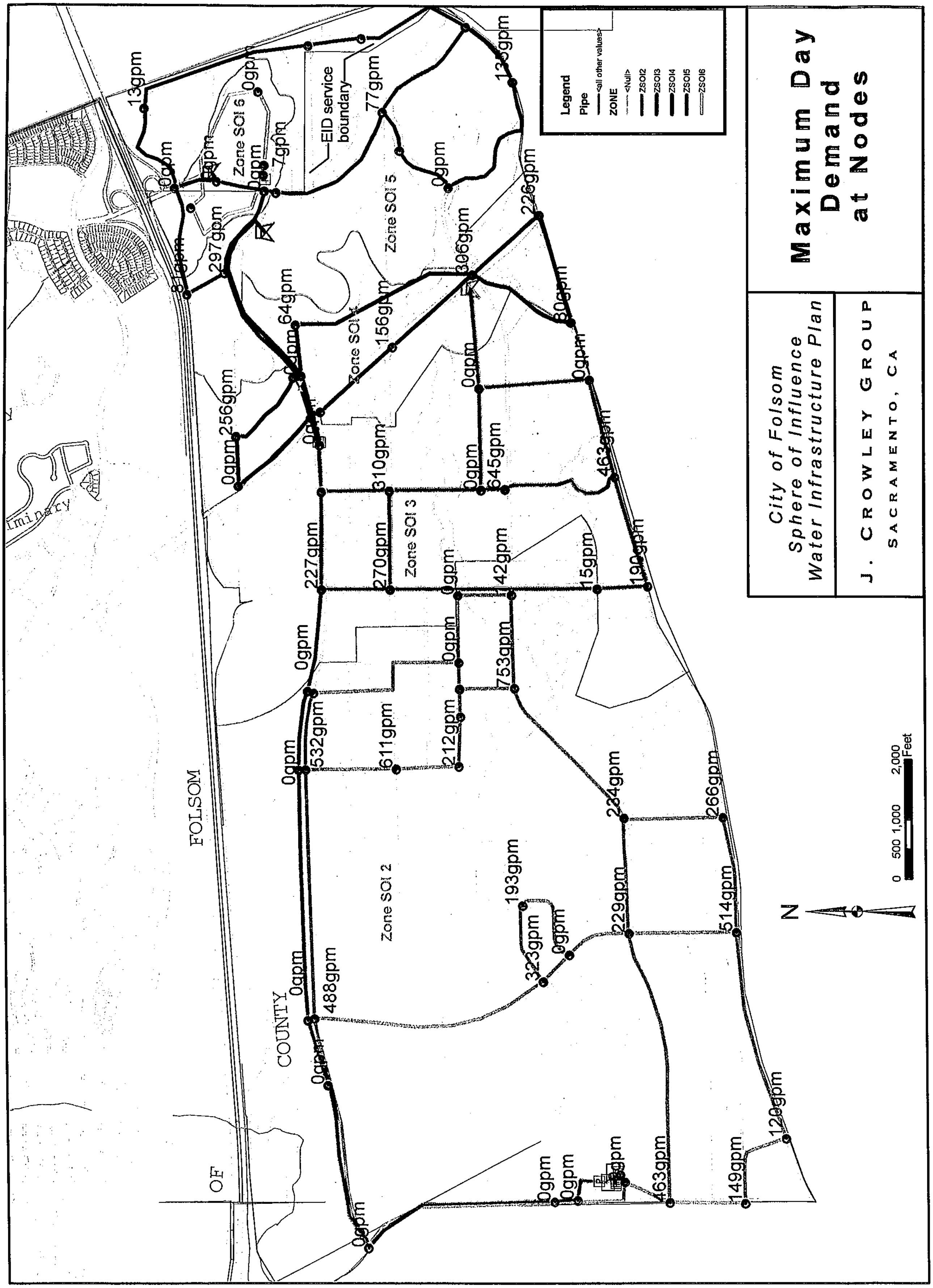
West Yost and Associates. Draft Technical Memorandum No. 4 Water System Master Plan 2005 Update – Distribution System Analysis. April 5, 2007.

Appendix B

SOI Distribution System Node Demands and Ground Elevations



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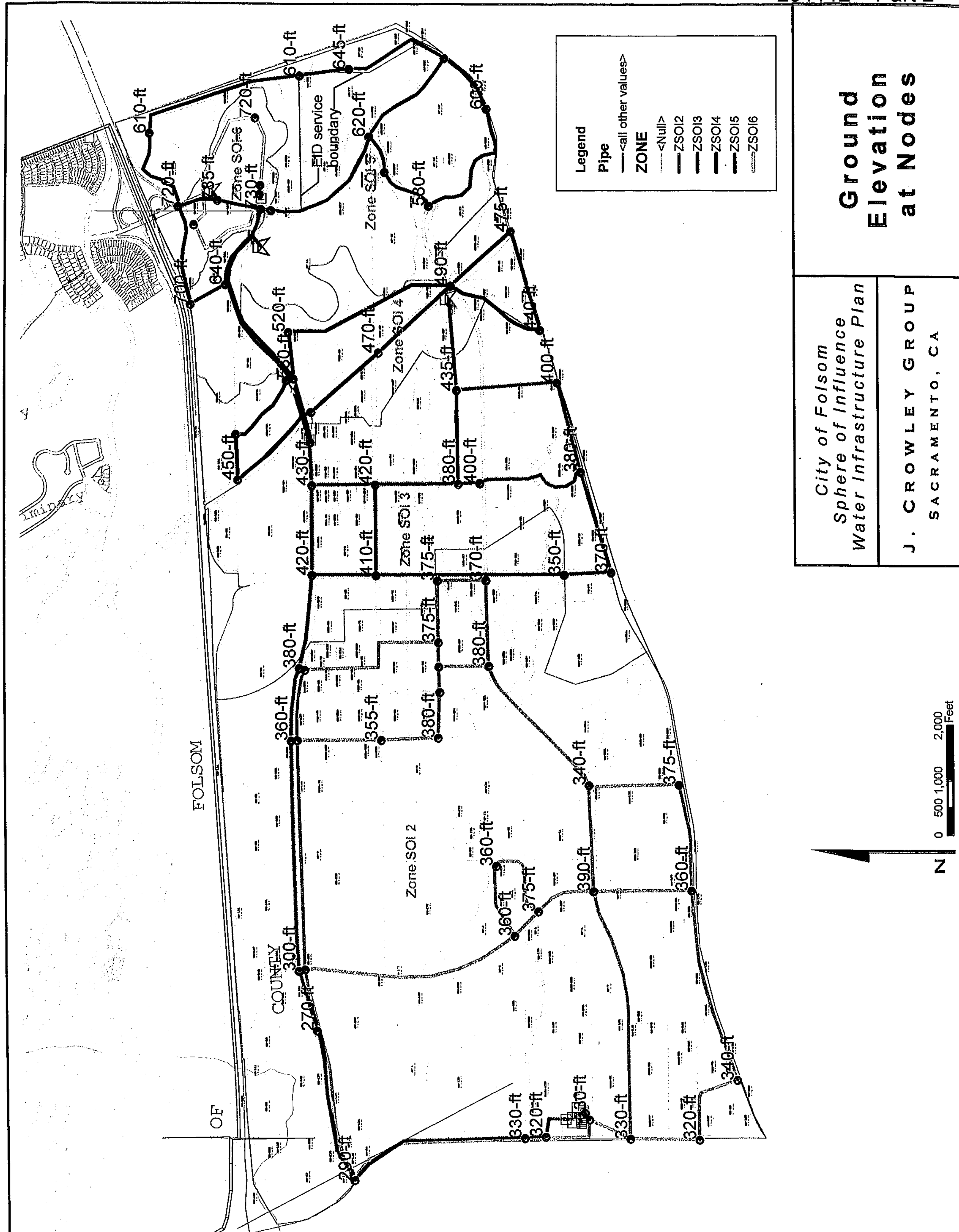

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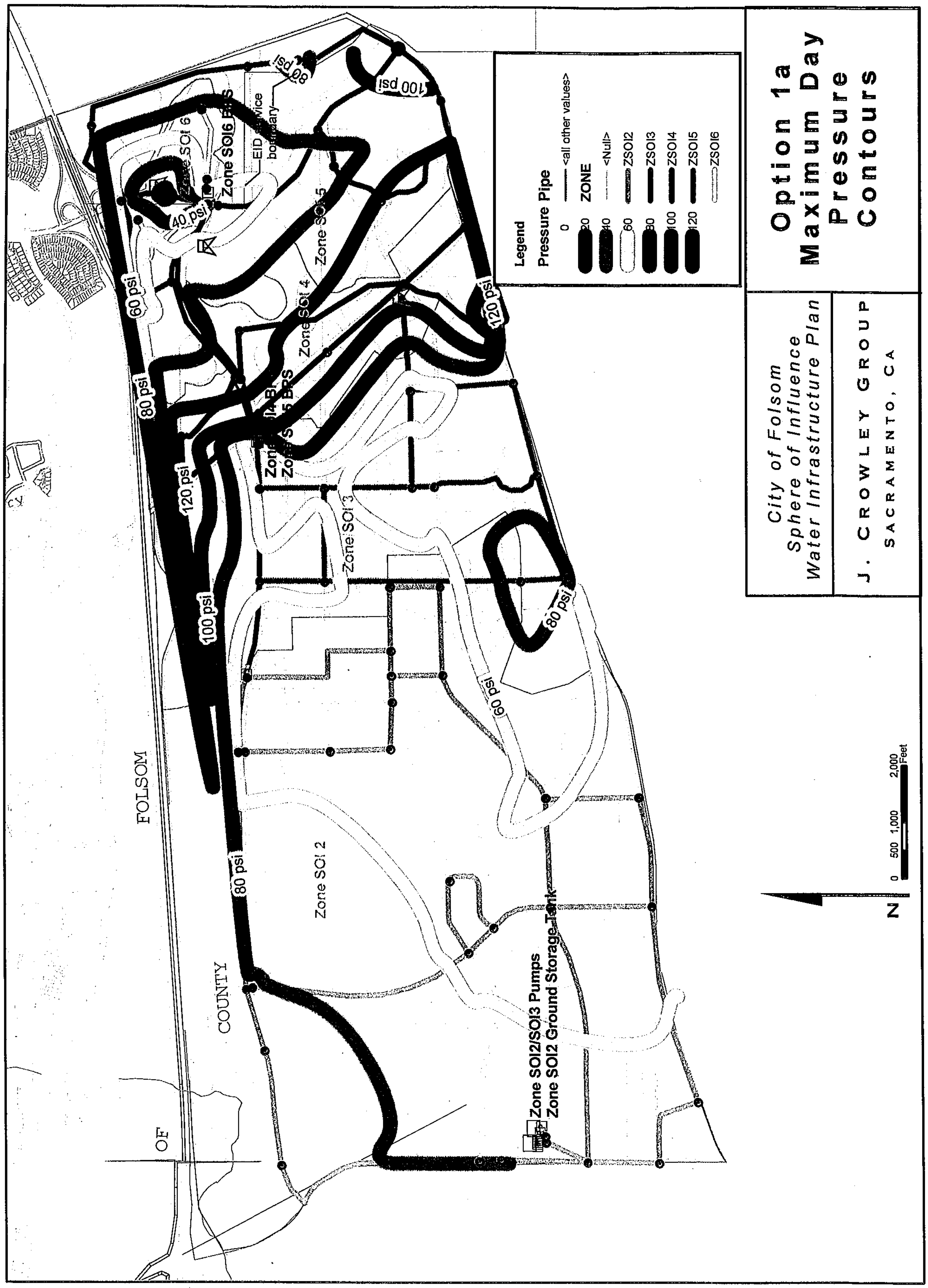
Appendix C

SOI Infrastructure Options Maximum Day and Peak Hour Pressure Contours



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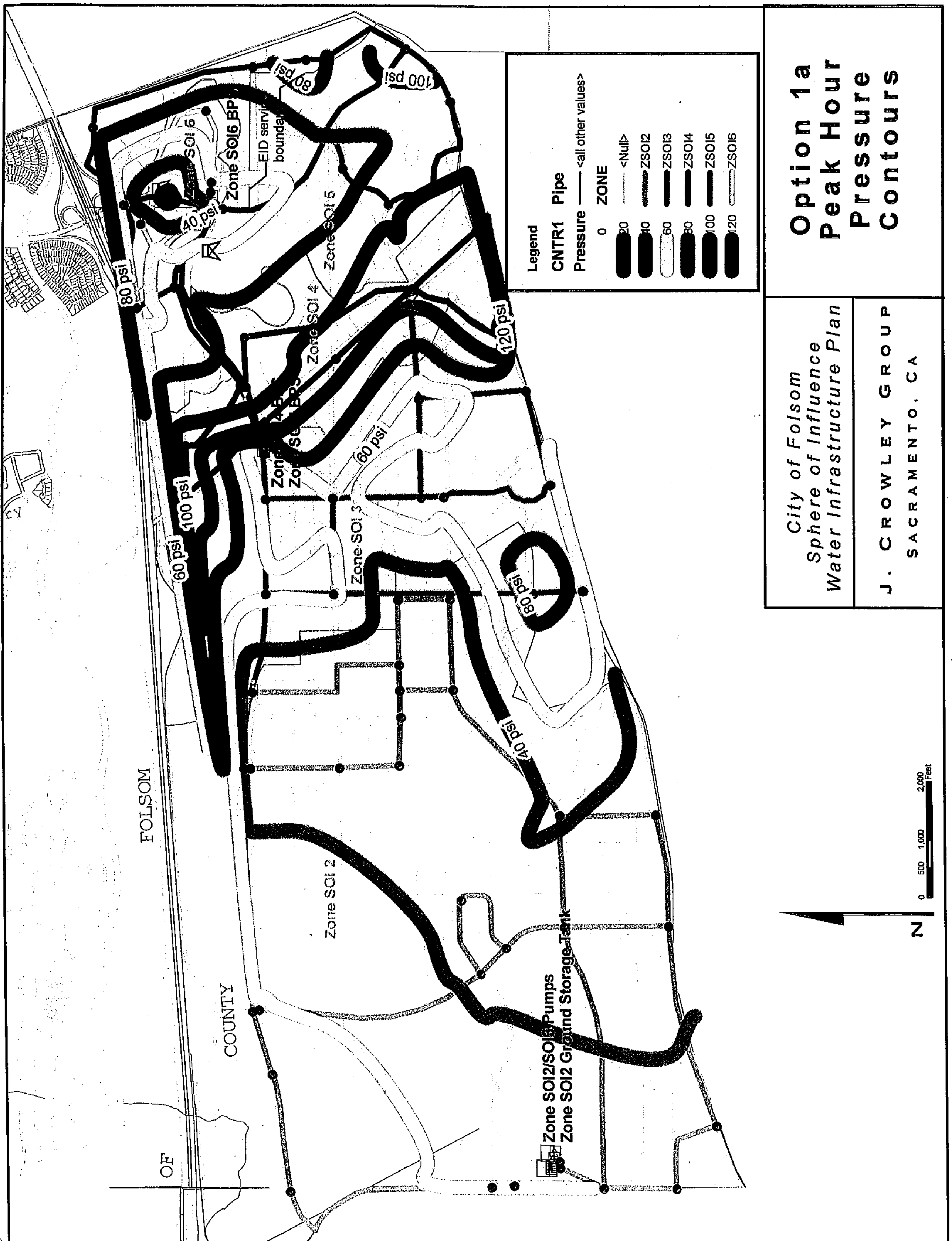

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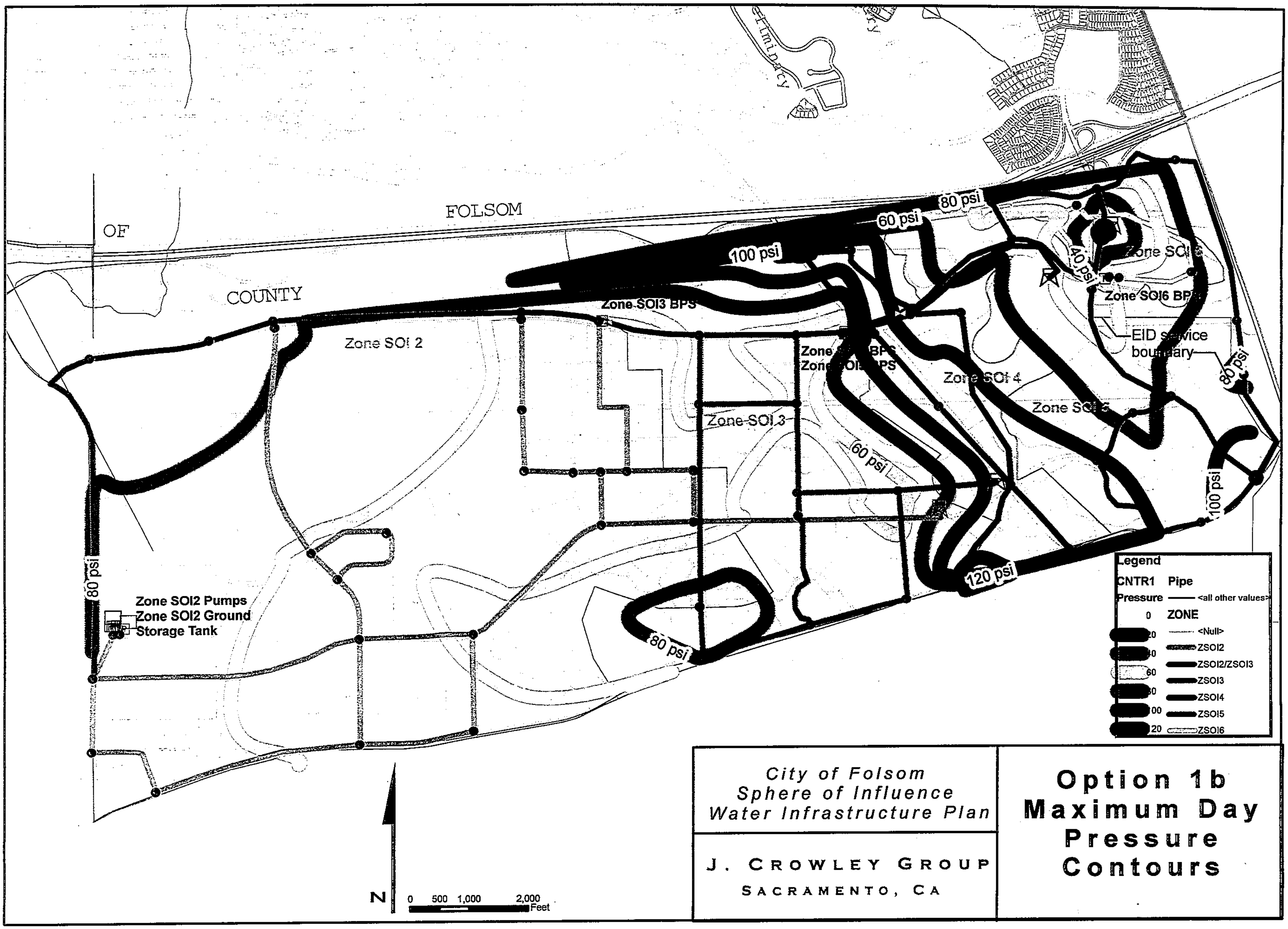
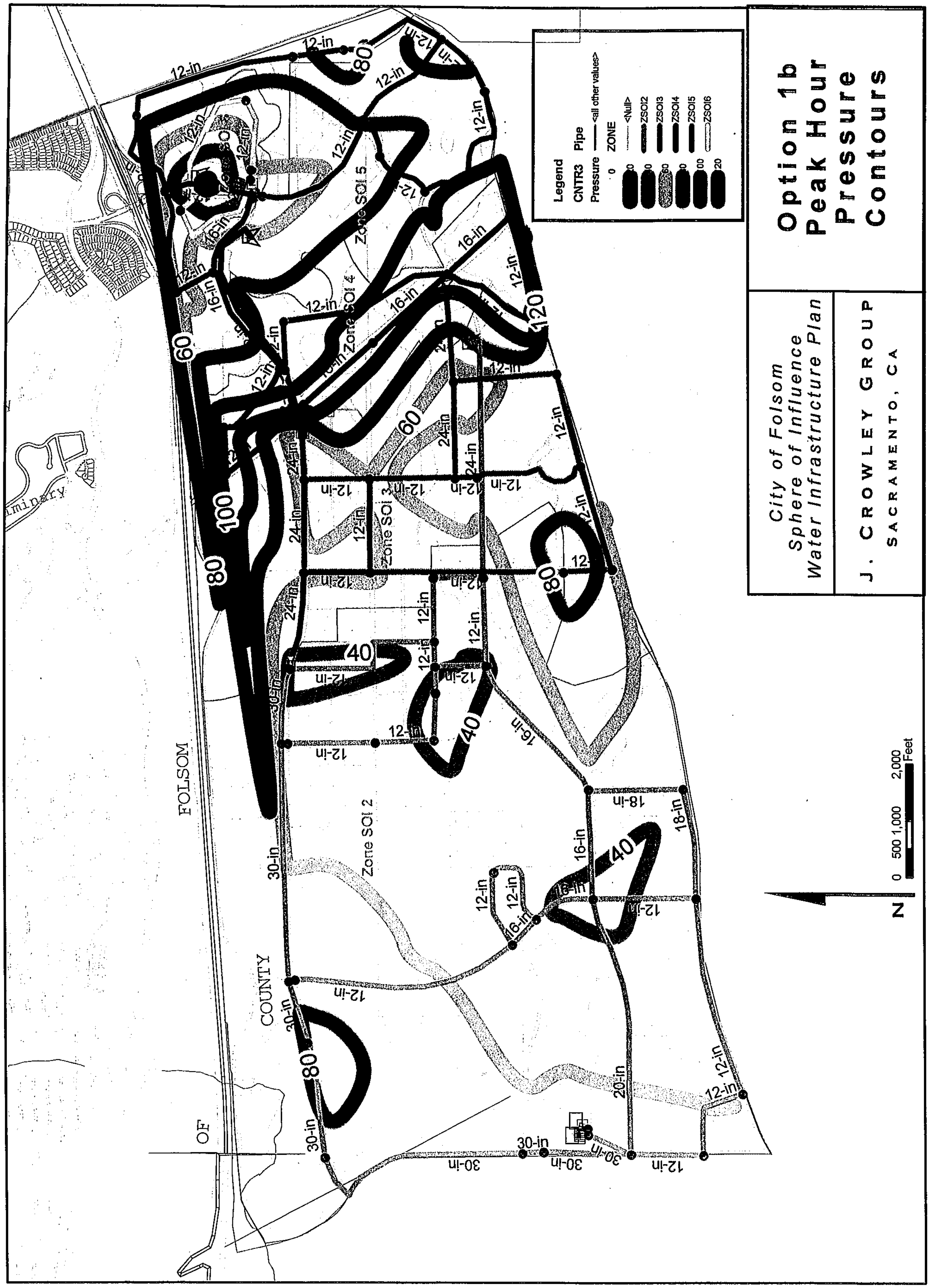


City of Folsom
Sphere of Influence
Water Infrastructure Plan

J. CROWLEY GROUP
SACRAMENTO, CA

Option 1b Maximum Day Pressure Contours



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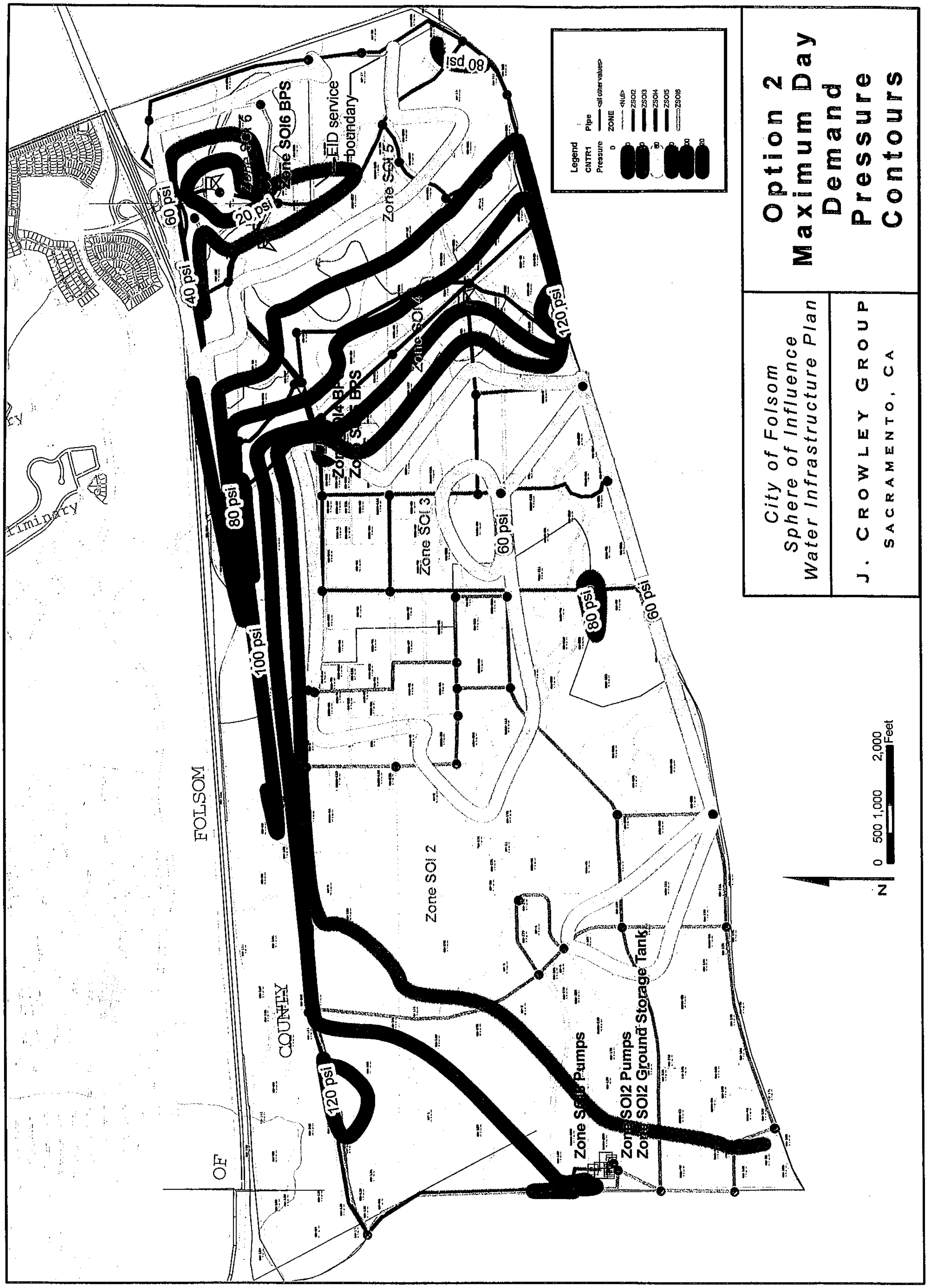

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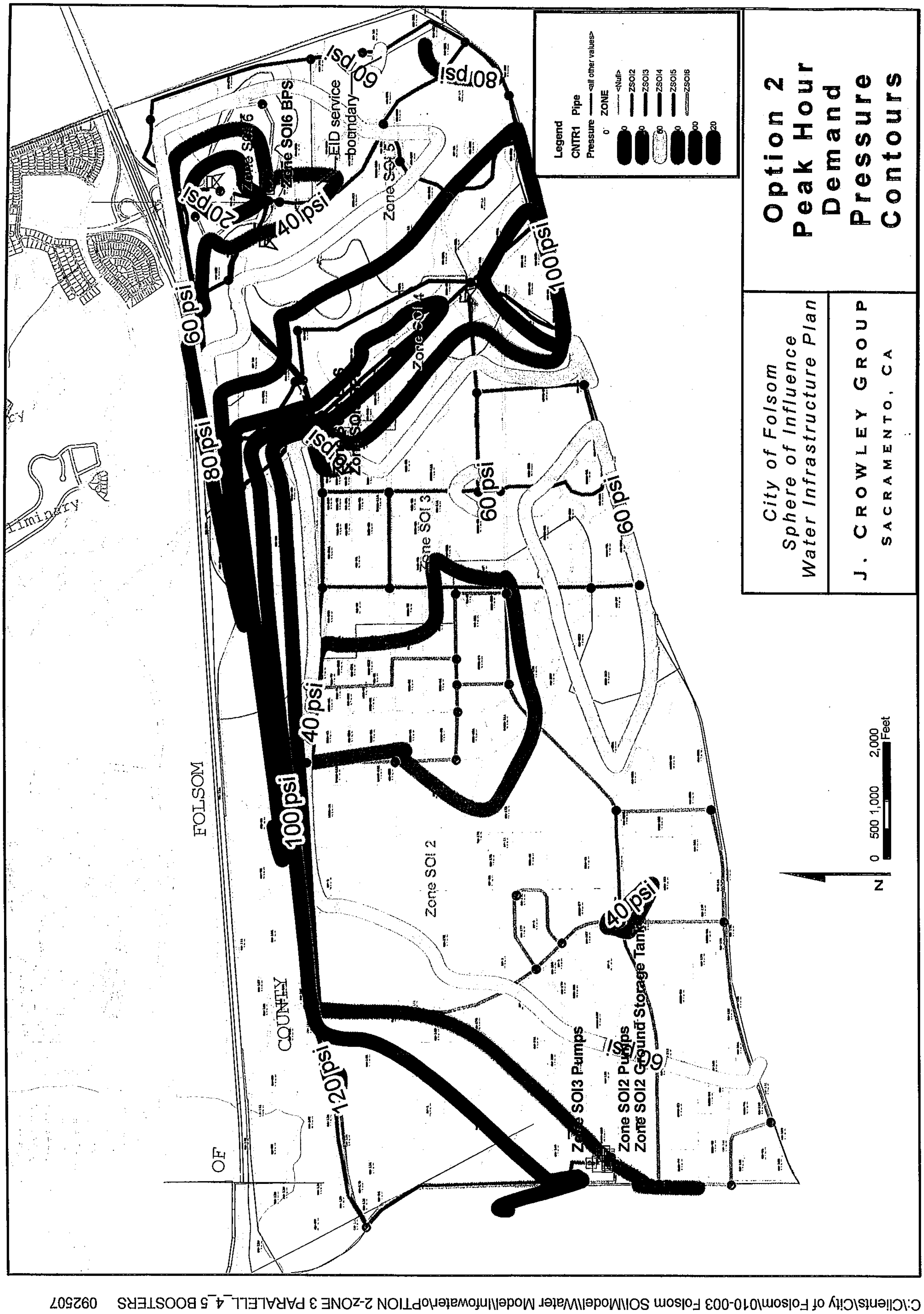

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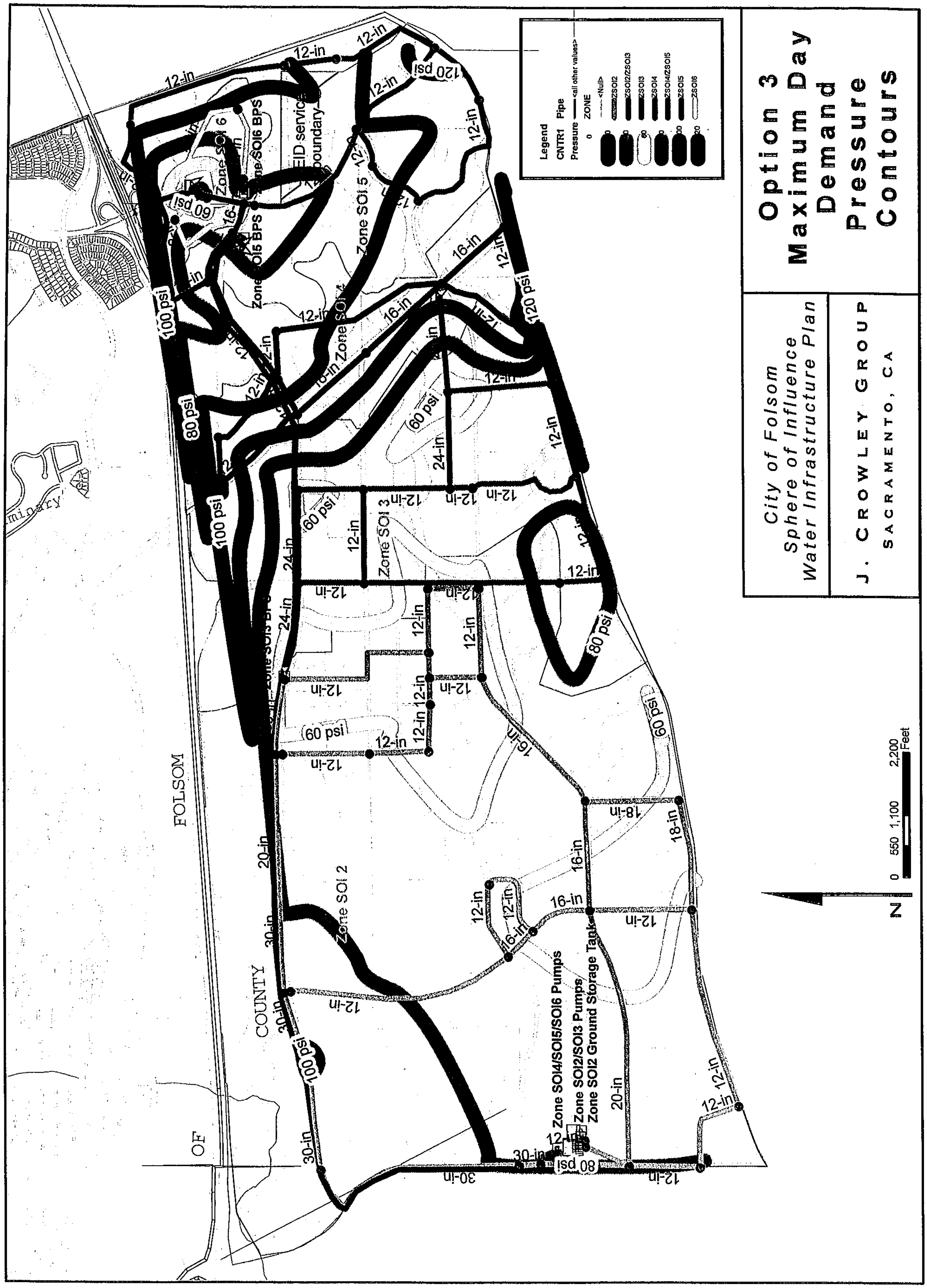

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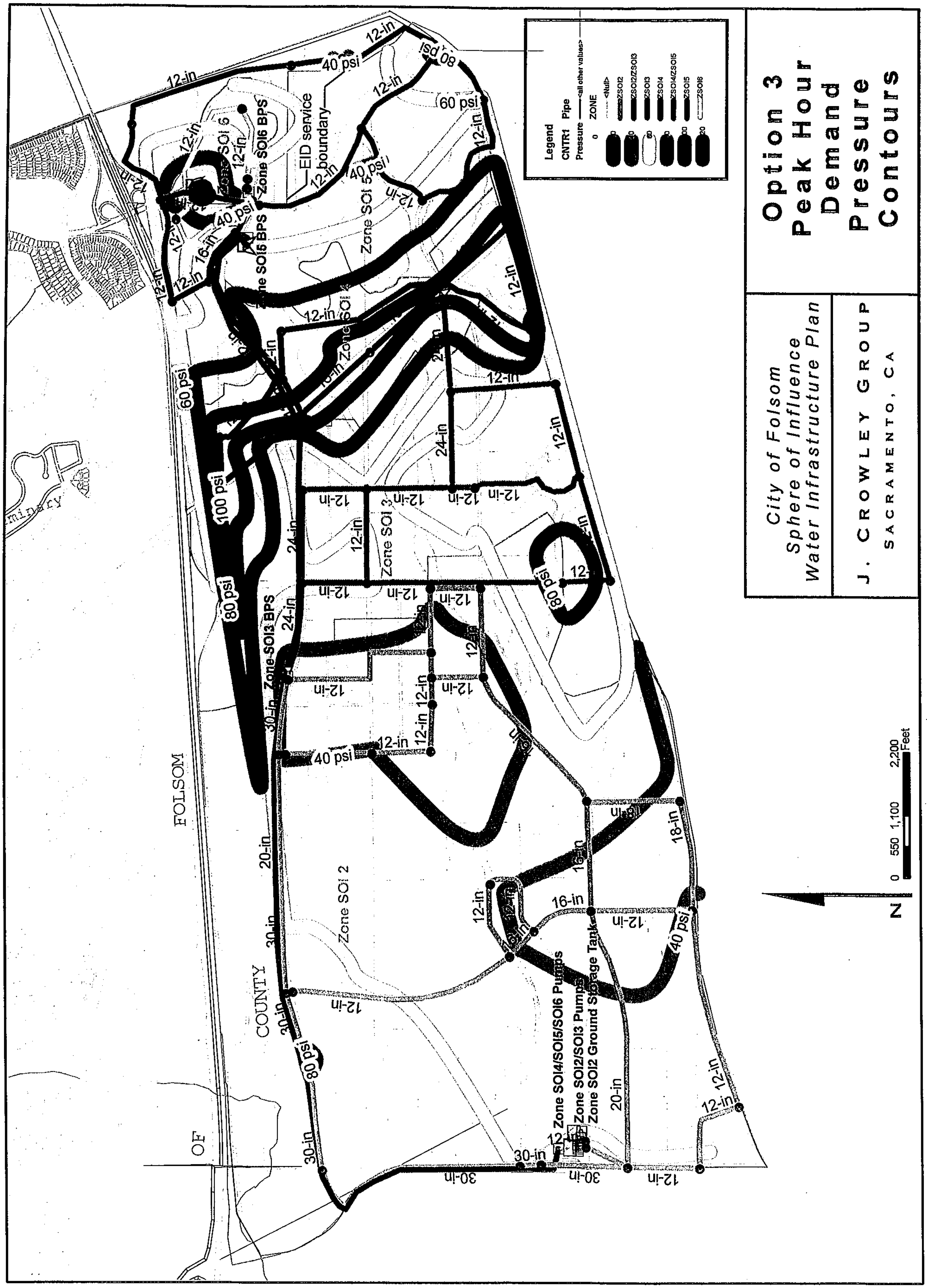

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291112 Part 2

J. CROWLEY GROUP, INC.
WATER RESOURCES PLANNING AND ENGINEERING

DRAFT

Technical Memorandum 013-003

TO: John Maguire, City of Folsom

FROM: Jim Crowley, J. Crowley Group
Melanie Holton, J. Crowley Group

DATE: December 13, 2007

SUBJECT: Draft SOI Recycled Water Analysis

Executive Summary

This recycled water infrastructure analysis provides a discussion and summary of the anticipated recycled water infrastructure needs to serve the Folsom Sphere of Influence (SOI). Potential recycled water demands in the Folsom service area and SOI area have been investigated previously by Folsom, Sacramento Regional County Sanitation District (SRCSD), and El Dorado Irrigation District (EID). This analysis estimates total potential recycled water demands assuming full residential irrigation, parks, schools, office parks, commercial, and streetscapes for comparison purposes, as shown in Table 1. Results indicate demands are projected up to 7,700 AF per year, depending on extent of recycled water use and irrigation factors assumed.

Table 1. Recycled Water Demand Comparison

Study	Projected Annual Recycled Water Demands, AF
This Analysis	
Full potential demands[a]	5,795
Targeted demands[b]	706
Draft SRCSD East County Feasibility Study[c]	
Folsom SOI C	1,947
Folsom SOI C ½	5,404
Folsom SOI D	7,708
Draft City of Folsom Water Recycling Feasibility Study[d]	
Alt 1	4,329
LO 5-4b	7,709

[a]Full potential demands include residential irrigation, parks, schools, office parks, commercial, and streetscape.
[b]Targeted demands include parks and schools in central and west side of SOI, and any irrigation of any commercial, businees, park, or streetscape adjacent to transmission mains.
[c]Draft SRCSD East County Feasibility Study data based on pdf from Jose Ramirez of the Sacramento Regional County Sanitation District via email dated August 29, 2007.
[d]Brown and Caldwell. Draft City of Folsom Water Recycling Feasibility Study, December 2005.

A targeted demand scenario is developed to plan for a system that serves most of the major non-residential recycled water demands within reasonable infrastructure requirements. The scenario assumes recycled water will be used at most parks and schools and some commercial, business park and streetscapes. Selection is based on logical grouping of sites near each other and proposed recycled water pipeline alignments. Sites selected are located in the central and west side of the SOI where most parks and schools are located. The Targeted scenario recycled water demands are compared to the total potable water demands projected in the draft Water Infrastructure Plan (J. Crowley Group, October 2007) in Table 2.

Table 2. Water Demand and Recycled Water Demand Comparison

Study	Total Water Demand, AFY	Targeted Recycled Water Demand, AFY	Adjusted Potable Water Demand, AFY
Draft Water Infrastructure Plan[a]	8,769	0.0	8,769
This Analysis	--	706	--
Total:	**8,769**	**706**	**8,063**

[a] Draft Water Infrastructure Plan (J. Crowley Group, October 2007)

This analysis does not investigate potential supply details or strategies. It is assumed supply will be provided from a satellite plant located on an interceptor sewer located west of the SOI and Folsom. Development of the necessary infrastructure assumes a booster pumping station on the west side of the SOI, a transmission main through the south portion of the SOI, and a storage tank located within the SOI near Placerville Road. Smaller distribution pipelines serve demand areas located away from the transmission mains. Sizing and design of the recycled water system requires set policies and standards that should be developed to further plan the system. The total cost for the recycled water system is estimated at $37 million dollars. This estimate includes the satellite treatment plant, but does not include the pumping station and pipeline required to deliver the flow to the SOI western boundary, as these elements could vary significantly depending on location.

This analysis quantifies the potential impact to potable water demands and the associated costs of a recycled water system. If the City would like to pursue implementing recycled water, further investigation is required to identify and develop supplies, define policy and design criteria, and coordinate with the SOI land owners, EID, and SRCSD.

Section 1 Introduction

This recycled water infrastructure analysis provides a discussion and summary of the anticipated recycled water infrastructure needs to serve the Folsom Sphere of Influence (SOI) area. The area is currently undeveloped and no public water supply or wastewater collection system exists in the area. The City of Folsom intends to annex the area and provide water, wastewater, and potentially, recycled water services, in addition to other City services, to the area. Additional infrastructure plans are developed under separate reports for water and wastewater infrastructure requirements in the SOI area. This recycled water infrastructure analysis will support discussions of recycled water use in the SOI area.

Section 2 Recycled Water Policy Assumptions

Many policy, operational, and design assumptions must be made to preliminarily size the infrastructure requirements. The following lists the assumptions made for this analysis. Should recycled water use be selected, the City will need to secure a supply and develop policy and design guidelines for the operations and design of the recycled water system.

- Supply is from a scalping plant downstream of Folsom. The analysis assumed a booster pumping station at the west side boundary of the SOI.
- Irrigation will be allowed from 9PM to 6AM to avoid potential contact with overspray or runoff.
- Flow will be pumped to a storage tank during the non-irrigation times of the day. Supply from the tank will meet daily irrigation demands.
- A portion of the SOI on the east side is in the El Dorado Irrigation District (EID) service area. EID requires all new development to include recycled water irrigation of parks, schools, streetscape, and residential. A separate analysis is underway to determine all water, recycled water, and wastewater infrastructure requirements for the EID service area.
- An earlier study (Draft City of Folsom Water Recycling Feasibility Study, Brown and Caldwell, December 2005) investigated various levels of recycled water use. Scenarios ranged from just parks and public landscapes to full residential landscape and toilet flushing in commercial and industrial land uses. This analysis assumes that recycled water will be used for irrigation at parks and schools in the central and west side of the SOI. In addition, all streetscape, commercial, and business park land uses along the recycled water pipelines will also be irrigated with recycled water. The potential demands of the full use scenario, with residential and commercial uses, are quantified for comparison purposes only.
- This analysis is based on the land use plan presented in the draft Water Infrastructure Plan (J. Crowley Group, October 2007).
- Daily storage is provided, but no seasonal storage is assumed.

Section 3 Recycled Water Demand Projections

The potential use of recycled water for outdoor irrigation for the proposed land use plan is evaluated in this section. Outdoor irrigation demands can be projected using two methodologies: Evapotranspiration (ETo)-based demands or historic data-based demands. The ETo method is based on a reference ETo and considers irrigation demand versus precipitation to determine total irrigation demand. The historic data-based demand method uses Folsom historical data and customer use analysis presented in the 2005 Urban Water Management Plan. Both methodologies are presented below and compared to select a standard basis for demand calculations.

3.1 ETo-Based Unit Demands

Landscape irrigation unit demands based on turf grass are used for projecting demands. It is assumed that most outdoor water use will irrigate turf grasses or similar water-demand plantings. ETo-based demands are calculated according to the methodology presented in *A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California,* University of California Cooperative Extension and California Department of Water Resources, August 2000. Landscape water needs are estimated according to the following landscape water needs equation (modified to include precipitation):

(Equation 1) $$TWA = (ETo(k_s * k_d * k_{mc})/IE) - (P*IE)$$

where:
TWA = total water to apply.
P = precipitation.
ETo = reference evapotranspiration.
k_s = species factor (allowable range = 0.1-0.9, assumed 0.9 for turf grasses).
k_d = density factor (allowable range = 0.5-1.3, assumed 1.0 – no planting density impacts).
k_{mc} = microclimate factor (allowable range = 0.5-1.4, assumed 1.0 – no microclimate impacts).
IE = irrigation efficiency (normal range 0.65-0.90, assumed 75 percent, takes into account runoff, sprinkler efficiency, and percolation beyond root zone).

ETo data and irrigation demands are shown in Table 3. Data is presented for an average year (average precipitation) and a dry year with a return frequency of five percent. The assumptions noted for the irrigation demand equation represent a conservative (high end) estimate of water demands appropriate for this level of planning. Actual values may be less depending on type of landscape installed and irrigation system maintenance practices.

Note that ETo does not change with hydrology; it remains the same regardless of precipitation. Therefore irrigation demands in dry years represent a need to irrigate for more months compared to other years. As shown in Table 3, the dry year irrigation demand is 10 percent greater than the average year. Due to precipitation and weather patterns in the Sacramento Valley, irrigation demands during the summer months are relatively constant regardless of hydrologic year type. Only the normal year demands are carried forward throughout this analysis, as dry year demands do not influence infrastructure sizing.

Table 3. ETo-Based Irrigation Demands

Month	Precipitation[a], inches		ETo[b], inches	Irrigation Demand[c], inches	
	Average	Dry		Average	Dry
Jan	4.4	2.2	1.59	0	0.3
Feb	3.8	2.3	2.20	0	0.9
Mar	3.9	2.2	3.66	1.5	2.7
Apr	1.9	1.0	5.08	4.7	5.4
May	0.6	0.3	6.83	7.8	8.0
Jun	0.1	0.2	7.80	9.3	9.2
Jul	0.1	0.1	8.67	10.3	10.3
Aug	0.5	0.1	7.81	9.0	9.3
Sep	0.5	0.3	5.67	6.5	6.6
Oct	1.5	0.8	4.03	3.7	4.2
Nov	3.4	1.9	2.13	0	1.1
Dec	3.5	1.9	1.59	0	0.5
Annual Totals	**24.2**	**13.3**	**57.06**	**52.6**	**58.5**

[a] Folsom Dam Station, Western Regional Climate Center, 1955-1993. Dry year represents five percent return frequency.
[b] CIMIS, Fair Oaks Station No. 131. (April 1977-2005)
[c] See Equation 3-1 for calculation assumptions.

3.2 Historic Data-Based Unit Demands

The 2005 Urban Water Management Plan (UWMP) and parallel water demand analysis investigated unit water demands for each of Folsom's land use designations, as well as indoor and outdoor use. Water production records are compared with operating conditions and a range of land use unit water demands from other agencies in the region to derive indoor and outdoor unit water demands for Folsom. Results estimate the outdoor demand unit water factor at 4.0 acre-feet per acre per year.

3.3 Unit Demand Comparison

The average year ETo-based unit water demand is 52.6 inches per year, or 4.4 acre-feet per acre per year. The dry year ETo-based unit water demand is 4.9 acre-feet per acre per year. These values are larger than the UWMP value of 4.0 acre-feet per acre per year, and larger than unit water demands experienced by other recycled water utilities in the region, such as Roseville and EID. This analysis will use the outdoor irrigation unit water demands presented in the UWMP to remain consistent with the water demand projections used for all water demands. If recycled water use is selected for the SOI, further analysis of demands and comparison with similar application sites is warranted.

3.4 Design Flow Peaking Factors

Design flow peaking factors are used to convert average annual demands to design flows used for sizing infrastructure. The peaking factors are applied to annual demands to determine maximum day and peak hour demands. The peak hour demand factor considers irrigation timing and practices to determine the peak hour flow rate. Maximum day and peak hour design flow peaking factors in Table 4 are based on factors from Sacramento Regional County Sanitation District (SRCSD) as shown in the Draft City of Folsom Water Recycling

Feasibility Study (Brown and Caldwell, December 2005). The maximum day peaking factor represents the maximum day to average day demand ratio and the peak hour peaking factor represents the peak hour to maximum day demand ratio.

Table 4. Recycled Water Design Flow Peaking Factors

Demand Condition	Peaking factor
Maximum day	2.6
Peak hour	3.0

3.5 Projected Recycled Water Demands

Unit water demands are applied to projected land use area to identify total annual water demands. A net acre factor is used to convert total acreage to actual acreage with water demands. This acreage reduction accounts for non-water demand areas, such as right of ways or pavement. Table 5 presents these factors as well as a comparison of the recycled water demands per land use for full reuse implementation for an average hydrologic year using the ETo-based unit water demands and using the historic data-based unit water demands.

A second reduced demand projection is shown in Table 6. Targeted parcels to include are developed based on review of the land use plan, site elevations, and potential pipe routes. The potential alignment was established to serve all large parks and school sites in the central and west side of the SOI. Other demands such as commercial, office park, and streetscape (OSL) were added if they were close to the main pipe alignment. This analysis assumes that most OS land use parcels will be un-irrigated, natural landscapes, and that any water demands such as parking or entrance areas, is met with potable water. Table 6 provides a summary of the targeted demands used for this analysis; selected parcels are also identified later in this analysis in Figure 3. Although the ETo based demands are not used further in this analysis, they are shown for comparison purposes only.

Table 5. Potential Recycle Water Demands for Full Implementation – Average Year

Land Use ID	Area, acres	Dwelling Unit Density, DU/acre	Dwelling Units	Outdoor Unit Water Demand: ETo-based, AF/DU or AF/ac	Outdoor Unit Water Demand: Historic Data-based, AF/DU or AF/ac	Net Acre Factor	Recycled Water demand[d]: Avg. Annual, acre-feet: ETo-based	Avg. Annual, acre-feet: Historic Data-based	Max day, mgd: ETo-based	Max day, mgd: Historic Data-based	Peak hour, gpm: ETo-based	Peak hour, gpm: Historic Data-based
SF	560	3.9	2,184	0.34[a]	0.45	0.30[b]	813	1,081	1.9	2.5	3,932	5,228
SFHD	522	6.9	3,604	0.26[a]	0.36	0.40[b]	1,011	1,784	2.3	4.1	4,887	8,627
MFLD	251	11.9	2,987	0.09[a]	0.2	0.25[b]	304	1,183	0.7	2.7	1,469	5,721
MFMD	28	17.9	499	0.06[a]	0.2	0.25[b]	34	110	0.1	0.3	164	532
MFHD	100	25	2,503	0.04[a]	0.2	0.25[b]	121	275	0.3	0.6	585	1,330
CCD	41			4.4	4	0.05	10	9	0.0	0.0	48	44
OP	107			4.4	4	0.10	52	47	0.1	0.1	250	227
CC	139			4.4	4	0.05	34	31	0.1	0.1	163	150
GC	203			4.4	4	0.05	49	45	0.1	0.1	238	218
Park	118[c]			4.4	4	0.75	355	322	0.8	0.7	1,717	1,557
LP	47			4.4	4	0.75	171	156	0.4	0.4	825	754
OS	991			--	--	--	--	--	--	--	--	--
OSL	55			4.4	4	0.75	200	183	0.5	0.4	966	885
SCH	181			4.4	4	0.50	438	398	1.0	0.9	2,118	1,925
EXCL RW	73			--	--	--	--	--	--	--	--	--
MAJ CIRC	143			--				--	--	--	--	--
Non-residential toilet flushing	--				--	--	172	172	0.4	0.4	832	832
Total	**3,559**		**12,269**				**3,762**	**5,795**	**8.7**	**13.5**	**18,193**	**28,029**

[a]Residential outdoor demand of 4.4 AF/acre is converted to AF/DU using the Net Acre Factor and DU density.
[b]Residential net acre factors are estimated based on draft development standards for the purpose of estimating outdoor recycled water irrigation demand using ETo-based unit water use factors.
[c]Park acreage for applied recycled water is 98 acres due to removal of Lot 108 (20.2 acres for proposed WTP site) from the recycled water application calculation.
[d]An unaccounted water use factor of 1.1 is applied to all demands.

Table 6. Recycled Water Demands – Targeted[a]

Land Use ID	Area served, acres	Recycled Water Demand[b]					
		Avg. Annual, acre-feet		Max day, mgd		Peak hour, gpm	
		ETo-based	Historic Data-based	ETo-based	Historic Data-based	ETo-based	Historic Data-based
CCD	16	4	3	0.01	0.01	18	17
Park	89	322	293	0.7	0.7	1,557	1,416
OSL	10[c]	37	34	0.1	0.1	179	163
SCH	171	414	376	1.0	0.9	2,000	1,818
Total	**286**	**776**	**706**	**1.8**	**1.6**	**3,754**	**3,413**

[a]Recycled water to parks and schools in Zones SOI 2 and SOI 3 and any adjacent commercial and landscaped open space are assumed to be served.
[b]An unaccounted water use factor of 1.1 is applied to all demands.
[c]Acreage for OSL served is approximated based on estimated length of recycled water transmission pipeline multiplied by 20 feet width of landscape along the alignment.

Table 7 provides a comparison of SOI recycled water demand estimates in this technical memorandum and in previous studies. The total potential recycled water demand in this technical memorandum falls within the median of the estimates calculated in the SRCSD and Brown and Caldwell studies. Reasons for differences in irrigated acreages and recycled water demands between the previous studies could be due to varying unit water use assumptions and the SOI land use plan status at the time of each study. The actual demands used in this analysis are significantly less, at 706 acre-feet/year, as this analysis limits reuse to some parks and schools and other parcels near the proposed pipeline alignments.

Table 7. Comparison of SOI Recycled Water Demand Estimates

Estimate Source	Gross Acreage, acres	Irrigated Acreage, acres	Recycled Water Demand	
			Avg. Annual, acre-feet	Max day, mgd
This Analysis				
Full-Use Recycled Water Demand[a]	3,559	2,331	5,795	13.5
Targeted Recycled Water Demand assumed in this analysis[a]	3,559	286	706	1.6
Draft SRCSD East County Feasibility Study[b]				
Folsom SOI C	3,584	420	1,947	6.1
Folsom SOI C ½	3,584	852	5,404	14.3
Folsom SOI D	3,584	1,140	7,708	19.8
Draft City of Folsom Water Recycling Feasibility Study[c]				
Alt 1	--	--	4,329	--
LO 5-4b	--	--	7,709	15.3

[a]Historic data-based unit water use, average year.
[b]Draft SRCSD East County Feasibility Study data based on pdf from Jose Ramirez of the Sacramento Regional County Sanitation District via email dated August 29, 2007.
[c]Brown and Caldwell. Draft City of Folsom Water Recycling Feasibility Study, December 2005.

Demand values are calculated for each month to size infrastructure on maximum demand requirements. The annual irrigation demand curve from Table 3 is applied to the selected recycle demand (706 acre-feet/year) used in this analysis in Table 8.

Table 8. Monthly Water Demand-Average Year[a]

Month	This Analysis Demand	
	Ac-ft	mgd
Jan	0.0	0.0
Feb	0.0	0.0
Mar	0.0	0.0
Apr	65	0.7
May	108	1.2
Jun	128	1.4
Jul	142	1.5
Aug	124	1.3
Sep	90	1.0
Oct	51	0.5
Nov	0.0	0.0
Dec	0.0	0.0
Annual Total	706	0.6

[a]Based on Historic data-based demand estimate.

Section 4 Recycled Water Supply

This section presents the previous efforts to identify potential recycled water supplies. Supply planning efforts by the SRCSD and (EID) are summarized with recommendations for potential supply integration strategies. The overall strategy is to obtain supply from a satellite wastewater treatment plant that scalps flow from one of the SRCWD interceptors, obtain excess supply from EID, or a combination of the two supplies. However, to size infrastructure, this analysis assumed all flow would come from a scalping plant downstream from Folsom. If reuse is selected for the SOI, a concerted effort is required to investigate and secure a supply.

4.1 Recycled Water Supply Requirements

Recycled water supply for landscape irrigation follows unique characteristics due to irrigation demand patterns over a year. Demands vary by month, with the summer months using most of the supply, and the winter months using none. However, supply needs might not directly mirror demand needs as system operation and maintenance requirements also impact supply needs. For instance, during months of minimum demand, the system still must be operated so that irrigation water is available within the design pressure and flow parameters. Also, Folsom may choose to keep the system in full operation during periods of no theoretical demands (mostly winter), as some winters may still require irrigation due to low precipitation. During these times, the system may experience water age problems, such as algae growth. The system may need additional disinfection or may need to be flushed to keep the water quality within design parameters.

Due to climate patterns in the Sacramento Valley, where there is almost no precipitation during summer months, the maximum demand is during summer months. Maximum demand usually remains constant over many days. Peak hour demands are dependent on irrigation schedules. Other recycled water systems limit irrigation to night time hours. However, it one site sets the irrigation system to meet all of its demands in a two hour period, the site will exert a greater demand on the distribution system, impacting flow conditions at other sites.

The daily issues presented mostly impact design criteria, as recycled water systems are sized to meet the maximum day and peak hour demands. Annual issues such as minimum system operations and year-round availability affect the annual supply needs presented in this document. This presents a slightly different operation than other recycled water utilities in the region, as the others do not operate satellite systems, but simply make water available from their wastewater treatment plants or raw water systems as necessary. These supply issues will need to be further defined if recycled water use is pursued.

4.2 Folsom Wastewater Flows

The City of Folsom owns and operates its own wastewater collection system. Collected flows are discharged to the SRCSD interceptor system, and are then conveyed and treated by SRCSD.

A potential source of supply is to use the City of Folsom wastewater flows in a satellite treatment facility, or scalping plant. All flows from Folsom would be available as a supply source for the SOI recycled water needs. SRCSD has investigated this alternative in their Recycled Water Opportunities Investigation, November 2006. Of main concern in the SRCSD study is to ensure there is sufficient flow to meet minimum flow requirements in the interceptor downstream of the satellite plant.

The City of Folsom projects ultimate dry weather base flows in the ongoing update to the wastewater master plan at 11.0 mgd (email from ECO:LOGIC, November 9, 2007). This converts to an annual flow volume of 12,300 acre-feet. Wastewater flow projections for the SOI area are reported in the Draft SOI Wastewater Infrastructure Analysis (J. Crowley Group, October 2007). The two flows are combined to represent total flow from Folsom that could potentially be used for recycled water supply shown in Table 9. Flow projections do not include the Aerojet development of Easton Glenborough.

Flows reported are dry weather base flow estimates. Actual flows will be larger due to some groundwater infiltration and rainfall induced infiltration and inflow. However, for recycled water supply planning purposes, the base flow is used to provide the minimum projected supply. Total Folsom flows projected in the SRCSD Recycled Water Opportunities Investigation were not available for comparison.

Table 9. Total Folsom Wastewater Production at Buildout

Area	Daily Dry Weather Base Flow, mgd	Annual Base Flow, acre-feet/year
Existing Folsom Service Area[a]	11.0	12,300
SOI[b]	5.2	5,800
Total:	**16.2**	**18,100**

[a]City of Folsom – draft wastewater master plan update project, email from ECO:LOGIC, November 9, 2007.
[b]Draft SOI Wastewater Infrastructure Plan, J Crowley Group, October 2007.

4.3 Supply to Demand Comparison

Daily supply must be able to meet maximum day demand because no seasonal storage is assumed. The maximum day demands are calculated for the range of demand scenarios from this and other studies discussed above. Annual demand is compared to supply on Figure 1. Maximum day demand is compared to daily supply on Figure 2. As indicated, when only using the wastewater generated by Folsom, there is sufficient supply on an annual basis for all of the demand scenarios listed. However, when looking at available supply on a daily basis in Figure 2, demand is much closer to supply. The supply numbers do not include the minimum pipe flow requirements suggested by SRCSD, which would result in even less supply. As the highest reuse demands occur at the lowest wastewater flow periods (summer), seasonal recycled water storage would help alleviate supply issues. Further coordination with SRCSD regarding minimum pipe flows and other supply issues is required to better define supply requirements.

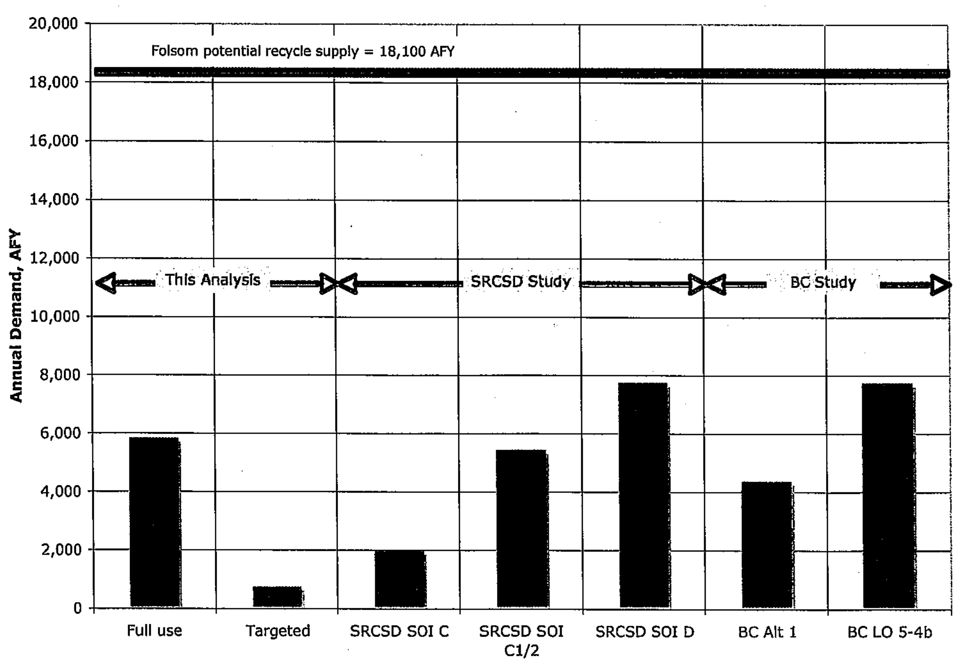
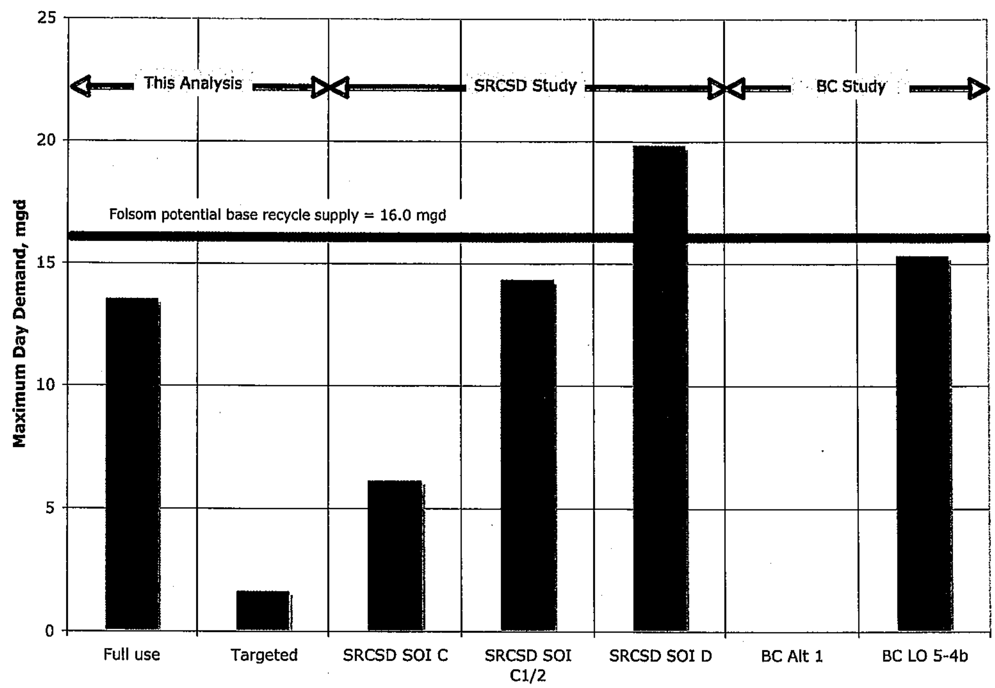


Figure 1. Annual Supply to Demand Comparison



Note: BC Alt 1 did not project maximum day demands.

Figure 2. Maximum Day Demand - Supply to Demand Comparison

4.4 SRCSD Recycled Water Planning Effort Update

SRCSD released the Water Recycling Opportunities Study in February, 2007. Since that time, SRCSD continued to update is planning projections for the Highway 50 corridor recycled water alternatives. Additional efforts by SRCSD have further defined their supply and operational issues and policies. The available supply from a satellite treatment facility per the SRCSD planning efforts is not available at this time.

4.5 EID Recycled Water Planning Efforts.

EID produced the Draft Recycled Water Master Plan in December, 2002. The document identified a potential excess recycled water supply available for use in Folsom. Since that time, EID has revised its supply and demand estimates internally, and Folsom evaluated potential supply from EID in its December 2005 Water Recycling Feasibility Study. EID staff was contacted during this planning effort to update potential supply estimates, identify interest in supply collaboration, and identify other issues that may impact recycled water planning with EID. EID staff is unable to provide comment until their internal planning and analysis is further updated.

4.6 Glenborough/Easton Development

The Glenborough/Easton development directly east of the SOI area on Aerojet property also may use recycled water for some of its landscape irrigation needs. Projected wastewater flows from its area may be available as part of the overall supply. The SRCSD planning efforts assumed that the development would use recycled water, and routed the supply main through the development.

4.7 Recycled Water Supply Summary

Recycled water supply is available to the SOI from different alternatives. A satellite treatment plant could be located within the SOI, existing City of Folsom, Glenborough development, or further west as assumed in the SRCSD studies. Supply discussions with EID are preliminary. EID is currently unable to comment on available supply until they have more information from their ongoing recycled water supply studies and projects. This analysis assumes a satellite plant would be located west of the SOI.

Section 5 SOI Recycled Water Distribution System

This section develops alternatives for the recycled water distribution system within the SOI area. The internal distribution system is first developed with consideration to demand locations, main pipe alignments, storage needs and locations, pressure zones, and pumping requirements.

An extended period simulation hydraulic model of the SOI system was developed in this analysis using MWSoft's Infowater software, the GIS-based version of H2ONet. The development of a computer hydraulic model makes it possible to analyze the expected system performance at varying demand conditions such as maximum day and peak hour. System demands are assigned to specific nodes throughout the SOI.

5.1 Demand Assignment

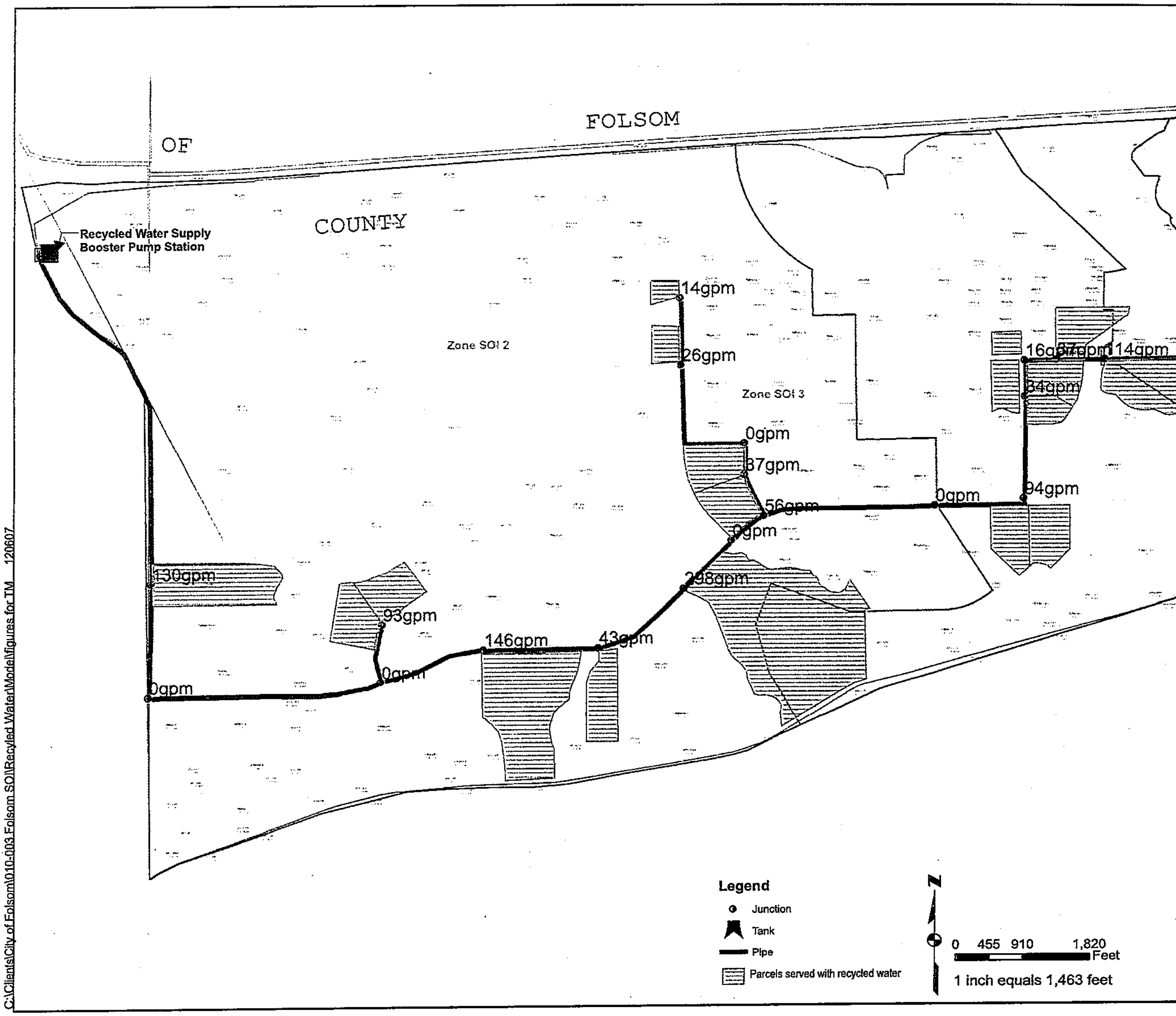
Demands developed in this technical memorandum are grouped together and assigned to node locations as shown on Figure 3. The distribution main alignment was based on serving all schools and parks within water pressure Zones SOI 2 and SOI 3. Some of the commercial and business park demands will be served if the site is located along the recycled water main alignment. The SOI land use plan is used to identify all commercial and business park demands adjacent to the proposed recycled water main. The hatched parcels on Figure 3 are the school, park, and adjacent commercial and business park parcels being served recycled water in this analysis.

5.2 Supply Location

For this analysis it is assumed that the recycled water supply booster pump station is located in the northwest corner of the SOI, as shown on Figure 3. An analysis of the supply or a portion of the supply coming from EID is not included in this report.

5.3 System Development

A distribution system consisting of storage, booster pumping, and transmission mains was developed and input into the model. Sizing and modeling assumptions used to create the system are summarized in Table 10. These design criteria should be reviewed and further developed by the City during the SOI recycled water pre-design process. A 10 psi pressure differential between potable and recycled water systems is desired so that in the case of a system leak, the potable water system is at the higher pressure.



City of Folsom
Sphere of Influence
Recycled Water
Analysis

J. Crowley Group
Sacramento, CA

Figure 3.

Recycled Water Demands by Node

C:\Clients\City of Folsom\010-003 Folsom SOI\Recycled Water\Model\figures for TM 120607

Table 10. Sizing and Modeling Assumptions

Element	Value
Diurnal Storage	Volume equal to: One maximum day demand plus 50% of maximum day demand for emergency
Pressure range	30 psi – 70 psi
Pipeline velocity	3 to 5 feet per second maximum
Pipeline roughness coefficient	130
Minimum transmission main diameter	8-in

5.4 Diurnal demand

A diurnal time pattern was established to simulate system demands over a 24-hour period. The time pattern used in this extended period analysis is illustrated on Figure 4. For this analysis it is assumed that the recycled water use will occur between 9 PM to 6 AM to reduce the chance of public exposure to recycled water spray and mist.

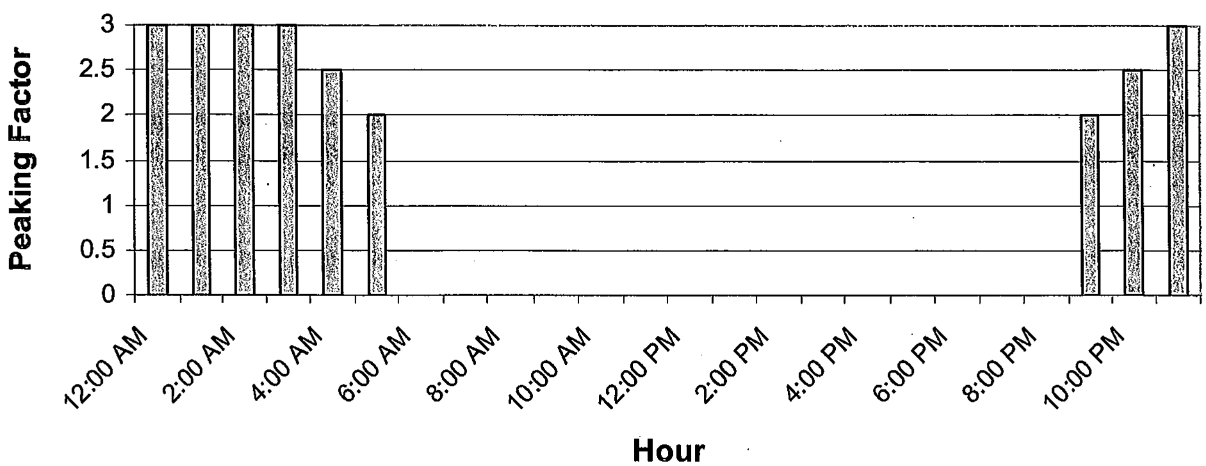


Figure 4. Diurnal Demand Curve for 24-Hour Maximum Day Period

5.5 Diurnal Storage

Diurnal storage must be provided so that the recycled water treatment facility can operate near a constant rate to maximize treatment stability. For this analysis it is assumed that the storage will be filled during non-irrigation hours (6 AM to 9 PM). The diurnal storage is sized to provide the supply for the night time demand as well as one half maximum demand day of emergency storage as shown in Table 11. Diurnal storage is typically provided in above-grade coated steel water storage tanks, designed similar to tanks used for potable water supply systems. The storage tank is located at an elevation of 500 feet in the Zone SOI 4 area.

Table 11. Storage Facility

Storage Requirement	Volume, MG
Maximum day supply	1.6
Emergency	0.8
Total	2.5

5.6 Pressure Zones

A one pressure zone recycled water system for the demand locations provides adequate pressures during the night-time demand period. During periods of no customer demand (between 6AM and 9PM) nodal pressures near the recycled water supply booster pump station are elevated as high as 170 psi. This high pressure is due to the required discharge head of the supply booster pump station necessary to pump recycled water to the diurnal storage facility. Another option is to place an in-line booster pump station and bypass valve along the alignment near the zone break between water pressure zones SOI 2 and SOI 3. This would reduce day time system pressures near the recycled water supply facility by reducing the required discharge head at the recycled water supply facility. Development of actual pressure zone boundaries and other details depend on as-yet undetermined operational policies and should be refined in the preliminary design phase.

5.7 Booster Pump Station

The booster pump station from the recycled water supply is sized to pump maximum day demands from the scalping plant to the storage tank during non-irrigation times. The capacity and horsepower for this booster pump station is provided in Table 12.

The horsepower (HP) required for this booster pump station is calculated based on the following equation:

(Equation 2) $$\text{Required horsepower}=Q*TDH/(eff*3{,}960)$$

Where:
Q = required flow, gpm
TDH = total dynamic head, ft
eff = pump efficiency, assumed to be 0.75

Table 12. Booster Pump Station Capacity

Booster Pump Station	Capacity	Horsepower
At supply scalping plant	2,000 gpm	250 HP

5.8 Transmission Mains

The transmission mains are sized for a pipeline velocity of 3 to 5 fps under peak hour demand conditions. Some 8-in pipelines have velocities lower than 3 fps, but for this technical memorandum a minimum pipe size of 8-in is maintained. Because this system has source supply coming from the west side of the system and the storage on the east side of the system, some of the pipelines will exhibit lower velocities during different times of the day. For example, the pipelines near the west side of the system are sized to convey supply from the scalping plant to the storage facility during the day time. When the pipelines are used to deliver supply to the irrigation sites, the velocities are much lower. The pipeline diameters and respective lengths are shown in Table 13 and illustrated on Figure 5.

Table 13. Transmission Main Diameters and Length

Diameter, in	Length, ft
8	4,754
12	14,812
16	9,227
Total (rounded)	**28,800**

5.9 SOI Recycled Water Distribution System Summary

The proposed system is shown on Figure 5. The pressures and velocities are shown for peak hour demands. High pressures occur on the west side during the non-irrigation hours when the booster pump station is pumping recycled water from the scalping plant to the storage tank. Pressure zone design depends on operational policies and will be addressed during the detailed planning and design phases.

Section 6 SOI Recycled Water Distribution System Cost Estimate

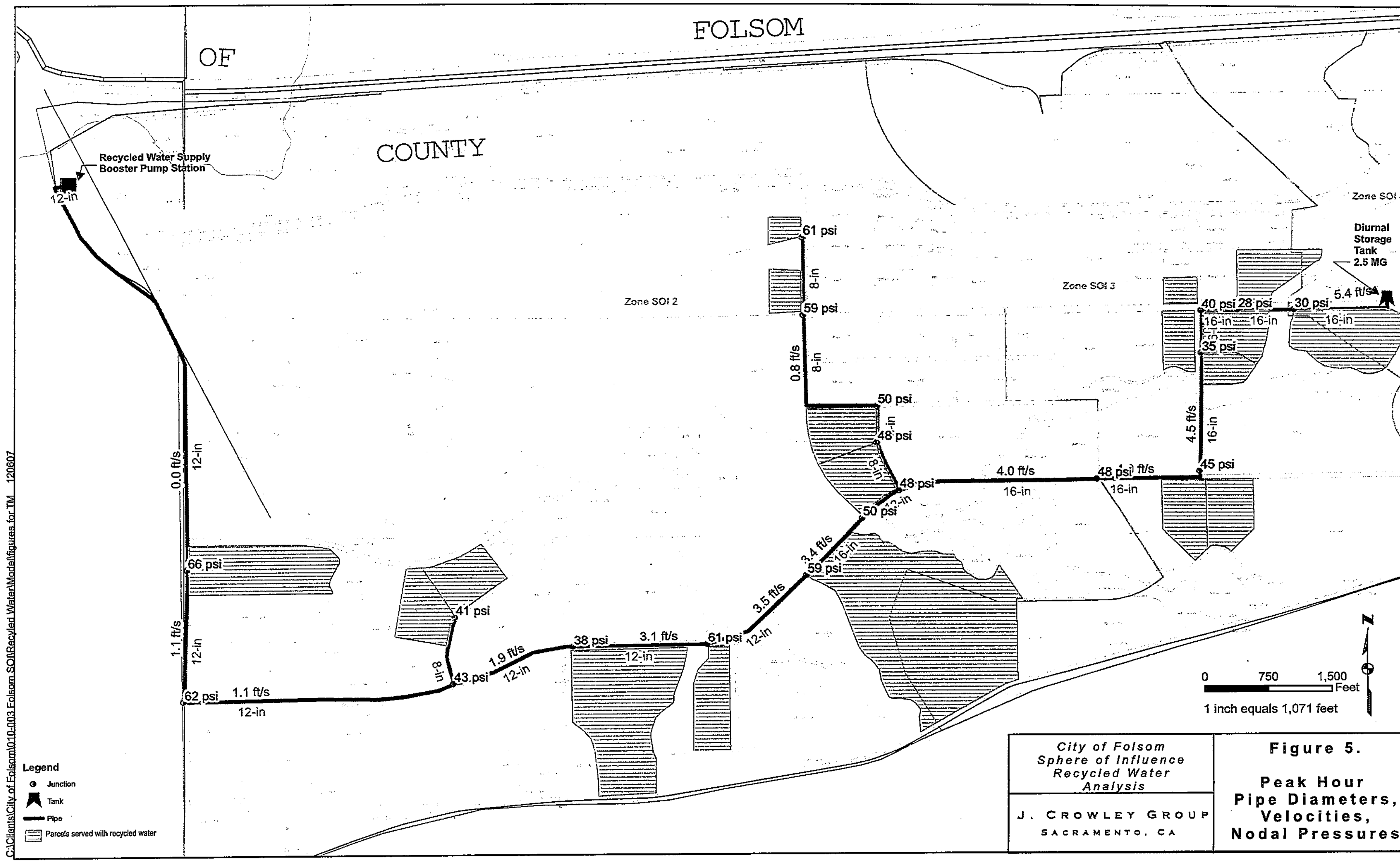
The estimated construction cost of the recycled water infrastructure is developed at a conceptual level in this section.

6.1 Unit Costs

Table 14 provides a summary of the unit cost assumptions for this conceptual cost estimate. Also provided are the references and/or assumptions used to estimate the unit costs. The cost estimates are based on using construction unit costs of similar facilities when possible. When such costs are not available, construction costs are estimated from available cost curves or other assumptions.

Table 14. Unit Cost Assumptions

Infrastructure Component	Unit Cost	Reference/assumption
Pipeline	$18/in-dia/linear foot	Based on recent bid tabs and completed construction for projects for local water agencies.
Booster pump station	$250/gpm	Treated water. Based on construction costs of service water pumping stations cost curve (Robert L. Sanks, Pumping Station Design, 1989, Figure 29-6) and based on recent project costs for Sacramento area booster station projected to January 2007.
Water storage tank	$0.50/gallon	Based on discussions with local contractors and water agencies on recent reservoir construction with foundation and appurtenances.
Recycled Water treatment facility (scalping plant)	$10/gallon	Based on high range of SRCSD estimate.


FOLSOM
OF
COUNTY
Recycled Water Supply
Booster Pump Station
12-in
Zone SOI 2
Zone SOI 3
Zone SOI 4
Diurnal
Storage
Tank
2.5 MG
5.4 ft/s
30 psi
16-in
40 psi
28 psi
16-in
16-in
35 psi
4.5 ft/s
16-in
45 psi
48 psi
16-in
4.0 ft/s
16-in
48 psi
50 psi
48 psi
8-in
12-in
61 psi
8-in
59 psi
0.8 ft/s
8-in
3.4 ft/s
16-in
59 psi
3.5 ft/s
12-in
61 psi
3.1 ft/s
12-in
38 psi
1.9 ft/s
12-in
43 psi
8-in
41 psi
1.1 ft/s
12-in
62 psi
1.1 ft/s
12-in
66 psi
0.0 ft/s
12-in
0
750
1,500
Feet
1 inch equals 1,071 feet
Legend
Junction
Tank
Pipe
Parcels served with recycled water
City of Folsom
Sphere of Influence
Recycled Water
Analysis
J. CROWLEY GROUP
SACRAMENTO, CA
Figure 5.
Peak Hour
Pipe Diameters,
Velocities,
Nodal Pressures
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6.2 Construction Cost Contingency

Because of limitations of planning-level costs estimates, allowances must be made for variations in final length and depth of pipelines and other structures, adverse construction conditions, and other unforeseeable difficulties that may impact the final construction cost. A contingency allowance of 30 percent of the estimated construction contract cost is applied for this analysis.

6.3 Conceptual Construction Cost

The infrastructure requirements and conceptual level costs for are provided in Table 15. These conceptual level cost estimates are considered to be a planning level estimate for the purposes of comparing infrastructure options. This estimate includes the satellite treatment plant, but does not include the pumping station and pipeline required to deliver the flow to the SOI western boundary, as these elements could vary significantly depending on location. The cost of operations and maintenance for each alternative is not included in this analysis. In addition, this conceptual cost estimate does not include project costs such as engineering, construction management, and administration costs.

Table 15. Conceptual Cost Estimate

Cost Item	Size/capacity		Unit cost, $		Pipe length, ft	Cost, $million
Recycled water scalping plant	2.0	mgd	10	gal	--	$20.0
Pipeline	8	inch	18	in-dia/lf	4,754	$0.7
	12	inch	18	in-dia/lf	14,812	$3.2
	16	inch	18	in-dia/lf	9,227	$2.7
Booster pumping station	2,000	gpm	250	gpm	--	$0.5
Diurnal storage	2.5	MG	0.5	gal	--	$1.3
				Construction cost subtotal		$28.4
				Contingency (30%)		$8.5
				Total		**$37.0**

Note: Potential costs for pumping station and pipeline from scalping plant to SOI area not included.

Section 7 Summary and Next Steps

This draft technical memorandum presents the analysis findings as of this date. Coordination continues with the other SOI-related projects and with neighboring agencies. The following lists items to address next as the environmental review process moves forward.

1. Folsom and other stakeholders to review draft technical memorandum and provide edits and comments for refining next steps.
2. Continue coordination with EID to develop service scenarios for the east side of the SOI. Update analysis or prepare a separate plan once alternative is selected and agreed upon.
3. Coordinate review of draft report with environmental report efforts and modify analysis as necessary.
4. Update recycled water supply information as SRCSD and EID continue/complete their analysis.
5. In future pre-design phase, City of Folsom should develop recycled water system operational policies and design criteria.
6. Further analyze scalping plant supply location and impacts to on-site and off-site cost.
7. Sizing criteria should be further investigated by surveying other applications supplied by satellite plants to determine operational issues and associated impacts on infrastructure sizing.

U.S. Department of the Interior / U.S. Geological Survey 291112 Part 2

Ground Water and the Rural Homeowner

Cover photograph: Rural dug well.

Ground Water and the Rural Homeowner

by Roger M. Waller

Preface

As the salesmen sang in the musical *The Music Man*, "You gotta know the territory." This saying is also true when planning to buy or build a house. Learn as much as possible about the land, the water supply, and the septic system of the house before buying or building. Do not just look at the construction aspects or the beauty of the home and surroundings. Be sure to consider the environmental conditions around and beneath the site as well. Try to visit the site under adverse conditions, such as during heavy rain or meltwater runoff, to observe the drainage characteristics, particularly the condition of the basement.

Many of the conditions discussed in this book, such as lowered well-water levels, flooded basements, and contamination from septic systems, are so common that rural families often have to deal with one or more of them. The purpose of this book is to awaken an interest in ground water and an awareness of where it is available, how it moves, how people can adjust to its patterns to avoid problems, and how it can be protected and used wisely.

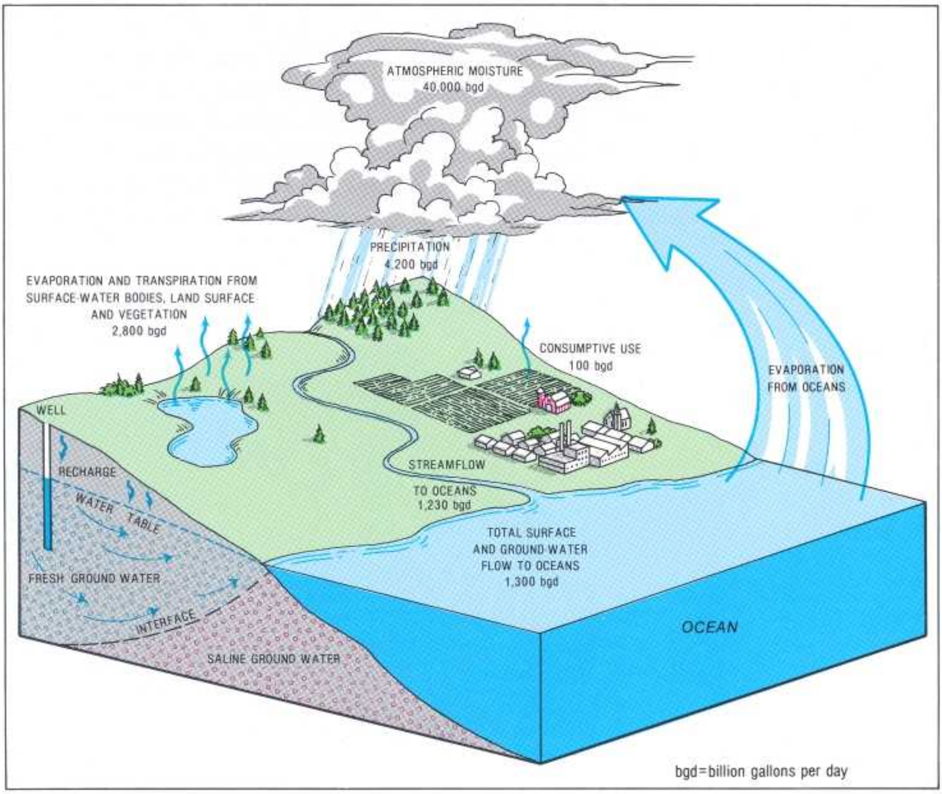
This booklet provides both present and prospective rural homeowners, particularly those in the glaciated northern parts of the United States, with a basic but comprehensive description of ground water. It also presents problems one may expect to encounter with ground water and some solutions or suggestions for help with these problems.

Introduction

When buying a home in the country, people need to consider certain factors that usually do not confront the urban homebuyer, such as whether or not the water supply is adequate and if the means of disposing of wastewater is safe. Disappointed rural homeowners have sometimes found out too late that the well drilled on their new land does not yield enough water or that the water is of poor chemical quality. Also, foundations can become unstable from excess surface runoff or from high ground-water levels. Septic systems, if not located properly or if soil conditions are not properly considered, can fail. Wells can be contaminated by septic systems or barnyard wastes. Shallow or dug wells on farms or near older homes that served adequately in earlier years are often inadequate for modern uses.

Preventing water problems or coping with them when buying or building a rural home can be either complex or relatively simple. Prospective homeowners need to know about the terrain, the proximity of the house to other structures, and the condition of the existing well and septic system. If building in an unpopulated area, drill a well first—or if buying an old house, find out if the water supply is adequate. This booklet describes the most common well problems encountered by rural homeowners, how to recognize them, solve them, or get help. But first, the characteristics and behavior of ground water and the relationship between ground water and the surrounding land are discussed briefly.

The Hydrologic Cycle

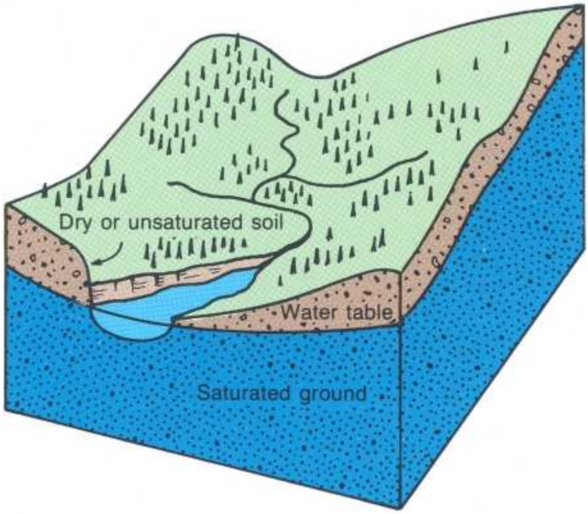


The continuous hydrologic cycle.

The hydrologic cycle is the continuous circulation of water from land and sea to the atmosphere and back again: water evaporates from oceans, lakes, and rivers into the atmosphere. This water later precipitates as rain or snow onto the land where it evaporates or runs off into streams and rivers; or it infiltrates (seeps) into the soil and rock from which some is transpired back into the atmosphere by plants. The remainder becomes ground water, which eventually seeps into streams or lakes from which it evaporates or flows to the oceans.

Ground Water

Ground water is that part of precipitation that infiltrates through the soil to the *water table*. The unsaturated material above the water table contains air and water in the spaces between the rock particles and supports vegetation. In the saturated zone below the water table, ground water fills in the spaces between rock particles and within bedrock fractures.



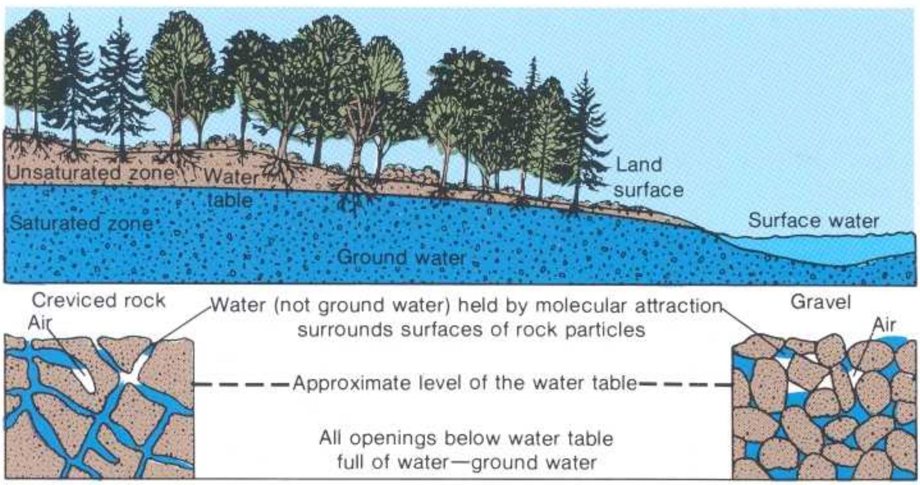
Occurrence of ground water.

Where ground water occurs

Rock materials may be classified as consolidated rock (often called bedrock) and may consist of sandstone, limestone, granite, and other rock, and as unconsolidated rock that consists of granular material such as sand, gravel, and clay. Two characteristics of all rocks that affect the presence and movement of ground water are *porosity* (size and amount of void spaces) and *permeability* (the relative ease with which water can move through spaces in the rock).

Consolidated rock may contain fractures, small cracks, pore spaces, spaces between layers, and solution openings, all of which are usually connected and can hold water. Bedded sedimentary rock contains spaces between layers that can transmit water great distances. Most bedrock contains vertical fractures that may intersect other fractures, enabling water to move from one layer to another. Water can dissolve carbonate rocks, such as limestone and dolomite, forming solution channels through which water can move both vertically and horizontally. Limestone caves are a good example of solution channels. Consolidated rock may be buried below many hundred feet of unconsolidated rock or may crop out at the land surface. Depending upon the size and number of connected openings, this bedrock may yield plentiful water to individual wells or be a poor water-bearing system.

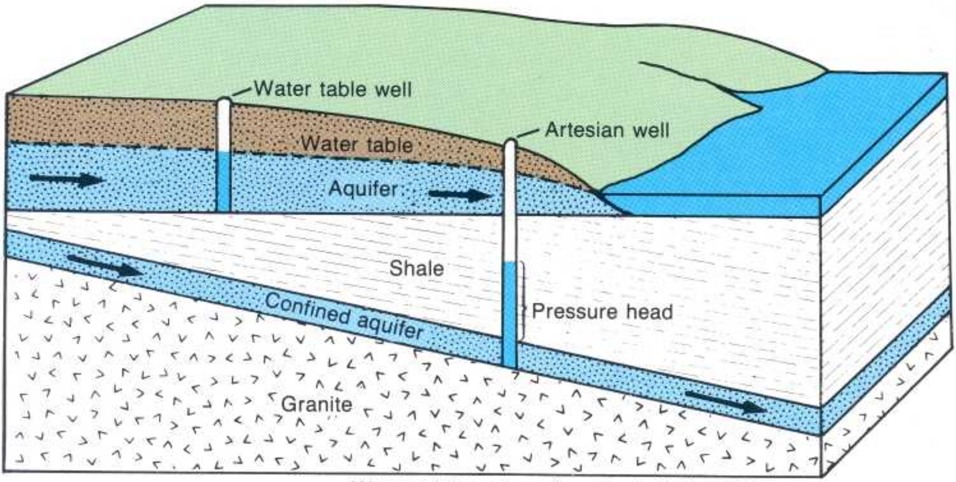
Unconsolidated material overlies bedrock and may consist of rock debris transported by glaciers or deposited by streams or deposited in lakes. It also may consist of weathered bedrock particles that form a loose granular or clay soil. Well-sorted unconsolidated material can store large quantites of ground water; the coarser materials—sand and gravel—readily yield water to wells.



How ground water occurs in rocks.

A close look at the rocks exposed in road cuts and along streams will show the types of openings in which ground water can occur. Especially noticeable in bedrock exposures are spaces between layers that can extend for miles—the void spaces between rock particles contain water that percolates into these spaces between the layers. In most sand and gravel deposits, water occupies and moves freely within granular material.

Road cuts reveal fractures, joints, and bedding planes.



Water-table and confined (artesian) aquifers.

Aquifers

Most of the void spaces in the rocks below the water table are filled with water. Wherever these water-bearing rocks readily transmit water to wells or springs, they are called *aquifers*.

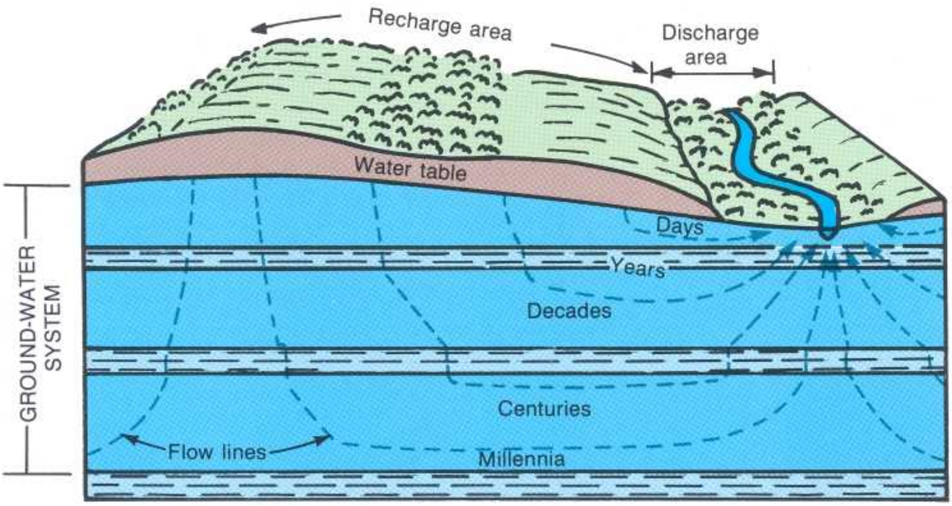
Although ground water can move from one aquifer into another, it generally follows the more permeable pathways within the individual aquifers from the point of recharge (areas where materials above the aquifer are permeable enough to permit infiltration of precipitation to the aquifer) to the point of discharge (areas at which the water table intersects the land surface and water leaves an aquifer by way of springs, streams, or lakes and wetlands). Where water moves beneath a layer of clay or other dense, low-permeability material, it is effectively confined, often under pressure. The pressure in most confined aquifers causes the water level in a well tapping the aquifer to rise above the top of the aquifer. Where the pressure is sufficient, the water may flow from a well.

Ground water is constantly moving

Ground water is always moving by the force of gravity from recharge areas to discharge areas. Ground-water movement in most areas is slow—a few feet per year. But, in more permeable zones, such as solution channels in limestone, movement can be as much as several feet per day. Evidence of the movement of ground water through rock and soil can be seen in road cuts, especially in winter, when the water freezes upon emerging from the rock. In some bedrock exposures, the water emerges along partings between rock layers; in others, along vertical fractures.

Seasonal patterns of ground-water recharge and storage

In latitudes where freezing is common, there is less recharge from rain or snowmelt during winter, which causes the water table to fall. Sporadic or differential freezing of the soil in the fall and winter inhibits recharge to the saturated zone, and the complete freezing of the soil in winter prevents all recharge until the soil thaws in the spring.



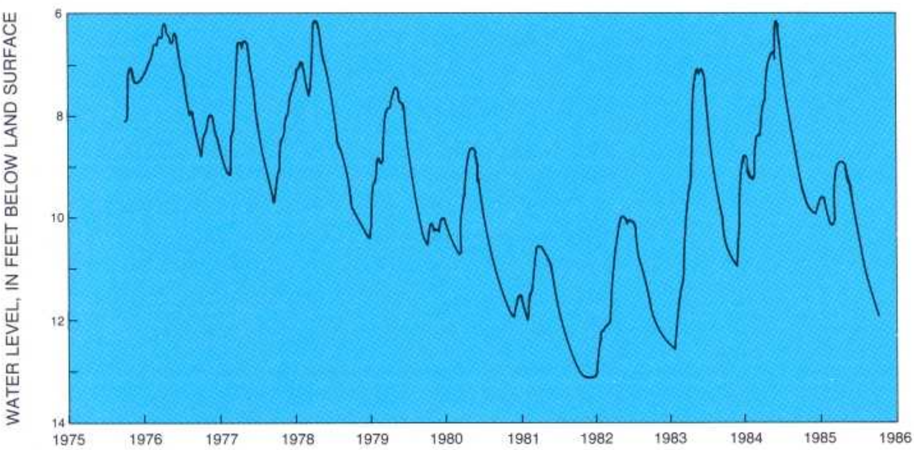
Direction and rate of ground-water movement.

Ground water, emerging from bedding planes, has created spectacular frozen waterfalls along a road cut.

The saturated zone beneath the water table is recharged by the excess water that is not discharged to streams. The resulting rise in the water table increases ground-water *storage* (the volume of ground water stored within an aquifer system). In late spring, summer, and early fall, evaporation and transpiration by plants capture most of the water that would otherwise recharge the aquifer, while discharge to streams continues. A seasonal decrease in ground-water storage results, as indicated by declining water levels in wells. In winter, freezing of the soil prevents recharge, which again causes a decline in storage. In early spring, frequent precipitation coupled with water from snowmelt causes a rapid increase in storage and a rise in the water table.

Effects of long-term climatic trends on ground-water storage

In addition to seasonal fluctuations in ground-water storage, long-term trends result from the variations in precipitation. Several years of below-normal precipitation causes a progressive decline in ground-water levels, and several years of above-normal precipitation causes a corresponding rise. These long-term climatic trends cause changes in ground-water storage. During periods of long-term, above-average precipitation, the water table may rise close to the land surface and interfere with home construction and waste disposal. For example, if a home had been built with a basement 8 feet below land surface during 1980-82 at the site of the well whose hydrograph is shown below, the basement would have been flooded in 1983 and 1984.

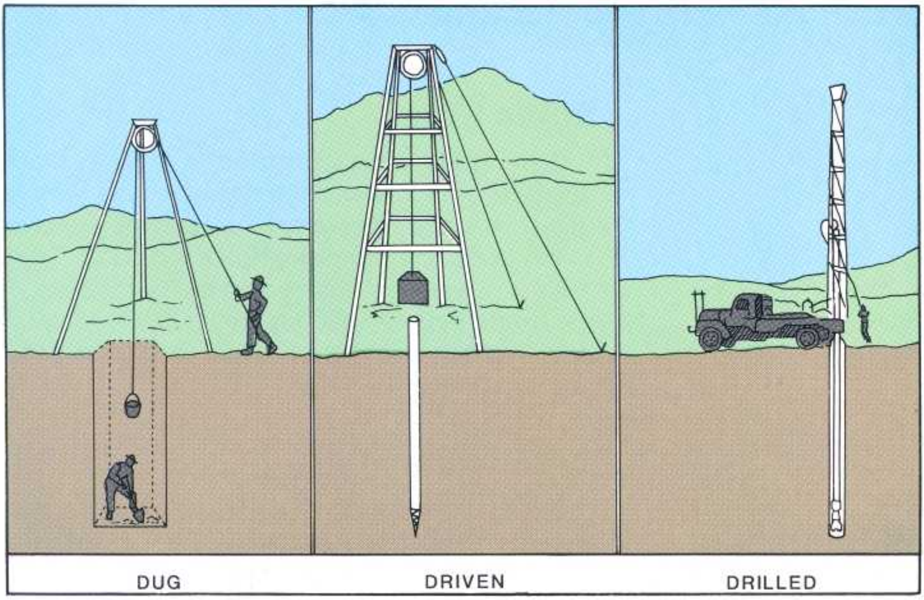


A 10-year well hydrograph showing climatic effects on ground-water level.

Types of Wells

Most modern wells are drilled by truck-mounted percussion (cable-tool) or rotary (air or hydraulic) drill rigs. Dug wells are still constructed in some areas, either by power equipment or by hand, but most hand-dug wells are the "relics" of older homes and were dug before drilling equipment was readily available or because drilling was considered too expensive. Driven wells, installed by hand or with power equipment, are still common and widely used where geologic conditions permit. Jetted and bored (augered) wells are less common types.

Types of wells.



Dug wells

Historically, dug wells were excavated by hand shovel to below the water table until incoming water exceeded the digger's bailing rate. The well was lined with stones, brick, tile, or other material to prevent collapse, and was covered with a cap of wood, stone, or concrete. Modern large-diameter dug wells are dug or bored by power equipment and typically are lined with concrete tile. Because of the type of construction, bored wells can go deeper beneath the water table than can hand-dug wells.

Dug and bored wells have a large diameter and expose a large area to the aquifer. These wells are able to obtain water from less-permeable materials such as very fine sand, silt, or clay. Some disadvantages of this type of well are that they are shallow and lack continuous casing, making them subject to contamination from nearby surface sources, and they go dry during periods of drought if the water table drops below the well bottom.

Driven wells

Driven wells are constructed by driving small-diameter pipe into shallow water-bearing sand or gravel. Usually a screened well point is attached to the bottom of the casing before driving. These wells are relatively simple and economical to construct, but they can tap only shallow water and, like dug wells, are easily contaminated from nearby surface sources.

Modern truck-mounted drill rig.

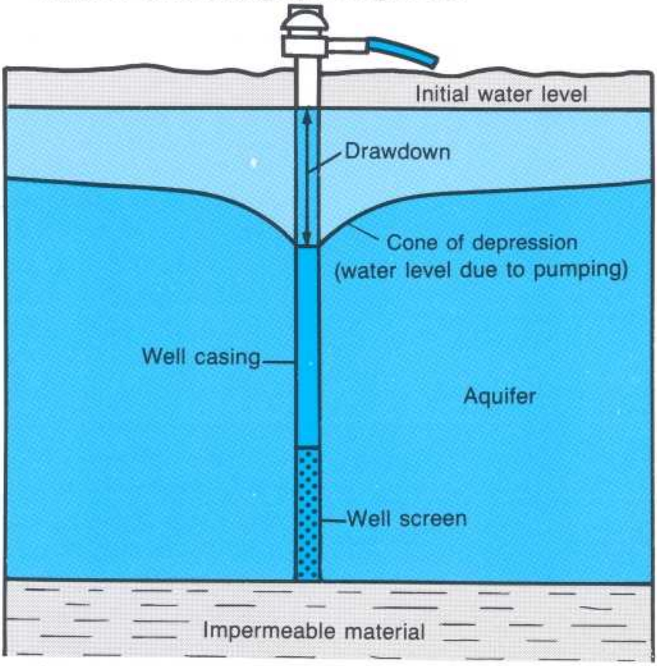
Drilled wells

Drilled wells are constructed by either percussion or rotary-drilling machines. Drilled wells that penetrate unconsolidated material require installation of casing and a screen to prevent inflow of sediment and collapse. They can be drilled more than 1,000 feet deep. To prevent contamination by water draining from the surface downward around the outside of the casing, the space around the casing must be sealed.

Wells and Pumpage

Even though water is present at some depth at almost any location, the success of obtaining an adequate domestic supply (usually 5 gallons per minute) of water from a well depends upon the permeability of the rock. Where permeable materials are near land surface, a shallow well may be adequate. Elsewhere, such as where clayey material directly overlies bedrock, a deep well extending into bedrock may be needed.

Pumping a well lowers the water level around the well to form a cone of depression in the water table. If the cone of depression extends to other nearby wells, the water level in those wells will be lowered. The cone develops in both shallow water-table and deeper confined-aquifer systems. In the deeper confined-aquifer system, the cone of depression is indicated by a decline in the pressure and the cone spreads over a much larger area than in a water-table system. For a given rate of withdrawal, the cone of depression extends deeper in low-yielding aquifers than in high-yielding ones.



Cone of depression caused by pumping.

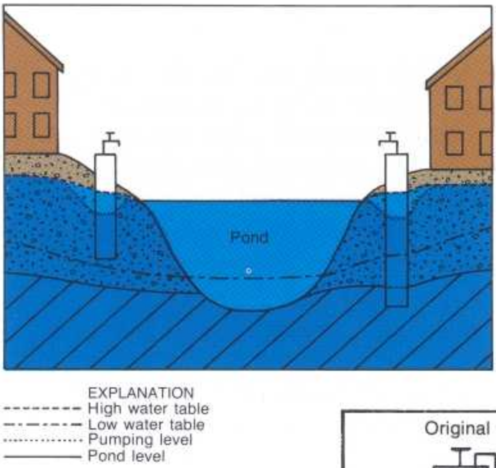
Water-Level Declines

The old saying that you "never miss the water until the well runs dry" remains true; however, *few drilled wells ever actually go dry*. Rather, what occurs most often is that the water table has dropped to near or below the pump intake because the pump intake is not set deep enough to allow for a potential decline in water levels. Alternatively, the small strainer that covers the end of the pump intake could be partly clogged so that it takes longer to pump the same amount of water. In either case, when the pumping rate exceeds inflow to the well, air is pumped and no more water is produced until the pump is shut off and the well recovers.

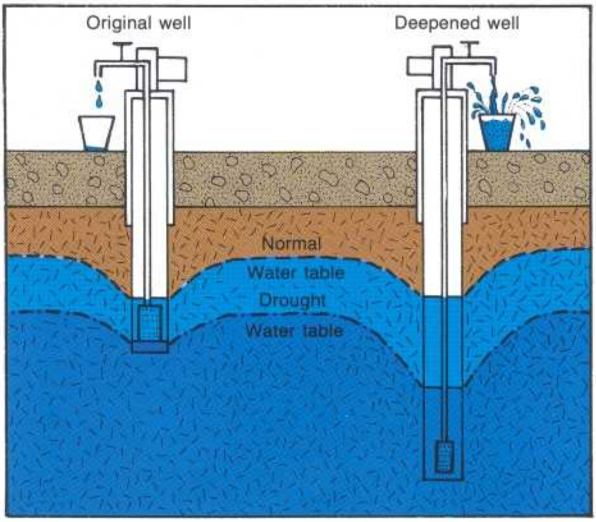
Shallow wells

The most common "dry well" problem has been with dug wells. Most dug wells are shallow and excavated in poorly permeable material; consequently they are readily affected by drought or by seasonal declines in the water table. The following figure shows the effect of declining water levels on two adjacent wells that are drilled to different depths on either side of a water-table pond. If the depth to water in the well on the left were, say, 10 feet during spring, it might decline to 15 feet during late summer or during a severe drought. If the pump normally causes the water level in the well to decline 5 feet or more during a pumping cycle, pumping during the drought would cause the water to decline to or below the pump intake. Excavating this well deeper to match the well on the right would solve this problem. Dug wells should be constructed during seasonal or climatically low-water-level periods.

Many dug wells extend only to the bedrock surface and tap the perched water (unconfined ground water separated from an underlying main body of ground water (aquifer) by an unsaturated (impermeable) zone) on top of the bedrock. These wells cannot be easily deepened. In such cases a new drilled well is the only long-term solution.



How does a well go dry?

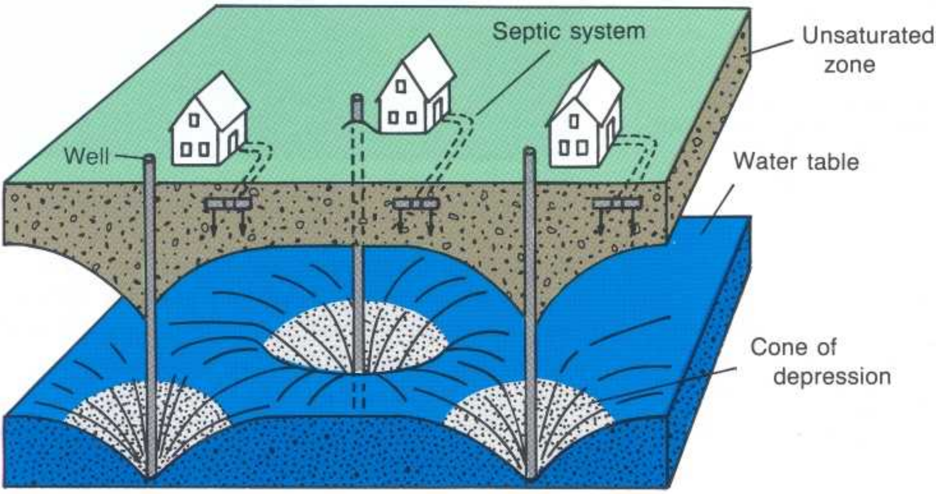


Solving a drought-related water shortage by deepening the well.

Some drilled wells that tap shallow bedrock will yield only 1 or 2 gallons of water per minute. These wells are not deep enough to provide adequate storage of water for short-term pumping cycles. Such a well may contain only 50 feet of water above the pump intake. As an example, when the water table declines 10 feet because of drought conditions, only 40 feet of water is available in the well for one pumping cycle, and the well seems to "go dry." In that situation, deepening the well may solve the problem as long as the deeper water is of good quality. If usable water is not available at a greater depth, the pumping rate must be reduced so that less water is pumped during each cycle.

Increased pumping in the immediate area

Another reason that wells "go dry" is the lowering of the water table by increased pumpage in the immediate area. Housing developments with small lots and individual wells have been built in many rural areas. If the aquifer is low yielding so that pumping causes a large drawdown, a cone of depression will develop around each well. Thus, several domestic wells close together can create a steady lowering of the water table if pumpage exceeds the natural recharge to the system (unless the withdrawn water is returned to the aquifer through septic systems). A third major reason that rural wells "go dry" is the installation of larger capacity wells for municipal, industrial, or agricultural purposes adjacent to residental areas. The increased withdrawals may cause large widespread cones of depression that intersect one another and cause general water-level declines that affect nearby domestic wells.



Effect of concentrated housing on ground-water level.

Water-Level Rises

The opposite problem, namely a rising water table, has developed in some parts of the country. Rising water tables occur in areas where pumpage has been curtailed after years of large ground-water withdrawals, such as for mine dewatering or municipal water supply, which kept the water table below its natural levels. The curtailment of pumping allows the water table to rise to the previous natural level, which may flood underground structures that were built when the water table was lowered.

In many parts of the country, water levels in shallow aquifers have been lowered artificially over large areas. If houses are constructed in dewatered areas and if the water table then recovers to its natural (higher) level, basement flooding or foundation failures may occur, especially where the natural water level is within 10 feet of the land surface. Many basements that were built in a dry unconsolidated material and that had remained dry for decades have now become permanently wet. The public's first reaction may be that unusually heavy precipitation in the past few months has raised the water table or created a temporary perched-water system, when in fact the situation is much more serious and will remain a problem unless pumping is resumed to maintain a lower water table.

Where water levels are closely monitored, water-level records can indicate whether such high water levels are related solely to climatic events or whether water levels are recovering after nearby pumping has ceased. An increasing number of local areas are being dewatered for mining or industrial uses, which could cause serious problems in the future when such pumpage is decreased or ended.

Similar situations have occurred where housing developments were built during a period of extended drought when the water table was low. Even if basements were the "daylight" or raised type because the natural water table was shallow, the eventual return of a wet period caused the water table to rise a few feet and flood basements.

Quality of Water

Some common ground-water quality concerns are excessive hardness (high dissolved magnesium and calcium content), a high concentration of salt or iron, or the presence of hydrogen sulfide (sulfur), methane gas, petroleum or organic compounds, or bacteria. Some are naturally occurring; others are introduced by human activities. In many areas, the homeowner has little recourse other than to use chemical treatment to remove or reduce the level of these constituents or to abandon the water supply. Hardness, iron, and sulfur are common constituents that can be treated.

Salt contamination

Salt contamination is difficult and expensive to remedy unless the well drawing saline water from a deep aquifer also penetrates one or more freshwater aquifers at lesser depth. In such cases, the deep saline aquifer can be sealed off and the well can be drilled in the freshwater aquifer instead. In many parts of the country, however, when a well is drilled deeper into bedrock to obtain larger supplies, saline water is more likely encountered than additional freshwater is.

Road-salt contamination of ground water has increased in the last 30 years and is of major concern in northern areas. Highway departments mix salt with sand to spread on roads for deicing. Salt is readily soluble in water and runs off highways into lakes and streams and percolates to the water table.

Probably more serious than the spreading is the stockpiling of uncovered salt and sand mixtures. This practice produces concentrated saltwater runoff that percolates to underlying aquifers and nearby wells. Many stockpiles are within small villages or near housing areas where nearby domestic wells can become contaminated.

Leachate from sand and salt stockpiles is a potential source of contamination to shallow ground water.

Oil spills

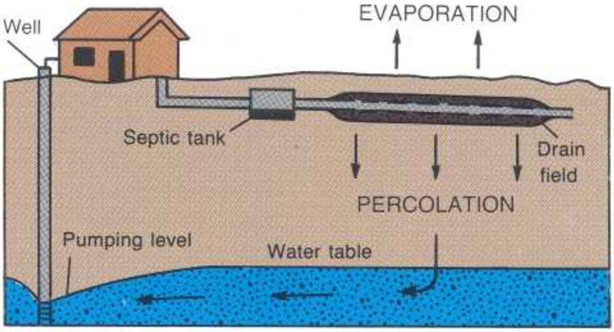
Another chronic problem in many rural homes is leaking or spilled fuel oil which eventually contaminates the owner's own well. Many homes have a fuel tank, either buried or above ground, adjacent to the house and within a few feet of the well. Spills or accumulated leakage eventually can migrate to the aquifer and can be drawn into the well, making it unusable for years. Usually the only solution is to obtain a new water source. In some instances, however, reducing the pumping rate to reduce drawdown allows the oil to float on the water surface safely above the well's intake area.

Methane gas

Perhaps the problem that poses the greatest hazard to a well owner is flammable gas in the well. Small volumes of natural gas, usually methane, can be carried along with the water into wells tapping carbonate or shale rock. In some areas, the gas dissipates soon after installation of the well, but, in other areas, a large continual source of natural gas remains. Because methane is flammable and cannot be detected by smell, precautions are needed to prevent explosions and fire. Venting of the well head to the open air is the simplest precaution but, because gas can also accumulate in pump enclosures, pressure tanks, and basements, other venting may be needed. For this reason, a home should never be built over a well.

Bacteria

The most common water-quality problem in rural water supplies is bacterial contamination from septic-tank effluent. A recent nationwide survey by the U.S. Environmental Protection Agency and Cornell University found that contamination of drinking water by septic effluent may be one of the foremost water-quality problems in the Nation.



How septic effluent percolates to the water table.

Barnyard runoff

Probably the second most serious water-contamination problem in rural farm homes is from barnyard waste. If the barnyard is upslope from the well, barnyard waste that infiltrates to the aquifer may reach the well. Pumping, too, can cause migration of contaminants to the well. On many farmsteads built more than 100 years ago, the builders were careful to place the supply well upslope from the barnyard. Unfortunately, many present-day owners have not remembered this basic principle and have constructed a new house and well downslope of the barnyard.

Barnyard upslope from farmhouse well may cause bacterial contamination of water supply. *(Photograph courtesy Cornell University.)*

Pesticides and fertilizers

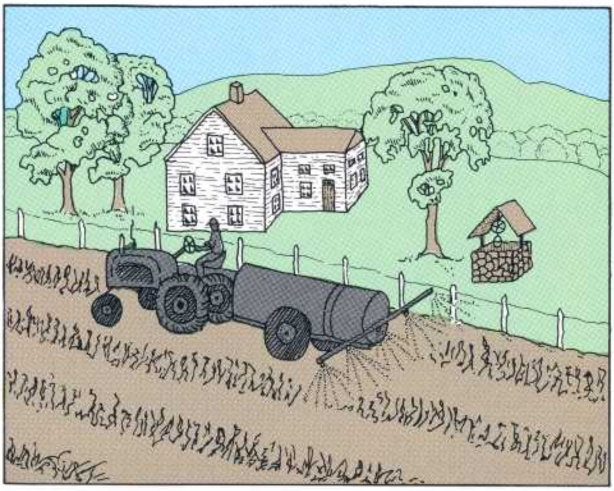
The last 3 decades have seen a significant increase in small part-time farms and rural dwellings as large farms have been sold and divided into smaller units. Many modern rural homes are constructed on former cropland on which heavy applications of herbicides and fertilizers may have been made. How these chemicals move

New home on land recently used for crops.

through the soil and ground water and how quickly they decompose or how their harmful effects are neutralized is not well understood.

Also common is the farming practice of applying fertilizers and pesticides to croplands immediately adjacent to the barnyard or farmyard. Residue from these applications can infiltrate to the aquifer and can be drawn into a supply well for the barn or the house. Decreasing the use of fertilizers and pesticides in the vicinity of wells can help minimize this problem.

Homeowners also should be careful to properly dispose of wastewater from used containers of toxic chemicals. Many farms have their own disposal sites, commonly pits or a wooded area, for garbage and the boxes, sacks, bottles, cans, and drums that contained chemicals. Unfortunately, these owner disposal sites can contaminate farm water supplies.



Pesticide spraying near well.

Septic Systems and Ground Water

The liquid effluent from a septic system follows the same path as the rain or snowmelt that percolates into the unsaturated zone. Like the rain, once the effluent reaches the water table, it flows down the hydraulic gradient, which may be roughly parallel to the slope of the land, to lower points. Thus, again, the location of one's house in relation to neighboring houses, both upslope and downslope, is important.

Septic-tank effluent that enters the aquifer supplying the homeowner's well introduces not only bacteria but also other contaminants. Many rural homeowners also discharge other waste products, including toxic material, into their septic systems, and these products gradually accumulate in the aquifer. What happens to these contaminants in the ground is not well known. Some adhere to rock material, others travel with the water. In some types of rock material, the leach field or dry-well part of the septic system can gradually become clogged by contaminants.

Rural homes in small, older communities and in more recent roadside housing developments are commonly situated on small or narrow lots along an access highway. Most do not have a

Rural roadside housing development.

community water supply, and almost all have their own individual septic systems. In clusters such as this, effluent recycling can occur if the wells are shallow or the septic systems are improperly placed. Deep wells are less likely to draw in septic waste.

This type of effluent problem becomes acute in an area underlain by a shallow water-table aquifer where the septic effluent discharges into water that is used by many homeowners. This dilemma has been posed in many rural housing developments throughout the Nation. One either "fouls his own nest" with effluent or connects to a central sewer system. Although a sewer system protects the aquifer from further contamination, it reduces recharge of water to the aquifer. This engineering, economic, and social dilemma must be resolved soon in many areas. An increasing number of counties and townships are planning and zoning rural areas to limit the density of houses according to soil conditions. Other approaches being considered are a community water supply with individual septic systems or individual water supplies with a community sewer system.

Some banks and lenders require that the prospective buyer or the seller furnish proof of a bacteria-free water supply before they will issue a mortgage. When a seller faces such a requirement, a common procedure is to chlorinate the water to destroy the bacteria in the well. This treatment affects only the well and perhaps a volume of the aquifer immediately adjacent to the well, but for only a brief time. If the contamination is in the aquifer, the source will not be attacked nor the problem solved; thus a water analysis showing bacteria-free water immediately after the well has been disinfected is not necessarily an assurance of a safe water supply. The homeowner should periodically have the water analyzed for bacteria. If a high bacteria count occurs repeatedly, the problem is probably in the water source, and chemical treatment of the well alone cannot solve it.

In a bacteria-contaminated water system, chlorination of the water pumped from the well is commonly recommended as a solution. Otherwise, one must obtain a water supply from a new well that either is upgradient from the contaminating source or that taps a deeper aquifer. Moving the septic system to a more distant spot is a long-term solution, but the underlying contaminated zone may take years to stop releasing contaminants to the aquifer.

Cluster-housing contamination

In a row-housing setting, the house at the highest location will generally have the safer water supply. Because the effluent migrates down beneath the development, it could be pumped, used, and again discharged by each house along its course. The house furthest downslope would receive the combined effluent from the other houses.

Another contamination problem from closely spaced septic systems can occur where a row of houses on the uphill side of a road faces a row of houses on the downhill side of the road. Here, the safer water supply would be on the uphill side. The downhill side would receive effluent from the uphill side plus any contamination generated along the road, such as road salt or metal compounds. In flat areas underlain by a shallow water table, especially where cluster developments are two or more decades old, almost perpetual recycling of septic waste may occur.

Another source of contamination that is common in villages or hamlets lacking a central water or sewage system is small waste-generating businesses such as laundries, auto-repair shops, and industries that discharge wastes to their own septic systems. Many of the bacterial problems, cited in a recent U.S. Environmental Protection Agency rural water study, were in hamlets, villages, or crossroads communities. Once indoor plumbing became common and outdoor privies were removed, all waste went into septic systems from which increased amounts of liquid effluent eventually entered the aquifer and became subject to pumping by wells.

Unknown Hazards Beneath the Land

Previous land uses, some of which may be unknown to the present landowner, can have long-lasting effects on the land and on underlying aquifers.

Hidden dump site may contain chemical-waste containers.

Former chemical dump sites

Many sites where commercial and industrial wastes are buried have been abandoned and have been covered with soil or have become revegetated. In many such areas, individual homes or entire housing developments have been built without proper consideration of the buried waste. (The tragedy of Love Canal, near Niagara Falls, N.Y., is an unfortunate example of construction over concealed waste.) A prospective land buyer, home builder, or buyer of a recently built rural home should inquire of local agencies about the former use of the land.

Abandoned wells

Although still relatively rare, waste sites can be abandoned wells that are now used for disposal of wastes, commonly oil or laundry wastes. Many garages and repair shops have used abandoned drilled wells for disposal of waste oil, and laundries have used abandoned dug wells for disposal of laundry wastes to prevent clogging of their septic systems. These practices point to an area where concern for ground-water protection should be considered more carefully. Abandoned wells should be filled and sealed properly to eliminate the danger of someone falling into the well or having the shaft collapse, as well as to remove the temptation to use them for disposal of hazardous wastes.

Former orchards or vegetable lands

Individual homes and developments alike have been built on former orchards or vegetable farms. Although these lands can be picturesque where fruit trees remain, one must remember that pesticides and chemical fertilizers probably were applied heavily in the past. The fate of many of these chemicals in the soil is unknown, and long-term contamination may remain, especially in the shallow ground water. The soil through which recharge from precipitation moves is the repository for much of the chemicals that are deposited on the land. Decades may pass before these chemicals are dissipated or flushed away. Therefore, anyone planning to buy or build a house on a former orchard or truck farm should consult farm or zoning agencies to obtain information on the potential for pesticide and fertilizer residue.

Crop dusting and orchard spraying. *(Photographs courtesy Cornell University.)*

Oil and gas fields

Oil and gas development has occurred and is occurring in many parts of the country. Oil and gas development almost always includes the production of brine or saline water, which then must be disposed of. Most states regulate the disposal of brine to prevent contamination of surface and ground water, but, in old oil and gas fields that were abandoned before extensive regulation, saline water is still escaping from improperly sealed or cased wells into freshwater aquifers.

One method of producing more oil or gas from old fields is to inject water or brine into the producing formation to increase the pressure and move the oil or gas to wells. Some oil or gas fields are "leaking," however, and once the pressure is increased, the injected fluid or oil finds avenues of escape to other formations, such as through abandoned boreholes or corroded well casings. Some shallow producing areas that contain many abandoned wells spaced a few hundred feet apart have created an unmanageable leakage problem. Every old abandoned oil or gas well that is not cemented-in may provide an avenue for saline water, oil, or gas to escape into the nearest aquifer and contaminate the system. It would be wise to verify that the home being purchased is not near an old oil or gas field.

Subsidence and sinkholes

Land subsidence occurs where large amounts of ground water have been withdrawn from a thick layer of saturated fine-grained sediment that is susceptible to compaction. General subsidence is not noticeable in some large areas, but in others, concentric cracks develop over smaller areas where compaction is occurring.

Sinkholes are common where the land is underlain by limestone or other carbonate rocks that are naturally dissolved through ground-water circulation. A sinkhole can also develop where salt beds occur beneath the land surface. As the limestone or salt is dissolved naturally by ground water or by industrial solution-mining of the salt, the overlying material can collapse into the resulting cavern. In worst cases, such collapses create a large sinkhole that will topple or swallow any structure above it. Housing development should be avoided in sinkhole-prone areas. Although it is difficult for an individual to discern the exact locations of potential sinkholes, areas prone to sinkhole development are generally well known by State geological surveys.

Sinking land ruins croplands.


Sinkholes develop suddenly.

Consider Past and Future Land Use

The preceding section highlighted some of the contamination hazards that may be attributed to previous land uses. One way to obtain information on previous land use is to contact local county or town planning or zoning boards. Their records may show that land was formerly used for agriculture, landfill, or industrial/mining purposes. Land owners can then better evalute what past land-use practices should be considered in planning future land use.

Similarly, land-use or zoning maps can show where planners have designated uses that may be considered detrimental to home ownership. Many planning agencies have evaluated and classified the land for preferred and alternate uses. Consult these local agencies before building or buying in specific areas.

Country Living Calls for Knowledge

Before purchasing a home in a rural area, the buyer should determine the amount and quality of water and should locate the waste-disposal system.

A well log and a water analysis may be as important as a deed

As ground water receives increasing attention nationwide, particularly because of toxic-chemical contamination, a written legal document verifying an adequate water supply from new or old wells is becoming important. Some mortgage lenders require a negative bacterial analysis of the water and a yield test of the well to verify an adequate supply. As mentioned earlier, a single analysis for bacteria may not reflect true conditions, but it is worthwhile to have it done nevertheless.

A well record (driller's log) describes the well characteristics, including yield and the type of material that the driller encountered. The well log is not always available from the owner, and sometimes the driller who installed the well cannot be located. If the well log is available, however, it can be helpful. If water quantity becomes insufficient, a record of a yield test is helpful in determining what happened. Most dug wells, of course, have no description other than depth. In any case, it is wise to obtain information on well depth, water level, type of pump, pump-intake setting, and yield before buying a house.

Determine the location of the septic system and water source

The buyer of rural property must know the location of the water source and the waste-disposal system to evaluate the potential for certain problems. Even a cursory glance at their location, distance from each other, and the land slope often provides an initial estimate as to their adequacy. For example, evidence of two or more wells or septic systems warrants a detailed inquiry. An odor of sewage, a wet area, or lush grass over a leach field, especially during dry periods, indicates a potential problem.

Some Practical Considerations

As stated earlier, learn as much as you can about the land, the water supply, and the septic system of the house before you buy. Be sure to consider the environmental conditions, and try also to visit the site during bad weather. Don't be rushed—take time to be informed.

Most rural water problems are related to old dug wells, septic systems, and too-dense housing developments. Drilled or deep wells are generally less susceptible to sewage or surface-contamination sources than shallow wells are, but water from bedrock wells is more likely to contain gas or minerals than is water from shallow deposits. Most well drillers are aware of common local problems and generally locate wells properly.

Although potential water problems for the rural homeowner can sometimes be expensive, pose a health hazard, or possibly affect real estate values, these problems can be avoided by the observant, informed buyer or owner.

Table 1. **Water factors to consider in buying or building a new home**

Problem	Probable cause	Remedy or source of help
Inadequate water yield	Poor aquifer	Install larger, deeper well
	Well screen or pump intake encrusted	Have cleaned by well driller
	Lower water level	Deepen well Contact water resources agency
Wet basement	Seasonally high water table	Add sump pump or drains
	Recovered water level	Add sump pump or drains
	Drainage from roof or slope	Add roof gutter, reslope land Contact Soil Conservation Service
Gas in water	Methane from bedrock	Install vent on well head Aerate the water Install water treatment Drill new well away from house Contact State geological survey
Salty water	Road salting	Install new well farther upslope Provide better road drainage
	Road-salt stockpile	Install new well away from drainage Request correction by highway department Contact health department
Fuel-oil contamination	Leaky or spilled storage tank	Install new well upslope Adjust to low pumping rate
Oil or gasoline contamination	Nearby service station	Obtain new source of water Contact health department
Bacteria contamination	Septic effluent	Chlorinate as first step; contact health department Install new well upslope Install new leach field farther away Deepen well in some cases Seek control on neighboring system
	Barnyard waste	Redirect waste flow Install new well upslope Seek control on neighbor's activity Contact agricultural agency
Organic chemical contamination	Former land use	Install new well farther away Deepen well in some cases Contact health department
	Current land application	Create buffer zone around recharge area Dispose of wash water properly Seek control on neighbor's activity Contact health department
Land Subsidence	Excessive ground-water withdrawal	Contact State regulatory agency
	Rock solution	Relocate house Contact State geological survey
Sinkhole development	Rock solution	Relocate house Contact State geological survey
Source of ground water unknown	No knowledge	Contact water resource agency
	No well data available	Contact water resource agency

Table 2. **Sources of information**

Geologic conditions and mining areas
State geological surveys
State bureaus of mines
State natural resources agencies
U.S. Geological Survey
Soils, drainage, and agricultural uses
U.S. Department of Agriculture
State land-grant colleges
County extension agents
Topography
U.S. Geological Survey
Ground-water resources and water testing
State natural resources or environmental departments
State water resources departments
County health departments
U.S. Geological Survey
National Water Well Association
Water-supply and septic-system construction
State health departments
State environmental or conservation departments
County extension agents
U.S. Environmental Protection Agency
U.S. Department of Agriculture
Land-use and zoning
State planning agencies
County planning and zoning agencies

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291112 Part 2

GREEN VALLEY ALLIANCE

SHINGLE SPRINGS COMMUNITY ALLIANCE

KEEPING SHINGLE SPRINGS RURAL

Public Comment on ROI to contract Community Regions

Board of Supervisors meeting - February 24, 2015

Community Regions
Public Comment -BOS-2/24/15

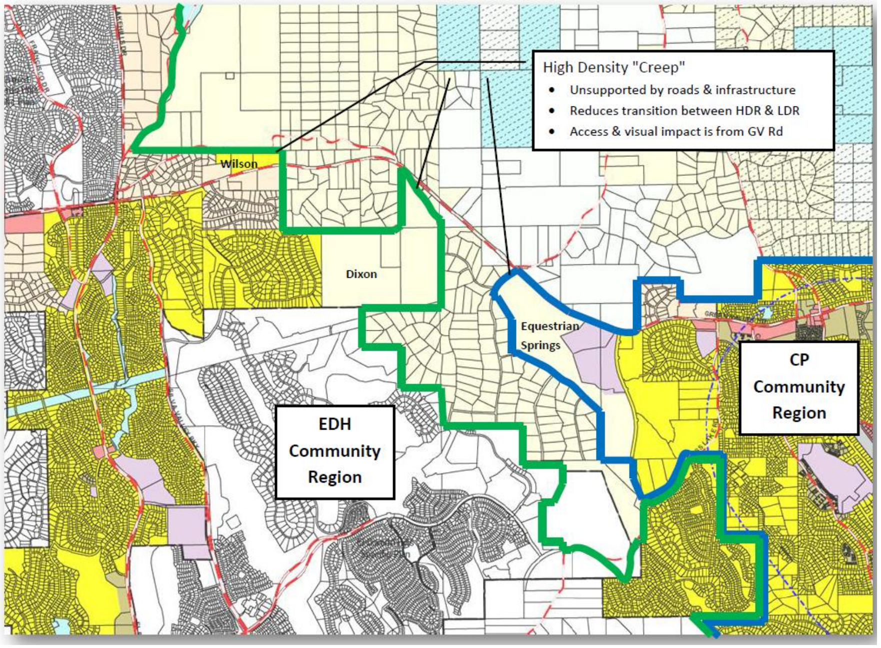
GREEN VALLEY ALLIANCE

SHINGLE SPRINGS COMMUNITY ALLIANCE

KEEPING SHINGLE SPRINGS RURAL

GVA supported the **December 9, 2014** vote by the Board of Supervisors directing staff to prepare a Resolution of Intention (ROI) to contract the Community Regions & return to the Board with funding options.

Existing CR boundaries



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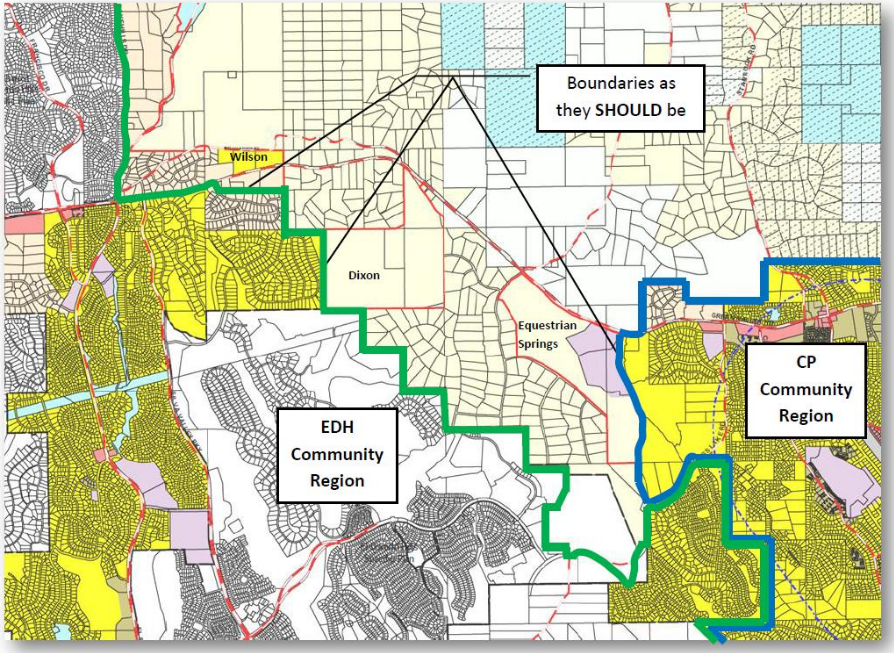

Community Regions
Public Comment -BOS-2/24/15

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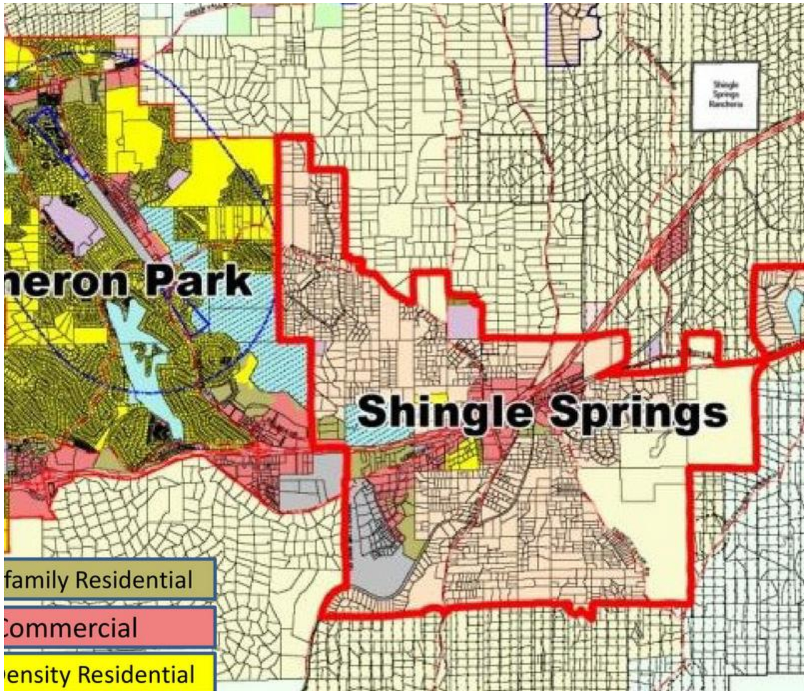

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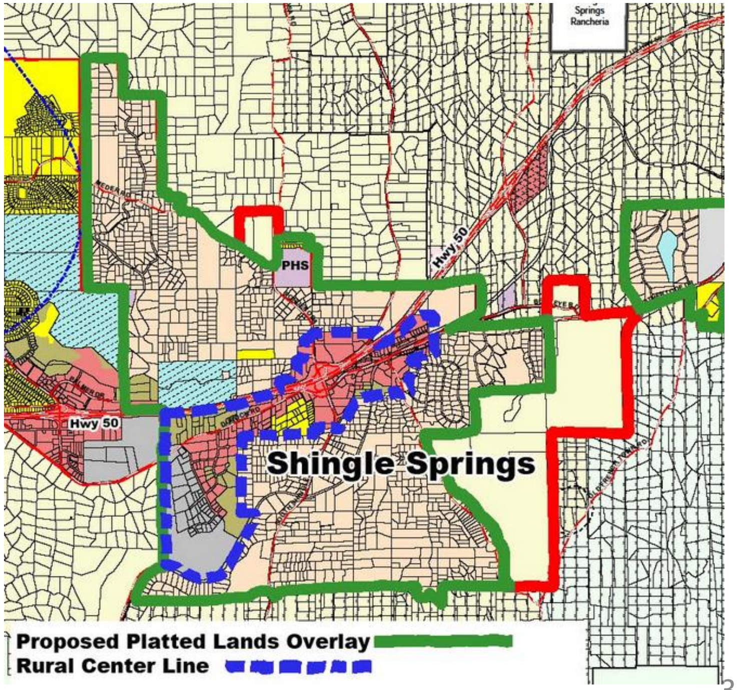


GREEN VALLEY ALLIANCE

SHINGLE SPRINGS COMMUNITY ALLIANCE

KEEPING SHINGLE SPRINGS RURAL

Community Regions

Public Comment -BOS-2/24/15

However ... a new ROI is redundant - Reason 1:

Amending the Community Regions is already included in the not-yet-completed General Plan update. From the Purvines Staff memo to the BOS, 9/23/2013:

2. *Comment:* The first 5-year General Plan review in April 2011 did not look at or subsequently dropped Community Regional Line Amendments from the Targeted General Plan Amendment (TGPA) process.

   Response: CRBs were reviewed in the first 5-year General Plan review, and are currently included in the TGPA. A fundamental component of the TGPA's environmental review was to provide a "Range of Options" to ensure the Board has flexibility to select the best option to meet the objectives of the project. Following the completion of the Targeted General Plan Amendment-Zoning Ordinance Update (TGPA-ZOU) environmental review, the Board may consider amendments to the CRBs.

Community Regions
Public Comment -BOS-2/24/15

GREEN VALLEY ALLIANCE

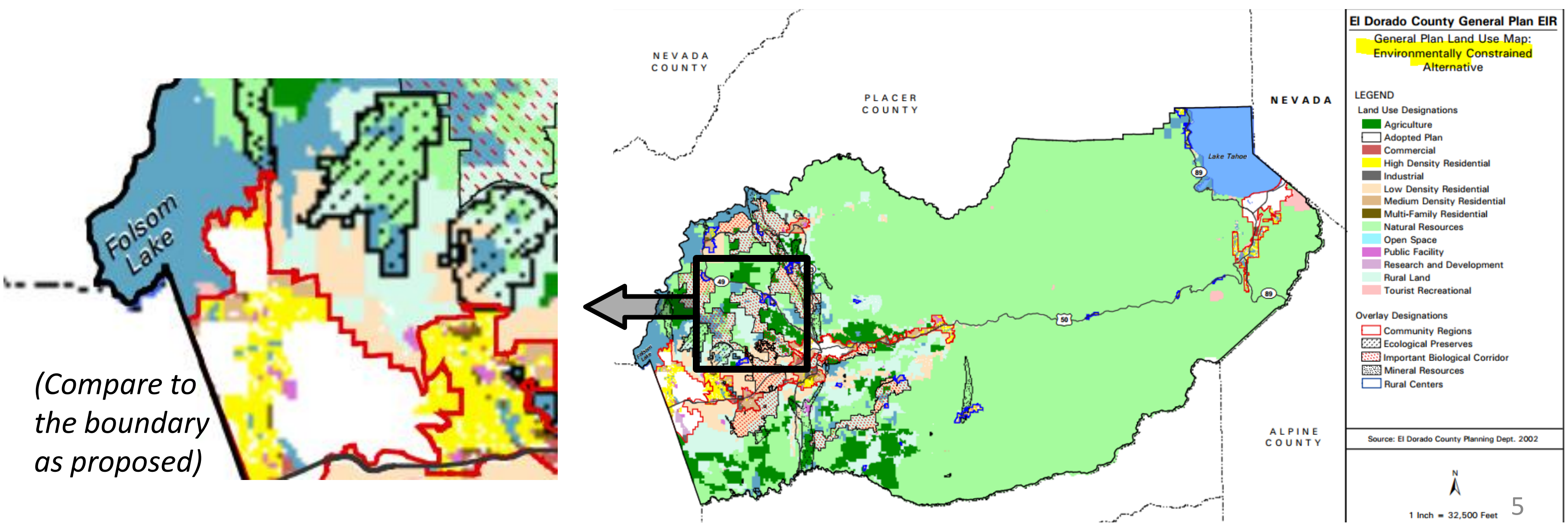
SHINGLE SPRINGS COMMUNITY ALLIANCE

KEEPING SHINGLE SPRINGS RURAL

A new ROI is redundant - Reason 2 :

The 'reduced' CRB's proposed were *already* analyzed in the 2004 General Plan EIR, so ***the Board is free to act on amending the boundaries***.

" The reduced size of Community Regions and Rural Centers would balance with the increased density of permitted subdivision to fully implement the intent of the General Plan to focus development in urban areas and protect rural areas from high levels of development " (excerpt from pg 5.1-45 of the 2004 General Plan EIR, Alternative #3, impacts discussion)



(Compare to the boundary as proposed)

GREEN VALLEY ALLIANCE

SHINGLE SPRINGS COMMUNITY ALLIANCE

KEEPING SHINGLE SPRINGS RURAL

Community Regions
Public Comment - BOS-2/24/15

A New Resolution today vs. reprioritizing the '2011' Resolution

• The inclusion of Community Regions in the EIR for the General Plan update means the boundaries can be amended (slide 4), *but the Board must direct staff to complete the process of analysis with the release of the Final EIR.* <u>*No new resolution is necessary, and NO additional EIR is necessary*</u>.

○ Because Rural Communities United challenged the draft EIR on this analysis, not directing it to be completed in the Final EIR would leave the County vulnerable to litigation on the Gen Plan update.

• The Major CIP update should be based on an accurate model of growth. The extent of the Community Region has significant influence on growth projections, and <u>*CRB review should have top priority rather than the least priority currently indicated*</u>.

• A new resolution is an option, but it must be on a parallel path or the General Plan update will be completed first and expose the county to legal action on analysis that should have been done and was not. <u>*A new resolution on a parallel path is redundant.*</u>

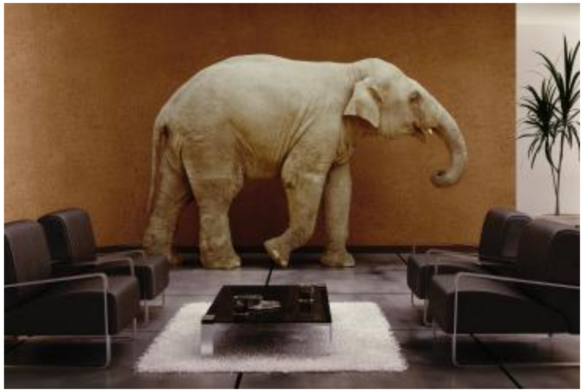
• Why delay when <u>*incorporating the Community Region boundary review in this update (the TGPA) will save time & money*</u>, and will assist in accurate growth projections for the CIP update, *particularly* when review is inevitable? Community groups do not understand the resistance.

Community Regions
Public Comment - BOS-2/24/15

GREEN VALLEY ALLIANCE

SHINGLE SPRINGS COMMUNITY ALLIANCE
KEEPING SHINGLE SPRINGS RURAL

Citizen Groups have been participating in the planning process in an effort to get the Community Region boundaries revised.



Timeline follows.

GREEN VALLEY ALLIANCE

SHINGLE SPRINGS COMMUNITY ALLIANCE

KEEPING SHINGLE SPRINGS RURAL

Community Regions

291112 - Part 2

Public Comment - BOS-2/24/15

Timeline

April 2011 – BOS hearing. Staff recommends including Community Region review in the next General Plan update.

Nov 2011 – ROI's are adopted by the Board for the General Plan update, which include Community Region Boundary (CRB) review. [*From adopted ROI 182-2011: **Policy 2.1.1.1 and 2.1.2.1** Consider analyzing the possibility of adding new, amending or deleting existing Community Regions or Rural Center planning areas.]*

July 6, 2012 –Notice of Preparation (NOP) released for the General Plan update EIR, based on those adopted ROI's

December 18, 2012 - NOP's for Dixon Ranch and San Stino Environmental Impact Reports (EIR) are released, and County Staff denies the inclusion of CRB's in the current General Plan update (TGPA).

January - September 2013 – Residents pushed back trying to show CRB's must be included in the EIR for the TGPA.

September 30, 2013 – Staff agrees the CRB's are indeed supposed to be included, but requests to exclude them.

February 2014 – Staff again requests to put the CRB's outside the EIR update, and the Board agrees it would cause delay of the TGPA. Citizen groups hit the street with ballot initiatives.

December 2014 – After the November initiatives fail under the load of developer dollars, BOS votes for a new ROI.

February 24, 2015 – Today the proposed new ROI comes before the BOS, and the redundancy is apparent:

The 2011 ROI is already included in the Environmental Impact Report for the currently ongoing update of the General Plan (the TGPA), which is not yet complete.

Community Regions

Public Comment - BOS-2/24/15

GREEN VALLEY ALLIANCE

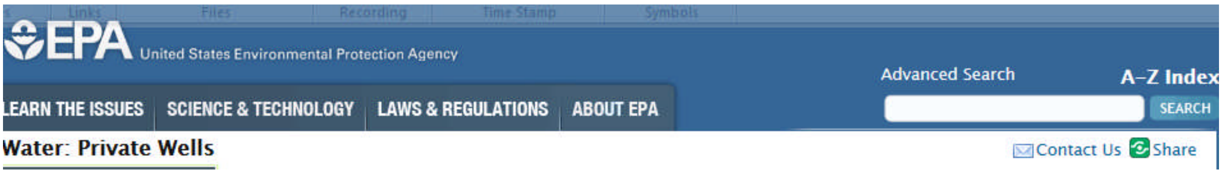
SHINGLE SPRINGS COMMUNITY ALLIANCE

KEEPING SHINGLE SPRINGS RURAL

Suggested Options to proceed:

1. Withdraw the request to adopt a *new* Resolution, and contract the Community Regions as proposed during the *current* General Plan update.
2. Utilize the analysis of the 'reduced' Community Regions from the adopted 2004 General Plan EIR, and contract the boundaries *now*, without delay.
3. Acknowledge that a new EIR is not necessary, and support citizen groups who have been working within the Planning process.

Do NOT defer yet again - return the subject parcels to the Rural Region



The first step to protect your health and the health of your family is learning about what may pollute your source of drinking water. Potential contamination may occur naturally, or as a result of human activity.

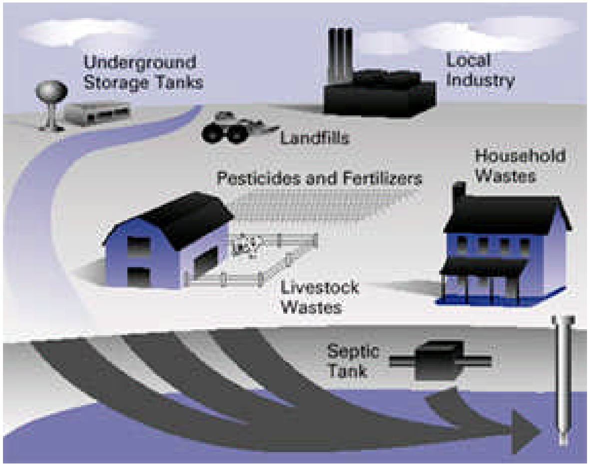
What are Some Naturally Occurring Sources of Pollution?

- **Microorganisms**: Bacteria, viruses, parasites and other microorganisms are sometimes found in water. Shallow wells — those with water close to ground level — are at most risk. Runoff, or water flowing over the land surface, may pick up these pollutants from wildlife and soils. This is often the case after flooding. Some of these organisms can cause a variety of illnesses. Symptoms include nausea and diarrhea. These can occur shortly after drinking contaminated water. The effects could be short-term yet severe (similar to food poisoning) or might recur frequently or develop slowly over a long time.
- **Radionuclides**: Radionuclides are radioactive elements such as uranium and radium. They may be present in underlying rock and ground water
- **Radon**: Radon isa gas that is a natural product of the breakdown of uranium in the soil — can also pose a threat. Radon is most dangerous when inhaled and contributes to lung cancer. Although soil is the primary source, using household water containing Radon contributes to elevated indoor Radon levels. Radon is less dangerous when consumed in water, but remains a risk to health.
- **Nitrates and Nitrites**: Although high nitrate levels are usually due to human activities (see below), they may be found naturally in ground water. They come from the breakdown of nitrogen compounds in the soil. Flowing ground water picks them up from the soil. Drinking large amounts of nitrates and nitrites is particularly threatening to infants (for example, when mixed in formula).
- **Heavy Metals**: Underground rocks and soils may contain arsenic, cadmium, chromium, lead, and selenium. However, these contaminants are not often found in household wells at dangerous levels from natural sources.
- **Fluoride**: Fluoride is helpful in dental health, so many water systems add small amounts to drinking water. However, excessive consumption of naturally occurring fluoride can damage bone tissue. High levels of fluoride occur naturally in some areas. It may discolor teeth, but this is not a health risk.

What Human Activities Can Pollute Ground Water?

-

- **Bacteria and Nitrates**: These pollutants are found in human and animal wastes. Septic tanks can cause bacterial and nitrate pollution. So can large numbers of farm animals. Both septic systems and animal manures must be carefully managed to prevent pollution. Sanitary landfills and garbage dumps are also sources. Children and some adults are at extra risk when exposed to water-born bacteria. These include the elderly and people whose immune systems are weak due to AIDS or treatments for cancer. Fertilizers can add to nitrate problems. Nitrates cause a health threat in very young infants called “blue baby” syndrome. This condition disrupts oxygen flow in the blood.



Septic tanks are designed to have a “leach field” around them — an area where wastewater flows out of the tank. This wastewater can also move into the ground water.

- **Concentrated Animal Feeding Operations (CAFOs)**: The number of CAFOs, often called “factory farms,” is growing. On these farms thousands of animals are raised in a small space. The large amounts of animal wastes/manures from these farms can threaten water supplies. Strict and careful manure management is needed to prevent pathogen and nutrient problems. Salts from high levels of manures can also pollute ground water.
- **Heavy Metals**: Activities such as mining and construction can release large amounts of heavy metals into nearby ground water sources. Some older fruit orchards may contain high levels of arsenic, once used as a pesticide. At high levels, these metals pose a health risk.
- **Fertilizers and Pesticides**: Farmers use fertilizers and pesticides to promote growth and reduce insect damage. These products are also used on golf courses and suburban lawns and gardens. The chemicals in these products may end up in ground water. Such pollution depends on the types and amounts of chemicals used and how they are applied. Local environmental conditions (soil types, seasonal snow and rainfall) also affect this pollution. Many fertilizers contain forms of nitrogen that can break down into harmful nitrates. This could add to other sources of nitrates mentioned above. Some underground agricultural drainage systems collect fertilizers and pesticides. This polluted water can pose problems to ground water and local streams and rivers. In addition, chemicals used to treat buildings and homes for termites or other pests may also pose a threat. Again, the possibility of problems depends on the amount and kind of chemicals. The types of soil and the amount of water moving through the soil also play a role.
- **Industrial Products and Wastes**: Many harmful chemicals are used widely in local business and industry. These can become drinking water pollutants if not well managed. The most common sources of such problems are:

   - **Local Businesses**: These include nearby factories, industrial plants, and even small businesses such as gas stations and dry cleaners. All handle a variety of hazardous chemicals that need careful management. Spills and improper disposal of these chemicals or of industrial wastes can threaten ground water supplies.
   - **Leaking Underground Tanks & Piping**: Petroleum products, chemicals, and wastes stored in underground storage tanks and pipes may end up in the ground water. Tanks and piping leak if they are constructed or installed improperly. Steel tanks and piping corrode with age. Tanks are often found on farms. The possibility of leaking tanks is great on old, abandoned farm sites. Farm tanks are exempt from the EPA rules for petroleum and chemical tanks.
   - **Landfills and Waste Dumps**: Modern landfills are designed to contain any leaking liquids. But floods can carry them over the barriers. Older dumpsites may have a wide variety of pollutants that can seep into ground water.
- **Household Wastes**: Improper disposal of many common products can pollute ground water. These include cleaning solvents, used motor oil, paints, and paint thinners. Even soaps and detergents can harm drinking water. These are often a problem from faulty septic tanks and septic leaching fields.
- **Lead & Copper**: Household plumbing materials are the most common source of lead and copper in home drinking water. Corrosive water may cause metals in pipes or soldered joints to leach into your tap water. Your water's acidity or alkalinity (often measured as pH) greatly affects corrosion. Temperature and mineral content also affect how corrosive it is. They are often used in pipes, solder, or plumbing fixtures. Lead can cause serious damage to the brain, kidneys, nervous system, and red blood cells. The age of plumbing materials — in particular, copper pipes soldered with lead — is also important. Even in relatively low amounts these metals can be harmful. EPA rules under the Safe Drinking Water Act limit lead in drinking water to 15 parts per billion. Since 1988 the Act only allows "lead free" pipe, solder, and flux in drinking water systems. The law covers both new installations and repairs of plumbing.
   - For more information on avoiding lead in drinking water, visit the EPA's Lead in Drinking Water web site.
- **Water Treatment Chemicals**: Improper handling or storage of water-well treatment chemicals (disinfectants, corrosion inhibitors, etc.) close to your well can cause problems.

291112 Part 3

Setback Recommendations to Conserve Riparian Areas and Streams in Western Placer County

Prepared for:

Placer County Planning Department

Prepared by

Jones & Stokes in cooperation with **PRBO Conservation Science**

February 2005

Setback Recommendations to Conserve Riparian Areas and Streams in Western Placer County

Prepared for:

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February 2005

Jones & Stokes. 2005. Setback Recommendations to Conserve Riparian Areas and Streams in Western Placer County. February. (J&S 03-133.) Sacramento, CA.

Contents

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Acronyms and Abbreviations

NCCP	Placer County Natural Communities Conservation Plan
HCP	Habitat Conservation Plan
RSPZs	Riparian and Stream Protection Zones
DFG	California Department of Fish and Game
USFWS	U.S. Fish and Wildlife Service
NOAA Fisheries	National Oceanic and Atmospheric Administration National Marine Fisheries Service
CEQA	California Environmental Quality Act
In	Inches
km	kilometers
Mi	mile
m	meters
Ft	Feet
PCWA	Placer County Water Authority
SOCs	synthetic organic compounds
DO	dissolved oxygen
CAFOs	concentrated animal feeding operations
N2	atmospheric nitrogen
NH4+	ammonia
NO2-	nitrite
NO3-	nitrate
O2	oxygen
SOCs	Synthetic organic compounds
PCBs	polychlorinated biphenyls

DDT	dichlorodiphenyltrichloroethane
Delta	San Joaquin Delta
C	Celsius
F	Farenheit
mg/l	milligrams per liter
M/sec	meter per second
Ft/sec	feet per second
SRA	Shaded riverine aquatic

Chapter 1
Introduction

Riparian areas provide important ecological functions (Table 1-1). They occupy the land between stream channel banks and adjacent uplands, and generally correspond to stream floodplains. These areas are transitional between terrestrial and aquatic ecosystems, and they contain gradients in hydrology, soils, ecological processes and biota (Brinson et al. 2002). Consequently, they perform ecological functions that are distinct from other components of the landscape. For example, riparian areas convey floodwaters and are important sites of denitrification, which returns nitrogen to the atmosphere. In western Placer County, they also provide essential habitat areas for a high diversity of aquatic and terrestrial wildlife species (Zeiner et al. 1988, 1990a,b; Moyle et al. 1996), including numerous threatened, endangered, and other special-status species that have been proposed for coverage under the Placer County Natural Community Conservation Plan (NCCP) and Habitat Conservation Plan (HCP) for the Phase I Planning Area (Jones & Stokes 2004a).

Because these areas provide such important ecological functions (including fish and wildlife habitat), a number of measures have been proposed to conserve riparian areas and aquatic ecosystems; these measures include establishing zones with land use restrictions (i.e., setbacks) around streams and riparian areas. Setbacks from streams and riparian areas have been widely recognized as necessary conservation measures. For example, the *Placer Legacy Open Space and Agricultural Conservation Program Implementation Report* (Placer County Planning Department 2000), which provided direction for development of a Placer County NCCP/HCP, identified Riparian and Stream Protection Zones (RSPZs) as an important component of the NCCP/HCP. Non-development setbacks encompassing and adjacent to riparian zones and streams are routinely recommended by local, state, and federal agencies including the Placer County Planning Department, the California Department of Fish and Game (DFG), the U.S. Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries). These agencies have identified a need in western Placer County (and elsewhere in the Sacramento Valley) to develop a strong scientific foundation for recommending stream and riparian setbacks that include buffers to reduce effects from adjacent land uses.

The current study was designed to support efforts by the Placer County Planning Department to develop this scientific foundation for the establishment of stream and riparian setbacks. Its purpose was to review existing literature and make specific recommendations for riparian setbacks—particularly the width of such setbacks—that can be used in the California Environmental Quality Act (CEQA) or NCCP/HCP processes.

This report summarizes the results of the review. Each chapter addresses a set of related ecological functions performed by riparian areas and streams, as listed below.

- Hydrologic and geomorphic functions (e.g., groundwater recharge, sediment transport).
- Biogeochemical functions (e.g., nutrient cycling, degradation of contaminants).
- Provision of salmonid habitat.
- Provision of riparian plant habitat.
- Provision of wildlife habitat.

Each chapter describes the pertinent functions mechanistically, reviews the effects of human alterations on the functions, assesses the relationships between setback width and human activities, and concludes with recommendations for setback widths. The recommendations are intended to provide for long-term conservation of the relevant function by protecting the riparian area as well as a defined buffer that will reduce the effects of adjacent land uses on riparian and aquatic systems. In these recommendations, and throughout the report, all distances refer to only one side of streams.

The report concludes with an overall setback recommendation that includes setback widths and guidance regarding uses of setback land that may be compatible with resource conservation.

Table 1-1. Ecological Functions of Riparian Ecosystems[a]

Hydrologic and Geomorphic Functions
Recharge of groundwater
Storage of surface water
Conveyance of floodwaters and other overland flows
Transport of sediment
Storage of sediment
Biogeochemical Functions
Production of biomass (i.e., primary production)
Storage of carbon in vegetation and soil
Cycling of phosphorus
Cycling of nitrogen
Cycling of micronutrients
Adsorbtion, storage, and transformation of non-nutrient metals (e.g., mercury)
Adsorbtion, storage, and degradation of pesticides and hydrocarbons
Habitat Functions
Sustenance of characteristic plant associations
Sustenance of aquatic animal habitats
Sustenance of terrestrial animal habitats

[a] Based on lists of functions in Keddy 2000 and Brinson et al. 2002.

Chapter 2
Hydrologic and Geomorphic Functions

Overview

Hydrologic and geomorphic functions involve the transport and storage of water and sediment. Streams—comprising stream channels and floodplains—are integral to the provision of those functions. Riparian vegetation occupies floodplains; for the purposes of this report, riparian areas may be considered synonymous with floodplains. Sediment and water are transported to streams from throughout the watershed; upon reaching the stream, sediment and water move down the stream and occasionally outwards onto the floodplain. In response to these inputs of water and sediment, the form of stream channels and floodplains changes. These dynamic changes can in turn affect most ecological functions provided by riparian areas and aquatic ecosystems. This chapter describes these processes and the effects on them caused by human activities. The chapter concludes with an assessment of the relationship of setback width and human effects, and offers the project team's recommendation for setback widths to conserve hydrologic and geomorphic functions.

Effects of Human Alterations on Movement of Water and Sediment to Riparian Areas and Streams

Watershed Hydrology

In the absence of human alterations (e.g., interbasin water transfers), streamflows originate from the precipitation falling throughout a stream's watershed. Rainfall is the predominant form of precipitation in most of western Placer County. Before reaching a stream, precipitation may infiltrate to become groundwater or return to the atmosphere through evapotranspiration. Human alterations affect the proportion of precipitation following each of these pathways, and thus the quantity and timing of streamflows, which in turn influences geomorphic functions in the stream corridor.

Evapotranspiration

Evapotranspiration is the loss of water to the atmosphere due to the diffusion of water vapor from the interior of plant leaves (transpiration) and from soil and other surfaces (evaporation). It can dominate a watershed's water balance and can influence soil moisture content, groundwater recharge, and streamflow.

Air temperature and humidity determine the potential rate of evapotranspiration, whereas water availability determines its actual rate. Under cool or moist conditions, water availability does not limit evapotranspiration; actual and potential evapotranspiration are equal. Under drier and warmer conditions, as surfaces and soils dry, plants reduce their use of water by a combination of closing their leaf pores (i.e., stomata), changing leaf angles, losing leaves, becoming dormant, or dying (Barbour et al. 1998). Thus, under dry and warm conditions, actual evapotranspiration is limited by water availability.

Not all water is available for evapotranspiration. Only water stored at the earth's surface (i.e., surface water and water intercepted by surfaces) or in soils is available for evapotranspiration. Therefore, the timing of precipitation and the time water resides in a watershed strongly influence actual evapotranspiration.

Western Placer County has a Mediterranean-type climate, characterized by concentration of rainfall during the coldest months of the year. Consequently, only water stored in soils, streams, and other water bodies is available for evapotranspiration during summer months when the potential evapotranspiration is greatest. During these months, vegetation can remove a substantial fraction of the water within riparian areas and streams. For example, in July in the Sacramento Valley, potential evapotranspiration is about 0.8 centimeters (cm) (0.3 inches [in]) per unit area each day (California Department of Water Resources 2004). This corresponds to about 18 acre-feet of water being transpired by 1.6 kilometers (km) (1 mile [mi]) of a riparian corridor 30 meters (m) (98 feet [ft]) wide on each side of a stream.

Human alterations can increase or reduce evapotranspiration. Importing water from other watersheds or withdrawing groundwater from below the rooting zone to irrigate agricultural lands and landscaping can increase evapotranspiration by increasing the availability of water. Removing vegetation or increasing runoff can reduce evapotranspiration. Alterations that remove vegetation include both the temporary removal of biomass (e.g., timber harvesting, woodcutting) and the permanent conversion of natural vegetation to developed land uses with impervious surfaces (e.g., roofs, paved roads). Alterations affecting runoff are described in the next section.

Runoff

There are three basic types of runoff.

- Overland flow.
- Subsurface flow.
- Saturated overland flow.

Each of these runoff types can occur individually or in some combination in the same locale. Despite involving belowground flow, subsurface and saturated overland flow are considered components of runoff because they are closely linked to overland flow.

Overland flow occurs when the rate of rainfall or snowmelt exceeds the rate of water movement into the soil (i.e., infiltration rate). The infiltration rate is affected by soil structure and moisture content (infiltration diminishes as water saturates a soil). Areas with natural vegetative cover and leaf litter usually have high infiltration rates. These features protect the surface soil pore spaces from being plugged by fine soil particles as a consequence of raindrop splash.

Overland flows may subsequently enter the soil as rainfall diminishes in intensity or ceases, or they may reach a stream channel before entering the soil. Slope and vegetation affect the speed of overland flow, and thus the portion that discharges directly into stream channels.

Subsurface flow is a storm-generated pulse of groundwater. Once in the soil, water moves in response to differences in hydraulic head (i.e., the potential for flow resulting from a difference in hydrostatic pressure at different elevations). Before a storm, where the water table slopes toward a stream, water moves down and into the stream channel as baseflow. During a storm, as rainwater infiltrates the soil, the water table can rise more rapidly near the stream than it does further upslope. This can happen when the soil near the stream has greater moisture content and a shorter distance to the water table than does soil upslope. As the water table becomes locally steeper, this newly arrived groundwater moves relatively rapidly towards the stream channel, mixes with baseflow, and increases groundwater discharge to the channel.

Saturated overland flow is a combination of direct precipitation and subsurface flows. Where the water table reaches or emerges from the surface, soils are saturated. Consequently, all rain falling on these soils, as well as emerging groundwater, flows downslope as overland runoff.

Human alterations increase runoff by reducing the soil's infiltration capacity (i.e., maximum rate of infiltration). Conversion of natural vegetation to developed land cover causes the greatest reduction in infiltration. However, agricultural lands also exhibit reduced infiltration capacity compared to natural vegetation. Heavy machinery, livestock, and even humans can compact soils, reducing infiltration. Moreover, removal of vegetation can expose the soil surface to the impacts of raindrops, reducing soil pore spaces and infiltration. In western Placer County, these alterations have affected extensive portions of the landscape. For example, along the major streams of western Placer County, approximately a quarter of the land < 20 m (66 ft) from the centerline of a stream, is in developed or agricultural land-cover (Jones & Stokes 2004a, 2004b).

Groundwater

Gravity causes water to move downward through soil until it reaches an area already saturated with water. The top of this saturated zone defines the groundwater table. However, the movement of groundwater may be quite complex. The permeability of sediments and rock strongly influences the rate of groundwater movement. Water moves easily through larger pores and more slowly through smaller pores. In addition, layers of sediment or rock with low permeability (i.e., confining beds) may severely restrict groundwater movement. Thus, where the permeability of sediments and rock varies considerably, complex patterns of groundwater movement may occur. Riparian areas typically have considerable variability in the permeability of their sediments.

Human alterations can affect groundwater through several different mechanisms. First, activities that affect runoff or evapotranspiration affect the proportion of precipitation that becomes groundwater. Second, because streamflows can be an important source of groundwater, alterations that reduce streamflows can also reduce inputs to groundwater. Third, alterations that affect the quantity of groundwater (i.e., groundwater withdrawals) can change the elevation of the groundwater table. Drainage ditches and tiles also lower the water table's elevation.

Erosion

Gravity, wind, and water transport soil to riparian areas and streams. Soil is dislodged when the force of wind, water, or gravity exceeds the forces holding soil in place. Several factors affect the balance of these forces: the soil's physical properties; vegetation structure; topography; and the quantity, concentration, and speed of runoff. Soil characteristics, such as lithology (i.e., rock or mineral content), cohesion, and granulometry (i.e., grain size association), influence the erodibility of soils. Vegetation reduces erosion by binding soil particles and by slowing wind and water (Brinson et al. 2002); accordingly, greater cover of vegetation reduces the potential for erosion. Because both velocity and shear stress increase with slope, the potential for erosion increases with the angle and length of upland slopes. Also, as more runoff is generated and concentrated (i.e., greater runoff depth), the force exerted by flowing water on the soil surface—and hence erosion— increases.

Gravity can also induce the slow downhill movement of soil and rock (i.e., soil creep) and mass failures such as debris flows. In steep terrain, mass failures can transport enormous quantities of sediment into riparian areas and stream channels. Mass failures are often triggered by intense rainstorms falling on saturated soils (Swanston 1991). Under such conditions, soil is particularly heavy due to the added water, and subsurface flows can reduce the forces that offset gravity. Although western Placer County generally has gently sloping topography, that is not conducive to mass failures, slopes can be steep along stream channels, particularly near the area's eastern boundary in the Sierran foothills.

The magnitude and distribution of erosion in watersheds affect the yield of sediment to the stream corridor. Soil erosion can occur gradually over a long period or it can be cyclic or episodic, accelerating during certain seasons or during certain rainstorm events (Grove and Rackham 2001). Erosion does not proceed at a uniform rate, because rainstorms are episodic events of varied intensity and because the forces binding soils continually change with temperature, moisture content, and vegetation structure.

Human activities strongly alter patterns of erosion and thus the quantity of sediment entering riparian areas and streams. In the Sacramento Valley and adjacent foothills, human-induced fine sediment loading is primarily due to changes in land use that both alter the vegetative cover and increase runoff. The three main land uses generating sediment in the region are agriculture, in-channel mining, and construction activities. The effects of silvicultural activities, though discussed in this section, are concentrated at higher elevations in the central and eastern portions of the county.

Agriculture generally exposes friable topsoils to raindrop erosion, which has the potential to generate large amounts of sediment (Waters 1995). In the Sacramento Valley and adjacent foothills, additional land is still being converted from natural vegetation to agriculture. Much of this new agricultural land is of marginal quality and on relatively steep slopes, and is consequently likely to generate more sediment than agricultural land with gentler slopes (Charbonneau and Kondolf 1993).

Gravel mining can increase fine sediments in streams and streambeds. Gravel mines are often in the active floodplain or even the stream channel itself, and because processing of aggregate occurs on site, this activity can add fine sediment directly to the stream and streambed. Gravel mining is on-going in the historic floodplains of at least two streams in western Placer County (EDAW 2004; Jones & Stokes 1999).

Forestry practices, including clear-cutting, skidding, yarding, site preparation, and road construction and maintenance, can substantially increase sediment input to streams. Poorly designed logging roads and skid trails are persistent sources of sediment. Open slopes with soils exposed by yarding activities, scarification, or by associated mass failures or fires erode easily (Chamberlain et al. 1991).

Residential development, industrial construction, streets and utilities, and other urban infrastructure elements can increase sediment movement to streams

(Waters 1995). Excavation for infrastructure construction and maintenance is a primary source of sediment transported to streams. Development on steep hillsides further increases erosion and transport of sediment (Renard et al. 1997).

In addition to these effects of general types of land use activities, roads, graded and recontoured land, and the routing of stormwater drainage can all spatially concentrate runoff, and hence increase both surficial erosion and the likelihood of mass failures.

Effects of Human Alterations on Water and Sediment Movement along Streams

Flow Regime

Streamflows originate in runoff and groundwater entering the stream channel. As this water moves along the stream it may follow several different pathways. Some water will evaporate from the surface of the flow. Some will enter the sediments underlying the channel and floodplain, where it will intermix with groundwater in a zone (i.e., the hyporheic zone) that can extend from several to more than a hundred meters from the channel (Brunke and Gonser 1997). (This hyporheic zone is habitat for invertebrates and microbes that have important roles in nutrient cycling and the degradation of pollutants.) Stream water entering the hyporheic zone may reenter the channel downstream; alternatively, in reaches where the water table is lower than the stream channel, the water entering the hyporheic zone may continue to flow away from the stream toward the water table. During high streamflows, the channel may not be able to convey the entire flow, and streamflows spill over the channel banks onto the floodplain, and may or may not reenter the channel downstream.

Streamflows are typically highly variable across days, seasons, and years. Most aspects of a stream's flow regime (i.e., the pattern of streamflow), including magnitude, frequency, timing, and duration, have consequences for sediment transport and channel form, and indirectly or directly affect organisms. For example, low flows can reduce the area of aquatic habitats. High flows can wash away eggs or, through sediment movement, can sustain or degrade habitats. Rapid declines in flow can strand fish.

Together with the pattern of water inputs from the watershed, channel form and vegetative structure determine a stream's flow regime. The slope, area, form, and roughness (i.e., irregularity of the surface) of the channel and floodplain surface determine the depth and velocity of streamflows, as well as their magnitude and duration.

As a stream's discharge (i.e., the volume of water discharged per unit time) increases, either flow velocity, flow area, or both must increase. Similarly, as water flows along a stream, the depth, velocity, and cross-sectional area of the flow change to maintain a constant discharge. This occurs because as more water enters than exits a section of channel, the volume of water in that section increases, changing the width and depth of the flowing water until the discharge entering the segment equals the exiting discharge. As width and depth change flow velocity changes.

Flow velocity is a product of slope (which causes water to accelerate as it moves downhill) and the surface over which the water flows (the character of which can impede or facilitate the water's passage through friction or the lack of it). At a given slope, water velocity decreases as the roughness of the inundated surface increases. Vegetation, coarse sediment, and larger obstacles all increase roughness. For example, the encroachment of woody plants into a stream channel reduces the velocity of water, and consequently the channel's capacity to convey floodwaters before inundating the floodplain; for this reason, woody plants are removed from many stream banks to maintain floodwater conveyance.

Flow regime is changed to some degree by all human activities that alter the quantity or timing of water inputs to streams or the movement of flows along streams. Surface water diversions, groundwater withdrawals, and inter-basin water transfers change the quantity of water entering streams. When these waters are used for irrigation during California's summer dry season (and subsequently drain back to streams), they change the seasonality as well as the levels of flows. Conversions of land cover throughout the watershed affect the rate at which water enters streams. As described in *Watershed Hydrology* above, replacement of natural vegetation with agricultural or developed lands increases runoff. This increased runoff results in higher peak streamflows because, after rainstorms, runoff enters streams much more rapidly than does groundwater. Decreased infiltration is also associated with increased runoff; such decreased inputs to groundwater can reduce low flows, and can even convert a perennial flow regime to a seasonal or intermittent one. These changes are most dramatic along urban streams where much of the watershed consists of developed lands with a high proportion of impervious surfaces (Hollis 1975; Macrae 1996; Booth and Jackson 1997; Paul and Meyer 2001).

Interbasin water transfers are a particularly significant human alteration of flow regimes in western Placer County (Jones & Stokes 2004b). Water is diverted from the Bear River's watershed into Coon Creek, Doty Ravine and Auburn Ravine. Water is also diverted from the American River's watershed into Auburn Ravine. Because large quantities of water (about 20,000 acre-feet) are transferred by the Placer County Water Authority (PCWA) from the American River watershed to the City of Roseville, it is likely that interbasin transfers augment flows in the Dry Creek watershed as well (ECORP 2003).

Modifications of channels and floodplains also alter flow regime. Vegetation removal that is conducted to clear channels or that results from grazing, logging, or conversion to agricultural and developed lands can reduce roughness, thereby increasing flow velocities. Physical alterations to the channel and floodplain (e.g., channelization, levees, berms) also changes flow regimes. For example, the straightening and deepening of the channel to improve conveyance (channelization) speeds velocities and increases peak flows downstream. Dams and reservoirs can affect all aspects of flow regimes, and in some instances replace the previous flow regime with a new regime determined by the schedule of releases from a reservoir. Common downstream effects of reservoirs include a reduction in overall flows, reduced peak flows, and rapid changes in discharge (Stanford et al. 1996; Brinson et al. 2002). Along some Sacramento Valley streams, reservoir releases in conjunction with drainage from irrigated lands have increased summer flows, converting seasonal flow regimes to perennial ones.

Sediment Transport

Sediment transport is directly related to stream power. A stream's power is a product of its discharge, the specific weight of water (which is essentially a constant), and slope. Stream power represents the quantity of work that a streamflow can perform (i.e., the rate of potential energy expenditure per unit length). Most of this energy is dissipated overcoming friction at the channel and floodplain surface, but a small portion moves sediment.

The portion of stream power that moves sediment depends on several stream attributes. The movement of sediment downstream only occurs when the force exerted by water along the surface of the channel (shear stress) exceeds the forces holding sediment in place. The magnitude of shear stress and the forces that offset it are affected by the following factors.

- Flow depth and velocity.
- Channel morphology.
- Sediment size.
- Adhesion of particles.
- Binding of particles by roots.

Sediment transport is increased by conditions that concentrate the force of flowing water (e.g., confining flow to a narrower channel) or reduce the resistance of particles to their displacement (e.g., loss of vegetation and hence of roots).

Sediment transport in any given stream is greatest during peak flows. Not only does shear stress increase with flow depth and velocity, but the relationship between shear stress and sediment transport is non-linear (Gordon et al. 1992). In other words, the increased force exerted by peak flows results in a disproportionate increase in the capacity to transport sediment.

Human alterations affect sediment transport by changing flow regime or sediment inputs to streams, and by blocking the continuity of sediment delivery along a stream. Human effects on flow regime and sediment inputs have already been described in the flow regime and erosion sections of this chapter. The movement of sediment along a stream may be blocked by dams or reduced by pits from gravel mining. Dams block the downstream movement of coarser sediment from the upper portions of watersheds of most rivers and streams in the Sacramento Valley. In-stream gravel mining produces pits that trap incoming sediment (Mount 1995).

Effects of Human Alterations on Channel and Floodplain Form

The form of stream channels and their floodplains affects the important stream and riparian functions listed below.

- Transport and storage of sediment.
- Conveyance of floodwaters.
- Provision of floodplain habitats.
- Provision of aquatic habitats.

For example, the shape and gradient of channels affects the location of areas of sediment deposition and removal. Similarly, fish spawning and rearing habitats are affected by the interplay of channel geometry with flow depth, velocity, and the scour and deposition of sediments.

The form of a stream’s channel and floodplain is a product of water and sediment inputs from the watershed, geologic constraints, channel or floodplain vegetation, and historic events. Consequently, changes in sediment inputs, flow regime, or vegetation cause changes in channel and floodplain form. These geomorphic responses can be complex because of interactions among these important factors. Flow regime, sediment transport, and vegetation influence each other; changes in channel and floodplain form likewise affect the growth of plants and the movement of water and sediment. Consequently, changes in a watershed may cause channels and floodplains to undergo complex patterns of change across decades.

Channel Morphology

In the absence of human alterations, the form of stream channels is not static, unless constrained by geology. Channel and floodplain morphology changes slowly in response to long-term changes in climate; it can also change rapidly in response to periodic intense storms or to massive inputs of sediments from slope failures.

Human alterations often cause changes in flow regime and sediment input that lead to unstable channels with rapidly changing forms. Unstable channels result from rates of erosion and sedimentation that are much more rapid than in comparable, but relatively unaltered, streams (Doyle et al. 2000). This instability can affect riparian and stream biogeochemical and habitat functions (Paul and Meyer 2001; Brinson et al. 2002).

Channel instability has both horizontal (channel bed) and vertical (channel banks) components. A longitudinal section of streambed is stable when the size and quantity of sediment entering the section equals the size and quantity of sediment carried downstream. If the capacity of flows to transport sediment changes (e.g., change in peak flows) without a corresponding change in sediment inputs, or vice versa, then net erosion or deposition will occur and the channel may become unstable. The rising (i.e., aggradation) or lowering (i.e., incision or degradation) of channel beds generally alters flows of groundwater and surface water through riparian areas by changing the elevation or slope of the water table, and by changing the discharge necessary for overbank flows.

The stability of channel banks is affected not only by the shear stress of flowing water, but also by the force of gravity pulling bank sediments downward, which can lead to mass failure of sections of bank (i.e., bank failure). The binding of sediment particles by plant roots can substantially reduce bank erosion. A tree's roots typically extend up to twice the radial distance of the tree's crown; thus, in western Placer County, trees up to 20 m [66 ft] from the channel may contribute to bank stability. Therefore, bank retreat (i.e., net linear recession of the bank) is increased not only by changes in flow regime that increase shear stresses, but also by removal of vegetation along the banks (Lawler et al. 1997).

Human alterations affect channel stability through changes of flow regime, sediment transport, or channel vegetation, or by placing structures along or in the channel. Human activities altering flow regime, erosion, and sediment transport are described in the respective sections of this chapter. Their net affect on channel form is to alter the balance between erosion and deposition along the stream channel, causing a corresponding change in channel form.

Channel bank vegetation is directly altered by grazing, channel maintenance, wood cutting and timber harvesting, land-cover conversion, and even by the trampling associated with intensive recreational use. All these activities may lead to bank retreat. With the exception of timber harvesting, these activities occur locally along western Placer County's streams (Placer County 2002; Appendix A)

Channel vegetation is also altered by activities that change flow regime, water table elevation, or channel stability. If changes to flow regime or water table elevation reduce water availability during the growing season, vegetation will be altered and will probably exhibit reduced roughness or a lower density of roots to bind bank sediments. Conversely, reduced flows may allow riparian vegetation to establish on lower-elevation surfaces within the channel, where establishment and survival were previously not possible because of scouring or prolonged submergence (Pelzman 1973). The latter scenario has occurred along a number of Sacramento Valley streams below dams (Pelzman 1973; CALFED 2000b). This encroachment of vegetation on the channel stabilizes channel sediments.

The changes in erosion, runoff, and peak flows associated with conversion of natural vegetation to developed land cover generally cause channel instability (Paul and Meyer 2001). Though channels may transiently aggrade with sediment eroded from construction sites, the higher flow peak flows associated with runoff from developed lands are capable of eroding and transporting more sediment (Wolman 1964). This tends to cause channel incision, bank retreat, or both, and a resulting increase in the channel's cross-sectional area. The slope and meanders of stream channels also may change (Riley 1998). Other changes in vegetation or land cover may cause effects comparable to those from conversion to developed lands. Incision is widespread along western Placer County's streams, and has reduced the area of floodplain inundated by floodflows, and thus detrimentally affected most riparian functions (Placer County 2002; EDAW 2004; Jones & Stokes 2004c).

All structures constructed in the channel or active floodplain to some degree alter flows and sediment erosion and deposition, and thus have consequences for channel form. The most substantial effects result from bank protection, berms and levees, and dams. Bank protection (e.g., stone revetment, riprap) is installed for the purpose of reducing lateral movement of the channel. Berms and levees restrict floodwaters to a small portion of the floodplain, and thus may create deeper and faster peak flows capable of eroding and transporting more sediment, which in turn may expand channel cross-sectional area. Berms and bank protection exist occur along western Placer County's streams, particularly at lower elevations. Other structures include numerous road crossings and about thirty dams (County of Placer 2002; DWR 2002; Bailey Environmental 2003; Foothill Associates 2004; Jones & Stokes 2004b)

The construction of dams to form reservoirs contributes to accelerated channel erosion below the dams and to changes in the particle size on the riverbed (Kondolf 1997). Water released from dams is relatively free of sediment, particularly coarse sediment (i.e., larger than 2 mm in diameter). The relatively sediment-free flow results in net erosion of channel bed and banks, often leading to channel incision. Without the input of coarse sediment from upstream, the area of gravel beds in the channel is reduced, and the remaining gravel is often of larger sizes that are not mobilized by flows released from the dam (i.e., armoring of the channel). Dams also reduce peak flows, resulting in a reduction of channel size and accumulation of finer sediment along and within the river channel (Kondolf 1997). Flashboard dams, however, may have lesser effects if removed during peak flows. Most dams in western Placer County are flashboards dams, and many are removed during peak flows (DWR 2002; Placer County 2002; Bailey Environmental 2003)

Stream channel shape is directly altered by channelization and in-channel gravel mining. As mentioned earlier in this chapter, channelization converts streams into deeper, straighter, and often wider shapes to improve conveyance of floodwaters. It increases peak flows and can promote channel instability, which may lead to lowering of the water table (Gordon et al. 1992). In-channel gravel mining removes material from the channel bed and thus lowers its elevation (Bravard et al. 1997).

Floodplain Morphology

The active floodplain is the geomorphic surface adjacent to the stream channel that is typically inundated on a regular basis (i.e., a recurrence interval of about 2–10 years or less). It is the most extensive low depositional surface, typically covered with fine overbank deposits, although gravel bar deposits may occur along some streams. The floodplain surface often contains abandoned channels or secondary channels (i.e., chutes).

The stream migrates laterally across the floodplain as the outside of the meander bend erodes and the point bar builds with coarse-textured sediment. This naturally occurring process maintains the cross section needed to convey water and sediment from the watershed.

Floodplains are built by two stream processes: lateral and vertical accretion. Lateral accretion results from differential erosion and deposition along the channel. In unconstrained rivers, bank retreat is concentrated on the outside (concave side) of bends in the channel (i.e., meanders), forming cut banks; deposition occurs on the inside (convex side) of bends, forming point bars. This difference in erosion and deposition along channel bends causes channels to migrate across the floodplain. Other floodplain features also arise through channel migration. Where bends become cut off at their base (because erosion joins their upstream and downstream ends), oxbow lakes are formed. Where higher flows cross over point bars, chutes may form. Channel shifts to old or new courses (i.e., channel avulsion) can occur during floodflows, and may cut off meander bends and change the channel's form.

Vertical accretion is the deposition of sediment on flooded surfaces. It occurs when flows exceed the channel's conveyance capacity, inundate the floodplain, and deposit sediment. Though most floodplain sediment is deposited through lateral accretion (Leopold et al. 1964), overbank flows and the associated vertical accretion have a significant effect on aquatic and floodplain habitats that are described in subsequent chapters of this report.

Lateral and vertical accretion are affected by human alterations that modify flow regime, sediment supply, and channel stability or that construct structures within the floodplain. Human alterations affecting flow regime, sediment transport, and channel form alter the rate of channel movement and the frequency of overbank flows. These alterations, including the effects of dams, have been described in the preceding sections of this chapter. All structures within the channel or floodplain alter flows and accretion to some degree. However, the most substantial alterations are bank protection, which is installed specifically to reduce lateral channel migration, and berms and levees, which restrict floodwaters, and thus vertical accretion, to a small portion of the floodplain.

Relationships Between Human Effects and Riparian Setback Width

Riparian setbacks can reduce the effects of human alterations on water and sediment inputs to streams; if they extend beyond the active floodplain, setbacks can also reduce direct effects on flow regime, sediment transport, and channel and floodplain morphology. However, many effects of human alterations on hydrologic and geomorphic functions would be relatively unaltered by setbacks.

There has been considerable research on the effects of natural riparian vegetation or managed buffers on the movement of runoff and suspended sediment. (This literature has been reviewed by Castelle et al. 1992; Wenger 1999; Brinson et al. 2002; Lowrance et al. 2002; Correll 2003). This research indicates that setbacks have three beneficial effects: slightly reducing the area of sediment sources in a watershed, increasing the distance of runoff and erosion sources from streams, and interposing a zone of vegetation with high roughness and high infiltration capacity between streams and sources of runoff and erosion. The roughness of both natural and managed vegetation can slow runoff and cause the deposition of sediment before it reaches the stream. This deposition of sediment increases with vegetation width; at any given width, deposition is greatest when flows are evenly distributed (not locally concentrated) and when vegetation and topography are uniform (Herrone and Hairsine 1998; Wenger 1999; Brinson et al. 2002).

Numerous studies document the effectiveness of managed or natural vegetation in removing suspended sediment, particularly sands and silts, from runoff before it reaches stream channels (Castelle et al. 1992; Wenger 1999; Brinson et al. 2002; Lowrance et al. 2002). (Because clay particles are very small [less than 2 μm], they remain suspended even in still water for hours, and thus are much more likely to remain in runoff.) If this sediment is deposited on the active floodplain, it may be only temporarily stored there before entering the stream channel. However, if sediment is removed from runoff before it reaches the floodplain, it is much less likely to be remobilized into the stream channel. Setbacks may also reduce the likelihood of mass failures on adjacent slopes by including susceptible terrain inside the buffer, where human alterations are less likely to cause mass failures (Rhodes 1994; Tang and Montgomery 2004).

There is considerable variation among the results of studies assessing the relationship between the width of buffers and sediment removal from runoff. A number of studies document narrow buffers (less than 10 m [33 ft]) removing substantial amounts of sediment from runoff (Castelle et al. 1992; Wenger 1999; Lee et al. 2000; Hook 2003). However, many of these have been short-term studies or studies of managed buffers that were conducted under a narrow range of conditions. Short-term studies probably underestimate the distance sediment is able to be moved across buffers because erosion is a highly variable process, largely associated with intense storms and other unusual events (Grove and Rackham 2001). Similarly, small-scale studies of managed buffers probably underestimate the quantity of sediment that is able to cross unmanaged buffers because natural topography and vegetation are quite varied, and can concentrate flow, have less roughness than managed vegetation, or provide additional sources of runoff or sediment at some locations. These findings are supported by other studies that have indicated wider buffers (20–60 m [66–197 ft]) are necessary to remove most sediments (Cooper and Gilliam 1987; Castelle et al. 1992; Davies and Nelson 1994; Wenger 1999). These include longer-term studies that have shown most sediment moving considerable distances into riparian areas (Cooper et al. 1987), and studies that document effects of excessive sedimentation on aquatic organisms in streams bordered by wide buffers (Megahan 1987 *in* Rhodes 1994).

Setbacks of sufficient width to include the entire active floodplain prevent structures and developed land uses from impeding overbank flooding and channel migration. Setbacks including the entire active floodplain also reduce direct effects of human activities on bank stability.

Recommended Setback Width to Conserve Hydrologic and Geomorphic Functions

For the purpose of long-term conservation of hydrologic and geomorphic functions, the project team recommends that riparian setbacks include the entire active floodplain, regardless of the current extent of riparian vegetation on that surface, and that an additional 30 m (98 ft) buffer be included within the setback. This width should be sufficient to substantially slow or infiltrate much of the runoff from adjacent uplands, and to remove excessive sediment from that runoff prior to its entering the active floodplain.

It is important to note that setbacks do not ameliorate many effects of human alterations on hydrologic and geomorphic functions. Some effects are offset only if the activities causing them are excluded from the setback. Examples of these activities include riparian vegetation removal, grazing, and channel modifications. Other alterations are only partially offset, such as the effects of developed or agricultural land cover on runoff and groundwater. Finally, other effects are not addressed by riparian setbacks. These include the effects of surface water diversions, groundwater withdrawals, and dams. Therefore, to conserve hydrologic and geomorphic functions, other measures are necessary in addition to setbacks.

Chapter 3
Biogeochemical Functions

Introduction

Biogeochemical functions cycle elements among compounds and locations by biological and geological mechanisms. For example, in the carbon cycle, photosynthesizing plants remove carbon from the atmosphere; through respiration, plants, animals, and microbes return carbon to the atmosphere. A substantial quantity of carbon is stored in these organisms and in the organic matter derived from them. Nutrient cycles are essential to ecosystem functions; moreover, such cycles facilitate the transformation and degradation of contaminants entering these ecosystems.

All terrestrial habitats provide some biogeochemical functions. However, riparian areas are particularly important for nutrient and other element cycles because they are ecotones (transitional zones) between terrestrial, fluvial, and groundwater systems. Consequently, riparian areas have substantial effects on water quality because they help to regulate the transfer of sediment and water, and because they facilitate chemical transformations of contaminants (Naiman and Decamps 1997; Brinson et al. 2002).

This chapter reviews the transport, storage, and transformation of nutrients, metals, and synthetic organic compounds (SOCs; e.g., most pesticides) in riparian areas, and the consequences of human alterations for these ecosystem processes. The chapter concludes with a summary of the relationships between riparian setback widths and human influences on biogeochemical processes.

Effects of Human Alterations on Biogeochemical Functions

Macronutrients

Agricultural and developed lands are major sources of nitrogen and phosphorus entering streams and rivers (Jackson et al. 2001). In aquatic ecosystems, over-enrichment with phosphorus and nitrogen (i.e., eutrophication) causes a wide range of problems, including degradation of water quality for human uses (e.g., irrigation, drinking, recreation), toxic algal blooms, loss of biodiversity, and fish kills (Richter et al. 1997; Jackson et al. 2001). These detrimental effects are largely due to greatly increased growth of microbes, algae, and plants, accompanied by the decomposition of their biomass and the resulting depletion of dissolved oxygen (DO). DO is frequently the key substance in determining the extent and composition of life in water bodies (Manahan 1994). For instance, it was found to be one of the best environmental predictors of invertebrate community composition in flow-through constructed wetlands (Spieles and Mitsch 2000). Salmonids are particularly sensitive to low DO concentrations (Bjornn and Reiser 1991).

The cycles of phosphorus and nitrogen involve different mechanisms, and riparian areas affect these cycles differently. Accordingly, these cycles and the effects of human alteration are described in separate sections below.

Phosphorus

Ultimately, all phosphorus originates from the weathering of rock; it should be noted that different rock types may have substantially varied phosphate contents (Wetzel 2001). However, because it is a macronutrient, phosphorus concentrates in organisms; consequently, organic matter, fertilizer applications, wastes from concentrated animal feeding operations (CAFOs), and sewage are all important sources of the phosphorus entering streams (Jackson et al. 2001).

The availability of soluble phosphorus (i.e., phosphorus in a molecule dissolved in water) is strongly affected by pH (Wetzel 2001). Soluble phosphorus is most available at a pH of 6–7; consequently, it is most readily leached from soils of that pH range. At lower pH values, phosphorus combines readily with aluminum, iron, and manganese. At higher pH values, greater amounts of phosphate combine with calcium as calcium phosphates and apatites (i.e., minerals in which calcium and phosphorus combine with other elements). These reactions (that predominate above and below the pH 6–7 range) result in the formation of insoluble complexes and the adherence of phosphorus to the surfaces of clay particles.

In most environments (including waters with pH values of 6–7), insoluble forms of phosphorus predominate because they readily form and persist longer than soluble forms, which are rapidly taken up by microorganisms and plants or are sorbed to soil particles (Marschner 1995; Wetzel 2001). (Sorption includes absorption, adsorption, and physical interspersion or association.) Consequently, runoff is the primary means by which phosphorus enters waters, because most phosphorus is transported to streams adhered to soil particles or associated with particles of organic matter (Wenger 1999; Jackson et al. 2001; Wetzel 2001). Insoluble and sediment-bound forms of phosphorus may subsequently become soluble in streams.

Though phosphorus is readily bound to particles of clay and organic matter, soils cannot retain unlimited quantities of phosphorus. Therefore, high inputs of phosphorus could saturate binding sites in riparian soils. This saturation was suggested by the results of several studies (reviewed in Wenger 1999) where the percent of phosphorus inputs removed by newly established buffers declined over time.

Human alteration of ecosystems can affect the transport and storage of phosphorus in riparian areas through the effects of adjacent land uses, conversion of riparian areas to agricultural or developed land cover, hydrologic and geomorphic alterations, and alterations of riparian vegetation and soils. In addition to increasing phosphorus inputs, adjacent land uses can increase or concentrate overland flows, or even route them past riparian areas. For example, the Roseville Wastewater Treatment Plant adds effluent containing substantial quantities of phosphorus to Dry Creek (ECORP 2003), and this effluent enters the stream without ever passing through the soils of a riparian area. Such alterations limit opportunities for phosphorus to sorb to particles of clay and organic matter in the soil. Similarly, drainage tiles and ditches also reduce phosphorus retention by moving flows rapidly through riparian areas. Conversion of riparian areas to agricultural or developed land uses reduces the size of riparian areas, and thus reduces the residence time of flows and the capacity of the riparian area for retaining phosphorus. Direct alterations that reduce hydraulic roughness of the vegetation or soil infiltration (e.g., grazing, timber harvest) could reduce sediment deposition and the residence time of flows in the riparian area, which could in turn reduce phosphorus retention.

Nitrogen

Nitrogen cycling involves fixation of atmospheric nitrogen (N_2) into organic molecules, and the return of nitrogen to the atmosphere through denitrification (Jackson et al. 2001; Wetzel 2001). Microorganisms perform both these transformations. Nitrogen is also fixed by the high temperatures and pressures of internal combustion engines and, to a lesser extent, by lightning. The nitrogen fixed into organic molecules is stored in living organisms and the organic materials derived from them. It is a constituent of amino acids and nucleic acids, and is also a component of the animal waste products urea and uric acid, as well as other organic molecules. During decomposition, nitrogen is released to the environment in the small inorganic molecules ammonia (NH_4^+), nitrite (NO_2^-) and nitrate (NO_3^-). These molecules and small organic molecules (e.g., amino acids) are highly soluble, readily taken up by microbes and plants, and through denitrification are transformed to N_2 and returned to the atmosphere.

Agricultural and developed lands are major sources of the nitrogen entering streams (Jackson et al. 2001). Fertilizer applications and wastes from CAFOs are the primary sources on agricultural lands. On developed lands, nitrogen sources include septic systems, pet wastes, fertilizers applied to lawns and other landscaping, sewage systems, and some industrial sources. Erosion is also an important source of nitrogen from both agricultural and developed lands.

Unlike phosphorus, nitrogen is quite soluble and readily moves into shallow groundwater (Lowrance et al. 1984; Schnoor 1996); in many areas most nitrogen enters streams via subsurface flows (Fennessey and Cronk 1997). Denitrification is the major pathway for removal of nitrogen as this subsurface water crosses riparian areas. Plant uptake also removes nitrogen from groundwater and stores it in plant tissue (Marschner 1995; Fennessey and Cronk 1997). However, unless they are removed from riparian areas or deeply buried, plant tissues will decompose after death, releasing this stored nitrogen.

Most denitrification occurs in saturated soils (Fennessey and Cronk 1997; Jackson et al. 2001; Wetzel 2001). There, low oxygen (O_2) concentrations create a demand for NO_3^- as an electron acceptor. During aerobic respiration (the primary source of energy for the metabolic activities of animals, plants, and many microbes), oxygen is required as the terminal electron acceptor. Where limited oxygen availability hinders aerobic respiration (e.g.,, under anaerobic conditions), organisms can still derive energy from metabolic pathways that rely on other molecules as electron acceptors. In the case of denitrifying bacteria, energy is derived from organic compounds using NO_3^- instead of oxygen as the terminal electron acceptor.

Factors affecting removal of nitrates by riparian areas include the portion of flows crossing the riparian area as runoff, the rate of denitrification, and the time required for subsurface flows to cross the riparian area (Fennessey and Cronk 1997). Because surface flows cross riparian areas rapidly, little or no nitrate is removed from runoff. From subsurface flows, the amount of nitrate removed is a product of the rate of denitrification and time in the riparian area.

Rates of denitrification are governed by the following conditions.

- Nitrate concentration.
- Quantity of organic carbon.
- Degree of soil saturation.
- Activity of denitrifying bacteria.
- Temperature.
- pH.

Denitrification primarily removes nitrogen that enters riparian areas as nitrate, and low concentrations of nitrate, relative to other forms of nitrogen (e.g., organic nitrogen), can limit the rate of denitrification. For example, in one study, 76% of the nitrogen entering a riparian area was in nitrate, but only 18% of the nitrogen leaving that riparian area was in the form of nitrate (Fennessey and Cronk 1997). Compared to nitrate, a much larger fraction of nitrogen in organic compounds passes through riparian areas.

Organic matter is the substrate from which denitrifying bacteria obtain energy; consequently, the lack of a carbon source can limit denitrification. Exudates from plant roots, and the roots themselves, provide an important carbon source for soil microorganisms (Marschner 1995; Gurwick et al. 2004).

Saturated soils have higher denitrification rates than unsaturated soils because they have less oxygen availability than dry or unsaturated soils. Denitrification is a mechanism for extracting energy from organic molecules; in aerobic environments, many denitrifying bacteria will perform aerobic metabolism instead of denitrification, or will compete for carbon sources with microbes performing aerobic respiration. Aerobic respiration does not involve nitrate, and thus the rate of N_2 production decreases (Fennessey and Cronk 1997; Wetzel 2001).

The ability of denitrifying bacteria to perform denitrification depends on their abundance and the quantity of nitrate to which they have recently been exposed, which together determine the overall denitrifying activity of the microbes; temperature (which affects the rate of all reactions); and pH (Fennessey and Cronk 1997; Wetzel 2001).

The residence time of surface and subsurface water in a riparian area is as important as the rate of denitrification. Many factors affect the residence time of water in riparian areas; these include width of the riparian area, slope gradient, surface roughness, hydraulic head (i.e., the force moving water through the riparian area), and soil hydrologic connectivity (i.e., permeability) (Gordon et al. 1992; Brunke and Gonser 1997; Spruill 2000). Depending on the characteristics of the given riparian area, residence times can range from hours to months or even years. Within individual riparian areas, residence time also can vary considerably due to local concentration of flow before it enters the riparian area, heterogeneity in hydrology and topography, and the characteristic heterogeneity of the texture (and hence permeability) of riparian soils (Brunke and Gonser 1997; Fennessey and Cronk 1997).

Riparian areas typically support favorable conditions for denitrification (Fennessey and Cronk 1997; Naiman and Decamps 1997; Brinson et al. 2002). The rooting zone of riparian soils is typically saturated, and plant roots provide an organic carbon source. In addition, riparian soils support high levels of microbial activity (Fennessey and Cronk 1997; Naiman and Decamps 1997; Tufekcioglu et al. 2001; Brinson et al. 2002). Therefore, a substantial portion of the nitrates contained in subsurface flows are denitrified if they pass through the rooting zone (Pinay and Fabre 1993; Fennessey and Cronk 1997; Lee et al. 2000; Spruill 2000; Sabater et al. 2003; McKergow et al. 2004; Zegre et al. 2004).

However, not all water entering streams passes through riparian soils within the plant rooting zone, where conditions for denitrification are most favorable. For example, overland flows and deep groundwater do not pass through this zone; consequently, the riparian area may remove little nitrogen from these waters (Fennessey and Cronk 1997; Wenger 1999; Spruill 2000; Simpkins et al. 2002).

Human alterations affect the ability of riparian areas to remove nitrogen through the effects of adjacent land uses, conversion of riparian areas to agricultural and developed land cover, hydrologic and geomorphic alterations, and direct removal of riparian vegetation. Adjacent land uses can increase overland flows and nitrogen inputs, and can concentrate flows or route them past riparian areas. Increased overland flows and concentration of flows before they enter riparian areas reduces the time water spends there, and reduces their opportunity to remove nitrogen. Conversion of portions of riparian areas to developed or agricultural uses reduces the time water spends within the riparian area and hence the quantity of nitrogen removed. Artificial drainage (e.g., tile drains) also reduces the residence time of water. Flow diversions, groundwater withdrawals, and channel incision that lowers the water table below the rooting zone of riparian vegetation reduce the ability of riparian soils to remove nitrogen and the ability of plants to take up nitrogen. Riparian management that reduces infiltration, vegetation density, or the cover of woody plants can also reduce nitrogen removals by reducing flows through the plant rooting zone or by altering the density and depth of plant roots.

In western Placer County, incision of stream channels is widespread (Appendix A; Placer County 2002; ECORP 2003; EDAW 2004; Jones & Stokes 2004c), and riparian vegetation has often been reduced to a narrow discontinuous band (Appendix A; Placer County 2002). Consequently, human alterations have reduced the denitrifying capacity of these riparian areas.

Heavy Metals

Heavy metals include zinc, copper, cadmium, lead, nickel, iron, silver, chromium, and mercury. Due to their potential toxicity at low concentrations to organisms at all trophic levels, heavy metal contaminants, particularly mercury, have been identified as a problem in the Sacramento River Basin (including the Bear River in Placer County) and downstream in the Bay-Delta (CALFED 2000a). Downstream of Placer County in the Sacramento–San Joaquin Bay-Delta, relatively high (and potentially harmful) concentrations of copper, nickel, zinc, and mercury have been observed in water and in some cases in organisms (Cain and Louma 1999; Hornberger et al. 1999; CALFED 2000a). These metals can cause gill, kidney, liver, and nerve damage in fish and other aquatic organisms (Luoma et al. 1990; Schnoor 1996; Morel et al. 1998; CALFED 2000a). Because of differences in its cycling in the environment, as well as heightened concerns regarding bioaccumulation, mercury is discussed separately from the other heavy metals in this chapter.

Mercury

Mercury contamination is widespread in sediments and waters of the Sacramento Valley, including western Placer County, and downstream in the Sacramento–San Joaquin Bay-Delta. Although atmospheric deposition and inputs from developed land uses occur, mercury contamination is in large part a legacy of the

California gold mining era, when mercury was used in the gold refining process (Domagalski 1998).

The fate of mercury in the environment depends on its chemical form and the local environmental conditions (Beckvar et al. 1996). Elemental mercury, inorganic mercury, and methylmercury are the three most important forms of mercury in natural aquatic environments. Most mercury is released into the environment as inorganic mercury, which is primarily bound to sediment particles and organic substances; in this form, it may not be available for direct uptake by aquatic organisms. However, methylmercury, an extremely harmful form of mercury, is readily taken up by aquatic plants, fish, and wildlife; it has been demonstrated to bioaccumulate and transfer through the food web (Beckvar et al. 1996).

Methylmercury is formed by sulfate-reducing bacteria (Wetzel 2001). The methylation of mercury is influenced by the availability of inorganic mercury, oxygen concentration, pH, oxidation-reduction potential, presence of sulfate and sulfide, type and concentrations of complexing inorganic and organic agents, salinity, and organic carbon (Blum and Batrha 1980; Jackson 1989; Parks et al. 1989; Winfrey and Rudd 1990; Beckvar et al. 1996; Gill et al. 2002). These conditions and the biological productivity of methylating microbes are also affected by seasonal changes in temperature, nutrient supply, oxygen supply, and hydrodynamics (changes in suspended sediment concentrations and flow rates).

Methylmercury has been demonstrated to accumulate in plant and animal tissues and to transfer through the food web as contaminated food sources are consumed (Beckvar et al. 1996). Methylmercury and other associated forms of bioavailable mercury damage nervous and other tissues and cause mutations, leading to cancers and reduced survival of embryos (Birge et al. 1979; Sharp and Neff 1980; Gentile et al. 1983; Thain 1984; Morel et al. 1998; CALFED 2000a).

Sediment is the primary source of mercury entering aquatic environments in the Sacramento Valley (Beckvar et al. 1996). Correlating mercury concentrations in sediment with concentrations in biota is difficult, however, particularly for higher-trophic-level species. High concentrations of organic substances and reduced sulfur that complex with free inorganic mercury ions in sediment can reduce the availability of mercury to biota (Luoma 1977; Rubinstein et al. 1983). Many investigators report no correlation between sediment and tissue concentrations of mercury for higher-trophic-level species (Nishimura and Kumagi 1983; Jackson 1988; Rada et al. 1989b; Lindqvist 1991; Dukerschein et al. 1992). This difficulty in correlating mercury in sediment with mercury in organisms reflects the complexity of variables that affect both the methylation of mercury in surface sediments and its transfer between trophic levels (Beckvar et al. 1996).

The movement, transformation, and storage of mercury within riparian areas are particularly complex processes; the human effects on these processes are also complex. Consequently, the effects of riparian setbacks on methylmercury production are likely to vary among sites. Wide setbacks (e.g., more than 30 m

[98 ft]) would reduce inputs of mercury-laden sediments from adjacent uplands, and would reduce disturbance and remobilization of mercury-laden sediments in riparian areas. However, the saturated soils and high organic carbon content of many riparian soils provide favorable conditions for methylation of mercury; in western Placer County, such soils also likely contain some mining sediments with elevated concentrations of mercury. Therefore, riparian setbacks may reduce additional inputs of mercury to riparian areas and streams, but probably will not diminish the role of riparian areas as a source of methylmercury.

Other Heavy Metals

Heavy metals enter streams from natural and human sources. Natural sources are the dissolution of rocks and minerals in sediments. Human sources include brake pad debris (Woodward-Clyde Consultants 1994), roofing materials (U.S. Environmental Protection Agency 1978) and other urban and industrial inputs, agricultural chemicals (e.g., copper-based herbicides), historical mine tailings, and acidic mine drainage (CALFED 2000a; Paul and Meyer 2001).

Unlike SOCs, heavy metals are elements that cannot be degraded; unlike nitrate, relatively little metal is transformed into other chemical forms that volatilize into the atmosphere. Therefore, heavy metals removed from flows are merely stored in riparian areas. This storage may be transient, as when metals in overland flows rapidly cross the riparian area, or may be for prolonged periods of time, as when metals sorb to buried sediments in riparian areas.

In riparian areas and adjacent streams, metal ions may be dissolved in water (either hydrated or complexed with other ions), precipitated (i.e., in an insoluble complex), sorbed to sediment or suspended particles, or taken up by plants or microbes. With the exception of uptake by organisms, these states are reversible, and metals exist in equilibrium between them. (The concentration of metal in each state depends on its rate of conversion to other states, relative to the reverse transformation.) This equilibrium, and the concentration of metals in water, is strongly influenced by DO concentration, pH, and the abundance of organic matter (Wetzel 2001; Schnoor 1996). In anaerobic environments, metals tend to precipitate in complexes with sulfides that are generated by microbes under these conditions. Under aerobic conditions, at near neutral (i.e., pH 7) and high pH (i.e., pH greater than 7), metals tend to form precipitates (i.e., insoluble forms) with hydroxyl ions (OH^-). Therefore, solubility of metals is much greater in aerobic, acidic waters (i.e., pH less than 7). Because organic matter contains many components that complex with metals, increased concentrations of organic matter in soils and in suspended sediments reduces metal solubility.

The high biomass and organic matter content of many riparian soils contributes to the removal of metals from subsurface flows. (Riparian plants also take up metals, but they require only minute quantities of a few heavy metals as nutrients, and the root endodermis functions as a barrier that blocks most additional uptake [Marschner 1995]). Thus, riparian areas store metals that would otherwise enter streams. However, soils cannot retain unlimited quantities of heavy metals, and high inputs of metals could saturate binding sites in riparian soils. The clay and organic matter content, and pH, of riparian soils will substantially influence the quantity of metals they can retain.

The association of metals with the surfaces of sediments and suspended particles is particularly important for their transport and storage in riparian areas. Surfaces of particles, such as clays, are typically charged or polar, and these particles interact with a coating of ions and molecules removed from and reentering the surrounding water. In most environments, heavy metals tend to form surface complexes with particles, and this tendency has been described as “metals scavenging” by particles (Schnoor 1996).

Because of the insoluble precipitates and complexes with particles formed by metals, eroding sediments are the major delivery mechanism for metals into riparian areas. The high surface roughness and soil permeability of many riparian areas causes deposition of metal-containing sediments that would otherwise enter streams. However, this storage is not necessarily permanent. Metals may be subsequently leached from these transported sediments, and the sediments themselves may be subsequently eroded or moved by floodwaters. Riparian soils cannot retain an unlimited quantity of heavy metals (similar to soil limitations regarding phosphorus retention), and high inputs may saturate the available binding sites.

Human alterations can affect the transport and storage of heavy metals in riparian areas through the effects of adjacent land uses, conversion of riparian areas, direct hydrologic and geomorphic alterations, and direct alterations of riparian vegetation. In addition to increasing metal inputs, human alterations of adjacent lands (e.g., acid mine drainage) can increase the acidity of waters and the leaching of metals from riparian sediments. Adjacent land uses can also increase or concentrate overland flows, or even route them past riparian areas. These alterations limit opportunities for heavy metals to sorb to particles of clay and organic matter in the soil. Similarly, drainage tiles and ditches reduce metal retention by moving flows rapidly through riparian areas. Conversion of riparian areas to agricultural or developed land uses reduces the size of riparian areas, and consequently reduces the residence time of flows and the capacity of the riparian area for retaining heavy metals. Direct alterations that reduce hydraulic roughness of the vegetation or soil infiltration could reduce sediment deposition and the residence time of flows in the riparian area, also reducing metal retention.

Synthetic Organic Compounds

SOCs include most pesticides and herbicides and a wide variety of chemicals used in industry. Many of these artificial compounds persist in the environment for prolonged periods (in some cases for decades), and some (e.g., polychlorinated biphenyls [PCBs]) bioaccumulate in animal tissues (Schnoor 1996). (Use of some of the most persistent molecules has been banned, but the compounds have remained in the environment.)

Pesticides (including diazinon, carbofuran, and chlorpyrifos), herbicides, solvents, and other SOCs are frequently washed into the Sacramento Valley's river systems during irrigation, by winter storms, and through urban runoff (Kuivila and Foe 1995; MacCoy et al. 1995; Domagalski 1996). These compounds can have direct and indirect harmful effects on soils and aquatic organisms including microorganisms, invertebrates, and vertebrates (CALFED 2000a). For example, diazinon, an organophosphate insecticide used for many agricultural applications, and until recently for urban applications as well, is highly toxic to birds, terrestrial insects, aquatic invertebrates, soil microbes, and fish (Ingham and Coleman 1984; Stone and Gradoni 1985; Mackenzie and Winston 1989; Robertson and Mazzella 1989; Turner 2002). Application of this insecticide coincides with the rainy season in California, resulting in runoff discharges into streams and rivers. Consequently, in tributaries of the Sacramento River (including the Bear River in Placer County), peak values of diazinon can exceed state or federal water quality standards by an order of magnitude or more (Turner 2002).

The SOCs in streams and rivers may come from point and nonpoint sources, release of materials stored in sediments, illegal dumping, and accidental spills. Applications of pesticides and herbicides to plants and soils in agricultural and developed lands are particularly important sources of SOCs. When applied by field equipment, aerial drift may distribute them for several meters beyond the site of application (de Snoo and de Wit 1998); when these compounds are applied by airplanes, drift may extend much further (tens to hundreds of meters).

In the environment, SOCs can volatilize (i.e., disperse into the atmosphere), dissolve in and be transported by water, adsorb to soil, bioaccumulate in animals, and degrade. The fate of these compounds is determined by their chemical properties, especially their size and solubility in water. Synthetic organic compounds vary widely in size and polarity. Many SOCs contain highly polar alcohol, organic acid, and ionic groups that increase their polarity, and increase their solubility in water. However, other SOCs are essentially non-polar; these are generally insoluble. For example, the solubility in water of PCBs and dichlorodiphenyltrichloroethane (DDT) is low (approximately 10^{-2} μmoleL^{-1}); that of chlorpyrifos is higher (about 1 μmoleL^{-1}); whereas the solubility of industrial solvents such as toluene and tetrachloroethylene is very high (>10^{3} μmoleL^{-1}).

The smallest SOCs (e.g., organic solvents) are those most prone to volatilize. However, larger molecules that are relatively insoluble in water also volatilize at moderate rates (Schnoor 1996).

SOCs also sorb to particles of soil and organic matter. This sorption occurs through electrostatic attractions, ionic bonding, or physical intermingling (e.g., the dissolution of a non-polar molecule among particles of organic matter). However, stronger and less reversible chemical bonds also may form. The tendency of an SOC to sorb to sediment is negatively related to its solubility in water (i.e., molecules with lower solubility in water have greater propensity to sorb to sediment). The sorbed molecules of SOCs attach primarily to clays and particles of organic matter, and the sorption of SOCs increases substantially with the concentration of organic matter in the sediment (Schnoor 1996; Neitsch et al. 2002).

The accumulation of SOCs in organisms (i.e., bioaccumulation) represents the net balance resulting from uptake across gill and skin, ingestion from food, metabolic degradation, and excretion. The SOCs most prone to bioaccumulate are the relatively non-polar, hydrophobic molecules (e.g., DDT, PCBs, chlordane) that tend to sorb into membranes and fatty tissues (Schnoor 1996). Typically, these are the same molecules that tend to sorb to sediment.

SOCs can be degraded (changed into other molecules) through the absorption of light energy (photodegradation), by reacting with water or chemicals in water or soil (chemical degradation), or by microorganisms (biodegradation). With the exception of photodegradation, these processes occur most rapidly in soil (Brinson et al. 2002; Neitsch et al. 2002). Biodegradation occurs because microorganisms use SOCs as food sources; they obtain energy stored in the chemical bonds of SOCs through a series of oxidation-reduction reactions, ultimately breaking the SOCs down to carbon dioxide and water. Microbes also mediate other transformations of SOCs (Schnoor 1996). Rates of degradation of SOCs vary over a wide range (Schnoor 1996). Chemical degradation of molecules dissolved in water can reduce the concentration of some SOCs by half within minutes, while other SOCs require years before concentrations are halved. Photodegradation can break down more than 99% of dissolved Carbaryl in a month, but does not eliminate 1% of DDT in a year. For any given SOC, biodegradation rates vary with the environmental conditions listed below.

- Temperature.
- Concentration of oxygen.
- Nutrient availability.
- Microbial population density or biomass concentration.
- Acclimation of the microbial flora to the SOC.

All these factors affect the activity of microbes that perform biodegradation. Riparian areas are considered to support high rates of biodegradation because they typically contain a range of oxygen and nutrient availability, and they support dense, active populations of microorganisms (Fennessey and Cronk 1997; Naiman and Decamps 1997; Tufekcioglu et al. 2001; Brinson et al. 2002).

Overall, the degradation of SOCs in riparian areas depends not only on degradation rates but also on the infiltration of water and associated SOCs into the soil and the time required for water to cross the riparian area. Because overland flow (i.e., runoff) crosses riparian areas rapidly, little or no degradation or storage occurs (Neitsch et al. 2002; Popov and Cornish 2004). Factors affecting the passage of subsurface flows through a riparian area include its width, hydraulic head, and hydrologic conductivity (Fetter 1994; Brunke and Gonser 1997).

The degradation and storage of SOCs in riparian areas is entirely dependent on human alterations because they are the sole source of SOCs. In addition to generating inputs, human alterations also affect the degradation and storage of SOCs in riparian areas by converting these areas to other land-cover types; reducing infiltration of water in riparian areas and adjacent uplands; and lowering groundwater levels through groundwater withdrawals, flow diversions, and stream channel incision. All these alterations reduce the quantity of SOCs passing through riparian soils and the time they remain there. Alterations that concentrate overland flows, or that reduce the hydraulic roughness of riparian vegetation, can also reduce the deposition of SOCs associated with suspended sediment. In western Placer County, incision of stream channels and loss of riparian vegetation have reduced the ability of riparian areas to degrade SOCs.

Relationships Between Effects and Setback Width

A substantial quantity of research has been conducted worldwide on the biogeochemical functions of riparian areas, the effects of human alterations on those functions, and the benefits of managed buffers between streams and areas of timber harvest, agricultural activities, and development (Correll 2003). This research strongly supports the conservation and management of riparian areas and adjacent uplands for water quality benefits, and it has identified the factors affecting riparian functions. Accordingly, this research provides justification for riparian setbacks and some information to guide their planning and design. Nonetheless, current understanding is not sufficient to reliably determine the exact effects that different width buffers will have on biogeochemical functions (and stream water quality). Several computer models have recently been developed that could be used to evaluate the consequences of different width setbacks (Lowrance et al. 2000; Dallo et al. 2001; Zhongwie and Wong 2004). However, these models have several deficiencies: they have not been tested under a range of conditions; they have several unresolved issues regarding their accuracy; and they are currently costly to apply (Inamdar 2004).

The most important factors affecting biogeochemical functions in riparian areas are listed below.

- Loadings from adjacent uplands.
- Partitioning of runoff between overland and subsurface flow.
- Distribution (i.e., spatial concentration) of overland flow.
- Depth of shallow groundwater.
- Time that water resides in the riparian area or buffer (i.e., residence time).
- Quantity of sediment eroded and transported to riparian areas.
- Redistribution of deposited sediment by subsequent floodwaters.

The width of riparian setbacks can affect several of these factors, and can consequently affect the biogeochemical functions of riparian areas. First, the width of a setback determines the distance between stream waters and sources of macronutrients, metals, and SOCs. A wide riparian zone increases infiltration (and subsurface flows), rates of sediment deposition, and the time required for materials to reach a stream. Thus, greater setback widths tend to increase the storage and removal of materials en route to streams. Second, the area of sources for macronutrients, metals, and SOCs is reduced by wider setbacks because more land is retained in natural vegetation. Third, if a riparian setback extends beyond the stream's active floodplain, then sediments and associated contaminants will be stored, at least in part, outside the active floodplain, where they are less likely to be carried into streams by floodwaters.

Researchers have documented substantial reductions in stream loadings of macronutrients, metals, and SOCs due to riparian areas or buffers ranging in width from several to more than a hundred meters. (Castelle et al. 1992; Fennessey and Cronk 1997; Wenger 1999; Brinson et al. 2002.) Reductions resulting from a very narrow riparian area (e.g., 6 m [20 ft]) in one study may be comparable to reductions in a much wider riparian area (e.g., 30 m [98 ft]) in another study. This variability reflects both differences in site attributes that affect movement, transformation, and storage of these materials, as well as variability in the methods of researchers.

Overall, the most significant factors causing variation in the biogeochemical functions of riparian areas are hydrologic conditions (e.g., the depth of subsurface flows); climate and vegetation attributes seem to cause lesser effects (Fennessey and Cronk 1997; Simpkins et al. 2002; Sabater et al. 2003). Nonetheless, California's Mediterranean climate may reduce a setback's effectiveness relative to a setback of similar width in other climates. In northern California, because rainfall is concentrated during the winter months and evapotranspiration is low at that time, rain frequently falls on saturated soils, and overland flows are consequently greater than they might be under a different climatic regime.

Variation in the results of relevant research is often due to differences in the types of sites and the range of conditions included in the study. For example, many studies are conducted in small-scale plots with simulated rainstorms. The results of such short-term studies under a narrow range of conditions often indicate greater effectiveness of narrow buffers or setbacks than do the results of longer-term, larger-scale studies (Castelle et al. 1992; Davies and Nelson 1994; Fennessey and Cronk 1997; Wenger 1999; Lee et al. 2000; McKergow et al. 2004; Zegre et al. 2004). Similarly, actively managed buffers, such as tilled and planted borders of agricultural fields, are generally more effective at narrower widths than are unmanaged setbacks; appropriately, many of the recommendations for narrower setbacks are intended for actively managed areas (Lowrance et al. 2002).

Recommended Setback Width to Conserve Biogeochemical Functions

For the purpose of long-term conservation of biogeochemical functions, the project team recommends that riparian setbacks include the entire active floodplain, regardless of the current extent of riparian vegetation on that surface, and that an additional 30-m (98-ft) buffer be included in the setback.

For effective long-term conservation of riparian functions, setback widths should be sufficient to retain macronutrients, metals, and SOCs from the concentrated flows and infrequent events (e.g., intense rain on saturated soils) that transport a substantial portion of the sediment and materials to riparian areas. This criterion requires a setback of moderate width. Consequently, for the purpose of long-term conservation, though widths from several to more than a hundred meters have been recommended, setbacks of 20–30 m (66–98 ft) have been recommended most frequently (Castelle et al. 1992; Johnson and Ryba 1992; McCauley and Single 1995; Fennessey and Cronk 1997; Herrone and Hairsine 1998; Wenger 1999; Lowrance et al. 2002; Environmental Law Institute 2003; Lee et al. 2004).

It is important to note that setbacks do not ameliorate many effects of human alterations on biogeochemical functions. Not all inputs (of macronutrients, metals, SOCs, and other contaminants) to streams will pass through riparian soils (e.g., deeper groundwater flows, stormwater, and agricultural drainage that crosses in pipes or ditches). Moreover, riparian setbacks will not retain all inputs of fertilizers, heavy metals, pesticides, and other contaminants that pass through them. In addition, high levels of inputs may cause the effectiveness of setbacks to may diminish over time. Therefore, other measures that address the upland sources of macronutrients, metals, SOCs, and other contaminants are necessary.

Chapter 4
Salmonid Habitat Functions

Overview

Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*O. mykiss irideus*) are anadromous fishes that spend a major portion of their lives in the Pacific Ocean. Maturing adult steelhead and Chinook salmon migrate from the ocean to spawn in Central Valley rivers and creeks, including those of western Placer County. After rearing in these rivers, the juveniles migrate back to the Pacific Ocean.

Salmonids occupy the freshwater systems from the Sacramento–San Joaquin Delta (Delta) to stream headwaters, depending on the streams' accessibility to migrating fish and the availability of spawning and rearing habitat within them. Not only are salmonid habitat functions valued directly, but they also provide an indicator of human effects on other components of these aquatic ecosystems. This chapter describes salmonid habitat functions and how human alterations affect those functions. It concludes with a summary of the relationships between riparian setback width and human effects, and offers the project team's recommendation for setback widths to conserve salmonid habitat functions.

Effects of Human Alterations on Migration

Shallow water depth, high water velocity, and physical barriers may impede salmonid passage through spawning streams. Human alterations affect each of these potential impediments to migration.

Water Depth

In general, water depth greater than 0.3 m (1 ft) is needed to allow passage of adult and juvenile Chinook salmon and steelhead (California Department of Fish and Game 2001; National Marine Fisheries Service 2001). However, this minimum depth may be a somewhat conservative estimate, because Chinook salmon and steelhead can pass through short sections of water that are less than 0.3 m (1 ft) deep (Thompson 1972 *in* Bjornn and Reiser 1991).

Low streamflows and shallow water depths may delay or block migrating salmonids' access to upstream spawning habitats, expose adult fish to water temperatures detrimental to individual survival, and reduce the fecundity of females (i.e., egg viability). Delayed passage of adults may also delay spawning and extend incubation of eggs and rearing of juveniles into months when warmer water temperatures predominate. The result may be reduced egg and juvenile survival and reduced productivity in that year (i.e., year class production).

Low streamflows can also affect juvenile migration. Like the requirements for adult salmonid passage, water depth greater than 0.3 m (1 ft) is necessary for passage of juvenile Chinook salmon and steelhead (California Department of Fish and Game 2001; National Marine Fisheries Service 2001). Delayed or blocked passage of juveniles may prevent access to downstream rearing habitat and increase their exposure to warm water temperatures, entrainment in diversions, and predation. The resulting decrease in survival and growth rates reduces year class production and potentially reduces adult abundance in subsequent years.

Relatively shallow flow in combination with physical barriers and high water temperatures can cause fish to fatigue as they migrate upstream; these cumulative effects may lower the survival and reproductive success of individual fish (Gallagher 1999). For these reasons, long stretches of river with maximum depths near 0.3 m (1 ft) may be barriers to migration. Other factors interacting with the effects of depth include cover and suitable resting areas (e.g., deep pools).

Flow rates may affect travel time for juvenile salmonids. Travel time for juvenile Chinook salmon and steelhead generally decreases with increasing flow and water velocities. Faster travel times may reduce exposure to predation and facilitate movement of smolts to the ocean (Berggren and Filardo 1993).

Vertical Drops

In addition to adequate depth and velocity, vertical drops should not exceed the leaping abilities of Chinook salmon and steelhead. The ability to jump vertical drops is greatly affected by staging pool depth, jump angle, and the horizontal distance of the leap (Powers and Orsborn 1985; Reiser and Peacock 1985). The ratio of staging pool depth to barrier height should be at least 1.5 (Stuart 1962; U.S. Forest Service 1977; Robison et al. 1999). Although the conservative vertical limit for adult fish is 1.4 m (4.5 ft) for steelhead and 0.9 m (3 ft) for Chinook salmon, passage is best facilitated by drops of 0.3 m (1 ft) or less. For juvenile salmonids, downstream migration is facilitated by drops of 0.15 m (0.5 ft) or less (National Marine Fisheries Service 2001).

Water Temperature

Warm temperatures and low DO concentrations may impede salmonid migration. Temperatures warmer than 13º Celsius (C) (55ºFarenheit [F]) have caused mortality of female adult Chinook salmon prior to spawning, and migration was blocked when water temperature reached 21ºC (69.8ºF) in the Delta (Andrew and Green 1960 *in* Raleigh et al. 1986; Hallock 1970 *in* McCullough 1999). In the Columbia River, a temperature of 21ºC (69.8ºF) was lethal to steelhead acclimated to a river temperature of 19ºC (66.2ºF). The response to warm temperatures may be complicated by low DO concentrations. In the Delta, adult Chinook salmon avoided temperatures warmer than 19ºC (66ºF) when DO was less than 5 milligrams per liter (mg/l) (Alabaster and Hallock 1988, 1970 *in* McCullough 1999).

Discussion of Effects

Construction of dams and other barriers, such as temporary diversion structures, are the most significant human alterations affecting migration and causing the loss of salmonid habitats (Yoshiyama et al. 2001). These barriers prevent Chinook salmon and steelhead migration to the higher foothill reaches of many streams in the Sacramento Valley. The alteration of flows, temperatures, and water quality below major reservoirs may also interfere with salmonid migration.

In western Placer County, dams are considerable impediments to fish passage. There are approximately thirty dams on western Placer County's streams (DWR 2002; Placer County 2002; Bailey Environmental 2003). While some of these allow fish passage under many flow conditions, others (e.g., Cottonwood Dam on Miners Ravine) are more substantial barriers.

Water control structures, road crossings, and culverts constrain flows and can create high water velocities. Culverts are characteristically uniform and designed to optimize flow efficiency, often resulting in high velocities. The velocity a fish can overcome in moving through a culvert depends on its length; as culvert length increases, flow velocities must decrease to permit fish passage. In general, water velocity should be less than 1 meter per second (m/sec) (3 feet per second [ft/sec]) for any culvert more than 30 m (98 ft) long and less than 1.5 m/sec (5 ft/sec) for culverts less than 30 m (98 ft) long (California Department of Fish and Game 2001). In western Placer County, roads cross streams at dozens of locations, and the culverts under a number of these roads are partial barriers, particularly at low flows (DWR 2002; Placer County 2002; Bailey Environmental 2003).

Surface water diversions and management of water releases from reservoirs can affect migration and increase mortality of juvenile salmonids by creating warm water temperatures. Diversions also can cause direct effects such as migration delay, injury, and mortality resulting from entrainment, impingement, and predation (National Marine Fisheries Service 1994). Entrainment occurs when fish move with the diverted flow into a canal or turbine; in most cases, entrained organisms do not survive. Impingement occurs when individual fish come in contact with a screen, a trashrack, or debris at the intake. Contact causes bruising, loss of scales, and other injuries. Fish mortality can result if impingement is prolonged, repeated, or occurs at high velocities. In addition, intakes increase predation by stressing or disorienting prey fish and by providing habitat for fish and bird predators (National Marine Fisheries Service 1994).

The proportion of a population that can become entrained or impinged in diversions depends on the location, timing, duration, and volume (relative to total flow) of the diversion relative to the distribution, abundance, and behavior of each species' life stage. Diversions in the Sacramento River Basin affect juvenile Chinook salmon and steelhead (U.S. Fish and Wildlife Service 1995). In addition to the possibility of entrainment at unscreened diversions, juvenile salmonids can be impinged against screens by fast-moving water, or they can pass through screens that are not designed to screen out salmonid fry and other small fish. Western Placer County's dams are associated with water diversions. Most of these diversions are unscreened, and thus entrainment can occur.

Effects of Human Alterations on Spawning Habitat

Salmonids lay their eggs in streambed gravels. The fish create depressions in the gravel, deposit and fertilize their eggs, and then bury the eggs with gravel. The resulting gravel nest is called a redd. The quality of spawning habitat is influenced by water temperature and depth, flow velocity, and substrate.

Water Temperature

Chinook salmon eggs and larvae require temperatures between 4ºC and 12ºC (39.2ºF and 53.6ºF) for maximum survival (Myrick and Cech 2001). Survival of eggs was less than 50% when temperature is warmer than 16ºC (60.8ºF) (Alderice and Velsen 1978). Optimal water temperatures for steelhead spawning and incubation are similar to those of Chinook salmon; they fall between 3.9ºC and 11.1ºC (39ºF and 52ºF) (Myrick and Cech 2001). Steelhead eggs subjected to temperatures warmer than 15ºC (59ºF) are prone to increased mortality.

Water Depth and Velocity

Water depth and flow velocity are factors that influence spawning habitat selection for Chinook salmon and steelhead. Minimum water depths at redd areas vary with fish size and water velocity, because these variables affect the depth necessary for successful digging; the water should be sufficiently deep to cover the fish (Healey 1991). In general, suitable spawning gravels are covered by flows at least 0.25 m (0.8 ft) deep and with velocities between 0.25 m and 1.2

m/sec (0.8 and 3.8 ft/sec) (Bjornn and Reiser 1991; Railegh et al. 1986). Reduced flows during incubation periods may cause mortality through desiccation of redds, or through reduced water circulation resulting in low DO, accumulation of metabolic waste, and increased incidence of disease.

Substrate

Although the suitability of gravel substrates for spawning depends largely on the species and individual fish size, a number of studies have determined substrate sizes that represent the most suitable conditions. Generally, Chinook salmon require substrates of approximately 0.3–15 cm (0.1–5.9 inches), whereas steelhead prefer substrates no larger than 10 centimeters (4 inches) (Bjornn and Reiser 1991).

The eggs depend on water flow through spawning gravels to supply oxygen for the developing embryos. Oxygen is supplied by the water flowing through the area of the gravel bed with the eggs (i.e., the redd). Flow rates and the concentration of oxygen in the flowing water effectively determine the DO available to eggs and fry in the redd.

The velocity of the water and the permeability of the surrounding gravels together determine the rate at which water flows through a redd. Gravel beds consisting of smaller-sized particles have lower permeability (greater resistance) to water flow than do gravel beds consisting of larger-sized particles. Therefore, the velocity of water through a redd slows as particle size decreases.

Discussion of Effects

Throughout the Central Valley, including Placer County, human alterations (i.e., changes in sediment supply and transport) have substantially reduced the extent of suitable spawning gravel for salmonids (Jones & Stokes 2004c). Along most Central Valley rivers and streams, sediment supply and transport have been altered by hydraulic mining, levees, land use changes, gravel mining, dam construction, and water diversions (CALFED 2000b). Currently, managed forest lands, roads, construction, and developed and agricultural lands contribute substantially more sediment than do areas of natural vegetation (Charbonneau and Kondolf 1993). In the lower portions of watersheds, most of this sediment is of fine materials (less than 2 mm [0.08 in] in diameter). On most rivers and streams, dams block the transport of coarser materials from the upper portions of watersheds, while gravel mining has removed coarse materials from downstream floodplains and channels. As a consequence of these changes, spawning habitats for Chinook salmon and steelhead have been reduced.

The addition of fine sediments into streams and streambeds can decrease the quality and quantity of spawning habitat by reducing the permeability of spawning gravels and thus reducing the flow of water and oxygen to eggs, which leads to direct mortality of eggs and fry, physiological stress, and impediments to the movement of fry from the redd (Gibbons and Salo 1973; Tappel and Bjornn 1983, Sigler et al. 1984; Raleigh et al. 1986; Lloyd et al. 1987; Reynolds et al. 1989; Waters 1995; Ligon et al. 2003). In western Placer County, gravel beds currently have high concentrations of fine sediments that reduce suitability for spawning (Jones & Stokes 2004b).

Spawning habitats are also affected by human alterations of riparian vegetation. The loss of riparian vegetation has contributed to increased water temperatures and reduced quality of spawning habitat along many Central Valley rivers and streams, including those in western Placer County (CALFED 2000b; Jones & Stokes 2004b). Reduced flows may allow riparian vegetation to establish on river bars and channels where establishment and survival were not previously possible because of scouring or prolonged submergence under unregulated flow regimes (Pelzman 1973). This encroachment of vegetation stabilizes sediments and confines the channel, contributing to a reduction in salmonid spawning habitat.

Effects of Human Alterations on Rearing Habitat

Multiple environmental conditions, food resources, and interactions among individuals, predators, and competitors all influence rearing habitat quantity and quality and the productivity of streams (Bjornn and Reiser 1991). Water temperature and velocity, cover, and inundation of floodplains are particularly important factors influencing salmonid rearing habitats.

Water Temperature

Water temperature has a strong affect on juvenile salmonids, and rearing success deteriorates at water temperatures above 20ºC (68ºF) (Raleigh et al. 1984; Myrick and Cech 2001). Myrick and Cech (2001) observed maximum juvenile growth rates at water temperatures between 17ºC and 20ºC (62.6ºF and 68ºF) and at 19ºC (66.2ºF), for steelhead and Chinook salmon, respectively. Rich (1987) found that juvenile Chinook salmon from the Nimbus State Fish Hatchery died before the end of the experiment when reared at 24ºC (75.2ºF). Steelhead juveniles can be expected to show significant mortality at temperatures exceeding 25ºC (77ºF) (Raleigh et al. 1984; Myrick and Cech 2001).

Water Velocity

Water velocity is of particular importance in determining where juvenile salmonids occur, because it determines the energetic requirements of fish for maintaining position and the amount of food delivered to a particular location. Juvenile salmonids tend to select positions that maximize access to food and minimize energy expenditures, but these positions can be altered by interaction with other fish and the presence of cover (Shirvell 1990). The water velocity preferred by salmonids varies with size of the fish; larger fish occupy areas of higher velocity and greater depth than small fish, potentially gaining access to abundant food and avoiding predatory birds (Bjornn and Reiser 1991; Jackson 1992). Griffith (1972 *in* Raleigh et al. 1984) found water velocities of 0.10–0.22 m/second (sec) (0.32–0.72 ft/sec) to be associated with occurrence of rainbow trout. Sheppard and Johnson (1985) found similar results for juvenile steelhead; they measured velocities of 0.12–0.24 m/sec (0.40–0.80 ft/sec). Bovee (1978 *in* California Department of Fish and Game 1991) reported water velocities of 0.18–0.37 m/sec (0.6–1.2 ft/sec) as the preferred range for juvenile rainbow trout and steelhead.

Cover

Instream cover (e.g., undercut banks, downed trees, other woody debris) is important for juvenile rearing. The addition of cover increases spatial complexity and may reduce predation of juvenile fish. The abundance of food, suitable physical conditions, and the presence of competitors and predators determine cover value. Fine-textured instream woody material provides the hydraulic diversity necessary for selection of suitable velocities, access to drifting food, and escape refugia from predatory fish. An area of cover less than 15% of the total habitat area is likely inadequate for juvenile salmonids (Raleigh et al. 1984).

Shaded riverine aquatic (SRA) cover is important to juvenile Chinook salmon and steelhead because it provides high-value resting and feeding areas and protection from predators. Riparian vegetation not only provides woody debris for instream cover, but also filters sediments, inputs organic matter, modifies channel pattern and geometry, creates SRA cover, and provides habitat for aquatic invertebrates eaten by salmonids. For these reasons, stream sections shaded by riparian vegetation (in contrast to sections characterized by denuded banks) provide important rearing and resting areas for adult Chinook salmon and steelhead migrating upstream (Raleigh et al. 1984, 1986; Slaney and Zaldokas 1997; Haberstock 1999; CALFED 2000b). Woody material is important not only because it provides instream cover, but also because it affects geomorphology and facilitates the creation of pools for holding juvenile salmon during high flow events (Larson 1999; Macklin and Plumb 1999). Shade reduces daily temperature variability and maximum temperature, maintains DO, and may help maintain base flows during dry seasons (Slaney and Zaldokas 1997; Whitting 1998; Haberstock 1999; CALFED 2000).

Floodplain Habitat

Seasonally inundated floodplains, though they provide habitat for both native and nonnative fish species, are particularly important to native species (Moyle et al.

2000). Many native fish species, including salmonids, are dependent on or benefit from inundated floodplains. Floodplains function as nursery areas, refuges from low water temperatures in early spring and winter, and refuges from high water velocities during high flow periods (Turner et al. 1994). Inundated floodplains also provide high food abundance, a range of water temperature conditions, and increased water clarity that may increase growth and survival rates (Sommer et al. 2001a, 2001b). Inundated floodplains of the Sacramento River and its tributaries may also provide high-quality organic nutrients to the Bay-Delta, benefiting estuarine species.

Discussion of Effects

Human alterations have affected rearing habitat by reducing water quality, removing riparian vegetation, hydraulically isolating floodplains, and altering flows. The introduction of nonnative predatory fish species has also detrimentally affected juvenile rearing. These alterations have all contributed to the loss of rearing habitat in western Placer County.

Adjacent agricultural and developed land uses are sources of contaminants and sediment (e.g., macronutrients, pesticides, and heavy metals) that reduce water quality. These effects on water quality are described in the chapter dealing with biogeochemical functions.

In addition to physically affecting salmonids, contaminants and sediments can cause changes in macroinvertebrate communities. These changes in turn can affect food available to foraging fish (Waters 1995). Such changes may have occurred in the streams of western Placer County, because in all six streams for which data are available, macroinvertebrate communities are dominated by species moderately to highly tolerant of pollution (Bailey 2003).

Researchers have found that elevated concentrations of suspended sediment can cause direct mortality of fry, fingerlings, and juvenile salmonids (Sigler et al. 1984; Lloyd et al. 1987; Reynolds et al. 1989). Sublethal effects include avoidance of sediment-laden areas, reduced feeding and growth, respiratory impairment, reduced tolerance to disease and toxicants, and physiological stress (Waters 1995).

The loss of riparian vegetation and SRA cover results from conversion of riparian areas to other land uses, adjacent gravel mining, placement of bank protection (e.g., riprap), grazing, and other direct removals (e.g., due to levee maintenance). It also is a consequence of hydrologic and geomorphic alterations, such as flow reductions and incision. Because riparian vegetation affects not only stream water temperature, but also cover, food resources, habitat complexity, and geomorphic processes (e.g., pool formation, bank stability), its loss substantially degrades rearing habitat. In western Placer County, conversion to developed or agricultural land-cover has removed extensive areas of riparian vegetation (Jones & Stokes 2004a, 2004b), and remaining vegetation is often in narrow bands with a discontinuous cover of trees (Appendix A).

Water diversions cause broad effects on stream ecosystems that can reduce the quality of rearing habitat. Water diversions affect fish, aquatic organisms, sediments, salinity, streamflows, habitat, foodweb productivity, and species abundance and distribution (National Marine Fisheries Service 1994). Some diversions have screens that exclude larger organisms such as most adult fish, but eggs, larvae, invertebrates, plankton, organic debris, and dissolved nutrients are important components of the lower trophic levels that may be lost to diversions. Reductions at the lower trophic levels can result in reduced food supplies and have secondary impacts on all higher trophic levels, affecting the overall foodweb. In western Placer County, there are over two dozen water diversions, and most of these are unscreened (DWR 2002; Placer County 2002; Bailey Environmental 2003; Jones & Stokes 2004b).

Human alterations affecting hydrologic and geomorphic processes can reduce rearing habitat on floodplains. (The effects of human alterations on hydrologic and geomorphic processes are described in detail in the chapter on hydrologic and geomorphic functions.) These alterations include water diversions, groundwater withdrawals, dams, levees, bank protection, and changes in land cover. Due to human alterations, in western Placer County, stream channel incision has reduced the area of rearing habitat on floodplains.

In addition to inundating floodplains, streamflow has several effects on the rearing capacity of streams. Predation may increase during low flows, particularly during downstream migration of juveniles. Higher flows result in faster outmigration, reduced water clarity, and cooler water temperature, all contributing to reduced predation (U.S. Fish and Wildlife Service 1996). Both flow and depth affect travel time for juvenile salmonids. Faster travel time may reduce exposure to predation and facilitate movement of smolts to the ocean (Berggren and Filardo 1993).

Flow alterations have a major effect on the water temperatures of Sacramento Valley streams. For rivers and larger streams, reservoir operations (i.e., the timing, temperature, and magnitude of reservoir releases, as well as total reservoir storage) are among the most important influences on water temperatures. Agricultural and municipal diversions reduce river flow and potentially increase temperatures during summer months (Myers et al. 1998; Myrick and Cech 2001), and the elevated temperatures of irrigation return flows can also affect instream water temperatures (U.S. Fish and Wildlife Service 1995). Water temperatures that are marginal or unsuitable for rearing of juvenile salmonids frequently occur along most streams in western Placer County (Bailey 2003; Jones & Stokes 2004b).

Streamflow also affects the concentration, and consequently the detrimental effects, of contaminants. For example, experimental studies indicated that contaminants in agricultural return flow from the west side of the San Joaquin Valley had no detrimental effects on the growth and survival of juvenile Chinook salmon when the return flows were diluted by 50% or more with San Joaquin River water (Saiki et al. 1992).

High pesticide concentrations may affect aquatic invertebrates (Brown et al. 2000). Adult and larval aquatic macroinvertebrates are a major food source for juvenile Chinook salmon, and a loss of invertebrate production could have an effect on juvenile salmonid production (Brown and May 2000); however, the extent of this effect has not been quantified.

Rapid fluctuations in flows can cause the stranding of juvenile and adult anadromous fish and the dewatering of redds. Fish can become stranded in borrow areas, the floodplain, shallow nearshore areas, side channels, and deep areas in the active stream channel when water levels change quickly.

Although adult fish do become stranded, juvenile fish are more vulnerable to stranding. Fry are poor swimmers and tend to stay in shallower water along the edges of streams and rivers or in side channels (Phinney 1974; Woodin 1984; Hunter 1992). Juvenile fish are not as able to follow receding waters back to the river (U.S. Fish and Wildlife Service 1995b). Also, redd dewatering can occur when flows decline while eggs are incubating.

Factors such as the total drop in stage, the lowest water level attained, the frequency of flow reductions, and the rate of change in flow affect fish stranding rates. In an episode of flow reduction, the greater the total drop in stage, and the lower the lowest flow attained, the more likely it is that side channels and shallow ponds in the floodplain will be isolated from flow and that gravel bars where redds may be located could be exposed (Hunter 1992). Frequent flow fluctuations result in cumulative stranding (U.S. Fish and Wildlife Service 1995; Bauersfeld 1978), and the faster the rate of change in flow, the more likely fish are to become stranded. Olsen (1990) found that ramping rates of less than 2.5 cm per hour (1 inch per hour) were needed to protect steelhead fry on the Sultan River in Washington State.

Relationships Between Setback Width and Effects of Human Alterations

The width of riparian setbacks directly affects the integrity of geomorphic processes that sustain salmonid habitats, the area of floodplain rearing habitat, and the extent of riparian vegetation providing SRA cover and inputs to the aquatic ecosystem. Setback width also influences inputs of sediment and contaminants from adjacent uplands; these inputs are described in other chapters (Chapters 2, 3, and 5) of this report.

Structures, developed land uses, and most agricultural land uses within the active floodplain detrimentally affect salmonid habitat functions. Thus, to conserve salmonid habitat functions, setback widths should be sufficient to include the active floodplain and to buffer the active floodplain from detrimental effects that may result from adjacent land uses.

All riparian vegetation within the active floodplain contributes inputs to the aquatic ecosystem. These inputs are greatest from vegetation immediately adjacent to the stream channel, and shade is only provided by vegetation within a distance determined by stream orientation, tree height, and topography. In some cases (e.g., topographically confined or incised reaches), the vegetation affecting streams is outside the active floodplain. One tree height (i.e., potential maximum tree height on that site) has often been used as an approximation of the width of the zone alongside streams that provides effective shading and inputs (e.g., large woody debris) to the channel (Rhodes et al. 1994), although vegetation further from streams can still, in the proper circumstances, provide some shade. This distance (i.e., potential maximum tree height) is roughly 20 m (66 ft) to as much as 30 m (98 ft) in western Placer County, based on the observed and potential heights of mature Fremont's cottonwoods, valley oaks, and other tree species (Hickman 1993; Stuart and Sawyer 2001).

Recommended Setback Width to Conserve Salmonid Habitat Functions

For the purpose of long-term conservation of salmonid habitat functions, the project team recommends that riparian setbacks include the entire active floodplain, regardless of the current extent of riparian vegetation on that surface, and that an additional 30 m (98 ft) buffer be included within the setback. Conversion of the active floodplain to developed or agricultural land uses would substantially affect the hydrologic and geomorphic processes that sustain salmonid habitat functions. Land adjacent to the active floodplain also may affect shade, inputs of woody debris, and water quality; consequently, the 30 m (98 ft) buffer would reduce the effects of adjacent land uses.

It is important to recognize that riparian setbacks are not sufficient to ensure conservation of salmonid habitat functions. Many effects on salmonid habitat functions result from human alterations that are unrelated to setback width, but that are rather associated with flow alterations, water quality, vegetation management, and land uses within the watershed. Therefore, conservation of salmonid habitat functions requires the implementation of a coordinated set of measures involving land use, flow management, and vegetation management in these watersheds and within these defined setbacks.

Chapter 5
Plant Habitat Functions

Introduction

More than 15 native tree and shrub species occur in the riparian forests, woodlands, and scrublands of the Sacramento Valley and adjacent foothills (Conard et al. 1980). These species are all deciduous, and all require high or very high levels of water availability. They differ in their dispersal mechanisms, seed size, shade tolerance, size, growth rates, and longevity (Table 5-1). These attributes, in concert with site conditions and flow and disturbance regimes, determine the species composition and structure of riparian vegetation.

In the Sacramento Valley, early successional vegetation typically is dominated by Fremont's cottonwood (*Populus fremonti*) and willow species (*Salix* spp.). Both taxa produce large numbers of widely dispersed seeds and are rapidly growing, shade intolerant, and relatively short-lived (Sudworth 1908; Strahan 1984; Burns and Honkala 1990). Shrubby thickets of these species can reach heights of 3–12 m (10–40 ft) over a period of 10–20 years. Other species, such as Oregon ash (*Fraxinus latifolia*) and valley oak (*Quercus lobata*), establish either concurrently with or subsequent to the willows and cottonwood and grow more slowly, but they are more tolerant of shade and are longer lived (Burns and Honkala 1990; Tu 2000). In the absence of frequent disturbance, individuals of these species enter the canopy, particularly after 50 years since stand initiation, as mortality of willows and cottonwoods create openings in the forest canopy. Conversely, frequent disturbance prevents the transition to mature mixed riparian or valley oak forests. Currently, in western Placer County, oak species are abundant in the riparian vegetation, white alder (*Alnus rhombifolia*) is widespread, and cottonwoods and willows are less abundant than along many other Central Valley rivers and streams (Appendix A; Placer County 2002).

Human alterations of riparian areas change site conditions, including flow and disturbance regimes, and consequently affect the dispersal, establishment, growth, reproduction, and mortality of riparian species. These changes alter the species composition and structure of riparian vegetation, thereby modifying habitat for aquatic fish and terrestrial wildlife habitat, as well as biogeochemical functions.

Effects of Human Alterations on Life Cycle of Riparian Species

Effects on Dispersal

Air, water and animals disperse riparian plant species. However, flow regime strongly affects the dispersal of all plant species. Surfaces that remain submerged throughout the period of seed release are largely inaccessible to most dispersing seed, and surfaces that remain above water during this period are inaccessible to water-dispersed seed. Seeds are commonly dispersed through the air or by floating on water; large numbers of seeds wash onto shorelines and bars as water levels recede. The river stage during the dispersal period must be at a level high enough to distribute seeds to a surface where scouring by subsequent flows does not occur, and low enough to prevent desiccation of seedlings once the river stage recedes.

Accordingly, hydrologic or geomorphic alterations affect the dispersal of riparian plant species. Levees and berms isolate surfaces from stream flows and preclude the deposition of water-dispersed seed. Flow alterations modify the river's stage, raising or lowering the elevation at which seeds are deposited. Similarly, incision of the stream channel lowers the river's stage, and thus lowers the elevation at which seeds are deposited. Such incision is widespread in western Placer County (Appendix A; Placer County 2002; ECORP 2003; EDAW 2004; Jones & Stokes 2004 c).

Similarly, conversion of active floodplain to agricultural or developed land uses can isolate seed sources and potentially create barriers to flows or animal movements and thus to seed dispersal. However, the extent of these effects is not well known.

Effects on Establishment

Establishment of riparian plants requires suitable conditions for germination and subsequent growth. Hydrology and hydraulics, soil properties, competing vegetation, disease-causing organisms, herbivorous animals, and vegetation management by humans all affect the transition from seed to established plant.

For successful recruitment, cottonwood and willows are particularly dependent on specific hydrologic events before, during, and immediately following their seed release periods. These shade-intolerant species have very small and short-lived seeds (Table 5-1); accordingly, they require establishment sites that are largely free of competition from existing vegetation. The erosion and deposition of sediment along stream channels and on floodplains creates such surfaces. A moist substrate must be maintained for approximately a week following seed dispersal to allow seeds to germinate (Scott et al. 1999, 2000). Following germination, the river stage must decline gradually to enable seedling

Table 5-1. Selected Attributes of Sacramento Valley and Foothill Riparian Tree Species

Species	Seed Size[a]	Seedling Shade Tolerance[b]	Height[c]	Longevity[d] (years)
Box-elder *Acer negundo*	0.1 g (0.001 oz.)	Tolerant	15-25 m (49-82 ft)	50-100
White Alder *Alnus rhombifolia*	0.001 g (0.0001 oz.)	Intolerant	15-25 m (49-82 ft)	50-100
Oregon ash *Fraxinus latifolia*	0.1 g (0.001 oz.)	Tolerant	10-25 m (33-82 ft)	150-250
Walnut *Juglans hindsii*	10.0 g (0.1oz.)	Intermediate	10-20 m (33-66 ft)	50-150
Sycamore *Platanus racemosa*	0.01 g (0.0001 oz.)	Intolerant	10-30 m (33-98 ft)	150-200
Fremont's cottonwood *Populus fremontii*	0.001 g (0.0001 oz.)	Intolerant	15-30 m (49-98 ft)	50-100
Valley oak *Quercus lobata*	1.0 g (0.1 oz.)	Intermediate	10-35 m (33-115 ft)	300-400
Interior Live-oak *Quercus wislizenii*	1.0 g (0.1 oz.)	Intermediate	5-20 m (16-66 ft)	100-200
Goodding's black willow *Salix gooddingii*	0.0001 g (0.00001 oz.)	Intolerant	10-30 m (33-98 ft)	50-100
Narrow-leaved willow *Salix exigua*	0.0001 g (0.00001 oz.)	Intolerant	5 m (16 ft)	20-30
Red willow *Salix laevigata*	0.0001 g (0.00001 oz.)	Intolerant	10-15 m (33-49 ft)	40-60
Arroyo willow *Salix lasiolepis*	0.0001 g (0.00001 oz.)	Intolerant	5-10 m (16-33 ft)	30-50
Shining willow *Salix lucida*	0.0001 g (0.00001 oz.)	Intolerant	5-10 m (16-33 ft)	30-50

[a] = Based on information in Schopmeyer 1974, and rounded to nearest order of magnitude

[b] = Based on information in Sudworth 1908, Burns and Honkala 1990

[c] = Based on information in Hickman 1993, Stuart and Sawyer 2001

[d] = Based on information in Burns and Honkala 1990, Sudworth 1908 and J. Hunter unpublished data

g = grams

oz = ounces

m = meters

ft = feet

establishment. If the river stage declines too quickly, seedlings are prone to mortality by desiccation. To supply seedlings with adequate water as their roots elongate toward the water table, the decline in river stage should not exceed 2.5-3.8 cm (1–1.5 inches) per day (Mahoney and Rood 1998; Shafroth et al. 1998; Scott et al. 1999, 2000).

After germination, seedlings grow on surfaces ranging from immediately below peak-flow to immediately above low-flow elevations. Most seedlings do not survive their first year on these surfaces. Because high levels of soil moisture within several feet of the surface are required for these seedlings to survive through the first summer, seedlings may desiccate on higher elevation surfaces. Moreover, prolonged inundation during the growing season can kill seedlings (Sprenger et al. 2001). Under unaltered conditions, high summer flows typically do not occur; however, where streams are downstream of dams or are used to convey irrigation waters, high summer flows may frequently occur. Finally, flows during the following winter and spring may inundate all surfaces supporting seedlings; seedlings may be scoured from those surfaces inundated with sufficient depth and velocity of water to mobilize the surface (Friedman and Auble 1999). Such scouring is most likely on lower-elevation surfaces.

Historically, flows suitable for cottonwood and willow establishment did not occur in most years. Historical records and tree-aging studies have shown that in numerous riverine environments in the western United States, the combination of factors leading to a large-scale establishment event typically occurs once every 5–10 years (Stromberg et al. 1991; Scott et al. 1997; Mahoney and Rood 1998). Scott et al. (1997) determined that establishment of cottonwoods on the upper Missouri River in an area with little channel movement was most likely on surfaces inundated by floods with a recurrence interval of more than 9 years. Hughes (1994) concluded that long-term cottonwood establishment was associated with even longer flood return intervals (30–50 years) along some non-meandering rivers.

Because other species of riparian trees and shrubs are characterized by larger seed sizes and greater shade tolerance than willows and cottonwoods (Table 5-1), the establishment of such species is less dependent on stream flows. All riparian plants are affected by water availability and competition from existing vegetation, and are consequently affected to some degree by hydrology and the creation of new surfaces by the erosion and deposition of sediment. Some species, such as Oregon ash and valley oak, are able to establish in the shade of other plants; others, such as elderberry and valley oak, can survive drier conditions than can cottonwoods and willows. Thus, in the absence of suitable conditions for willow and cottonwood establishment, other riparian species establish, but the resulting stands differ from cottonwood and willow–dominated stands in species composition, structure, and wildlife habitat value.

Vegetation management activities also affect the establishment of all riparian species. Such activities entail removal of vegetation by means of grazing, herbicide application, and mechanical operations for rangeland and agricultural management; firewood cutting; and levee, floodway, road, and right-of-way maintenance. (Silviculture is not a widespread practice in the Sacramento Valley and foothill riparian areas.) While vegetation removal kills seedlings, it also removes established plants, creating greater opportunities for establishment in subsequent years.

Vegetation management activities occur in western Placer County and may be detrimentally affecting the regeneration of riparian vegetation. Despite stands having a sparse layer of trees and a narrow width, small saplings (i.e., < 2 m [6.6 ft]), particularly those of cottonwoods or willows, often are rare or absent (Appendix A; Placer County 2002). However, hydrologic alterations also may account for these conditions.

Effects on Growth and Reproduction

Growth and reproduction of riparian plants are affected by changes in resource availability and interactions with other species. The effects of human alterations on reproduction have not been documented, except to the extent that reproduction is dependent on growth, and effects on growth have been documented. Human alterations affect the growth of riparian species through surface water diversions and groundwater removals, nutrient inputs, the introduction of nonnative species, and inundation of riparian habitats by dams and reservoirs.

Beyond providing suitable conditions for establishment, flows must be sufficient to maintain existing riparian vegetation year-round. Cottonwoods and willows, in particular, are very susceptible to drought-induced stress. In California, the lack of summer moisture limits these and other riparian tree species to areas with readily available shallow groundwater. Accordingly, groundwater and flows following seedling establishment must be sufficient to maintain the elevation of the riparian groundwater zone or capillary fringe within 10–20 feet of the surface (Jones & Stokes 2000a). Diversions of surface water and groundwater removals that cause groundwater levels to fall could reduce growth and contribute to mortality (Stromberg and Patten 1992). Human alterations increase nutrient inputs to riparian areas thorough atmospheric deposition of nitrogen; additionally, irrigation and stormwater runoff conveys fertilizers from agricultural and developed lands into riparian areas and stream channels. Though the addition of nutrients tends to increase plant growth and biomass, it also affects the cycling of other elements and does not benefit all species equally (Vitousek et al. 1997). Typically, a few species are able to acquire most of the added nutrients, and consequently to outcompete species they would otherwise have been unable to displace. In grasslands, shrublands, and wetlands, nutrient additions have been found to reduce plant species diversity (Vitousek et al. 1997; Keddy 2000). Effects on woody riparian vegetation are undocumented, but are likely to be similar to those reported for other vegetation types.

A number of nonnative species have been introduced and become abundant in the riparian areas of the Sacramento Valley and adjacent foothills (Hunter et al. 2003). These nonnative species create new competitive interactions, and they alter growth by changing resource availability for native species. For example, several introduced species, including black locust (*Robinia pseudoacacia*) and red sesbania (*Sesbania punicea*), fix nitrogen from the atmosphere into biologically available forms via symbioses with soil microorganisms (Hunter 2000; Hunter and Platenkamp 2003). These introduced species may increase nutrient availability for other species. In contrast, tamarisk (*Tamarix* spp.) may reduce water availability for other species (Sala et al. 1996). Several invasive nonnatives, including red sesbania, Himalayan blackberry (*Rubus discolor*), giant reed (*Arundo donax*), and perennial pepperweed (*Lepidium latifolium*), form dense, monotypic stands that preclude the establishment of native species (Bossard et al. 2000).

In western Placer County, many of these invasives are widespread and abundant. For example, Himalayan blackberry is the most abundant species in the shrub layer along western Placer County's streams, and red sesbania grows widely along Dry Creek (Appendix A; ECORP 2003). This non-native vegetation has displaced native species and altered several riparian functions (e.g., conveyance of floodwaters, nitrogen cycling and wildlife habitat).

Effects on Mortality

The mortality resulting from disturbance is integral to the dynamics of riparian vegetation; it affects the proportions of different successional stages and vegetation types within riparian corridors (Stromberg et al. 1991; Malanson 1993; Johnson 1994; Freidman and Auble 1999; Taylor et al. 1999). Along Sacramento Valley and foothill rivers and streams, trees are killed by a number of mechanisms including scour, undercutting by channel migration, uprooting and inundation by flood flows, drought, fire, windthrow, and the removal of vegetation for agricultural or flood control purposes. These disturbances clear spaces for the establishment of early successional vegetation, such as willow thickets and forests dominated by young Fremont's cottonwoods. They also can remove forest vegetation before growth and succession has resulted in the complex canopy structures of mature forests and later successional stages, such as mixed riparian forests and stands of valley oaks. Thus, disturbance regimes determine the proportions of early and late successional vegetation within riparian landscapes.

To maintain both early successional vegetation and mature forests within a riparian landscape, the rate of disturbance must be sufficient to create space for the establishment of new patches of riparian forest, yet not so frequent that it prevents any forest from reaching maturity. Of course, disturbances are not randomly distributed spatially or by type (Conard et al. 1980; Hunter and Parker 1993; Malanson 1993; Freidman and Auble 1999). Disturbance by scour, channel migration, flood flows, and inundation are more frequent and intense at lower elevations (i.e., nearer the stream channel) than at higher elevations (Conard et al. 1980; Malanson 1993; Mitsch and Gosselink 1993; Freidman and Auble 1999; Keddy 2000). In contrast, along Central Valley riparian systems, disturbance by drought and fire is more frequent and intense at higher elevations further from the channel. Thus, across a single cross-section of a riparian corridor, clear gradients exist in disturbance frequency and magnitude. These disturbance gradients, together with interspecific differences in physiological tolerances and establishment requirements, lead to the well-documented zonation of riparian vegetation (Conard et al. 1980; Warner and Hendrix 1985; Mitsch and Gosselink 1993). Accordingly, the persistence of substantial areas of both early successional and mature vegetation within riparian areas is not dependent upon a specific overall average rate of disturbance; rather, it requires only zones of higher and lower rates of disturbance. The combination of flood flows, an actively meandering river channel, and a range of elevations provide such zonation.

Human alterations not only change mortality rates by directly removing vegetation but also by altering hydrology and geomorphic processes. Dams, levees, and surface water diversions isolate riparian areas from the stream channel and floodflows, and thus from associated disturbances. Similarly, bank protection and channelization reduce mortality that can result from channel migration. In addition, groundwater removals can reduce water availability and exacerbate drought-induced mortality of riparian plants.

In western Placer County, substantial areas of riparian vegetation have been converted to developed and agricultural land-cover (Jones & Stokes 2004a, 2004b). For example, along the major streams of western Placer County, approximately a quarter of the land < 20 m (66 ft) from the centerline of a stream, is in developed or agricultural land-cover (Jones & Stokes 2004a, 2004b). The remaining riparian vegetation frequently consists of a narrow band (< 20 m [66 ft]) with a discontinuous layer of trees (Appendix A).

Relationships Between Effects and Setback Width

Human alterations primarily affect riparian plant habitats by vegetation management (e.g., grazing, removal of vegetation to increase conveyance of floodwaters) or by altering hydrology and geomorphic processes. Vegetation management is not necessarily related to setback width, but alterations of hydrologic and geomorphic processes are related to setback width. Infrastructure and other developed land uses within the active floodplain, as well as associated levees, berms, and bank protection, affect hydrology and geomorphic processes; such uses consequently alter the structure and species composition of riparian vegetation. Thus, riparian setbacks narrower than the active floodplain facilitate much more extensive alteration of riparian vegetation than setbacks that extend beyond the active floodplain.

Recommended Setback Width to Conserve Plant Habitat Functions

For the purpose of long-term conservation of plant habitat functions, the project team recommends that riparian setbacks include the entire active floodplain, regardless of the current extent of riparian vegetation on that surface. The distribution of riparian vegetation is not static within the active floodplain, and the diversity of vegetative structure and species composition is strongly related to the hydrologic and geomorphic processes within the active floodplain. Therefore, conversion of any portion of the active floodplain to developed or agricultural land-cover types would not only affect hydrologic and geomorphic functions but would affect plant habitat functions as well.

It is important to note that many human effects on riparian plant habitat functions are not necessarily reduced by establishing setbacks. These effects include the consequences of hydrologic and geomorphic alterations and of vegetation management. Additional measures are necessary to address these effects.

Chapter 6
Terrestrial Animal Habitat Functions

Introduction

The contribution of riparian habitats to biodiversity greatly exceeds the proportional extent of landscape areas they occupy. Scientific documentation of the importance of these habitats for plants and animals has been published in studies conducted across the continent (Sands 1977, Warner and Hendrix 1984, Naiman et al. 1993, 2000; Crow et al. 2000; Brinson et al. 2002).

In western Placer County, Valley Foothill Riparian Woodlands (riparian woodlands) (Mayer and Laudenslayer 1988) and their associated upland habitats provide food, water; cover and migration and dispersal corridors for a higher diversity of wildlife species than any other habitat. Riparian woodlands may support up to 193 vertebrate species, including 133 breeding species and 60 visitors, in western Placer County (Jones & Stokes 2004a). Some animals reside primarily in riparian woodlands year-round, while others occupy these habitats as part of their breeding home range or territories. Many species visit riparian woodlands seasonally or for short periods (e.g., migrating birds).

A number of special-status animals are known to be associated with riparian woodlands in western Placer County: valley elderberry longhorn beetle, foothill yellow-legged frog, western pond turtle, giant garter snake, double-crested cormorant, great egret (rookery), great blue heron (rookery), black-crowned night-heron (rookery), bald eagle, Swainson's hawk, osprey, white-tailed kite, Cooper's hawk, yellow-billed cuckoo (one historical record), long-eared owl, willow flycatcher, purple martin, yellow warbler, yellow-breasted chat, Modesto song sparrow, river otter, ringtail, and an unknown number of bat species (e.g., Townsend's big-eared bat, long-eared myotis, long-legged myotis, and Yuma myotis).

Riparian-associated species vary considerably in their area requirements; many special-status and declining species have large home ranges, and thus require wide riparian areas to maintain viable populations. The habitat and area requirements of riparian-associated birds, mammals, reptiles, and amphibians in western Placer County are summarized in Table 6-1. This list includes only species that depend on riparian woodlands for successful reproduction and survival. Plant and animal population size is often the best predictor of future extinctions or local extirpations; accordingly, habitat patches should be large enough to maintain viable populations of the most area-sensitive species, including special-status and economically important species (Environmental Law Institute 2003).

The primary goal of this chapter is to examine the possible relationships between terrestrial vertebrate diversity (i.e., species' occurrence and abundance) and the extent, width, and condition of riparian woodlands in western Placer County and nearby foothill counties. For each vertebrate group discussed below, the project team evaluated riparian and upland habitat requirements, patch size requirements (area and width), and effects of human activities on those vertebrate groups. The chapter concludes with a summary of the relationships between the width of riparian setbacks and the effects on wildlife habitat due to human alterations, and setback recommendations for conservation of wildlife habitat functions.

Birds

Habitat Relationships

Riparian habitats have been identified as the most important habitat for landbirds in California (Manley and Davidson 1993, Riparian Habitat Joint Venture 2004). Birds of numerous species are abundant in riparian woodlands of western Placer County. Up to 70 species breed in these habitats; an additional 55 species use them for shelter, foraging, or as migratory stopover areas (Jones & Stokes 2004a). Several riparian-associated birds may be covered under the HCP/NCCP for the Phase I Planning Area: Swainson's hawk, yellow-billed cuckoo (one historical record), yellow warbler, yellow-breasted chat, and Modesto song sparrow. Two potentially covered species (bald eagle and bank swallow) may use these habitats for foraging, shelter, or cover but do not breed there (Jones & Stokes 2004a).

Many species of riparian-associated birds are known to breed in western Placer County. These include Cooper's hawk, red-shouldered hawk, Swainson's hawk, black-chinned hummingbird, downy woodpecker, western wood-pewee, Pacific-slope flycatcher, warbling vireo, tree swallow, house wren, yellow warbler (no recent breeding records), yellow-breasted chat, common yellowthroat, Modesto song sparrow, black-headed grosbeak, blue grosbeak, and American goldfinch (Table 6-1).

Riparian Habitat Requirements

Riparian-associated bird species occupy a wide variety of ecological niches; accordingly, they require a complex vegetative structure for breeding, foraging, and shelter/cover (Riparian Habitat Joint Venture 2004). Riparian woodlands provide many niches for breeding birds because they typically support diverse plant communities, are varied in their vertical and horizontal structures, and

Table 6-1. Habitat and Area Requirements of Riparian-Associated Vertebrates of Western Placer County

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Pacific treefrog* *Hyla regilla*	Most move < 10 m; capable of moving up to 400 m (Schaub and Larsen 1978)	Circles with radii of 50 cm (Whitney 1980)	Breeding, cover, foraging	Breeds in water; takes cover under logs and vegetation. Uses all riparian stages and temporary water sources (Zeiner et al. 1988)	Cover, foraging	Requires upland sites for cover during nonbreeding season, takes cover in moist niches under logs and vegetation (Zeiner et al. 1988)
Common garter snake* *Thammophis sirtalis*	Probable overlap between pairs during the spring-fall activity period (Zeiner et al. 1988)	Not thought to be territorial; they often remain aggregated from fall until spring (Zeiner et al. 1988)	Cover, foraging, breeding	Permanent and semi-permanent water bodies. Seeks cover in holes and small mammal burrows, often basks on flat rocks and rotting logs near cover (Zeiner et al. 1988)	Cover, foraging, but only in cold northern climates	May migrate to inland localities during winter in cold northern climates (Zeiner et al. 1988)
Western terrestrial garter snake* *Thamnophis elegans*	Probable overlap between pairs during the summer activity period (Zeiner et al. 1988)	Not thought to be territorial (Zeiner et al. 1988)	Cover, foraging, breeding	Permanent and semi-permanent water bodies. Seeks cover in holes and small mammal burrows, often basks on flat rocks and rotting logs near cover (Zeiner et al. 1988)	Cover, foraging	In mild climates, mammal burrows and surface objects (rocks and rotting logs) serve as winter refuges (Zeiner et al. 1988)
Giant garter snake* *Thamnophis couchi gigas*	Probable overlap between pairs during summer activity period; may migrate between wetland habitats and upland sites that provide winter hibernacula (Zeiner et al. 1988)	Not thought to be territorial (Zeiner et al. 1988)	Cover, foraging, breeding	Highly aquatic; seeks cover in holes and small mammal burrows, crevices, and surface objects. Often basks in streamside vegetation. Rocks and rotting logs serve as winter refuges	Cover, foraging	In mild climates, mammal burrows and surface objects (rocks and rotting logs) serve as winter refuges (Zeiner et al. 1988)
Cooper's hawk *Accipiter cooperii*	*Michigan* – four home ranges averaged 311 ha, range 96–401 ha; 17 others averaged 207 ha, range 18–531 ha *Wyoming* – One home range of 205 ha (Craighead and Craighead 1956).	Males defend ~100 m around potential nest sites prior to pair formation (Brown and Amadon 1968). *Oregon* – nests were 3.2–4.2 km apart (Jackman and Scott 1975). Elsewhere, nests were 1.6–2.4 km apart (Meng 1951, Brown and Amadon 1968). *California* – In oak stands, mean distance between nests was 2.6 km (Zeiner et al. 1990a)	Breeding, foraging, perching	Needs dense stands of live oak, riparian deciduous, coniferous, or other forest habitats near water; nests in crotches 3–23 m high (Zeiner et al. 1990a)	Breeding, foraging, perching	Hunts in patchy wooded areas and edges; needs snags or dense tree stands for perching and waiting for prey (Beebe 1974). Dense stands with moderate crown-depths used for nesting (Zeiner et al. 1990a)

Table 6-1. Continued

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Red-shouldered hawk* *Buteo lineatus*	*Michigan* – averaged 63 ha, range 19–384 ha (Craighead and Craighead 1956)	Same as home range	Breeding, perching, foraging	Extensive stands of forest with tall trees and variable amounts of understory required for breeding (Crocoll 1994)	Cover, foraging	Does not require upland sites, but will use them for foraging and roosting; mostly forages in oak woodlands and adjacent annual grasslands (Zeiner et al. 1990a)
Swainson's hawk+ *Buteo swainsoni*	*Wyoming* – five pairs averaged 2.5 km^2 (Craighead and Craighead 1956) *California* – 12 pairs, 2,760–2,553 ha (Estep 1989); 5 pairs ranged 4,038–2,663 ha (Babcock 1995) *Washington* – eight pairs, 621–214 ha (Fitzner 1978); five pairs, 886–243 ha (Bechard 1982) *Colorado* – eight pairs, 2,429–1,050 ha (Andersen 1995) Nest sites in riparian forest close to alfalfa or recently harvested row crops corresponded to smaller home ranges (Estep 1989)	No specific information on territory size (England et al. 1997); three territories were found within a 1.1-km length of riparian forest in the Central Valley (Bloom 1980)	Breeding and perching	Requires large trees to support nests, but will nest in open habitats with scattered trees and small groves near water (Bloom 1980); nests 1.3–30 m above ground (Zeiner et al. 1990a)	Breeding, foraging, perching	Not an obligate riparian species; needs proximity to good foraging habitat such as grassland, pasture, or grainfields; primarily needs large trees for nesting (Woodbridge 1998; Zeiner et al. 1990a); may nest in open grassland or cropland habitats with scattered trees (England et al. 1997)
Yellow-billed cuckoo+ *Coccyzus americanus*	Large home ranges averaging 17 ha (Laymon and Halterman 1987)	10 ha is an appropriate minimum patch size (Halterman pers. comm.)	Nesting, foraging, perching	Optimal stands defined as more than 80 ha in extent and more than 600 m wide, marginal stands as 20–40 ha and 100–200 m wide, and unsuitable stands as less than 15 ha and less than 100 m wide (Laymon and Halterman 1989)	Foraging	May forage in uplands adjacent to riparian woodlands, especially early successional stands of cottonwoods and willows (Laymon and Halterman 1989). 10 ha is an appropriate minimum patch size for this species (Halterman pers. comm.)

Table 6-1. Continued

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Black-chinned hummingbird+ *Archilochus alexandri*	No data	*S. California* – male breeding territory averaged 0.1 ha (Stiles 1973); 41–130 nests per 40 ha (Pitelka 1951) *Arizona* – eight nests per 40 ha in oak woodland; 21 per 40 ha in oak juniper woodland (Balda 1970)	Nesting, foraging, perching	Sparse to open riparian woodland preferred for breeding; uses trees and shrubs for cover; places open cup nest in understory (0.9–9.1 m above ground) near water source (Grinnell and Miller 1944; Zeiner et al. 1990a)	Occasional breeding, mostly foraging	Woodland and scrub habitats adjacent to riparian areas used for feeding during breeding season. Occasionally nests in orchards (Zeiner et al. 1990a)
Downy woodpecker* *Picoides pubescens*	Territory and home range are the same (Zeiner et al. 1990a)	*Ontario* – two breeding territories of 2.0 and 3.2 ha (Lawrence 1967)	Breeding, foraging, cover	Associated with riparian deciduous softwoods; uses tree and shrub foliage for cover; requires abundant snags and tree/shrub, tree/herbaceous, and shrub/herbaceous ecotones (Zeiner et al. 1990a). Excavates nest cavity in snag (preferably aspen) or dead branch 1.3–15 m high (Bent 1939; Lawrence 1967)	Foraging, cover	Frequents hardwoods, conifer habitats, and orchards adjacent to riparian areas (Zeiner et al. 1990a)
Western wood-pewee+ *Contopus sordidulus*	No information found, but probably equal to territory. Density estimates range from 1–10 pairs per 40 ha in Colorado aspen-conifer habitat (Beaver and Baldwin 1975) to 18–33 pairs per 40 ha in Sacramento Valley riparian habitats (Gaines 1974)	*Colorado* – territory averaged 1.2–1.6 ha over 3 yrs (Eckhardt 1976). Territory size probably varies widely depending on habitat and foraging conditions (Zeiner et al. 1990a)	Breeding, perching, foraging	Uses trees of almost any size, especially with dead lower branches, for nesting, singing, and foraging perches. Places open cup nest 4–25 m above ground. Nests in woodlands edging riparian areas and in valley foothill riparian habitats (Zeiner et al. 1990a)	Breeding, roosting, foraging	Nests in open woodlands with sparse to moderate canopy, most commonly in ponderosa pine, montane hardwood-conifer, mixed conifer, Jeffrey pine, lodgepole pine, eastside pine, red fir, and aspen (Grinnell and Miller 1944; Garrett and Dunn 1981; Zeiner et al. 1990a)

Table 6-1. Continued

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Willow flycatcher+ *Empidonax traillii*	In breeding season, probably equal to territory. *Washington* – 9.2 pairs per 40 ha in scrub habitat (King 1955) *Michigan* – 60.7 individuals per 40 ha in scrub habitat (Berger 1957)	*California* - six paired males ranged 0.09–0.38 ha and averaged 0.18 ha in Fresno County (KRCD 1985); 22 territories ranged 0.06–0.89 ha and averaged 0.34 ha in Sierra County (Sanders and Flett 1989); monogamous males averaged 0.6 ha (SD = 0.35, n = 24, range 0.1–1.3) and polygynous males averaged 1.1 ha (SD = 0.68, n = 24, range 0.2–2.8) at the South Fork Kern River (Whitfield and Strong 1995; Whitfield and Enos 1996; Whitfield et al. 1997). *Arizona* – range 0.06–1.5 ha (Sogge et al. 1997). *Michigan* – avg. size was 0.7 ha (Walkinshaw 1966)	Nesting, foraging, perching	Broad river valleys or moist mountain meadows where lush thickets of dense willows, alders, and cottonwoods edge on wet meadows, ponds, or backwaters (Zeiner et al. 1990a; Serena 1982; Harris et al. 1988; Whitfield et al. 1997; Sanders and Flett 1989). In mountain meadows prefers willow thickets interspersed with open space; in lowland riverine habitats prefers contiguous willow thickets (Harris 1991). Does not occur in areas of dense tree cover (King 1955; Walkinshaw 1966)	Migration	May migrate into higher elevations after breeding and during fall migration (Grinnell and Miller 1944). No specific data un upland habitat use
Pacific-slope flycatcher+ *Empidonax difficilis*	*Colorado* – 5–28 individuals/40 ha in conifer forest (Beaver and Baldwin 1975) *California* – 11 males/40 ha in broadleaf evergreen forest in Alameda County (Cogswell 1973), 35 males/40 ha in buckeye/California bay mixed forest in Marin County (Stewart 1973)	No data	Breeding, foraging, perching	Breeds in shady alder and willow thickets and similar riparian growth in oak woodlands, redwood, and ponderosa pine forests (Zeiner et al. 1990a)	Foraging, perching, migration	Frequents shaded woodlands and forests with dense canopy adjacent to riparian habitat during breeding season. Occurs in more open habitats in migration (Zeiner et al. 1990a)

Table 6-1. Continued

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Warbling vireo+ *Vireo gilvus*	*Idaho* – one pair had a 37-m radius around the nest (Rust 1920); five pairs/40 ha in a cut-over Douglas-fir forest (Johnston 1949) *Arizona* – 42 pairs/40 ha in fir-pine-aspen forest (Haldeman et al. 1973) *California* – 40 pairs/40 ha in an oak/bay mixed forest (Stewart 1973); 21 pairs/40 ha in a lodgepole-aspen forest (Winkler and Dana 1977); eight pairs/40 ha in a broadleaf evergreen forest (Cogswell 1973)	*California* – nine pairs in coastal riparian forest averaged 1.45 ha; 19 territories in eastern California averaged 1.2 ha (Gardali and Ballard 2000) *Arizona* – 2 pairs were both 1.2 ha (Barlow 1977). *Illinois* – One pair was ~1.2 ha (Gardali 2003). *Ontario* – Three pairs ~1.2-1.5 ha (Gardali 2003). *Alberta* – Two pairs were both 1.5 ha (Gardali 2003)	Breeding, foraging, perching	Nests in mature mixed deciduous woodlands along riparian corridors (Gardali 1998). Likes edges and openings, large trees, and semi-open canopy (James 1971; MacKenzie et al. 1982; Marzluff and Lyon 1983; Verner and Boss 1980) According to Grinnell and Miller (1944), may be more attracted to riparian trees than to moisture	Occasional breeding, perching, and migration	Commonly uses deciduous trees, shrubs and conifers for cover. Occasionally breeds in conifer habitats and forest interiors near edges and openings (Zeiner et al. 1990a; Gardali 1998). Also occurs in desert riparian, orchards, vineyards, and urban habitats during migration (Zeiner et al. 1990a; Gardali 1998)
Tree swallow+ *Tachycineta bicolor*	Kuerzi (1941) stated home range is "large"	*California* – 4–18 pairs/40 ha in riparian habitat (N = 3) and 2–10 pairs/40 ha in mixed conifer forest (N = 4) in the Sierra Nevada (Raphael and White 1978)	Breeding, foraging, cover	Requires trees and snags with cavities in forest and riparian woodland for nesting and cover (Zeiner et al. 1990a)	Breeding, foraging, perching, migration	Will nest in lodgepole pine belts. Common to occasional transient throughout the state in virtually all non-desert habitats (Zeiner et al. 1990a)
House wren* *Troglodytes aedon*	No data	*Oregon* – 14 breeding territories averaged 0.9 ha, range 0.5–1.8 ha (Kroodsma 1973) *Ohio* – 178 breeding territories averaged 0.4 ha, range 0.03–1.5 ha (Kendeigh 1941b)	Breeding, foraging, cover	Brushy understory beneath oaks and other riparian deciduous trees. Requires cavities in trees and snags with thickets nearby for foraging (Zeiner et al. 1990a)	Dispersal	Moves upslope after breeding in the Cascades and Sierra Nevada (Zeiner et al. 1990a)

Table 6-1. Continued

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Yellow warbler+ *Dendroica petechia*	*New York* – less than 0.2 ha (Ficken and Ficken 1966) *Iowa* – 0.16 ha (Kendeigh 1941a)	*California* – 0.40–.74/ha (mean 1.64 SE + 0.12) in early successional habitats of eastern Sierra Nevada (PRBO unpublished data) *Iowa* – 0.16/ha in prairie community *Minnesota* – range 0.03–1.62 ha (Beer et al. 1956) *Michigan* – polygynous male territories (0.78 ha) significantly larger than those of monogamous males (0.21 $\pm$ 0.05 ha) (DellaSala 1986) Territory size variable depending on availability of foraging area (Kendeigh 1941)	Breeding, foraging, perching	Nests in early successional riparian habitat or remnant or regenerating canopy with good shrub cover. Prefers deciduous trees such as willows, alders, sycamore, maples, and cottonwoods; in the eastern Sierra breeds locally in wild rose and more xeric plant species and habitats (Heath 1998)	Breeding, foraging, perching	Breeds in montane shrubs in open conifer forests (Gaines 1977). In migration, visits woodland, forest, and shrub habitats (Zeiner et al. 1990a). Kendeigh observed individuals regularly moving up to 488 m to a willow-marsh edge to feed. (Zeiner et al. 1990a). *D.p. brewsteri* was found to breed in locations away from water in the Modoc Bioregion (Grinnell et al. 1930).
Common yellowthroat *, + *Geothlypis trichas*	*Michigan* – 1.4 ha for polygynous male; 10 pairs ranged 0.3–0.7 ha in marsh and riparian habitats (Stewart 1953) *New York* – seven pairs spaced uniformly over 2.0–2.4 ha in a brush field (Kendeigh 1945)	*California* – 1.04 territories/ha in Marin County (Evens et al. 1997); spacing of 0.2–2.0 ha reported by Foster (1977) in the SF Bay *Michigan* – 0.3–0.7 ha (Stewart 1953) *New York* – spacing of 2.0–2.4 ha	Breeding, foraging, perching	Needs tall, emergent herbaceous wetlands and low, dense vegetation near water (Timossi 1990; Zeiner et al. 1990)	Occasional breeding, migration	Occasionally breeds in dense shrubs and annual/perennial grasslands (Garrett and Dunn 1981; Zeiner et al. 1990). Brushy habitats used in migration (Zeiner et al. 1990a)

Table 6-1. Continued

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Yellow-breasted chat + *Icteria virens*	*California* – 10pairs/40 ha reported in the Sacramento Valley (Gaines 1974)	*Indiana* – avg. 1.24 ha (range 1.12–1.58 ha). Males that arrived early established large territories that shrunk as more males arrived; males expanded their territories if neighboring territories were abandoned (Thompson and Nolan 1973)	Breeding, foraging, perching	Requires dense riparian thickets of willows, vine tangles, and dense brush associated with streams, swampy ground, and borders of small ponds (Small 1994). Uses taller trees as song perches (Dunn and Garrett 1997). Nest substrate in California consists of blackberry, wild rose, and pipevine (Ricketts and Kus 2000; Burnett and DeStaebler 2002)	Dispersal	May wander upslope post-breeding (Gaines 1977)
Song sparrow * *Melospiza melodia*	*New York* – 0.6 ha (Butts 1927) *Kansas* – 3.6 ha winter home range; 29 home ranges averaged ~2.8 ha (Fitch 1958) *British Columbia* – averaged 0.05 ha in an island population (Tompa 1962)	*California* Modoc Bioregion: 1.94 territories/ha (n=14) (King and King 2000). Sierra Bioregion: 0.2–1.2 territories per creek km (Heath and Ballard 1999) Bay/Delta Bioregion: 4.4–8.1 territories/ha (Gardali et al. 1998) *British Columbia* – 1.7–5.6 pairs/ha (Rogers et al. 1997)	Breeding, foraging, perching	Breeds in early successional riparian habitat, emergent wetlands, and coastal scrub (Burridge 1995; Roberson and Tenney 1993). Requires water, dense vegetation, light, and exposed ground for foraging (Marshall 1948) Abundance is negatively correlated with tree cover and closed canopy cover ($p<0.05$) (Holmes et al. 1999)	Breeding, foraging, perching	Regularly breeds in coastal scrub habitat, which provides enough water in the form of fog (Humple and Geupel 2004). In winter may be found far from water, in open habitats with thickets of shrubs or tall herbs. Usually avoids densely wooded habitats, except along forest edges (Zeiner et al. 1990a)
Black-headed grosbeak+ *Pheucticus melanocephalus*	*California* – 31–66 singing males/40 ha (Gaines 1974)	*New Mexico* – 0.79 ha (n=28, range=0.43-1.63ha) (Hill 1988; Hill 1995) *Utah* – 2.7 ha (n=12, range=1.9–3.0 ha) (Ritchisson 1983) No information available for California	Breeding, foraging, perching	Requires vegetation density and vertical complexity (Hill 1988); trees and shrubs as low as 1 m to support nests (Zeiner et al. 1990a); favors cottonwood/ willow associations (Grinnell and Miller 1944) with a primary and secondary canopy, variety in shrub height, and patches of herbaceous cover (Gaines 1977)	Occasional nesting, foraging, perching	Sometimes nests in open woodlands, orchards, or edges of dense woodlands (Zeiner et al. 1990a, Lynes 1998)

Table 6-1. Continued

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Blue grosbeak+ *Guiraca caerulea*	No data	*South Carolina* – 5.2–6.12 ha (Odum and Kuensler 1955) *Georgia* – 1.2 ha in tung-oil groves (White 1998)	Breeding, foraging, perching	Prefers riparian edges, forest/field edges, or forest/gravel-bar interfaces (Gaines 1974) with herbaceous annuals and young, shrubby willows/cottonwoods (Grinnell and Miller 1944). Prefers upright growing herbs for nest placement, and tall shrubs and trees for singing perches and shade for nest sites (White 1998)	Foraging, dispersal, migration	Forages in openings, grasslands, and croplands adjacent to riparian areas. Not limited to riparian habitats post breeding or in migration (Zeiner et al. 1990a)
American goldfinch* *Carduelis tristis*	*Michigan* – nesters fed up to 274 m from nest (Nickell 1951) and at least 0.8 km from nest (Coutlee 1967); 53–205 pairs/40 ha (Berger 1957) *California* – 10–33 males/40 ha (Gaines 1974)	*Michigan* – males defended 30 m around nest and built nests at least 35 m apart (Coutlee 1967) *Wisconsin* – 9.1–27 m around nest in marshland (Stokes 1950)	Breeding, foraging, perching	Nests in riparian deciduous woodland near feeding areas in brushy or herbaceous habitats (Coutlee 1967). Must be near water and may require trees for roosting (Zeiner et al. 1990a). Uses willow, cottonwood, or other riparian deciduous tree as nesting substrate (Grinnell and Miller 1944)	Breeding, foraging, perching	Will move upslope after breeding (Zeiner et al. 1990a). May nest in oaks, orchards, other upland shrubs, or thistles (Grinnell and Miller 1944)
Ornate shrew* *Sorex ornatus*	Occurrence and abundance of shrews varied significantly between sites and years but the size of the landscape or the study site had no effect on their abundance; peak densities usually occurred during the spring (Laakkonen et al. 2001).	No data found.	Breeding, foraging, cover	Optimum habitats are foothill and montane riparian (Zeiner et al. 1990b). The amount of urban edge had no significant effect on the captures of shrews but increased edge allows invasion of the Argentine ants, which had a highly significant negative impact on shrew abundance (Laakkonen et al. 2001)	Breeding, foraging, cover	Occurs in a variety of woodland, scrub, and grassland habitats and occupies dry, upland sites more commonly than most other shrews (Zeiner et al. 1990b)

Table 6-1. Continued

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Yuma myotis *Myotis yumanensis*	Radio telemetry studies showed that direct line distances between capture sites and first day roosts averaged 2,007 m, and 1,130 m for roost sites on consecutive days (Evelyn et al. 2004)	Territoriality has not been reported; probably not territorial at foraging or roosting sites; roosts in large groups numbering from about 200 to thousands of individuals (Zeiner et al. 1990b)	Breeding, foraging, cover	Usually forages over water, and seems to be more closely associated with water than any other North American bat species (Barbour and Davis 1969). Riparian habitats offer optimal habitats for this species since they provide suitable roosting and breeding habitat a nearby source of water for foraging (Zeiner et al. 1990b). Large maternity colonies may be found in buildings, caves, under bridges (Zeiner et al. 1990b), and in large trees (Evelyn et al. 2004). Prefers to roost in large trees (mean diameter 115 cm) that provide suitable cracks, crevices, and cavities; roost sites are usually near water (mean 133 m from water) (Evelyn et al. 2004)	Breeding, foraging, cover	Found in a wide variety of habitats from the coast to mid-elevations, and preferred habitats include open forests and woodlands near sources of water for foraging (Zeiner et al. 1990b).
Beaver* *Castor canadensis*	*Canada*—colonies had home range of 0.8 km radius from lodge, or about 201 ha (Aleksiuk 1968) *California*—colony home range was about 15 ha (Light 1969)	*Canada*--territory boundaries maintained by scent mounds, averaged 0.4 km radius, or about 50 ha (Aleksiuk 1968); colonies closer together formed more scent mounds than did more isolated colonies (Butler and Butler 1979)	Breeding, foraging, cover	In winter forages almost entirely on the bark and cambium of riparian trees including aspen, willow, alder, and cottonwood; forages mostly on streambanks, felling trees and harvesting branches for winter food. Builds lodges out of branches and mud, usually on streamside banks or on islands. Takes cover in lodge or by diving in water; makes dams to form deeper ponds for foraging and taking cover (Zeiner et al. 1990b)	Foraging	Forages us to 200 m from water; cuts a variety of trees but tends to take smaller trees far from water (Jenkins 1980)

Table 6-1. Continued

			Riparian		Upland	
Species	Home Range Size	Territory Size	Habitat Use	Habitat Requirements	Habitat Use	Habitat Requirements
Ringtail* *Bassariscus astutus*	No information available	*California* – estimated to vary from 44–515 ha (Grinnell et al. 1937) *Texas* – average size estimated at 20–43 ha (Toweill and Teer 1981)	Breeding, foraging, cover	Breeds and takes cover in hollow logs, trees, and cavities in talus and other rocky areas, usually near water (Zeiner et al. 1990b). Primarily carnivorous; prefers rodents and rabbits. Also consumes birds and eggs, reptiles, invertebrates, fruits, nuts, and some carrion (Trapp 1978)	Foraging	Forages primarily in riverine and riparian areas, but may also use nearby uplands if suitable prey is available (Zeiner et al. 1990b)
Raccoon* *Procyon lotor*	*Michigan*—home ranges of males averaged 204 ha and varied from 18 to 814 ha (Stuewer 1943) *North Dakota*—home ranges of males varied from 396 ha to 1,468 ha, and females varied from 532 to 743 ha for females (Fritzell 1977)	Radiotelemetry studies suggest that males may be territorial, but females probably are not; no information on territory size available (Zeiner et al. 1990b)	Breeding, foraging, cover	Found in greatest abundance in low and mid-elevation riparian habitats; takes cover and breeds in tree cavities, snags, and downed logs. Usually forages for both animal and plant material in shallow water (Zeiner et al. 1990b)	Breeding, foraging, cover	Frequents a high diversity of habitats including upland areas such as forested, shrub, and herbaceous areas; may use rocky areas for dens or cover; a source of water is required for foraging and washing (Zeiner et al. 1990b)
River otter* *Lutra canadensis*	Home ranges may extend an average of 24 km along rivers and streams (Haley 1975); travel distance is highly variable and depends on food supplies and habitat quality; may travel 80 to 96 km along streams during a year (Liers 1951)	Males known to establish scent posts using urine, feces, and musk but no information on territory size available ((Zeiner et al. 1990b)	Breeding, foraging, cover	Uncommon residents of riparian habitats and associated streams and rivers; takes cover and nests in burrows and cavities in river banks; also uses hollow logs, stumps, snags, abandoned beaver lodges, and natural cavities in riparian habitats (Zeiner et al. 1990b)	Foraging	Seldom moves away from water but may pursue prey short distances from water courses into upland habitats (Sheldon and Toll 1964)

* Resident (at least partially) in riparian habitats of western Placer County.

+ Neotropical migrant species that breed in riparian habitats of western Placer County or in nearby counties.

provide a source of surface water (MacArthur 1964; James 1971; Rice et al. 1983, 1984; Brinson et al. 2002). Many riparian areas offer a range of successional habitats due to the dynamic nature of their hydrology. Riparian woodlands are also critical to a diversity of migratory birds (e.g., raptors, flycatchers, vireos, warblers, tanagers, sparrows, and grosbeaks) that depend on trees and shrubs near streams for shelter/cover and for the rich food supplies (e.g., insects, seeds, and fruits) associated with these areas (Jones & Stokes 2004a). Moreover, riparian areas can also provide perching, nesting, and foraging habitat, as well as water, for bird species that primarily nest in upland areas (Heath and Ballard 2003).

Because habitat heterogeneity promotes animal diversity, the highest bird abundance and species richness are usually found in riparian woodlands with a variety of different successional stages (i.e., young and old trees) and a lush understory of shrubs and/or herbaceous plants. Many breeding bird species prefer specific successional stages of riparian woodlands. For example, song sparrows, blue grosbeaks, yellow-breasted chats, yellow warblers, and common yellowthroats are often most abundant in early successional habitats (e.g., stands approximately 2 to 4 m [6.5 to 13 ft] tall) with dense vegetation near the ground. Other species, such as Cooper's hawks, red-shouldered hawks, yellow-billed cuckoos, tree swallows, and black-headed grosbeaks, prefer late-successional stands with taller trees and snags (e.g., more than 10 m [33 ft] tall) that are required for nesting substrates and/or song or foraging perches. Some bird species (most woodpeckers, owls, and some swallows and flycatchers) require large snags for nesting (Zeiner et al. 1990a; Riparian Habitat Joint Venture 2004).

Riparian areas also provide essential habitat for migratory birds and wintering species. For example, willow flycatchers (state listed as endangered) require these habitats during spring and fall migration, but they do not remain to nest in western Placer County (Table 6-1). Many other species of Neotropical birds such as vireos, warblers, thrushes, and grosbeaks also depend on riparian habitats for cover and foraging during migration (Riparian Habitat Joint Venture 2004).

Upland Habitat Requirements

Upland habitats provide migratory stopover grounds, foraging habitat, and dispersal corridors for non-breeding adults and juveniles of many riparian-associated species. For this reason, the adjacent land cover is a strong determinant of the species composition of a specific habitat area (Appendices A and B). Yellow-billed cuckoos, yellow warblers, common yellowthroats, and song sparrows are among the many riparian-associated species that may forage in upland habitats adjacent to riparian nesting sites (Zeiner et al. 1990a). Upland areas serve both as refugia during floods and as supplemental or primary foraging areas at other times of year. Riparian areas also can support primarily upland nesting bird species for perching, nesting, foraging, and water (Heath and Ballard 2003). Uplands can also be important for juvenile dispersal. For example, in coastal California, juvenile Swainson's thrushes use uplands regularly during the post-fledgling period (PRBO unpublished data). Swainson's hawk is an example of a species that frequently nests in riparian woodlands in the Central Valley but forages in upland habitats consisting of large, flat, open, undeveloped landscapes with suitable grassland or agricultural foraging habitat. Swainson's hawks usually nest in large native trees such as valley oaks, cottonwoods, and willows, although nonnative trees, such as eucalyptus, are also used (England et al. 1997). Other primarily riparian-associated birds that often forage in adjacent, upland habitats include Cooper's hawks, red-shouldered hawks, tree swallows, blue grosbeaks, and American goldfinches (Table 6-1).

Patch Size and Riparian Width Requirements

Numerous studies in North America have demonstrated that breeding bird species richness and abundance are positively correlated with riparian width and patch size—at least for riparian-associated and forest interior species. The following studies from California, other states, and Canada provide examples of the relationships between riparian width and patch size and bird species richness and abundance.

California

- In the California Central Valley, riparian bird species richness increased with the width of the riparian zone (Stralberg et al. 2004 [Appendix B of this report]). Species richness was positively associated with riparian width along mainstem rivers, but not along smaller, tributary streams, with a significant increase in species richness occurring beyond 100 m (Appendix B).
- Also in the Central Valley, the occurrence of three riparian-associated species (i.e., black-headed grosbeak, common yellowthroat, and yellow warbler) also was positively associated with riparian zone width (Appendix B). Black-headed grosbeak presence was positively associated with riparian width at mainstem, but not tributary sites, while the reverse was true for the yellow warbler and common yellowthroat. For all three species, significant increases in abundance occurred when the riparian zone was greater than 100 m in width (Appendix B).
- In the San Francisco Bay Area, bird species richness and density decreased as the number of artificial structures (i.e., bridges) increased and as the volume of native vegetation decreased due to urbanization (Rottenborn 1999).
- In coastal Marin County, the abundance of warbling vireos, Swainson's thrushes, and common yellowthroats increased with the width of the riparian corridor. There was no association between riparian width and bird species diversity or richness (Holmes et al. 1999).
- In the eastern Sierra, bird species diversity was positively correlated with riparian width and tree species diversity (Heath and Ballard 2003).

- In California, Song Sparrows and Spotted Towhees have been observed in strips as narrow as 1 m, and other species have been observed in strips 10 m wide (Soulé 1988, PRBO unpubl. data).

Other States

- Along Oregon's headwater streams, riparian buffers are likely to provide the most benefit to riparian- and forest-associated birds if they are more than 40 m (131 ft) wide (Hagar 1999).
- In eastern Oregon, total abundance of riparian birds was greater in continuous shrub associations than in discontinuous shrub associations (Sanders and Edge 1998).
- In Texas, bird abundance was positively correlated to forest width, and streamside forests more than 50 m (164 ft) wide supported the greatest number of total species; area-sensitive bird species increased in abundance in these forests as widths increased from 25 to 100 m (82 to 328 ft); and narrow riparian strips were usually inhabited only by species associated with early successional vegetation and habitat edges (Dickson et al. 1995).
- In South Carolina, species richness of all birds (including Neotropical migrant birds) increased with the width of riparian stands. Narrow riparian strips (less than 50 m [164 ft] wide) supported an abundant and diverse avifauna, but conservation of wide strips (more than 500 m [1,640 ft] wide) was required to support the complete avian community characteristic of that region (Kilgo et al. 1998).
- In Iowa, bird species richness increased with the width of wooded riparian habitats (from 10 to 200 m [33 to 656 ft]), and area-sensitive species were only present on the widest plots (Stauffer and Best 1980).
- In Pennsylvania, most area-sensitive bird species did not occur in riparian zones less than 25 m (82 ft) wide. However, the presence of very narrow (e.g., 2 m [7 ft]) bands of woody vegetation along streams was found to be important for some bird species in disturbed areas (Croonquist and Brooks 1993).
- In Maryland and Delaware, the species richness of area-sensitive riparian birds increased in width zones between 25 m (82 ft) and 100 m (328 ft), and several Neotropical migrant species were only found in riparian forests more than 100 m (328 ft) wide (Keller et al. 1993).

Canada

- In Alberta, forest-dependent bird species declined as buffer width narrowed from 200 m (656 ft) to less than 100 m (328 ft) (Hannon et al. 2002).
- In Quebec, riparian strips less than 40 m (131 ft) wide had the highest mean bird densities (Darveau et al. 1995).

- In Newfoundland, total numbers of interior forest birds may increase in wider buffers, but these species were rare even in the widest strips sampled (40–50 m [131–164 ft]) (Whitaker and Montevecchi 1999).

Overall, the species richness (i.e., total number of species) and abundance (i.e., number of individuals within a species) of riparian-associated species are highest in wide and continuous riparian corridors; this pattern is especially true for area-sensitive species. The effect of riparian width depends on each species' needs, the riparian habitat type and its historic conditions, and attributes of the surrounding landscape. Fragmentation of riparian woodlands could be especially detrimental to nonmigratory species such as song sparrows and spotted towhees that generally do not disperse over large distances. Even thin strips of connecting habitat, while usually not suitable for nesting, can benefit sedentary species that will not disperse through open habitats (e.g., grasslands or barren areas) (Croonquist and Brooks 1993).

Patch size requirements for each species depend on territory and home range sizes and relative sensitivity to fragmentation (Tewksbury et al. 1998; Riparian Habitat Joint Venture 2004). In planning the conservation of an assemblage of species, those species with greatest sensitivity to habitat fragmentation should be used to set patch size requirements (Tewksbury et al. 1998). In western Placer County, some of the most area-sensitive bird species are raptors (home ranges often larger than 100 ha [247 ac]), yellow-billed cuckoos (home ranges larger than 10 ha [25 ac]), downy woodpeckers, and yellow-breasted chats (home ranges greater than 1 ha [2.5 ac]). These species require relatively large areas of riparian habitat to breed and forage successfully (Table 6-1).

Yellow-billed cuckoo is an example of a species that requires large tracts of late-successional riparian forest for breeding habitat. This species was a rare historical visitor to western Placer County, but it has not been recorded there in many decades (Jones & Stokes 2004a). However, yellow-billed cuckoos are regular breeders in wide riparian forests along the Sutter Bypass, about 12 km (7.5 mi) from the Placer and Sutter county line. Using radio-telemetry, Laymon and Halterman (1987) determined that yellow-billed cuckoos have large home ranges, averaging 17 ha (42 ac). Optimal stands were defined as more than 80 ha (198 ac) in extent and wider than 600 m (1,970 ft), marginal stands as 20–40 ha (49–99 ac) in extent and 100–200 m (328–656 ft) wide, and unsuitable stands as less than 15 ha (37 ac) in extent and less than 100 m (328 ft) wide Laymon and Halterman (1989).

Effects of Human Alterations on Riparian Birds

Habitat Loss and Degradation

In the western United States, approximately 95% of riparian habitats have been lost or degraded due to human activities during the past 100 years (Smith 1977, Ohmart 1994). These habitats represent less than 1% of most western landscapes, yet they provide breeding habitat for more than 50% of bird species in this region (Ohmart and Anderson 1982; Rice et al. 1983; Ohmart 1994; Tewksbury et al. 2002). Throughout the Central Valley and Sierra Nevada foothills, riparian habitats have been reduced to a small fraction of their original extent (Hunter et al. 1997, Riparian Habitat Joint Venture 2004), and those habitats that remain have been fragmented and degraded by a variety of human activities. The primary factors include historical gold mining; heavy livestock use of some riparian corridors; vegetation removal on the floodplain; introduction and spread of noxious weeds; road and home development; alterations in the hydrologic regime caused by hydroelectric and water storage reservoirs; gravel mining; and groundwater extraction (Kondolf et al. 1996).

In western Placer County, riparian woodlands occur as well-developed and continuous stands along depositional reaches of Coon Creek and portions of the Bear River and the American River. Along most other creeks, however, this habitat occurs as narrow and generally discontinuous bands of trees (Appendix A). Riparian woodlands rarely occur on intermittent streams and almost never on ephemeral streams that only flow during storm events. Riparian vegetation occupies about 2,456 ha (6,069 ac), or roughly 2% of the land area, in western Placer County (Jones & Stokes 2004a). Accordingly, it is clear that available riparian habitat has been greatly reduced and fragmented, causing a decline in locally nesting populations and an increased potential for local extirpation.

Riparian areas in western Placer County are increasingly surrounded by urban, rural-residential, and agricultural development. Increased noise levels associated with human activity can cause nest abandonment, flushing from the nest, and consequent nest failure (Delaney et al. 1999). Agricultural activities such as mowing, disking, grazing, pesticide use, and artificial flooding can also reduce the habitat quality if they encroach into riparian woodlands (Ohmart 1994). Fragmentation and degradation resulting from urban, residential, and agricultural land uses has probably reduced the wildlife habitat functions of most riparian areas in western Placer County (Appendix A; Jones & Stokes 2004a, 2004b). Urban development can also result in increased mammalian and avian predator populations and greater exposure to predation pressures, as discussed below.

The species richness and densities of certain riparian-associated birds have been demonstrated to decrease with increasing urban development in the surrounding landscape (Rottenborn 1999; Miller et al., 2003). In the uplands of Placer County's foothill oak woodland zone, several riparian-associated bird species (including black-headed grosbeak) were found at lower relative abundance in fragmented compared to unfragmented oak woodland landscapes (Stralberg and Williams 2002).

Livestock Grazing

Livestock grazing in riparian areas is particularly widespread in the western U.S., especially in dry areas where cattle are attracted to riparian zones for water, shade, and shelter (Bryant 1979). Many native bird species have experienced population declines in grazed or heavily settled riparian areas (Tewksbury et al. 2002). Cattle browse and trample riparian vegetation, compact the soil, promote stream bank erosion and loss of water quality, and they attract brown-headed cowbirds (see below). Intensive grazing often increases the fragmentation and degradation riparian habitats, and this leads to a reduction of bird species richness and abundance. During the breeding season, grazing can be particularly detrimental to bird species that nest on or near the ground because cattle disturb understory vegetation and may directly trample nests and/or fledglings (Bock et al. 1993).

Brown-Headed Cowbird Brood Parasitism

The brown-headed cowbird is a native North American species that expanded its range into California in the early 1900s (Grinnell and Miller 1944). Brown-headed cowbirds parasitize the nests of other native songbirds and reduce their reproductive success (Rothstein 1975, Beedy and Granholm 1985, Zeiner et al. 1990a, Gaines 1992, Lowther 1993). Cowbird parasitism contributes to lowered productivity in host species through direct destruction of host eggs and competition between cowbird and host chicks. Brown-headed cowbirds usually parasitize songbird nests that are situated near forest edges (Rothstein et al. 1984, Gates and Evans 1998). However, more recent studies suggest proximity to (within 3.2 km [2 mi]) and occurrence of host species is much more important than the presence of habitat edges, especially in western riparian habitats (Tewkbury et al.1999).

Cattle grazing and other livestock operations attract brown-headed cowbirds. Human habitation, agriculture, and livestock facilities adjacent to riparian zones provide brown-headed cowbirds with ample foraging habitat close to songbird breeding grounds (Tewksbury et al. 1998, Riparian Habitat Joint Venture 2004). In riparian woodlands of western Placer County, brown-headed cowbirds are most common in disturbed areas and in early successional stands, especially where livestock are present nearby (Appendix A). Radio telemetry studies have demonstrated that brown-headed cowbirds may move more than 6.7 km (4.2 mi) between foraging and breeding areas (Rothstein et al. 1984). Daily commute distances of 14 k or more have been reported cowbird abundance has also been shown to decline with increasing distance from human food sources over distances as short as 2 to 4 km (1.2 to 2.5 mi) (Curson et al. 2000).

Predation

The number of young fledged is probably the most important factor influencing the occurrence and persistence of many songbird species. For most species, nest success rates of 20% or less indicate unsustainable or *sink* populations (Donovan et al. 1995).

Proximity to urban and agricultural areas typically leads to higher densities of predators subsidized by human activity, such as raccoons, skunks, feral and domestic cats, jays, crows, and magpies, all of which are well-documented avian nest predators (Zeiner et al. 1990a). Nest predation rates are higher in narrow riparian buffer strips than in intact riparian forests (Vander Haegen and Degraff 1996 but see Haff 2003). Nest predation is higher in smaller woodlots and woodlots near suburban areas than in woodlots in rural areas, and survivorship of most bird species is higher in large forested habitats (larger than 35 ha [86 ac]) than in smaller habitat areas (Doherty and Grubb 2002). Open-cup nests more than 2 m (7 ft) above ground are most vulnerable to predation (Wilcove 1985). A dense and diverse herbaceous or shrub understory provides both nesting sites and protection from predators; this vegetative layer is especially important for species such as spotted towhees, song sparrows, and common yellowthroats that nest on or near the ground (Riparian Habitat Joint Venture 2004).

In general, “soft” edges (e.g., wetland or herbaceous cover grading to shrubs or scrubby willow grading to riparian woodland) are preferable to “hard” edges (e.g., abrupt changes in vegetation type such as agricultural or urban development adjacent to stream corridors), because predation levels along hard edges are higher (Suarez et al. 1997). Manicured parks, rural homes, dairies, and urban areas adjacent to riparian habitat can attract predators and be detrimental to riparian bird populations (Miller et al. 2003). Feeding of wildlife, either inadvertently or intentionally, encourages and elevates populations of nest predators such as domestic and feral cats that are estimated to kill many millions of songbirds annually (Stallcup 1991) and have a major impact on local bird populations (Churcher and Lawton 1987, Coleman et al. 1997).

Introduction of Non-native Species

Introduction of Himalayan blackberry in riparian corridors has reduced the extent of native herbaceous and shrub vegetation in riparian woodlands of western Placer County (Appendix A). This species is the dominant understory plant along many riparian corridors. Although it is not native, Himalayan blackberry is used for nesting, food, and cover by many birds (e.g., California quail, song sparrows, spotted towhees, California towhees, common yellowthroats, and tricolored blackbirds) (Jones & Stokes 2004a), and it may have beneficial effects on some species. Other nonnative plants, such as yellow star-thistle, acacia, black locust, and eucalyptus (blue gum), can outcompete native trees and understory plants that are favored by most bird species (Jones & Stokes 2004a).

Introduced birds such as European starlings, house sparrows, and wild turkeys are widespread in riparian areas of western Placer County. Starling populations are thought to be increasing in the Sierra Nevada foothills (Purcell et al. 2002) and occur throughout the oak woodland landscape in Placer County (Stralberg and Williams 2002). Starlings and house sparrows often outcompete native cavity nesters for nest sites, and turkeys consume foods that might otherwise be used by California quail and other native species (Zeiner et al. 1990a; Purcell et al. 2002).

Black rats and Norway rats occur in riparian woodlands of western Placer County; they are common along urbanized streams that are dominated by Himalayan blackberry thickets (Appendix A). Introduced rats may have detrimental effects on nesting songbirds because they prey on eggs and young, and because they often carry and transmit diseases (Zeiner et al. 1990b).

Mammals

Habitat Relationships

Numerous mammal species are abundant in the riparian woodlands of western Placer County. Up to 41 species breed in these habitats; two other species use them for shelter or foraging. No mammal species are proposed for coverage under the HCP/NCCP for the Phase I Planning Area (Jones & Stokes 2004a).

Mammal species that are often associated with riparian woodlands of western Placer County include vagrant shrew, ornate shrew, Trowbridge's shrew, broad-footed mole, Yuma myotis, California myotis, western pipistrelle, big brown bat, hoary bat, Townsend's big-eared bat, and pallid bat, brush rabbit, black-tailed jackrabbit, western gray squirrel, beaver, western harvest mouse, brush mouse, deer mouse, dusky-footed woodrat, California vole, muskrat, western jumping mouse, porcupine, coyote, gray fox, long-tailed weasel, mink, ringtail, raccoon, American badger, western spotted skunk, striped skunk, river otter, mountain lion (visitor), bobcat (visitor), mule deer, and wild pig (introduced). All these species also occur in a variety of upland habitats in western Placer County (Jones & Stokes 2004a).

Riparian Habitat Requirements

Mammals use riparian woodlands for all scales of movement—as part of their territories or home ranges; as dispersal corridors; or for short-distance movements between breeding, resting, and foraging areas. Conservation biologists often recommend preserving riparian areas for mammals with large home ranges in part because such areas can also function as corridors for dispersal of species with smaller home ranges in fragmented landscapes (Brinson et al. 2002). However, if a riparian woodland does not meet a species' habitat requirements, it may not be used for dispersal and hence will not provide a suitable corridor connecting habitat patches for many large mammals (Noss et al. 1996; Rosenberg et al. 1997; Brinson et al. 2002).

Like territories and home ranges, dispersal capabilities differ among vertebrate groups and species. Large mammals move over large distances, while most species of small mammals (except bats) are relatively sedentary and make only short-distance movements.

Some mammals, such as the ornate shrew, Yuma myotis, beaver, ringtail, raccoon, and river otter are strongly associated with riparian corridors in western Placer County (Table 6-1). Riparian woodlands are also important for migratory mule deer that forage, breed, and take cover there. A source of surface water (e.g., creek or river) is especially important to deer (Zeiner et al. 1990b).

Upland Habitat Requirements

As is true of many bird species, many riparian-associated mammals also frequent nearby upland habitats; most use these areas for breeding, foraging, and cover (Table 6-1). Thus, the adjacent land cover is a strong determinant of the species composition of a specific habitat area. In general, riparian areas that are adjacent to agricultural or urban development have fewer native mammals and an increased density of introduced species such as house mouse, Norway rat, and black rat (Jones & Stokes 2004a).

Patch Size and Riparian Width Requirements

Darveau et al. (2001) found that some large mammal species using riparian strips in Quebec seemed to prefer narrower riparian buffers, while other small mammals preferred wider strips.

Thin (e.g., 20 m [66 ft] wide) strips that connect larger patches can be used as refugia by small and larger mammals. However, narrow strips do not provide sufficient habitat to support mammal species with large territories and home ranges, because such strips exhibit high edge-to-interior ratios (Darveau et al. 2001). Riparian strips at least 100 m (328 ft) wide have been recommended to maintain riparian-associated small mammals, because the presence of these species has been observed to change little with increased width (Hannon et al. 2002).

In western Placer County, most small mammals (e.g., shrews, rabbits, ground squirrels, tree squirrels, mice, woodrats) have relatively small territories and home ranges (less than 1 ha [2.5 ac]) (Zeiner et al. 1990b). However, a few species of larger mammals (coyotes, gray foxes, mountain lions, bobcats, mule deer) occupy large areas, and their home ranges may cover many square kilometers, encompassing riparian woodlands and adjacent oak woodlands, annual grasslands, foothill chaparral, and other upland habitats. For this reason, the extent and quality of upland habitats surrounding riparian habitats is especially important in maintaining breeding populations of these species.

Effects of Human Alterations on Riparian Mammals

Habitat Loss and Degradation

The effects of human-induced habitat loss and degradation on riparian mammals are similar to those described above for riparian-associated birds.

Livestock Grazing

Intensive grazing often increases the fragmentation and degradation riparian habitats, and this leads to a reduction of mammal species richness and abundance. Livestock grazing in streams and their associated riparian corridors affect small mammal populations through direct disturbance and alteration of habitat conditions such as loss of cover and reduced food materials (Ehrhart and Hansen 1997).

Predation

Predation resulting from fragmentation (edge and patch effects) causes effects similar to those described above for birds.

Introduction of Nonnative Species

Nonnative mammals (e.g., house mouse, black rat, Norway rat, Virginia opossum) occur in riparian woodlands in western Placer County (Jones & Stokes 2004a), and they often outcompete native small mammals for food, breeding sites, and cover. In general, riparian woodlands that are situated near urbanized or agricultural areas support the highest densities of these species. Feral cats are widespread in riparian woodlands of western Placer County (Jones & Stokes 2004a, Appendix A), and they prey extensively on small native mammals (Zeiner et al. 1990b). Nonnative plants such as Himalayan blackberry provide habitat for black rats and Norway rats that that may compete with or prey upon small mammals in riparian woodlands.

Reptiles and Amphibians

Habitat Relationships

Up to 18 species of reptiles and four amphibians breed in riparian woodlands of western Placer County. Three other amphibian species (California newt, Pacific treefrog, and foothill yellow-legged frog) visit these habitats during some portions of their life cycles. Two riparian-associated reptiles (western pond turtle and giant garter snake) and one amphibian (foothill yellow-legged frog) may be covered under the HCP/NCCP for the Phase I Planning Area.

Amphibian species that occur in riparian woodlands of western Placer County include: ensatina, California slender salamander, Pacific treefrog, foothill yellow-legged frog, and western toad. Reptiles that may occur in these habitats include racer, common garter snake, western terrestrial garter snake, western aquatic garter snake, common kingsnake, night snake, ringneck snake, California whipsnake, gopher snake, western rattlesnake, western and Gilbert's skinks, southern alligator lizard, and western fence lizard (Jones & Stokes 2004a).

Riparian Habitat Requirements

Most amphibians and some reptiles are closely associated with riparian areas and their associated water bodies. Few terrestrial vertebrates are as dependent on water as are amphibians, since these species require surface water to complete their life cycles. Frogs, toads, and salamanders occur in riparian areas year-round, and intact riparian areas, upland habitats, and aquatic breeding habitats are essential for their survival (Brinson et al. 2002). Reptiles use riparian corridors for cover, shade, and a source of water. Microhabitats in riparian areas are important in meeting the habitat requirements of amphibians and reptiles, and dense, shaded forest canopies and leaf litter are positively correlated with the abundance of these species in narrow riparian corridors (Rudolf and Dickson 1990).

Upland Habitat Requirements

Similar to birds and mammals discussed above, many riparian-associated amphibians and reptiles frequent nearby upland habitats, and can use these areas for breeding, foraging, and cover (Table 6-1). Accordingly, the adjacent land cover is a strong determinant of the species composition of a specific habitat area. Upland habitats can serve as important refugia for reptile and amphibian species during times of flooding. Aquatic turtles will use upland habitats, including forests and flooded agricultural areas, during the warm months (Bodie and Semlitsch 2000). Several species of lizards associated with the vegetative cover and organic material of riparian forests bask and forage in uplands (Brinson et al. 2002). Many snake species hunt in upland habitats, but they rest in cooler microclimates under dense riparian forests (Zeiner et al. 1988).

Patch Size and Riparian Width Requirements

Most reptiles and amphibians in western Placer County have relatively small home ranges and territories (less than 1 ha [2.5 ac]) (Table 6-1). For example, Pacific treefrogs often move only about 10 m (33 ft), and western skinks have average home ranges of only about 0.09 ha (0.22 ac) (Zeiner et al. 1988). In contrast, western pond turtles breed along slow-moving, permanent streams, and they deposit eggs in nests in sandy soils up to 100 m (328 ft) from the streams (Zeiner et al. 1988). Similarly, giant garter snakes may migrate long distances (more than 100 m [328 ft]) from wetland habitats to upland sites that serve as winter hibernacula (Zeiner et al. 1988). Semlitsch and Bodie (2003) recommended a three-tiered approach to conserving habitat for riparian-associated amphibians and reptiles: aquatic buffer (30–60 m [98–197 ft]), core habitat (142–289 m [466–948 ft] including aquatic buffer), and terrestrial buffer (additional 50 m [164 ft] beyond the core habitat to account for the needs of most reptile and amphibian species).

Effects of Human Alterations on Riparian Reptiles and Amphibians

Changes in Flows

Flow diversions or increased streamflows in summer due to water supply and/or releases of treated sewage water could possibly affect amphibians by stranding of tadpoles, washing away or desiccating egg masses, or increasing predation. These effects have been documented for salmonids and foothill yellow-legged frogs (Bauersfeld 1978; National Marine Fisheries Service 1994; U.S. Fish and Wildlife Service 1995, 1996; Kupferberg 1996a; Lind et al. 1996). Water diversions for agriculture also have the potential to entrain tadpoles and other amphibian larvae into irrigation ditches, causing direct mortality. In general, flow and depth affect habitat suitability for riparian-associated amphibians, and reduced flows may confine larvae in remaining pools where they are more susceptible to predation (Hayes and Jennings 1986, 1988).

Habitat Loss and Degradation

In general, the effects of anthropogenic habitat loss and degradation on riparian reptiles and amphibians are similar to those described above for riparian-associated birds. However, inputs of fine sediment from adjacent land uses may also detrimentally alter the aquatic habitats of amphibians (Ashton et al. 2003).

Livestock Grazing

Livestock grazing in riparian corridors affects reptile populations through direct disturbance and alteration of habitat conditions. However, these effects may not result in differences in reptile and amphibian species richness or abundance between grazed and ungrazed sites (Homyack and Giuliano 2002).

Predation

Predation as a result of fragmentation (edge and patch effects) probably is greater in agricultural and urbanized areas than in riparian forests surrounded by oak woodlands or other upland habitats. The introduced bullfrog is a major predator of adult and larval amphibians (see discussion below).

Introduction of Nonnative Species

Bullfrogs are the only introduced, nonnative amphibian species in western Placer County. They were observed on about 25% of the riparian plots that were surveyed in the course of this study (Appendix A). Bullfrogs frequently prey on the larvae and adults of native amphibians, and they compete with native amphibians for space and food (Zeiner et al. 1988). Bullfrogs may be responsible for the elimination of California red-legged frogs and foothill yellow-legged frogs from the floor of the Central Valley and much of the Sierra Nevada foothills (Moyle 1973; Kupferberg 1996b). There are no introduced reptiles in western Placer County (Jones & Stokes 2004a).

Relationships Between Setback Width and Effects of Human Alterations

Some effects of human-induced alterations (e.g., abrupt flow changes) do not vary with riparian width, and their effects on terrestrial vertebrates are not well understood. However, many other relationships between riparian area width and animal diversity have been well documented. The effects that are most strongly related to setback width and the total area of riparian plots are direct habitat losses and fragmentation of riparian corridors. Many riparian species require a minimum area of contiguous habitat that must contain specific habitat attributes (e.g., interior forest microclimate, upland refugia, large trees, snags). In order to conserve wildlife habitat functions, the width of riparian areas must be sufficient to contain these habitat attributes for area-sensitive species.

Habitat requirements vary considerably among various riparian-associated vertebrate taxa. However, the following general conclusions can be made regarding the relationship of habitat values to width and size of riparian areas in western Placer County.

- Large (more than 10 ha [25 ac]) and wide (more than 500 m [1,640 ft]) riparian corridors provide the highest habitat values for riparian-dependent wildlife with large home ranges and territories.
- Moderately large (5–10 ha [12–25 ac]) and wide (more than 100 m [328 ft]) corridors provide sufficient habitat values to support most native species that are strongly associated with these habitats.

- Small (less than 5 ha [12 ac]) and narrow (less than 30 m [98 ft]) riparian corridors provide habitat values for many species, but most area-sensitive species will probably not be present.
- Highly fragmented and narrow riparian corridors (< 5 m [16 ft]) provide habitat for only a few generalist species, but they may still provide some values for cover and as movement corridors in urbanized and agricultural areas.

Recommendations for Setbacks to Conserve Terrestrial Animal Functions

In view of the foregoing, the project team recommends the following management strategies to conserve wildlife habitat functions.

- Low order streams (i.e., first and second order stream segments), which typically have narrow riparian corridors, should be managed to maintain and enhance riparian corridors at least 30 m wide. Where only very narrow (e.g., < 5 m [16 ft] wide) riparian corridors are feasible, these narrow areas should still be conserved because they may function as dispersal corridors.
- Higher order stream segments (i.e., third order and higher), which often have broader riparian corridors, should be managed to maintain and enhance riparian corridors at least 100 m (294 ft) on both sides of the channel (Semlitsch and Bodie 2003, Appendix B). Riparian woodlands should be restored and enhanced within this zone. Restoration and enhancement measures should include:
    - Re-creation of regular disturbance events (e.g., high water) on the floodplain will enhance vegetation and breeding bird populations in most systems (Riparian Habitat Joint Venture 2004).
    - Management activities such as mowing, grazing and burning within riparian zones should be limited to the non-breeding season to minimize impacts on nesting birds (Riparian Habitat Joint Venture 2004).
    - Other recommendations listed in (Riparian Habitat Joint Venture 2004).
- Where feasible, contiguous areas larger than 5 ha (12 ac) should be maintained, enhanced and linked to provide habitat refuge areas for area-sensitive species. These areas should be connected by riparian corridors more than 30 m (98 ft) wide on both sides of the channel wherever possible, in order to provide movement and dispersal corridors for wildlife.
- Where large, wide riparian corridors are not feasible in urbanized and/or agricultural settings, a minimum riparian buffer width of 10 m (33 ft) should be maintained to provide movement corridors for generalist species (Riparian Habitat Joint Venture 2004).

- Riparian woodland edges should be minimized (e.g., patches rather than linear strips) and buffered by shrubs and forbs (to reduce predation pressure on open-cup nesting species (RHJV 2004, Small et al. 1999).
- Streams should be prioritized for preservation and/or enhancement based on the information summarized herein. Some streams currently have higher wildlife value than others (e.g., Coon Creek) and should be the conservation priority.
- Non-native plants and animals, especially nest predators (e.g. rats, raccoons, domestic and feral cats), should be reduced and controlled on riparian-adjacent properties (Riparian Habitat Joint Venture 2004).
- The preservation, restoration and linkage of large parcels of undeveloped and uncultivated lands adjacent to riparian areas will provide significant benefits to riparian songbird species. Thus, large contiguous areas of riparian vegetation surrounded by "natural" uplands should be conserved to the greatest extent possible.
- Potential effects of adjacent land uses on riparian areas should be thoroughly evaluated during regional land use planning, and during the environmental review and permitting processes for specific projects, and these effects should be avoided to the maximum extent practicable.

It is important to recognize that riparian setbacks are not sufficient to ensure habitat functions for all wildlife species. Many factors affecting wildlife habitats are unrelated, or only indirectly related, to setbacks; such factors include the condition of the riparian vegetation and the abundance of nonnative plants and animals. Landscape factors can have significant effects on riparian areas (Allan 2004, Appendices A and B of this report). For example, adjacent land uses, such as intensive grazing, human habitation, golf courses, and agriculture, can significantly subsidize predator populations that can then turn to the riparian zone for sustenance (Riparian Habitat Joint Venture 2004).

Currently, most riparian areas in western Placer County have been affected by human alterations. Even where moderately wide sections (i.e., more than 100 m [328 ft]) of riparian vegetation remain, wildlife habitat functions and species richness and abundance may be reduced compared to large and wide riparian corridors that are surrounded by native vegetation (Appendices A and B). Therefore, conservation of wildlife habitat functions in western Placer County's riparian areas will require the implementation of measures involving the management of adjacent land uses as well as streams and riparian vegetation within defined setbacks.

Chapter 7
Overall Recommendations for Riparian Setbacks

Riparian setbacks should be adequate to provide long-term conservation of riparian and stream functions in western Placer County. However, while width criteria for setbacks are particularly important, other criteria should address the compatibility of existing and future land uses within these setbacks with the conservation of riparian and stream functions. Setbacks are essential for the conservation of riparian and stream functions, but they are not in themselves sufficient to ensure successful conservation of these functions. For this reason, additional measures also will be necessary to conserve these functions.

Conclusions Regarding Riparian and Stream Functions

Based on the review and analysis of riparian and stream functions, the effects of human alterations on such functions, and the relationships between these effects and setback widths, the project team identified the following 10 conclusions that are particularly relevant for setback criteria.

- Stream channels move within their active floodplains.
- Changes in runoff and erosion from uplands affect hydrologic and biogeochemical functions of streams.
- Patterns of groundwater flow affect biogeochemical functions (e.g., nitrate and phosphorus removal, degradation of SOCs); these patterns can be complex in both active and historic floodplains.
- Erosion of sediment is a major pathway by which contaminants enter streams.
- Sediments stored on active floodplains may remain there temporarily until floodwaters carry them into stream channels.
- Periodic floodplain inundation is important for salmonid and riparian plant habitat functions.
- Riparian vegetation is dynamic: it is frequently removed by disturbances, grows rapidly, and is sensitive to water availability.

- All riparian and stream functions are affected by artificial structures, impervious surfaces, ground disturbance, and removal of natural vegetation within stream channels or active floodplains.
- Riparian-associated wildlife species differ in the specific habitat attributes they require in riparian systems. Consequently, structurally diverse vegetation, as well as the full range of naturally occurring physical conditions and disturbance regimes, are necessary to provide suitable riparian habitat for the entire community of associated wildlife species.
- Many riparian-associated wildlife species use, and often require, both riparian and adjacent upland habitats for reproduction, cover, and/or foraging.

Rationale for Including Active Floodplains in Setbacks

These conclusions regarding riparian and stream functions, considered collectively, indicate that most human uses of the active floodplain are not compatible with conservation of riparian functions, because the stream and its floodplain represent an integrated system that, when intact, produces riparian functions. Accordingly, development and encroachment setbacks should include the entire active floodplain of a creek or river. (The active floodplain is the geomorphic surface adjacent to the stream channel that is typically inundated every 2-10 years or less.)

These conclusions also indicate that active floodplain boundaries are more stable and measurable than stream banks or the boundaries of riparian vegetation that are dynamic and change with time. Therefore, the boundary of the active floodplain, which can be readily delineated, is a preferable basis for determining setback widths than are the edges of stream banks, stream centerlines (or thalwegs), or any boundaries based exclusively on channel widths or vegetation.

Rationale for Including Lands Adjacent to Active Floodplains in Setbacks

The conclusions regarding riparian and stream functions indicate that lands adjacent to active floodplains provide physical and habitat functions, and they help to buffer streams from excessive inputs of sediment and contaminants. In general, conservation of most terrestrial wildlife functions depends on the inclusion of land beyond the active floodplain to provide adjacent upland habitats that benefit many riparian-associated wildlife species, and to buffer riparian habitats from the effects of adjacent land uses.

In western Placer County, riparian vegetation currently provides wildlife habitat outside the active floodplains of rivers and creeks. Such vegetation can occur on historic floodplains that have become isolated from streams due to changes in flows and channel form. Construction of levees or berms also causes isolation of riparian vegetation. Some of this adjacent vegetation would be within setbacks that include land outside the active floodplain. Adjacent lands would also buffer riparian and stream ecosystems from inputs of sediments and contaminants through infiltration of runoff and retention of sediment. Along the smallest channels, whose floodplains are very narrow (or essentially absent), this additional buffer is necessary to prevent inputs from entering the stream channel directly.

There is no single, abrupt, well-documented threshold width setback that would provide maximum benefits for all riparian functions. Rather, because riparian functions have different mechanistic bases, they are affected by different site attributes, and the relationship between setback widths and reduction of human effects differs among riparian functions. These relationships are described in detail in Chapters 2-6.

Nevertheless, several defensible arguments can be constructed regarding the appropriate width for a buffer to include within riparian setbacks. First, most riparian functions would be affected if setbacks included a buffer of less than 20 m (66 ft) beyond the active floodplain; consequently, narrower widths are not adequate for long-term conservation of riparian functions. This conclusion is based largely on our review of the scientific literature (summarized in Chapters 2-6). In addition, in western Placer County, stream incision and a discontinuous cover of woody plants reduces the benefits of narrow buffers. Recent incision now restricts the active floodplain to a narrow band along many of the higher order stream segments in western Placer County (Jones & Stokes 2004c, Placer County Planning Department 2002). Thus, a narrow setback would not include large areas of riparian vegetation on the historical floodplain. Also, the riparian vegetation of western Placer County has a lower and more discontinuous cover of trees and shrubs than do many of the sites where research has been conducted (Appendix A). For many functions (e.g., cover for terrestrial wildlife), this variability in vegetation extent and structure reduces the effectiveness of narrow setbacks.

Second, while there is evidence that even buffers wider than 30 m (98 ft) are not sufficient to eliminate detrimental effects altogether, the benefits provided by additional width beyond 30 m (98 ft) are either small or represent diminishing returns for most functions. For example, in western Placer County, riparian (and most upland) trees reach only 20-30 m (66-98 ft) in height. Thus, at distances > 30 m (98 ft) trees provide very little woody debris to stream ecosystems, and cast little shade on streams.

Third, unlike most other functions, the conservation of wildlife habitat functions for some area-sensitive species requires buffer areas substantially wider than 30 m (98 ft) beyond the active floodplain. This is illustrated by the summary in Table 6-1 of the habitat requirements and area requirements of riparian-associated wildlife in western Placer County. Significantly, wildlife habitat functions also differ from most other functions because the setbacks necessary to conserve them do not necessarily have to be applied along the entire stream network in order to be beneficial. Most wildlife habitat functions probably could be conserved in western Placer County by means of extensive sites with wider setbacks (> 100 m [328 ft]) connected by stream corridors with narrower setbacks (e.g., 30 m [98 ft]).

Recommendations for Riparian Setback Widths in Western Placer County

The project team's overall recommendations for riparian setbacks are presented below.

- Apply to first and second order stream segments a minimum riparian setback that includes the entire active floodplain plus a buffer of 30 m (98 ft) of adjacent land (on each side of the active floodplain), or the distance to the nearest ridgeline or watershed boundary, whichever is less. (First order stream segments are upstream segments that have no tributaries, and second order segments are formed by the junction of first order segments.) Though the purpose of this setback would be to conserve stream and riparian functions; it would not be sufficient for the conservation of many wildlife species with large area requirements.
- Along higher order stream segments (i.e., third order and greater), and along lower order segments at selected sites (e.g., those in or adjacent to conservation lands), apply a setback of at least 100 m (328 ft), and preferably 150 m (656 ft), from the active floodplain for the purpose of conserving and enhancing stream and riparian ecosystem functions including most wildlife habitat functions. Along these larger stream segments, floodplains and riparian areas are more extensive, continuous, and structurally diverse than for lower order stream segments (e.g., first and second order). These areas constitute corridors connecting a watershed's lower order stream segments, and, at a watershed scale, the riparian areas of these higher order segments contain particularly important habitats for most riparian-associated species. The conservation of wildlife habitat functions within these areas may be necessary for the persistence of their populations within western Placer County. For this reason, a wider setback, sufficient for the retention of wildlife habitat functions, is recommended along these stream segments.

The team estimates that these recommendations would result in a total setback width ranging from slightly more than 30 m (98 ft) on most first- and second-order stream segments to over 150-200 m (492-656 ft) on higher-order streams near Placer County's western boundary. (Widths > 150 m (656 ft) would be associated with the 150 m setback suggested for higher order stream segments in the overall recommendation above.) This estimate is based on a preliminary examination of riparian vegetation as shown on aerial photographs and of mapped alluvial soils; such soils indicate the extent of the historic floodplain, which in many cases is wider than the current active floodplain. The project team did not measure active floodplains in the field. However, widespread incision limits active floodplains to a fraction of the historical floodplain of along several of the larger streams (Jones & Stokes 2004c, Placer County Planning Department 2002).

By basing these recommendations, in part, on the width of active floodplains, the project team has created a variable, site-specific setback width that accounts for stream size. The width of the active floodplain provides a clear, functional basis for a variable width criterion that accomplishes the same purpose more directly than criteria based on stream order, slope, and other attributes of streams and their settings.

Management Recommendations for Riparian Setbacks

Within these setbacks, most developed land uses would be incompatible with the conservation of stream and riparian functions. Within the active floodplain, developed land uses should be restricted to unavoidable crossings by roads and other infrastructure, because any structures or alterations of topography, vegetation or the soil surface are likely to affect both stream and riparian functions, and could result in substantial effects both on-site and downstream.

Within the portion of a setback that is outside of the active floodplain, some uses could be compatible with conservation of riparian functions, particularly along first- and second-order streams where conservation of salmonid and wildlife habitat are not necessarily the primary objectives. Along first- and perhaps second-order streams, compatible agricultural uses include filter strips and riparian buffers managed according to standards established by the National Resources Conservation Service. Such practices would improve the buffers' effectiveness for conserving some functions; additionally, there are programs that subsidize the establishment and maintenance of such practices. Along first- and perhaps second-order streams, compatible developed land uses could include public open space, landscaping, and low-density residential development, provided that no impervious surfaces, infrastructure, or irrigation are placed within the setback.

Within the wider setbacks for wildlife conservation, some additional development > 30 m (98 ft) from the active floodplain could be incorporated at sites with limited conservation value. Though development within these setbacks generally is not compatible with the conservation of wildlife habitats, extensive areas of developed and agricultural lands already exist along streams in western Placer County. Thus, effective conservation of some sites may be very problematic, and it may be more appropriate to mitigate offsite for the loss of habitat caused by development of these sites, than to preclude this development (and thus potentially cause the loss of habitats elsewhere). Such mitigation could contribute to the conservation of more extensive areas along relatively unaltered stream reaches.

In the absence of additional site-specific information, effects on riparian wildlife habitats due to adjacent development could be considered to diminish with distance from the active floodplain or existing riparian area. Effects would be greatest due to development of immediately adjacent land and would drop to minimal levels at 100-200 m (328-656 ft) away. There are several reasons for considering effects to be related to distance. First, the magnitude of effects on the processes sustaining riparian habitats diminishes with distance. Second, most riparian-associated wildlife species also use upland habitats and the area of adjacent uplands is greater when development is more distant. Third, harm and harassment due to pets and people probably diminishes with distance. Fourth, roads and structures are less likely to affect animal movements along the riparian corridor if at a greater distance from it. These and other relevant mechanisms are described in detail in Chapters 2-6 of this report.

Currently, agricultural and developed land uses exist within the recommended setbacks, and they preclude the effectiveness of the recommended setbacks in these areas. For example, along the major streams of western Placer County, approximately a quarter of the land < 20 m (66 ft) from the centerline of a stream, already is in developed or agricultural land-cover (Jones & Stokes 2004a, 2004b). For some functions (e.g., biogeochemical and hydrologic functions), this limitation cannot be offset by establishing wider setbacks in other areas (Weller et al. 1998).

In addition, there are other, more fundamental limitations on the effectiveness of setbacks for conserving riparian and stream functions. Examples of these limitations include the effects of dams and flow diversions, currently abundant nonnative species, mercury from the Gold Rush era already in riparian and stream sediments, and runoff that bypasses riparian areas by passing through the stormwater system directly into streams. Also, conversion of large portions of a watershed or region to developed and agricultural land uses is associated with broad negative effects on riparian and stream ecosystems (Findlay and Houlahan 1996, Roth et al 1996, Booth and Jackson 1997, Magee et al. 1999, Doyle et al. 2000, Paul and Meyer 2001, Allan 2004, Hatt et al. 2004, Pellet et al. 2004, Wissmar et al 2004, and Appendices A and B of this report).

Addressing these and other effects on riparian and stream functions will require additional conservation measures. These additional measures include measures for the:

- design and operation of stormwater and water supply systems to minimize impacts on hydrologic and geomorphic functions;
- implementation of construction and agricultural Best Management Practices (i.e., BMPs) to prevent excessive erosion and high inputs of fine sediments to floodplains and streams.

- maintenance and enhancement of riparian vegetation and it's habitat values (as described in Chapter 6); and
- preservation of extensive areas of natural vegetation, particularly in and adjacent to riparian corridors.

The implementation of such measures would both complement, and greatly enhance, the benefits provided by riparian setbacks for the conservation of stream and riparian functions.

Chapter 8
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Appendix A

Relationships Among Animal Species and Site Attributes in Riparian Ecosystems of the Sacramento Valley, California

Relationships Among Animal Species and Site Attributes in Riparian Ecosystems of the Sacramento Valley, California

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Summary

This report summarizes the relationships between riparian site attributes and biodiversity in the data sets collected in Tasks 2.8 (Evaluation of Habitat Assessment) and 2.10 (Validate RAP and Habitat Assessment) for the Placer County Riparian Ecosystem Assessment. More specifically, for one-hectare (2.5 acres) plots located in riparian corridors of the Sacramento Valley and adjacent foothills, we describe the relationships between species richness (i.e., number of species) of selected taxonomic groups (i.e., birds, mammals, reptiles, amphibians, butterflies, dragonflies, and damselflies) and measured vegetation and land cover attributes. The primary goals for collecting and analyzing these data were to support the development of a functional assessment model (FAM) for riparian habitats in Placer County, and to provide setback guidance for riparian corridors in western Placer County. The key results of the study were:

- vertebrate data from multiple site surveys provide a much stronger basis for assessing a riparian site than do data from a single site visit;
- non-destructive area searches for mammals, amphibians, and reptiles were not effective rapid assessment survey techniques, even with the placement of cover boards to provide artificial shelter for these species;
- for the 50 riparian sites surveyed, species richness was not strongly correlated among the different taxonomic groups, nor was the width or structure of the riparian vegetation strongly correlated with richness for any taxonomic group; however
- land cover in the vicinity (i.e., within 250 meters to 5 kilometers) of plots was related to the species richness of several taxonomic groups we examined, and in some cases, these relationships were strong.

These results have implications for the development of a riparian FAM and for guidance regarding riparian setbacks. However, they should be interpreted with caution since they were based on a small sample size (e.g., only 12 plots were visited for multiple surveys), a large geographic area was covered, and only presence data were collected for species in each taxonomic group. (In addition, several published studies are not consistent with some of our conclusions.) Assessment of overall riparian habitat functions should not be based on a single taxonomic group because none indicates the overall habitat functions provided by a site and responses vary within each taxonomic group. Also, assessments of habitat values should consider, attributes of surrounding land cover, in addition to attributes of the riparian vegetation itself. Similarly, the basis for setback widths should consider the upland habitat requirements of riparian species and the effects of adjacent upland land uses on riparian habitat, as these factors have

significant relationships with species richness of riparian-associated species for at least several taxonomic groups (e.g., birds, dragonflies, and butterflies). Separate technical reports will propose a draft FAM and will provide guidance regarding riparian setbacks. The implications of this study will be considered more fully in these reports.

Relationships Among Animal Species and Site Attributes in Riparian Ecosystems of the Sacramento Valley, California

Introduction

This report summarizes the results of Tasks 2.8 (Evaluation of Habitat Assessment) and 2.10 (Validate RAP and Habitat Assessment) of the Riparian Ecosystem Assessment that Jones & Stokes is conducting for the Placer County Planning Department, with assistance from the Point Reyes Bird Observatory (PRBO). These tasks were intended to support development of assessment techniques, preparation of a functional assessment model (FAM) and summarizing setback guidance for the riparian corridors of western Placer County. These tasks involved collection of data on species presence and site attributes at a random sample of riparian sites in Placer County and throughout the Sacramento Valley. Task 2.8 consisted of a field and geographic information systems (GIS) assessment of 47 sites. Task 2.10 consisted of additional, more intensive, data collection (including multiple surveys) at 12 of these sites.

Our analyses of these data focused on the relationships typically serving as the basis for setbacks and indicator-based assessments. Some FAMs base their measures of terrestrial habitat functions on the presence of selected taxa (e.g., bird species) that are presumed to indicate habitat suitability for other taxonomic groups. However, most FAMs are based on a combination of site attributes that are predicted to influence habitat area or quality for most species. The widths of riparian setbacks that are intended to conserve habitat functions are based on the relationships between species presence and the area of habitat types and the potential influence of adjacent land uses. Therefore, we examined criteria for assessments and setbacks by comparing the relationships among the species richness of taxonomic groups and their relationships to measured site attributes. Our general hypotheses were:

1. The number of riparian–associated bird species (riparian bird species richness) is positively associated with the species richness of other vertebrates and of invertebrates (i.e., bird species richness is a valid indicator of overall biodiversity);

For all taxonomic groups:

2. Species richness increases with the width of riparian vegetation;

3. Species richness increases with the cover of woody plants (i.e., trees and shrubs) in the riparian vegetation;
4. Species richness increases with the total area of riparian vegetation in a plot and its surrounding landscape;
5. Species richness increases with the proportion of surrounding land area in natural vegetation; and
6. Species richness is negatively associated with the proportion of developed and agricultural land uses in the surrounding landscape.

For our analysis of birds and butterflies, we included only riparian-associated species, which are presumably more responsive to riparian site attributes than other species that may use a range of habitat types, including riparian. We considered riparian-associated birds and butterflies to be those species that in the Sacramento Valley and adjacent foothills are primarily associated with riparian vegetation (Tables 1 and 2). These lists were determined prior to field work on the basis of relevant literature (Pool and Gill 1990–2003) and our professional judgments; the draft bird list also was revised in response to comments by PRBO ornithologists.

Methods

In addition to the following summary, our sample design and data collection methods were described (in more detail) in the sample design memo and field protocols provided to the Placer County Planning Department in 2003 (Appendix A).

Sample Design

Study site locations (plots) were a stratified random sample of existing PRBO point count survey sites along tributary streams in the Sacramento Valley where information regarding riparian corridor width was available and site access was know to be possible. Additional plots in Placer County were also included in cases where permission to enter private lands had been granted. Although not along a tributary stream, PRBO sites along the Cosumnes River were included in the list of potential plots because this area was considered reasonably similar to many of the included tributary streams in its riparian attributes. This set of potential plots was stratified on the basis of riparian corridor width. Data from PRBO records, digital aerial photographs, and a draft land cover map of Placer County were used to assign each plot to a width category. These categories were: 0–20 meters (m), >20–40 m, >40–60 m, >60–100 m, and >100–200 m. From each width category, ten plots were randomly selected, each at least 500 m from all other selected plots.

Sample size was limited by access to suitable survey sites and the available budget. On this basis, we estimated the maximum sample size would be 50 plots.

The power associated with this sample was sufficient to identify correlations between variables (power > 0.8 for even small values of *r*); however, it was of more marginal size for the application of multivariate analyses, such as multiple regression analyses. Statistical power is the ability of a statistical test to the identify relationships and differences that exist (i.e., it is the ability to reject the null hypothesis of no difference or association when it is incorrect).

From those plots located on Placer County, public or Nature Conservancy properties, 12 were randomly selected as more intensive data collection plots, each at least 5 kilometers (km) apart. At these plots, in addition to the data collection taking place at other plots, the following surveys were performed: small mammal trapping; placement of cover boards that might be used as artificial shelters for amphibians and reptiles; and multiple surveys for butterflies and vertebrate groups. These data collection plots were included in the study, despite their cost, to allow the value of this additional data to be evaluated. However, for these additional data, the small sample size substantially limits the analyses that can be applied, the power of these analyses, and thus the conclusions that can be drawn from the data. For example, the power associated with data from these 12 plots was only sufficient for the identification of strong correlations (i.e., *r* values > 0.7), and important combinations of site attributes had few or no replicates.

During our study, access or scheduling difficulties prevented most data collection at three plots, and seven plots were not surveyed for odonates. Thus, sample sizes were reduced to $n = 47$ and to $n = 43$ for odonates.

Field Data Collection

A 1-ha plot (100 m by 100 m) was located along the bank of the stream channel at all of the study sites. These plots contained riparian vegetation, and most also contained other natural, or agricultural or developed land-cover. For each plot, information on site attributes was recorded and area searches were conducted for vertebrate and invertebrate species.

The site attributes recorded in the field included: onsite infrastructure, disturbance, vegetation, surrounding land use, and evidence of overbank flows (Appendix A). Presence of infrastructure (roads, bridges, levees, or bank protection) and evidence of disturbance (grazing, trash dumping, cutting of trees and shrubs, etc.) were recorded for the riparian and non-riparian portions of the plot and for lands within 250 m of the plot. (The riparian portion of the plot was defined as the zone covered by riparian trees and shrubs.) For the riparian vegetation within the plot, we recorded its width along the stream (at the plot’s edges and center), cover of the tree, shrub and herb layers, and the cover of each woody species, as well as snag density, and predominant tree size class. We also recorded the length and continuity of riparian vegetation along the stream corridor, and estimated the percent of adjacent land (within 250 m) that was in natural vegetation, agricultural, and developed land cover types.

Standardized, time-constrained area searches (Ralph et al. 1993) were conducted separately for vertebrate and invertebrate species (see Appendix A for protocols). For vertebrates, searches of the entire plot were conducted for one hour (between 6 and 11 a.m.) on one day between mid-May and mid-June, 2003. However, at 12 intensive data collection plots we conducted area searches four times at approximately one-week intervals from mid-May to July 1. During the area searches, we recorded all species observed, and species for which scat or tracks were observed, and noted whether the species was observed in the riparian or non-riparian portions of the plot. Woody debris and rocks were not disturbed to avoid degrading habitat. For birds, we also recorded total numbers of individuals and observed behaviors (e.g., territorial displays, carrying food or nesting material, or observation of nests). Observed behaviors (and presence of nests or fledglings) were used to identify potential residents, and the number of potential resident species among riparian-associated birds was included in the analysis. Point counts (Point Reyes Bird Observatory 2003) also were conducted at plots in Placer County because no PRBO point count data existed for those locations.

Each plot was also surveyed twice for butterfly species, once during May 15–30 and again during June 2–14, 2003 and most plots (43 of 47) were surveyed once for odonates (i.e., dragonflies and damselflies) during August 19-29, 2003. These searches were conducted between 9 a.m. and 4 p.m. because of the daily flight activity patterns of these animals. As with the vertebrate area searches, the odonate and first butterfly surveys at each site were one hour long and each observed species was recorded. For butterflies, the number of observed individuals also was recorded. Based on the results of the first butterfly survey and to reduce costs, the second survey at each site was shortened to 50 minutes. (This caused no complications for the testing of our hypotheses because each site received equal survey effort.)

Small mammal live-trapping was also conducted at the 12 intensive data collection sites. Along the length of the plot's streambank side, 15 Sherman live traps were evenly spaced. An additional 15 traps were placed along a second line 10 m away and parallel to the first trap line. Each trap was baited with peanut butter and rolled oats, and a wad of cotton was placed at the back of each trap for bedding. These traps were set within 2 hours of sunset and checked within 3 hours of sunrise on three consecutive nights between June 10 and July 3, 2003.

At the 12 intensive data collection sites, cover boards also were placed within plots (Fellers and Drost 1994). These cover boards were approximately 0.9-m by 0.6 m pieces of 1.9 centimeters (cm) thick plywood. Along the length of the plot's streambank side, 10 cover boards were evenly spaced. An additional 10 boards were placed along a second line 10 m away and parallel to the first. These boards were lifted during each area search to determine the presence of amphibians and reptiles.

Geographic Information Systems Data Collection

In addition to site attributes recorded in the field, GIS data layers were used to estimate the area of four land cover types within 250 m, 1 km, and 5 km of each plot center including: riparian vegetation, natural vegetation (including riparian), developed, and agricultural land cover types. For this analysis, we used the best available data for each plot's location in the Sacramento Valley. These land cover data were from the California Department of Fish and Game's Wetland and Riparian GIS Mapping Layers (Ducks Unlimited 1997), Sacramento River riparian vegetation (California Sate University Chico 1998), U.S. Forest Service existing vegetation (U.S. Forest Service 1999–2000), California Department of Water Resources' land use layer (California Department of Water Resources various years), and the Draft Land Cover Map of Western Placer County (Jones & Stokes 2004). The process by which a single coverage was produced from these data sources involved converting each data source from its vector format to a 31 m grid. For tabulating the area of riparian vegetation within 250 m, 1 km and 5 km, cells attributed as riparian in any of the data layers were counted as riparian. Surrounding land use information was calculated from the California Department of Water Resources land use layer. This layer was a composite of counties that were photographed and mapped in different years. The land use categories in this layer were aggregated into three broad categories: natural vegetation, and agricultural and developed lands.

Data Analysis

Our data analysis consisted of summarizing the data sets and testing our six general research hypotheses. In evaluating these hypotheses, we used scatter plots, correlation coefficients, and simple or multiple stepwise regression models (Sokal and Rolf 1994). All statistical analyses were performed with the S-Plus statistical software package (MathSoft, Inc. 1999).

We evaluated our hypotheses with respect to eight species groups: 1) All bird species; 2) Riparian-associated bird species; 3) All mammals; 4) Small mammals; 5) All amphibians and reptiles; 6) All butterflies; 7) Riparian-associated butterflies; and 8) all odonates. For all of these groups (except small mammals), species richness (i.e., number of species) was used as the measure of the habitat provided for that group at an individual site. In other words, species richness was analyzed with respect to the amount, quality and diversity of habitat. Density of trapped individuals was the metric used for small mammals.

Our conclusions were based on the results of these analyses, consideration of the data's limitations (due to methodology and sample size) and a review of applicable scientific literature.

Table 1. Riparian-Associated Birds of Western Placer County

Common Name	Scientific Name
Cooper's Hawk	*Accipiter cooperii*
Red-shouldered Hawk	*Buteo lineatus*
Swainson's Hawk	*Buteo swainsoni*
Black-chinned Hummingbird	*Archilochus alexandri*
Downy Woodpecker	*Picoides pubescens*
Western Wood Pewee	*Contopus sordidulus*
Willow Flycatcher	*Empidonax traillii*
Pacific-slope Flycatcher	*Empidonax difficilis*
Warbling Vireo	*Vireo gilvus*
Tree Swallow	*Tachycineta bicolor*
House Wren	*Troglodytes aedon*
Yellow Warbler	*Dendroica petechia*
Common Yellowthroat	*Geothlypis trichas*
Yellow-breasted Chat	*Icteria virens*
Song Sparrow	*Melospiza melodia*
Black-headed Grosbeak	*Pheucticus melanocephalus*
Blue Grosbeak	*Guiraca caerulea*
American Goldfinch	*Carduelis tristis*

Table 2. Riparian-Associated Butterfly Species

Common Name	Scientific Name
Sara Orange-tip	*Anthocaris sara*
Pipevine Swallowtail	*Battus philenor*
Lorquin's Admiral	*Limentis lorquini*
Mourning Cloak	*Nymphalis antiopa*
Two-tailed Swallowtail	*Papilio multicaudatus*
Western Tiger	*Papilio rutulus*
Umber Skipper	*Paratrytone melane*
Green-veined White	*Pieris napi*
Satyr Comma	*Polygonia satyrus*
Sylvan Hairstreak	*Satyrium sylvinus*
Red Admiral	*Vanessa atalanta*
California Dogface	*Zerene eurydice*

Prior to calculating correlation coefficients or constructing regression models, variables were transformed to improve normality and homogeneity of variances. Percents were arcsine transformed, areas and widths were log transformed, and count data were square root transformed (Sokal and Rolf 1994; Zar 1999). Correlation coefficients were used to evaluate the magnitude and significance of relationships between pairs of variables. (Magnitude is the degree that two variables co-vary, while significance indicates that the correspondence is unlikely to have occurred by chance.) We used these coefficients to evaluate relationships among plot attributes, the different species groups, and between species groups and plot attributes.

Regression models were also used to evaluate the strengths of relationships between plot attributes and the measured species richness of taxonomic groups. A least-squares regression model is the equation for the straight line that best "fits" the data. This is the line that comes as close to passing through the data points as is possible. Unlike correlation coefficients, regression models can be used to quantify the degree to which combinations of readily observed plot attributes could be considered predictors of species richness. The interpretation of each regression model was based on its R^2 value and the partitioning of the sum of squares among variables (i.e., the sum of the squared deviations from the mean). In developing a regression model for each species group, species richness was the dependent variable and 1–4 plot attributes were the independent variables considered. Only variables significantly correlated with a group's species richness ($\alpha = 0.05$) were considered for initial inclusion in a model. When two or three variables representing an adjacent land cover type (e.g., percent natural vegetation within 250 m and within 1 km) were correlated with a species group, only the variable with the highest correlation was included. This was done to avoid including strongly correlated independent variables that could complicate interpretation of the results. Stepwise multiple regression analysis was used to define the final regression model if two or more variables were included in the initial model.

In interpreting the statistical significance of relationships, we adjusted the threshold for significance to account for making multiple statistical comparisons to evaluate one research hypothesis. Traditionally, a P value < 0.05 is used to indicate statistical significance. However, as more statistical tests are performed the odds of encountering a low P value due to chance increase. Therefore, we adjusted the P value considered significant through a Bonferroni correction (Sokal and Rolf 1994) so that the probability of erroneously considering a result significant (i.e., when the pattern was due to random variation in the absence of an actual relationship) was < 0.05 for the entire set of statistical tests addressing one of our general research hypotheses. Each of our hypotheses was addressed by 8–24 statistical comparisons, therefore, P values of 0.0063–0.0021, respectively, were considered the thresholds for significant relationships. Since Bonferroni adjustments are sometimes criticized as being overly strict, especially when the consequences of false negatives (β error) are worse that the consequences of false positives (α error), P values above these thresholds but < 0.01 were considered suggestive of possible relationships among the variables.

Although more than one dependent variable (i.e., richness based on one or four site surveys) was analyzed for several of the species groups, not every variable was used to evaluate any one of our research hypotheses. Because few mammal, amphibian or reptile species were detected over the course of a single area search, we only used richness based on four visits for these species groups.

Results

Most of the plots were situated in moderately to substantially altered riparian corridors, including Placer County plots (Table 3, Appendix B). At only 2 of the 47 plots (4%) was riparian vegetation > 100 m wide. Only 6 of the 47 plots (13%) were completely surrounded by natural vegetation and did not contain any infrastructure. In contrast, for 16 plots (34%) agricultural or developed land accounted for over half the adjacent land cover within 250 m, and 44% contained a road or other infrastructure (Table 3). On average, agricultural or developed lands accounted for 43% of the lands within 1 km of the plots (Table 4).

The riparian vegetation within most survey plots also was somewhat altered in its composition and structure. In general, the tree layer was discontinuous and averaged only 46% cover, and the shrub layer also had a comparable cover (Table 4). Willows and Fremont's cottonwood accounted for just 16% of tree cover, and oak species (primarily interior live oak and valley oak) accounted for 26%. Non-native species occupied little of this tree layer (5%), but Northern California black walnut, a species absent from this region 150 years ago, accounted for an additional 4% of total tree cover. In the shrub layer, the non-native Himalayan blackberry accounted for over half of all shrub cover.

Table 3. Presence of Infrastructure and Evidence of Disturbance in Plots[1]

Attribute	Total *N = 47*	Placer County Plots *N = 23*	Plots Outside Placer Co. *N = 24*
Presence of Bank Protection	4	5	4
Levee or Berm	15	4	25
Road in Plot	46	50	42
Stream Incision	61	55	67
Evidence of Overbank Flow	57	41	71
Evidence of Grazing	21	17	25
Evidence of Tree Cutting	0	0	0
Evidence of Brush Clearing	4	4	4
Evidence of Dumping	21	22	21
Evidence of Other Disturbance	13	17	8

Note:
[1] Values in table are percents.

Table 4. Summary of Plot Vegetation and Surrounding Land Cover[1,2]

Attribute	Total Mean (Range)	Placer County Mean (Range)	Outside Placer County Mean (Range)
Riparian Width (meters [m])[3]	37 (2–200)	25 (2–80)	49 (10–200)
Tree Cover (%)	46 (3–95)	48 (3–95)	44 (10–80)
Shrub Cover (%)	41 (1–90)	38 (1–80)	44 (2–90)
Herb Cover (%)	76 (10–100)	84 (10–98)	69 (10–100)
Riparian Vegetation 250 m (hectares [ha])	5 (0–13)	4 (0–9)	6 (0–13)
Riparian Vegetation 1 kilometers (km) (ha)	36 (0–147)	26 (0–74)	45 (0–147)
Riparian Vegetation 5 km (ha)	365 (33–1,001)	261 (132–554)	465 (33–1,001)
Natural Vegetation 250 m (%)	66 (0–100)	69 (0–100)	64 (18–100)
Natural Vegetation 1 km (%)	58 (6–100)	59 (6–23)	56 (10–100)
Natural Vegetation 5 km (%)	60 (8–100)	63 (25–91)	57 (8–100)
Agricultural Land Cover 250 m (%)	20 (0–81)	10 (0–68)	28 (0–81)
Agricultural Land Cover 1 km (%)	29 (0–87)	18 (0–62)	39 (0–87)
Agricultural Land Cover 5 km (%)	26 (0–88)	15 (0–49)	37 (0–88)
Developed Land Cover 250 m (%)	14 (0–100)	20 (0–100)	8 (0–81)
Developed Land Cover 1 km (%)	14 (0–49)	23 (0–94)	5 (0–26)
Developed Land Cover 5 km (%)	14 (0–73)	22 (0–73)	5 (0–26)

Notes:

1 *N* = 47.

2 Riparian width, and tree, shrub and herb covers are ground-based measurements and land-cover variables are geographic information systems (GIS)–based.

3 SD = standard deviation.

4 Sample was stratified by anticipated riparian width, thus these width statistics are not representative of riparian vegetation width in the Sacramento Valley (e.g., the Valley's mean width is narrower).

The six relatively unaltered plots (i.e., no infrastructure in plot and no agricultural or developed land within 250 m) varied widely in their vegetation structure and species composition. The width of their riparian vegetation ranged from 8 m to 200 m. In the tree layer, the cover of oak species ranged from 0 to 78% and the cover of willows and cottonwood from 0 to 30%. The shrub layer varied from over 80% Himalayan blackberry (*Rubus discolor*) to a sparse cover (5%) of shrubs and tree saplings. With the exception of tree cover, these relatively unaltered plots bracketed the range of conditions observed in other plots that were more altered. None of the unaltered plots had low tree covers (range 40-80%); in contrast, 49% of other plots had tree covers below 40%.

There were relatively few strong relationships among site attributes (Table 5); however, suggestive positive relationships existed among riparian vegetation width with tree and shrub cover. Otherwise, most negative relationships were between variables that are inversely related by definition (e.g., land cover proportion) and most positive relationships were between variables that represented the same land cover category at different scales (e.g., developed land within 250 m, 1 km and 5 km).

Data collected at the 12 intensive data collection sites varied in their value for assessing riparian habitats. At these sties, almost no amphibians or reptiles were found beneath the cover boards. The results of the small mammal trapping varied substantially among sites (Table 6, Appendix B), and they did not correspond closely to the results of surveys for other taxonomic groups. However, conducting area searches for vertebrates on multiple dates resulted in more complete species lists (i.e., greater species richness) compared to lists based on a single area search, and species richness estimates based on multiple surveys had stronger relationships to site attributes than single survey estimates (Tables 7 and 8, Figure 1).

Three of the relatively unaltered plots were intensive data collection sites, and at these plots, results were similar to those at more altered sites, with the exception of small mammal density and the number of potential nesting bird species. The total number of small mammals trapped at the unaltered sites averaged 32 ± 4 (mean $\pm$ standard error) versus 3 ± 1 at the more altered plots. The number of potential nesting bird species at the unaltered sites averaged 3.3 ± 0.3 versus 1.1 ± 0.4 at the other plots (Table 6).

Table 5. Correlations Among Plot Attributes[1,2]

	Riparian Width	Tree Cover	Shrub Cover	Riparian (250 m)	Riparian (1 km)	Riparian (5 km)	Natural (250 m)	Natural (1 km)	Natural (5 km)	Agricultural (250 m)	Agricultural (1 km)	Agricultural (5 km)	Developed (250 m)	Developed (1 km)	Developed (5 km)
Riparian Width	1.00	**0.48**	**0.44**	0.30	-0.01	-0.04	0.04	**0.43**	0.01	0.13	-0.28	-0.17	-0.14	-0.16	0.19
Tree Cover	–	1.00	**0.44**	0.03	0.03	-0.04	-0.07	-0.06	-0.05	0.05	-0.01	-0.06	0.05	0.13	0.18
Shrub Cover	–	–	1.00	-0.18	-0.12	-0.04	-0.13	-0.01	0.16	-0.07	-0.08	-0.02	0.26	0.17	-0.10
Riparian (250 m)	–	–	–	1.00	**0.91**	**0.63**	-0.21	-0.21	-0.04	0.24	0.28	0.15	0.01	-0.03	-0.08
Riparian (1 km)	–	–	–	–	1.00	**0.73**	-0.29	-0.26	-0.06	0.28	0.27	0.13	0.06	0.04	-0.05
Riparian (5 km)	–	–	–	–	–	1.00	-0.29	-0.27	-0.03	0.28	0.20	0.02	0.07	0.13	0.04
Natural (250 m)	–	–	–	–	–	–	1.00	**0.84**	**0.59**	**-0.55**	**-0.44**	**-0.37**	**-0.59**	**-0.49**	-0.20
Natural (1 km)	–	–	–	–	–	–	–	1.00	**0.74**	**-0.53**	**-0.65**	**-0.55**	**-0.44**	**-0.42**	-0.11
Natural (5 km)	–	–	–	–	–	–	–	–	1.00	**-0.48**	**-0.54**	**-0.61**	-0.21	-0.23	-0.30
Agricultural (250 m)	–	–	–	–	–	–	–	–	–	1.00	**0.83**	**0.68**	**-0.34**	**-0.35**	-0.30
Agricultural (1 km)	–	–	–	–	–	–	–	–	–	–	1.00	**0.88**	-0.28	**-0.40**	**-0.49**
Agricultural (5 km)	–	–	–	–	–	–	–	–	–	–	–	1.00	-0.22	**-0.38**	**-0.57**
Developed (250 m)	–	–	–	–	–	–	–	–	–	–	–	–	1.00	**0.89**	**0.49**
Developed (1 km)	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	**0.71**
Developed (5 km)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00

Notes:

m = meters, km = kilometers

[1] $n = 47$

[2] Numbers in table are correlation coefficients (r) between the site attributes, and those with a p value <0.01 are in bold; P values are based on the r value and number of observations (n), and in this analysis values <0.01 are considered to indicate suggestive relationships among variables. Variables were transformed as described in methods prior to calculation of correlation coefficients.

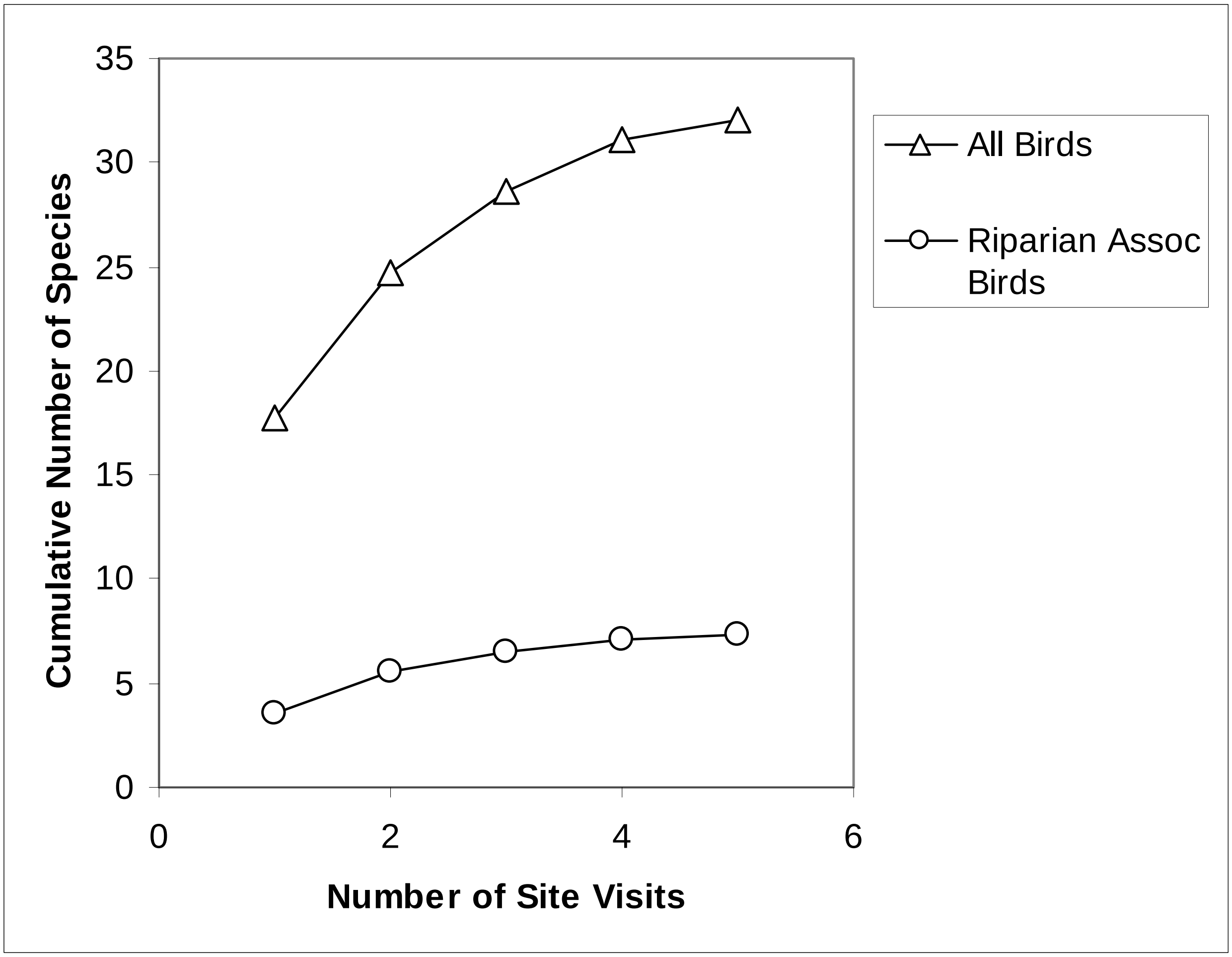


Figure 1. Cumulative Number of Bird Species Observed During Area Searches

Table 6. Summary of Species Observations[1,2]

Species Group	*N*	Mean	SD	Range
Butterfly Spp (2 Surveys)	47	8.6	2.6	4–14
Riparian-Associated Butterfly Spp (2 Surveys)	47	2.4	1.2	0–5
Odonate Spp (1 Survey)	43	7.8	2.3	3–12
Bird Spp (1 Survey)	47	16.3	4.3	6–29
Riparian-Associated Bird Spp (1 Survey)	47	4.3	2.0	0–8
Riparian Associated Bird Spp (4 Surveys)	12	7.4	2.0	4–14
Small Mammal Density (3 nights trapping)[3]	10	12	15	0–39
Mammal Spp (1 Survey)	47	1.5	1.3	0–4
Mammal Spp (4 Surveys)	12	2.3	1.2	1–4
Amphibian and Reptile Spp (1 Survey)	47	0.8	1.0	0–3
Amphibian and Reptile Spp (4 Surveys)	12	2.7	1.1	1–4

Notes:

1 Numbers in table are numbers of species observed per plot, except for small mammal density, which is number of individuals per plot.

2 Abbreviations: N = number of plots, SD = standard deviation, Spp = species.

3 Number of individuals per unit area (not number of species).

With the exception of relationships between surrounding land cover types and vertebrate species richness, our results did not strongly support our initial research hypotheses. In most cases, the species richness of riparian-associated birds was not strongly related to the species richness of other animal groups, though two relationships were significant (Table 7, Figure 2). There was a significant relationship between riparian-associated birds and mammal species (4 surveys, $df = 10$, $r = 0.71$, $p < 0.05$ and < 0.01 without Bonferroni adjustment). There were also significant relationships between potentially resident riparian-associated birds and amphibians and reptiles (based on 4 surveys, $df = 10$, $r = 0.76$, $p < 0.01$, without Bonferroni adjustment $p < 0.005$).

Species richness did not increase significantly with the width of riparian vegetation for any animal group. Correlation coefficients between species groups and riparian width generally were all below 0.40 (Table 8). Results for riparian-associated birds (based on 1 survey) suggested a positive relationship with riparian width ($df = 45$, $r = 0.35$, $p < 0.07$ and < 0.009 without Bonferroni adjustment; Table 8, Figure 3). This could be considered evidence of a significant relationship. However, for the multiple survey plots, there was not a relationship between the number of riparian-associated bird species and riparian width ($df = 10$, $r = 0.16$, $p > 0.25$ without Bonferroni adjustment; Figure 3). Similarly, the species richness of other animal groups had no significant or suggestive positive relationships with riparian width. Riparian width was initially included in four regression models (Table 9), although, in one case (riparian-associated birds based on 1 survey), width was not included in the final model.

In general, species richness of the animal groups had no significant or suggestive relationships with the area of riparian vegetation, and only weak relationships with tree or shrub cover (Table 8). However, riparian-associated birds,, based on 1 survey, had a highly significant relationship with tree cover ($df = 45$, $r = 0.49$, $p < 0.004$ and $p < 0.0005$ without Bonferroni adjustment; Figure 3). The species richness of other animal groups did not have significant or suggestive relationships with riparian woody plant cover.

For the plots receiving multiple surveys, significant correlations existed between vertebrate species richness and surrounding land cover. For these data, nearly half the correlation coefficients were between 0.50 and 0.87, and 14 of these were significant or suggestive (Table 8).

The species richness of riparian-associated birds was significantly related to the extent of surrounding natural and agricultural lands. Riparian-associated birds (based on 4 surveys) had suggestive relationships with percent of surrounding land in natural vegetation within 250 m, 1 km and 5 km ($r = 0.67$–0.73, $p < 0.22$-0.09 and $p < 0.009$–0.004 without Bonferroni adjustment). If the count of riparian-associated bird species at each plot were restricted to just potential nesting species, the relationships to adjacent land cover were stronger. For this set of observed riparian-associated bird species, correlations with agricultural and natural land cover within 250 m had coefficients of -0.84 and 0.82, respectively, indicating strong relationships with surrounding land cover (p values < 0.01-0.02 and < 0.0005 without Bonferroni adjustment). This group also had suggestive relationships to natural and agricultural land cover at other scales (Table 8). Furthermore, no breeding or nesting behaviors were observed for riparian-associated birds at the sites with higher portions of the surrounding area in agricultural land at 250 m (Figure 4).

Similarly, in the multiple survey data sets, the species richness of amphibians, reptiles and mammals was related to surrounding land-cover within 250 m to 5 km. Species richness of amphibians and reptiles had a significant relationship with the portion of the surrounding area in agricultural land for the areas within 1 km and 5 km ($r = -0.78$ and -0.85, respectively, $p < 0.04$ and 0.01, respectively, and p values < 0.002 and < 0.0005 without Bonferroni adjustment). Similarly, species richness of mammals had a significant negative correlation with developed land cover within 250 m and 1 km ($r = -0.82$ and -0.87, respectively, $p < 0.02$ and 0.01, and p values < 0.001 and 0.0005 without Bonferroni adjustment), and suggestive correlations to natural land cover (Table 8).

Although some of the relationships between vertebrate species richness and surrounding land cover were considered just suggestive in the context of this analysis's numerous hypothesis tests, each of these relationships accounted for a moderate portion of the variability among the multiple survey plots in the species richness of a vertebrate group.

Combinations of variables did not produce substantially stronger models for predicting species richness than did single variables. For the individual

Table 7. Correlations Among Species Groups[1,2]

	All Bird Spp	R-A Bird Spp (1 Survey)	R-A Bird Spp (4 Surveys)	R-A, PN Bird Spp (4 Surveys)	Mammal Spp (1 Survey)	Mammal Spp (4 Surveys)	Small Mammal Density	Amphibian & Reptile Spp (1 Survey)	Amphibian & Reptile Spp (4 Surveys)	All Butterfly Spp	R-A Butterfly Spp	Odonate Spp
All Bird Spp (*n* = 47)	1.00	–	–	–	–	–	–	–	–	–	–	–
R-A Bird Spp 1 survey (*n* = 47)	**0.75**[3]	1.00	–	–	–	–	–	–	–	–	–	–
R-A Bird Spp 4 Surveys (*n* = 12)	**0.50**	**0.78**[3]	1.00	–	–	–	–	–	–	–	–	–
R-A, PN Bird Spp 4 Surveys (*n* = 12)	0.53	0.20	0.54	1.00	–	–	–	–	–	–	–	–
Mammal Spp 1 survey (*n* = 47)	0.18	0.06	0.12	0.16	1.00	–	–	–	–	–	–	–
Mammal Spp 4 surveys (*n* = 12)	0.11	0.43	**0.71**[3]	0.32	0.42	1.00	–	–	–	–	–	–
Small Mammal Density (*n* = 10)	0.12	-0.12	0.00	0.58	0.16	0.25	1.00	–	–	–	–	–
Amphibian & Reptile Spp 1 Survey (*n* = 47)	0.32	0.18	0.28	**0.87**[3]	0.29	0.31	-0.13	1.00	–	–	–	–
Amphibian & Reptile Spp 4 Surveys (*n* = 12)	0.20	0.06	0.29	**0.76**[3]	-0.04	-0.13	0.59	**0.62**	1.00	–	–	–
All Butterfly Spp 2 Surveys (*n* = 47)	0.10	0.14	-0.08	-0.06	-0.09	-0.09	-0.26	0.13	-0.02	1.00	–	–
R-A Butterfly Spp 2 Surveys (*n* = 47)	0.14	0.33	-0.30	-0.23	-0.10	-0.15	-0.07	-0.01	0.43	**0.57**	1.00	-
Odonate Spp 1 Survey (*n* = 43)	0.19	-0.01	**0.58**	0.52	-0.24	0.09	-0.07	0.23	0.45	0.04	-0.13	1.00

Notes:

1 Numbers in table are correlation coefficients (*r*) between the number of species observed and the value of a site attribute, and those with a *p* value <0.01 are in bold; *P* values are based on the *r* value and number of observations (*n*), and in this analysis values <0.01 are considered to indicate suggestive or significant relationships among variables. Variables were transformed as described in methods prior to calculation of correlation coefficients.

2 Abbreviations are: R-A = riparian-associated, PN = potentially nesting, and Spp = Species.

3 Correlation significant at $\propto = 0.05$ with Bonferroni adjustment.

Table 8. Correlations of Species Observations with Plot Attributes[1]

Species Group[2]	Riparian Width	Tree Cover	Shrub Cover	Riparian (250 m)	Riparian (1 km)	Riparian (5 km)	Natural (250 m)	Natural (1 km)	Natural (5 km)	Agricultural (250 m)	Agricultural (1 km)	Agricultural (5 km)	Developed (250 m)	Developed (1 km)	Developed (5 km)
All Bird Spp (*n* = 47)	0.18	0.27	0.12	-0.05	-0.08	-0.03	0.18	0.15	0.05	-0.03	-0.16	-0.18	-0.22	-0.07	0.13
R-A Bird Spp 1 survey (*n* = 47)	**0.35**	**0.49**[3]	0.18	0.07	0.07	0.16	0.21	0.20	0.20	0.03	-0.10	-0.14	-0.28	-0.16	-0.04
R-A Bird Spp 4 Surveys (*n* = 12)	0.16	0.33	0.04	-0.15	-0.33	-0.40	**0.67**	**0.70**	**0.73**	-0.38	-0.31	-0.23	-0.43	-0.61	-0.50
R-A, PN Bird Spp 4 Surveys (*n* = 12)	-0.01	-0.07	0.34	-0.45	-0.46	-0.52	**0.82**[3]	**0.73**	0.52	**-0.84**[3]	**-0.70**	**-0.67**	-0.15	-0.29	-0.05
Mammal Spp 1 survey (*n* = 47)	0.14	-0.17	0.06	0.32	**0.36**	0.21	0.01	-0.11	-0.10	0.19	0.28	0.27	-0.19	-0.20	-0.21
Mammal Spp 4 surveys (*n* = 12)	0.32	0.33	0.20	-0.12	-0.18	-0.36	**0.70**	**0.76**	0.42	0.05	-0.01	0.12	**-0.82**[3]	**-0.87**[3]	-0.47
Trapped Mammal Density (*n* = 10)	0.39	0.02	0.50	-0.31	-0.37	-0.42	0.62	0.67	0.29	-0.40	-0.47	-0.29	-0.29	-0.30	-0.03
Amphibian & Reptile Spp 1 Survey (*n* = 47)	-0.24	-0.19	-0.17	0.27	0.25	0.30	0.21	0.22	0.28	-0.04	-0.14	-0.25	-0.20	-0.12	-0.04
Amphibian & Reptile Spp 4 Surveys (*n* = 12)	-0.18	-0.19	0.62	-0.44	-0.45	-0.34	0.02	0.35	0.46	-0.46	**-0.78**[3]	**-0.85**[3]	0.37	0.31	0.38
All Butterfly Spp 2 surveys (*n* = 47)	**-0.39**	0.07	-0.11	0.16	0.16	0.05	0.33	0.20	0.25	-0.18	-0.15	-0.29	-0.22	-0.10	0.07
R-A Butterfly Spp 2 surveys (*n* = 47)	0.05	0.30	0.23	0.15	0.18	0.07	0.10	0.13	0.27	-0.06	-0.10	-0.17	-0.08	-0.04	-0.06
Odonate Spp 1 survey (*n* = 43)	-0.24	-0.11	-0.08	-0.19	-0.27	-0.25	0.03	0.04	-0.02	0.11	0.13	0.06	-0.15	-0.26	-0.15

Notes:

1 Numbers in table are correlation coefficients (r) between the number of species observed and the value of a site attribute, and those with a p value <0.01 are in bold; P values are based on the r value and number of observations (n), and in this analysis values <0.01 are considered to indicate suggestive or significant relationships among variables. Variables were transformed as described in methods prior to calculation of correlation coefficients.

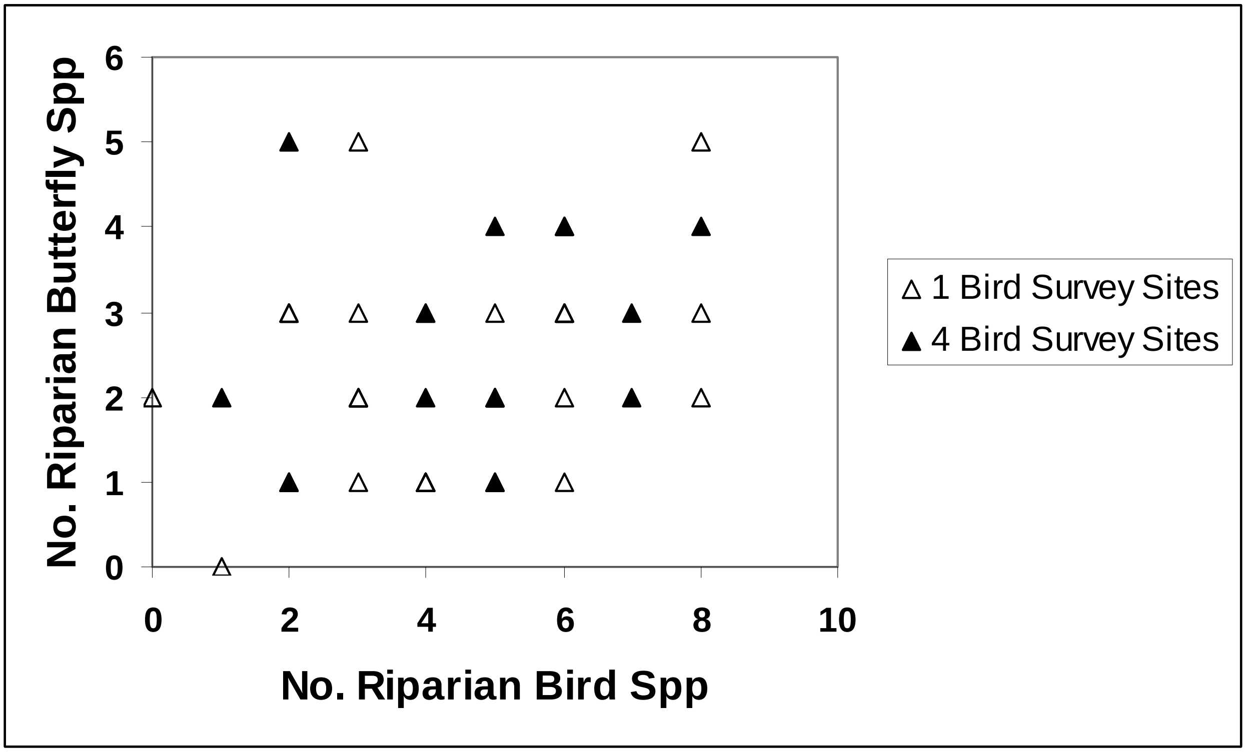
2 Abbreviations are: R-A = riparian-associated, PN = potentially nesting, and Spp = Species.

3 Correlation significant at $\propto = 0.05$ with Bonferroni adjustment.

Table 9. Contribution of Variables to Multiple Regression Models for Relationship of Species Groups to Site Attributes[1]

			Sum of Squares (SS) Associated with Variables												
Species Group[2]	R^2	Total SS	Riparian Width	Tree Cover	Shrub Cover	Riparian (1 km)	Riparian (5 km)	Natural (250 m)	Natural (1 km)	Natural (5 km)	Agricultural (250 m)	Agricultural (1 km)	Agricultural (5 km)	Developed (250 m)	Developed (1 km)
All Bird Spp (*n* = 47, p = 0.0426)	0.09	13.59 (100%)	–	1.20 (9%)	–	–	–	–	–	–	–	–	–	–	–
R-A Bird Spp 1 Survey (*n* = 47, p = 0.0003)	0.31	11.63 (100%)	0 (0%)	2.89 (25%)	–	–	–	–	–	–	–	–	–	0.71 (6%)	–
R-A Bird Spp 4 Survey (*n* = 12, p = 0.0115)	0.63	1.53 (100%)	–	–	–	–	–	–	–	0.67 (44%)	–	–	–	–	0.29 (19%)
R-A, PN Bird Spp (*n* = 12, p < 0.0001)	0.90	3.41 (100%)	–	–	–	–	0 (0%)	2.63 (77%)	–	–	0.44 (13%)	–	–	–	–
Mammal Spp 1 Survey (*n* = 47, p = 0.0132)	0.13	9.99 (100%)	–	–	–	1.29 (13%)	–	–	–	–	–	0 (0%)	–	–	–
Mammal Spp 4 Survey (*n* = 12, p = .0175)	0.45	1.37 (100%)	–	–	–	–	–	–	0 (0%)	–	–	–	–	–	0.61 (45%)
Sm. Mammal Density (*n* = 10, p = 0.0641)	0.37	40.16 (100%)	–	–	–	–	–	–	14.68 (37%)	–	–	–	–	–	–
A & R Spp 1 Survey (n = 47, p = 0.0505)	0.13	7.74 (100%)	0.62 (8%)	–	–	–	0 (0%)	–	–	0.36 (5%)	0 (0%)	–	–	–	–
A & R Spp 4 Survey (*n* = 12, p = 0.0017)	0.64	1.01 (100%)	–	–	0 (0%)	–	–	–	–	–	–	–	0.65 (64%)	–	–
All Butterfly Spp (*n* = 47, p = 0.0006)	0.29	8.75 (100%)	1.43 (16%)	–	–	–	–	1.08 (12%)	–	–	–	–	0 (0%)	–	–
R-A Butterfly Spp (*n* = 47, p = 0.0453)	0.09	6.49 (100%)	–	–	–	–	–	–	–	0.56 (9%)	–	–	–	–	–
Odonate Spp (*n* = 43, p = 0.0405)	0.19	7.47 (100%)	0.44 (6%)	–	–	0.44 (6%)	–	–	–	–	–	–	–	–	0.54 (7%)

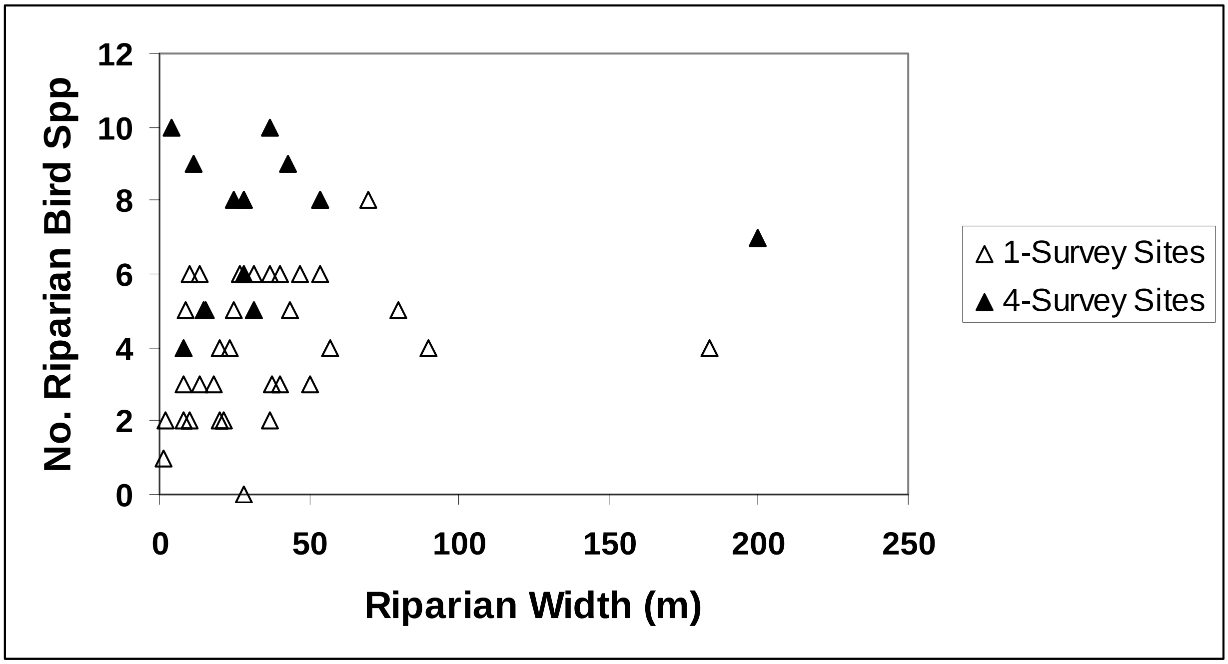
Notes:
1 Variables were transformed as described in methods prior to calculation of regression models.
2 Abbreviations are: R-A = riparian-associated, PN = potentially nesting, A & R = Amphibian and Reptile, and Spp = Species.

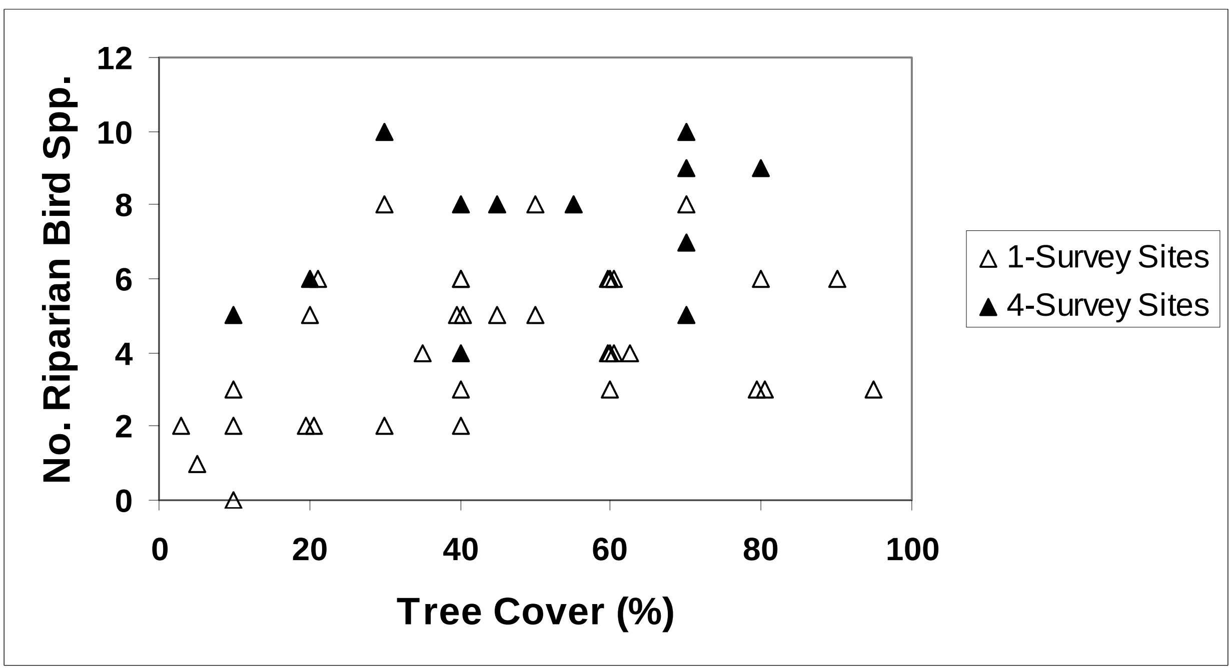


Note:

[1] $n = 47$

Figure 2. Correspondence of Species Richness among Riparian-Associated Birds and Riparian-Associated Butterflies[1]





Note:
[1] $n = 47$

Figure 3. Relationship of Species Richness of Riparian-Associated Birds and Selected Site Attributes[1]

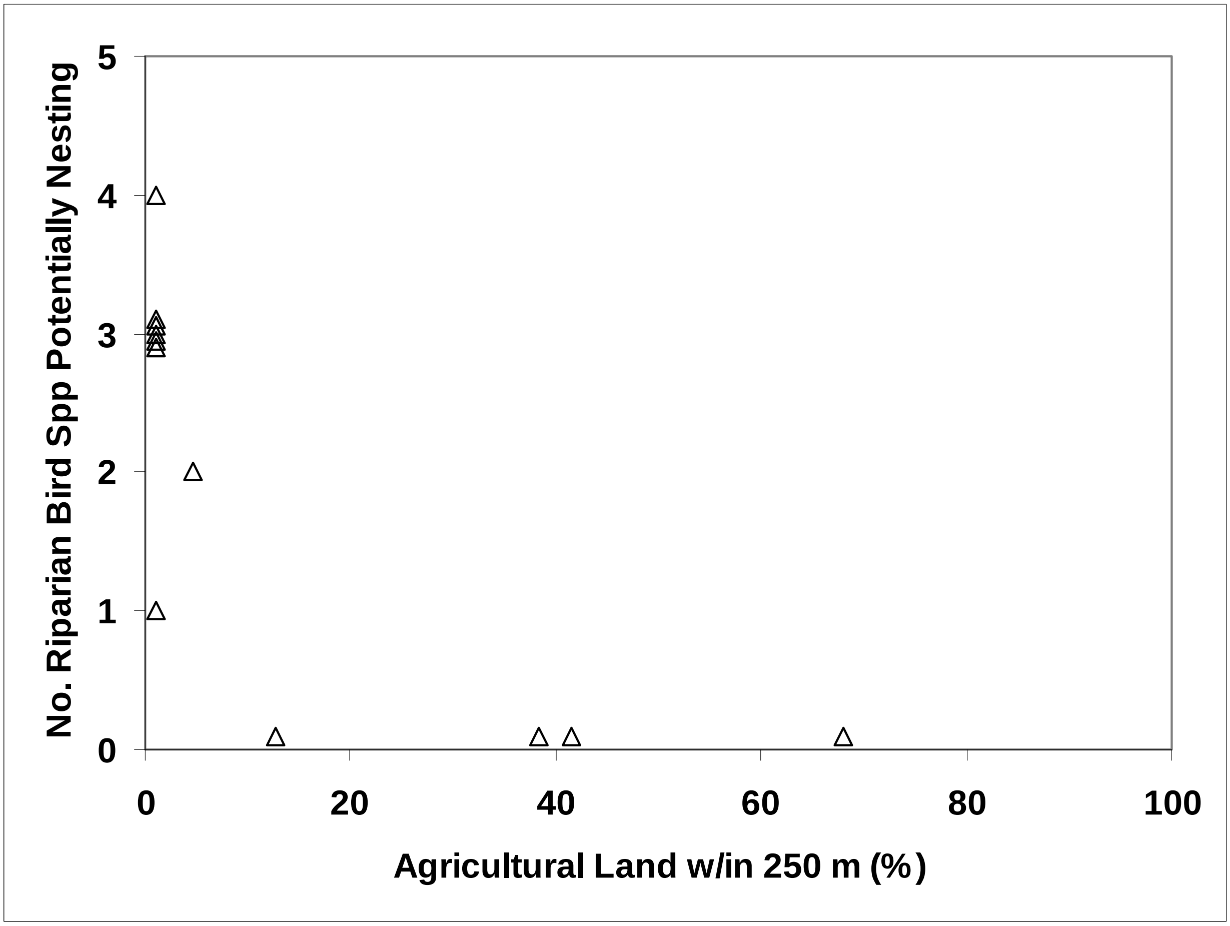


Figure 4. Relationship Between Number of Riparian-Associated Bird Species Potentially Nesting at a Site and Adjacent Agricultural Land

taxonomic groups, simple linear and stepwise multiple regression produced models with *p* values between < 0.0001 and 0.064 (Table 9). For all vertebrate species, the models consisted of one or two variables and almost all independent variables represented surrounding land cover. Only three of these models had R^2 values > 0.5: riparian-associated birds (4-surveys), riparian-associated birds potentially nesting (4 surveys) and amphibians and reptiles (4 surveys). The amphibian and reptile model was based only on the percent of area within 5 km that was in agricultural land. The model for potential nesting riparian-associated birds was based on two land cover variables, but just one of these (natural vegetation within 250 m) accounted for 86 % of the variability explained by the model. For riparian-associated birds (all observed during 4 surveys regardless of behavior), the regression model based on two variables was substantially stronger than for any one variable ($R^2 = 0.63$).

Discussion

The results of this study must be interpreted cautiously due to limitations of the study's overall sample size, attributes of available sites and chosen methodologies. Nonetheless, the results have implications for assessment methodologies, development of a FAM, and for riparian setbacks. These implications are discussed in the following sections.

Implications for Biological Site Surveys to Assess Riparian Biodiversity

These results indicated that data from multiple site surveys for vertebrates provide a much stronger basis for assessing a riparian area than data from a single site visit. Not only did data from four site surveys document more species than a single survey of those sites, but the results of single and multiple surveys were not highly correlated with each other. Overall, multiple site surveys provide a much more consistent basis for evaluating the habitat value of riparian sites.

These results also indicate that non-destructive area searches for mammals, amphibians, and reptiles were not an effective survey technique, even with the placement of cover boards. Overall, few species were observed during these area searches, usually less than one amphibian or reptile species during a single survey. Though few amphibian or reptile species may have been present, the results still demonstrate that a single non-destructive area search is not an effective means of inventorying the mammal, amphibian, and reptile species using a site. In most plots surveyed multiple times, additional species were observed, indicating that during a single survey most species using a site were not detected. No amphibian or reptiles species was observed beneath any of the 240 cover boards set out and checked 4–6 times during this study. However, cover boards may be more effective is used during late winter-early spring rainy season, when conditions beneath them would be more favorable for amphibians and reptiles, and possibly if constructed using thicker materials that provided better insulation from higher temperatures.

Implications for a FAM

Overall, our results indicate that, for the smaller streams and rivers of the Sacramento Valley, developing a single model that *precisely* quantifies *overall* habitat functions on the basis of readily measured site attributes is not possible, particularly on the basis of available information. However, the results do show that some readily measured site attributes are related to the species richness of particular taxonomic groups. For particular species, guilds, or taxonomic groups, this indicates that useful assessment criteria based on readily measured site attributes could be developed as shown in the examples in Table 10.

In this study, the species richness of different groups (particularly between vertebrates and invertebrates) was not related, and species groups often differed in their relationships to plot attributes. In general, species differ in their biology and thus their habitat requirements, particularly across major taxonomic groups such as vascular plants, butterflies and mammals. Therefore, numerous specific site attributes such as disturbance history, vegetation structure, and presence of host plants, refugia, or rock outcrops affect these species groups differently, and many of these attributes are themselves only loosely related to the landscape variables that are most useful for a cost-effective FAM (e.g., surrounding land use, area and width of riparian vegetation). Thus, models, or assessment criteria, that focus on individual species or guilds will likely provide more useful assessments of a site's habitat value than a model that attempts to quantify habitat value for all species combined (Stein et al. 2000; Smith 2000; Bryce et al. 2002).

In this study, the vertebrate groups had relationships to site attributes, and thus for particular vertebrate taxonomic groups, guilds or species effective assessment criteria based on readily measured site attributes probably could be developed through additional studies. In data from multiple site visits, which were most effective at documenting species' presence, relationships between species richness and surrounding land use were important.

Unfortunately, due to their sample size and the types of data collected, these data sets have substantial limitations. They consist of only twelve plots, and they contain few or no replicates of some important types of sites (e.g., wide riparian corridors in urban areas). They also were scattered over a wide and heterogeneous geographic area. Furthermore, they contain little information on abundance and no information on rates of growth, survival or reproduction. Thus, while these data indicate the importance of surrounding land uses, and other readily measured site attributes, additional studies with larger sample sizes, and collecting other types of ecological data (e.g., density, survival or reproduction), are necessary for defining assessment criteria that precisely quantify habitat values under different combinations of site attributes. We consider such studies important next steps for the conservation planning process.

Table 10. Evaluation of Habitat Functions by Representative Functional Assessment Methods

Assessment	Terrestrial Habitat Functions	Variables used to Assess Habitat Function	Tested[1]
Spatial Wetland Assessment for Management and Planning, SWAMP (Sutter 2001)	Terrestrial wildlife habitat	Area of interior habitat Heterogeneity of vegetation Presence of surface water	No
Assessment of riverine wetlands in Washington State (Hruby et al. 1999)	Bird, Mammal, Amphibian Habitat	Density and condition of snags Presence of special features Evidence of disturbance on adjacent land Interspersion of vegetation types	No
Hydrogeomorphic assessment (HGM) of riverine floodplains in the Northern Rocky Mountains (Hauer et al. 2002)	Characteristic vertebrate habitats	Cover in herb and shrub layers and of native species Tree density Inundation frequency Connectivity of vegetation types	No
Suggested revisions to BLM's Proper Functioning Condition assessment procedure (Stevens et al. 2002)	Fish and wildlife habitat	Canopy connectivity Vegetation patch density Fluvial landform diversity	No
Southern California Riparian Model (Stein et al. 2000)[2]	Condition units[2]	Cover of native plants Percent invasive species Vegetation structural diversity Riparian vegetation continuity Adjacent land cover	No
Bird Integrity Index (Bryce et al. 2002)	Overall riparian integrity including overall habitat integrity	Number or proportion of bird species (or of individuals) in selected guilds	Yes
Tidal freshwater wetlands along Hudson River (Findley et al. 2002)	Breeding Bird, Muskrat and Waterfowl Habitat[3]	Cover or stem density of plant species Soil texture	No[3]
Wetland Assessment, WEA, for San Francisco Bay Region (Breaux and Martindale 2003)	Wildlife Utilization Rating	Guidelines for professional judgment	No
San Diego Creek Assessment (Smith 2000)	Riparian habitat integrity	Native riparian vegetation area Riparian corridor continuity Adjacent land use/land cover	No
Indicator Value Assessment, IVA (Hruby et al. 1995)	General waterfowl, General wildlife	Numerous (>60 indicators)	No
Wetland Habitat Assessment Technique, HAT (Cable et al. 1989)	Habitat quality	Bird species presence Wetland area	No

Notes:

1 Tested by comparison to direct measurements of species presence, abundance or demography. For assessments that used direct measures of animal species group (e.g., birds) presence to assess overall site condition or habitat quality, testing requires comparison to direct measurements of other animal groups.

2 Habitat function incorporated into overall rating (i.e., condition units), and only habitat variables are listed in this table.

3 This study also included fish and aquatic invertebrate habitat functions that were tested by comparison to direct measurements.

As one of these next steps, PRBO's point count dataset provides an excellent opportunity to evaluate relationships between the abundance (i.e., number of individuals) of riparian-associated bird species and riparian width and surrounding land cover. Point count surveys are designed to record the relative abundance of individual species, and PRBO has conducted these surveys for over a thousand locations over multiple years. Their analysis would require the calculation of GIS-based landscape metrics (comparable to the surrounding land cover variables used in this study) and an aerial photo-based interpretation of riparian width. Nonetheless, the analysis of existing PRBO point count data would be a cost-effective means to rigorously analyze relationships between the abundance of species and riparian width and surrounding land cover.

Because of the differences among species groups, and the limitations of current knowledge, a FAM for western Placer County that calculates a single score for a riparian area's habitat functions should be considered only a very general indicator of the overall provision of habitat functions. Such a score should be based on a limited number of variables, preferably just one or two variables that are broadly related to most habitat values and the processes sustaining them (e.g., proportion of surroundings in natural vegetation, hydraulic connectivity). This would limit inaccuracies caused by the operations and coefficients selected to combine variables, and would maintain a mechanistic basis for the assessment.

Implications for Riparian Setbacks

Though width of riparian vegetation was not strongly related to species richness, as measured by these measures, this result should not be interpreted as evidence that the width of a riparian setback is not an important consideration for habitat conservation. This study's sample size, particularly for the multiple survey sites, was small and spread over a large geographic area. Thus, it is likely that only effects of larger magnitude would have been identified and locally important effects would not have been detected without a larger sample size. Width may be important for some species, but these species might be few in number or absent from our data sets. Because all but a few plots represented landscapes substantially altered by human use, most species sensitive to these alterations (including a reduction in riparian width) may no longer be present at any of the study sites. For example, Western Yellow-billed Cuckoo is such a species (Greco et al. 2002) and was not detected at any of the 47 plots during our surveys.

Riparian setbacks would include both riparian and other natural vegetation, and their width would be directly related to the extent of adjacent natural, agricultural and developed land cover; and the proportions of surrounding land-cover types were related to species richness in this study's results. Furthermore, other studies, have shown relationships between the width of riparian vegetation and the presence of riparian-associated animals (Greco et al. 2002).

This study's results indicated that there are important relationships between adjacent land use within 250 m–5 km and the biodiversity of riparian corridors in the Sacramento Valley. These relationships are consistent with studies of riparian habitat elsewhere (Findlay and Houlahan 1996; Forman and Alexander 1998; Bryce et al. 2002; Miller et al. 2003; Semlitsch and Bodie 2003) and with our understanding of factors known to affect riparian species in the Sacramento Valley, such as the availability of upland habitats also used by many of these species. Thus, riparian setbacks should consider both the condition and management of riparian vegetation and the buffer between this vegetation and adjacent developed and agricultural lands. Also, the results suggest that riparian setbacks may not be able to prevent all adverse effects of surrounding land uses on riparian biodiversity, and thus that other conservation measures may be necessary as well. These conservations measures will be discussed in the report providing guidance for riparian setbacks.

However, the results of this study are not by themselves a sufficient basis for recommending setback or buffer widths. For this reason, our report providing guidance for riparian setbacks (Task 5 of the Riparian Ecosystem Assessment), will consider these results together with other available data, and a review of the scientific literature regarding the use of adjacent land by riparian species and the influences of adjacent land uses on those species.

Acknowledgements

We would like to acknowledge the guidance provided by Placer County Planning Department staff (M. Batteate and L. Clark) and by the members of the County's technical advisory Committee, and the collaboration of the Point Reyes Bird Observatory. For their personal assistance, we also thank G. Ballard, P. Cylinder, C. Hicks, K. Keller, W. Kohn, D. Leslie, S. Myers, S. Parsons, G. Platenkamp, J. Robins, E. Routt, W. Shaul, D. Stralberg, E. West, and M. Widdowson.

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Appendix A
RAP Forms

Protocol for Description of Riparian Ecosystem Assessment Plots

INTRODUCTION

These protocols provide a guide to assist the survey team in obtaining the required information as efficiently as possible. Minor modifications to these protocols may be necessary depending on access constraints and time available to complete the surveys. All RAP surveys will be done at riparian sites that PRBO has surveyed previously and at Placer County riparian sites where permission is granted from the landowners. Assume that all land is private and do not trespass if you are uncertain about the land ownership. Also, avoid stopping in front of residences and generally be discrete about displaying maps, cameras, and clipboards. Be careful about pulling off roads and do not violate any traffic laws to sample a riparian plot or observe a species. Always leave gates exactly as you found them. Also, for Placer County sites, it is important that all requirements specified by the landowner are followed. These requirements are attached to the directions, map, and photograph for each plot in Placer County.

PREFIELD TASKS

Prior to performing the field surveys, please review the following materials that will be provided in the field packets:

- Road maps and maps of the individual streams showing roads and access points so that survey routes can be planned and surveyed efficiently;
- PRBO field notes giving directions to individual sites, vegetation descriptions, and bird species lists for survey plots;
- Aerial photographs of individual creeks and rivers (as available).

Plan your route to the riparian sites and consult the field checklist to ensure that you have gathered all the necessary equipment to complete the site description and any other RAP survey work you will be conducting (an equipment and contact list is included as Attachment 1).

LOCATING THE PLOT

Proceed to the pre-determined coordinates for the plot center point. Centered on this point, the plot edge ds 100 m along the stream bank edge of the riparian zone (50 m up and 50 m down stream), and then extends 100 m inland (away from the stream bank). In most cases, the actual center of the located plot will differ from the pre-determined coordinates used to locate the plot. Therefore, once the plot boundaries have been determined, the actual coordinates for the plot center point are determined and recorded on the data form (see below).

RIPARIAN RAP DATA FORM

The intent of the RAP data form is to facilitate the collection of field data at selected plots rapidly and accurately. At each plot record the required data in each of the following data fields:

Location

- Provide the River/Creek name and number the plot (e.g., Deer Creek #1).
- Provide the survey date(s) and names of surveyors.
- Use the GPS unit to determine coordinates for the center point of each plot; and record the lat/long on the form. (Elevation will be determined from USGS topographic map and recorded on the form afterwards.)

- Take photographs facing North, East, South, and West, and of a representative view of the riparian corridor. Record their numbers on the form.

Environmental Description

This provides a brief description of the general slope exposure and steepness of the riparian plot that is sampled. If slope varies within the plot, record the slope across the plot as a whole (i.e., from the stream-side to the inland side of the plot).

ADJACENT LAND USES AND IMPACTS

***Developed Non-industrial Land Uses* -** Record the extent of adjacent residential and suburban development with 250 m of the center of the survey plot both by noting the percentage of area covered by these land uses and recording the number of development units (du) observed, including barns and other out buildings.

Agricultural Land Uses – Record agricultural development within 250 m of the center of the plot both by recording the percentage of area covered by agricultural land uses, and by noting the general agricultural type(s) observed.

Industrial Land Uses – Record industrial development within 250 m of the center of the plot both by recording the percentage of area covered by industrial land uses and by noting the general type of industrial uses observed.

Impact Types – In the table provided, for both the riparian and non-riparian portions of the plot, record the presence of the following impacts: brush removal, tree cutting, roadedness, grazing, and trash dumping. The adjacent area extends 250 m from the center of the plot. If the adjacent area is not in natural vegetation, do not record brush cutting, tree cutting, or trash dumping as occurring in the adjacent area. In documenting roadedness, all roads, including dirt and gravel, and other impervious or heavily compacted surfaces are included in this type of impact. For the other category, specify the impact type.

Channel Condition – Indicate whether bank protection has been used in the channel adjacent to the plot, and whether the channel shows evidence of incision. Note whether levees are present at or near the site that may confine the extent of potential riparian habitat areas, and indicate whether there is evidence of overland flow on the plot. Also, indicate the distance to the nearest road (paved, gravel or dirt).

ADDITIONAL COMMENTS

Add any additional comments on site access or interpretation, including management of creeks (e.g., recent revegetation or clearing, channelization, herbicide use, etc.). Also, if aerial photos are available and vegetation has changed since the photograph was taken, this should be noted. Add these additional comments, as necessary, at the bottom of the form.

VEGETATION DESCRIPTION

- In the box provided, enter the Habitat Type(s) using the appropriate Placer County WHR codes (Attachment 2).
- Estimated width of the riparian vegetation. Estimate the width of the riparian stand using a range finder at the center and both ends of each plot and record these widths on the data form.
- Record the surrounding habitat types using the Placer County WHR codes.
- Estimate the total size of the stand from aerial photos and ground inspection, and record its approximate length and continuity, as indicated on the form.
- Record estimates of total absolute cover (expressed as a percentage) of the tree, shrub, and herbaceous layers, and estimate the total extent of unvegetated ground (i.e., bare ground).

- Estimate the total snag density as high (> 20 per hectare), moderate (10-19 ha^{-1}), low (< 10 ha^{-1}), or absent.
- Check the appropriate habitat stage category for that represents the size of the trees dominating the tree layer.
- In the table provided, based on a visual estimate, record the scientific name and check the appropriate category for absolute cover for each woody species in the tree layer (> 3 m), and in the shrub layer (0.5-3 m).

POST-FIELD CHECKLIST

- Check over the field data forms and make sure everything is completed and clear.
- Surveyors should review each other's completed forms for completeness and accuracy in the field.
- From topographic maps, add plot elevations to the RAP data form.
- Photocopy all your field forms. File the copes in the file cabinet in Ted's office and the originals in the Placer Legacy office.
- Download the digital photographs into the P drive folder and rename with the site, point number and orientation (e.g., Thomes 7-1 N, Thomes 7-1 E etc.).
- Download the site coordinates from the GPS into the P drive folder.
- Cross off, date, and initial your completed site on the master list to ensure that field work is not repeated.
- Report progress to the project manager and obtain additional survey packages.

RIPARIAN ECOSYSTEM ASSESSMENT SURVEY PLOTS
RAPID BIOLOGICAL ASSESSMENT FIELD FORM
(J&S--Revised May 7, 2003)

LOCATION

RIVER/CREEK NAME ____ **Plot #**____________

Surveyors ____**Date** ___________________

Photo #s: ____

GPS Coordinates: Lat. ____°_____'_______" **Long.** _____°_____'_______" **Elevation** (ft/m) ________________
(WGS 84)

ENVIRONMENTAL DESCRIPTION

General Slope Exposure: ___________

General Slope Steepness: 0 degrees_____ 1-5 degrees _____ 5-25 degrees _____ > 25 degrees

ADJACENT LAND USES AND IMPACTS:

Developed Non-industrial Land Uses ___% of adjacent area**;**
Number of development units per acre: < 1du/ha ___1-2 du/ha _____ > 2 du/ha
Agricultural Land Uses: ___% of adjacent area; Types**:** _____**Orchard** _____ **Vineyard** _____ **Row Crops** ____ **Grain** ___ **Pasture** ___ **Other**
Industrial Land Uses: ___% of adjacent area; Types: ___**Gravel Mining** ____**Other**

Comments ____

Impact Types in Riparian Plot and Adjacent Areas (within 250 m)

IMPACT TYPE	Riparian portion of plot	Non-riparian part of plot	Adjacent Area
Brush removal[1]			
Tree-cutting[1]			
Roadedness[2]			
Grazing[1,3]			
Trash dumping[1]			
Other – specify			

[1] – For adjacent areas not in natural vegetation, do not consider this impact type to be present.
[2] – As roads, include dirt, gravel and paved roads, and other paved surfaces.
[3] – Evidence of grazing includes cows, cow excrement, and tracks.

Bank Protection (e.g. riprap): __% of plot length Channel Incised? Yes No (circle one)

Levee (circle one): [None along stream] [In plot] [Between plot & channel] [Plot between channel & levee]

Evidence of overland flow within plot? Yes No (circle one)

Nearest road : In Plot: Yes No (circle one) If No Road in Plot: Nearest road within ___meters of plot center point.

ADDITIONAL COMMENTS

____

____

____

____

____

VEGETATION DESCRIPTION

Habitat Type (CWHR)	Stand Width (Plot Edge)	Stand Width (Plot Center)	Stand Width (Plot Edge)	Surrounding Habitat Types

Estimated size of total stand: ___< 0.5 ha ___ >0.5-1 ha ___>1-5 ha ___>5-10 ha ___ >10-25 ha ____ >25 ha

Stand Length and Continuity: > 1 km, continuous_____ > 1 km, not continuous _____ 0.5-1 km, continuous _____ 0.5-1 km , not continuous _____ < 0.5 km, continuous ______ <0.5 km, not continuous _____

Total Cover (absolute): Tree Layer: __% Shrub Layer: ___% Herbaceous Layer: __% Bare:___%

Snag Density: High (> 20/ha)_____ **Moderate** (< 20 to 10/ha) _____ **Low** (< 10/ha) _____ **Absent ______**

Predominant Tree Size Class (refer to WHR Habitat Stages for visual examples of each)

Size Class (circle one)	**1**	**2**	**3**	**4**	**5**	**6**
Stage	Seedling	Sapling	Pole	Small	Medium-Large	Multi-storied
DBH	< 1”	1”-6”	6”-11”	11”-24”	>24”	Size 5 over 4 or 3

Woody Plant Absolute Cover in Riparian Portion of Plots

(Check 1 category for each species present)

Species	0-1 %	>1-5 %	>5-25%	>25-50%	>50-75%	>75-95%	>95%
Tree layer (> 3 m)							
Shrub layer (< 3 m)							

Attachment 1. Riparian Assessment Field Equipment

Equipment List

Road maps, area maps, and aerial photographs (as available).
Compass
Clipboard
Rangefinder
Thermometer
Digital Camera
GPS
Cell phone
Fine Sharpies, pencils
J&S equipment bag
Cover boards (if 1st visit to a site where amphibian & reptile data will be collected)

Data Forms

Plot Description Fomr RAP Data Form and Attachments 1, 2, 3
PRBO Area Search Form
Amphibian and Reptile Search Form
Mammal Area Search Form
PRBO Pont Count Form
Small Mammal Trapping data Collection Form
Continuation Pages

Reference Package
RAP Protocols (Plot Description, Area Search and Small Mammal trapping)
Attachment 1. Field Equipment
Attachment 2. CWHR Land Cover and Habitat Types and Codes
Attachment 3. Key to Woody Plants of Central Valley Riparian Zones
Attachment 4. Beaufort Wind Scale
Road map(s)
USGS Quad map

Contacts List

Becky N.	916.752.0973
Ted	530.274.7232
Eric	530.292.0100
Brad	916.752.0923
Margaret	916.752.0941
Kate	916.752.0930
John S.	916.752.0899
Bud	916.752.0938
Jen H.	916.752.0985
Doug	916.835.3197

Placer Wildlife Habitat Relationship Classification
Placer Legacy Phase 1 Area - Land Cover & Habitat Types

2-20-03

Aquatic – Open Water

WL Lacustrine (Lakes/Reservoirs) (generally these features are greater than 1 acre in size)
WR Riverine (Rivers and Creeks) (only mapped if large enough to be mapped accurately on the photographs)

Barren

BR Barren (Cliffs, rock outcrops)
BD Disturbed Lands (Landfills, Graded lands-Non agricultural)

Herbaceous

HA Annual Grassland
HP Pasture - Irrigated
HW Fresh Emergent Wetland
VP Vernal Pool (individual vernal pool >0.5 acre in size) (only mapped if not included in previous mapping and not within a complex)
VC Vernal Pool Complex
- VCh—(High) vernal pool density >7%
- VCm—(Medium) vernal pool density 4-7%
- VCl—(Low) vernal pool density <3%

HS Seasonal Wetland

Shrub

SC Foothill Chaparral

Forested

FR Riparian
FH Foothill Hardwood - includes where signatures are distinguishable:
- FHV Valley Oak Woodland
- FHB Blue Oak Woodland
- FHL Interior Live Oak Woodland

FS Oak Woodland-Savanna (low density oak woodland/savanna mix where density is <= 5 ‘large’ trees per acre)
FOP Oak-Foothill Pine
FP Ponderosa Pine
FE Eucalyptus

Agricultural

AR Rice
AC Row Crops
AA Alfalfa
AP Pasture
AV Vineyards
AO Orchards
AU Unidentified Croplands (including plowed, idle)

Urban

US Urban/Suburban (>1 unit / acre)
UR Rural-residential (0.1 – 1.0 unit / acre) (less than 70% canopy cover of large trees)
URF Rural-residential Forested (0.1-1.0 unit/acre plus 70-90% canopy cover of large trees)
UP Urban Parks (includes isolated city parks: playgrounds, grass fields, etc)
UG Golf Courses
UT Urban riparian (includes internal riparian areas such as greenbelts, most often surrounded by residential/urban development)
UF Urban woodland (includes city parks with predominate woodland type vegetation and windbreaks with mostly non-native trees)
UW Urban wetland (includes vernal pools, seasonal wetlands, and emergent marshes surrounded by urban uses)

Small-Patch Ecosystems

XW Springs and Seeps
XP Stock Ponds (less than 1 acre)
XL Landscape and Golf Course Ponds (less than 1 acre)

Special Geologic Formations and Soils

XG Gabbrodiorite Soils
XS Serpentine Soils
MR Mehrten Formation Soils

BIRD AREA SEARCH PROTOCOL

INTRODUCTION

These protocols provide a guide to assist the survey team in obtaining the required information as efficiently as possible. Minor modifications to these protocols may be necessary depending on access constraints and time available to complete the surveys. All RAP surveys will be done at riparian sites that PRBO has surveyed previously and at Placer County riparian sites where permission is granted from the landowners. Assume that all land is private and do not trespass if you are uncertain about the land ownership. Also, avoid stopping in front of residences and generally be discrete about displaying maps, cameras, and clipboards. Be careful about pulling off roads and do not violate any traffic laws to sample a riparian plot or observe a species. Always leave gates exactly as you found them. Also, for Placer County sites, it is important that all requirements specified by the landowner are followed. These requirements are attached to the directions, map, and photograph for each plot in Placer County.

PREFIELD TASKS

Prior to performing the field surveys, please review the following materials that will be provided in the field packets:

- Road maps and maps of the individual streams showing roads and access points so that survey routes can be planned and surveyed efficiently;
- PRBO field notes giving directions to individual sites, vegetation descriptions, and bird species lists for survey plots;
- Aerial photographs of individual creeks and rivers (as available).

Plan your route to the riparian sites and consult the field checklist to ensure that you have gathered all the necessary equipment to complete the RAP survey work you will be conducting (an equipment and contact list is included as Attachment 1).

LOCATING THE PLOT

Proceed to the coordinates for the center point of the 100 m by 100 m plot. Centered on this point, the plot edge is 100 m along the stream bank edge of the riparian zone (50 m up and 50 m down stream), and then extends 100 m inland (away from the stream bank).

CONDUCTING THE AREA SEARCH

The area search involves conducting a census of the entire1 ha plot (100 m X 100 m) and recording all bird species detected there. Please use the PRBO area search form to record data. Each area search plot is covered in approximately 1 hour to provide comparable search time at each plot. Typically, at least 3 plots should be covered in a single morning.

Begin the area search by filling out the observer and census information at the top of the PRBO AREA SEARCH FORM. Complete the weather information, and record the air temperature, % cloud cover (% of sky covered in clouds), and approximate wind speed using the attached Beaufort wind scale.

During the census, carefully record the name of each species seen, heard, or for which tracks or scat was observed. Please use the species' common name (not 4-letter codes) to avoid later confusion. For each individual of each species, record a single letter (S=song, V=visual, C=call), in the order of priority explained in the code key. You should change the data (i.e. from a call to a song) if a higher priority observation later occurs for that individual. Also, record breeding and nesting behavior. Recording other special behaviors (such as food carries, flocking, displaying), is strongly recommended but not required; there are respective columns on the form for these observations, following breeding bird atlas methodology. Other species observed off the plot or flying over may be recorded under Notes and Flyovers or on a separate sheet of paper.

In recording species on the data form, note whether the species was observed in the riparian or non-riparian portions of the plot.

POST-FIELD CHECKLIST

- Check over the field data forms and make sure everything is completed and clear.
- Surveyors should review each other's completed forms for completeness and accuracy in the field.
- Photocopy all your field forms. File the copes in the file cabinet in Ted's office and the originals in the Placer Legacy office.
- Cross off, date, and initial your completed site on the master list to ensure that field work is not repeated.
- Report progress to the project manager and obtain additional survey packages.

Beaufort Wind Scale

Used to guage wind speed using observations of the winds effects on trees and other objects. Often used in monitoring projects because it doesn't require fancy equipment.

Format: Beaufort Number * Wind Speed in Miles/hour(Km/hour) *** Description**

0 *** <1 (<1.6)***__Calm:__ Still: Smoke will rise vertically.

1***1-3(1.6-4.8)*** **Light Air:** Rising smoke drifts, weather vane is inactive.

2***4-7(6.4-11.3)***__Light Breeze:__ Leaves rustle, can feel wind on your face, weather vane is inactive.

3***8-12(12.9-19.3)***__Gentle Breeze:__ Leaves and twigs move around. Light weight flags extend.

4***13-18 (20.9-29.0)***__Moderate Breeze:__ Moves thin branches, raises dust and paper.

5***19-24 (30.6-38.6)***__Fresh Breeze:__ Moves trees sway.

6***25-31(40.2-50.0) *****Strong Breeze:** Large tree branches move, open wires (such as telegraph wires) begin to "whistle", umbrellas are difficult to keep under control.

7***32-38 (51.5-61.2)***__Moderate Gale:__ Large trees begin to sway, noticeably difficult to walk.

8***39-46(62.8-74.0)***__Fresh Gale:__ Twigs and small branches are broken from trees, walking into the wind is very difficult.

9***47-54(75.6-86.9)***__Strong Gale:__ Slight damage occurs to buildings, shingles are blown off of roofs.

10***55-63 (88.5-101.4)***__Whole Gale:__ Large trees are uprooted, building damage is considerable.

11***64-72 (103.0-115.9)***__Storm:__ Extensive widespread damage. These typically occur only at sea, and rarely inland.

12***>73 (>115.9)***__Hurricane:__ Extreme destruction.

NOTE: The Beaufort number is also referred to as a "Force" number, for example,
"Force 10 Gale".

* To calculate knots, divide miles/hour by 1.15.

PRBO AREA SEARCH FORM

Observer Information	**Census Information**
Observers	River/Creek Plot #
Date	Location (County)

__________°F or °C (circle one) Temperature   _________% Cloud Cover   _________ mph , knots, or kmph (circle one) Wind Speed

Number of Observers: ______ **Start Time:** _______________ **End Time:** _____________

Species	**Tally of Individuals** (<u>S</u>ong, <u>V</u>isual, <u>C</u>all, one letter per individual)	**Total**	**Behavior** (check if applicable)*								
									carry		
			Forage.	Flock	Copul.	Displ.	Pair	Mater.	Food	Nest	Fledge.

*Forag. = foraging, Copl. = copulation, Displ. = courtship or territorial display, Food carry includes fecal sack, Fledg. = fledgling.

Notes and flyovers:____

____

____

____

____

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Be sure you have the following:

- binoculars
- watch which indicates seconds
- at least 2 pens
- field notebook
- sufficient blank data forms
- clipboard
- rubber bands (for holding forms on clipboard)

Depending on the route, census type, and your experience level, you may also need:

- directions and maps
- GPS unit & extra batteries
- cell phone or radio
- range finder
- field guide
- water and snacks

Counts begin approximately 15 minutes after local sunrise and should be completed within 3-4 hours, generally by 10AM.

We recommend 2-3 visits per season (e.g., twice in May and once in June). Visits should be at least 10-15 days apart. Timing of the field season will vary by location, but should cover the local breeding season with as little overlap with migration or dispersal as possible.

When possible, the order in which points are surveyed should vary between visits. Ideally, observers should also vary among visits.

Do not conduct surveys during weather conditions that likely reduce detectability (e.g., high winds or rain). If conditions change for the worse while doing a count, remaining points can be completed <7 days from the first day, but this should be avoided as much as possible.

Approach the point with as little disturbance to the birds as possible, and begin your count as soon as you are oriented and are confident you can estimate distances accurately (less than 1 minute).

PRBO point counts are 5 minutes duration at each point. Record the time the survey begins at each point using the 24-hour clock. If something interferes with your ability to detect birds during the 5-minute count, stop the count until

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the disturbance has passed and start over. Cross out the interrupted data and note what happened on your form.

Every species detected at a point is recorded, regardless of how far from the observer. Use the standardized banding lab 4-letter abbreviation for species codes (http://www.pwrc.usgs.gov/bbl/manual/bandsize.htm) and follow the naming conventions maintained by the American Ornithologists Union (http://www.aou.org/aou/birdlist.html). For unknown species, record "XXXX." For unknown members of various families, use "XX" plus two letters to signify the family – "XXHU" for unidentified hummingbird, for example. You can follow birds after the completion of a point in order to verify identification. If no birds are detected at a point, write "No birds detected" on your form. We recommend keeping a list of all species detected between points (i.e., not during the 5 minute counts) on the back of your form.

For each individual detected we record the distance to the detection and the behavior that alerted us to the individuals' presence. Also, for each species we record any indications of breeding status. Make every effort to avoid double counting individuals detected at a single point. However, if an individual is known or thought to have been counted at a previous point, make a note of it, but record its presence at the current point anyway. No attracting devices, recordings, or "pishing" should be used.

Distance: All point counts involve recording distance to detections at some level of resolution. Depending on project, we use either 50m fixed-radius counts, or Variable Circular Plots (VCP), in which the distance to each detection is recorded to the nearest 10m (though this distance may vary by project and habitat type – consult project leader). Both methods also specify whether or not detections were beyond 100m.

Note: Fifty m radius counts may not provide sufficient data for calculating population density or trends for some species or habitats where the use of VCP's may improve estimates. We recommend the use of range finders and extensive training for either method, but especially for VCP. VCP data should always be taken in a way that is transferable to 50m format.

The distance recorded is the distance from the point to the first location an individual was observed, regardless of its behavior. If the bird subsequently moves, *do not change the original distance recorded*. If a bird is flying (but not "flying over" – see below), or perched high in a tree, the distance recorded is to the point at which a plumb line would hit the ground if hung from the point at which the bird was first observed. This distance should be measured as

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though a tape were laid across the ground, that is, including any intervening topographic features.

A bird flushed from within 10m of the point when you arrive should be included in the count. Birds that are flushed from farther away should be noted on the back of the form if they are species that didn't occur during the count.

We record the behavioral cue that alerted us to the presence of the individual - generally "S" for song, "V" for visual, or "C" for call (“D” for drumming woodpecker, “H” for humming hummingbird). If a bird sings after it has been detected via a different cue, this is indicated in the data, but the initial detection cue is preserved. Circle the original detection cue ("V" or "C") to note that a bird was singing subsequent to its initial detection, but otherwise, no changes in behavior are noted. Juvenile birds are recorded as “J”s regardless of their behavior, and are not included in most analyses.

Birds that are flying over but not using the habitat on the study area are recorded in the fly-over column. Birds flying below canopy level, flying from one perch to another, or actively foraging on or above the study area are recorded as described in the previous paragraphs.

Breeding status: We record any potential indications of breeding if noted for species at each point as follows:

- CO – copulation
- DI – territorial display.
- DD – distraction display
- FC – food carry
- FL – fledglings
- FS – fecal sac carry
- MC – material carry
- NF – nest found
- PA – pair

Riparian Ecosystem Assessment Mammal Area Search Protocol

INTRODUCTION

These protocols provide a guide to assist the survey team in obtaining the required information as efficiently as possible. Minor modifications to these protocols may be necessary depending on access constraints and time available to complete the surveys. All RAP surveys will be done at riparian sites that PRBO has surveyed previously and at Placer County riparian sites where permission is granted from the landowners. Assume that all land is private and do not trespass if you are uncertain about the land ownership. Also, avoid stopping in front of residences and generally be discrete about displaying maps, cameras, and clipboards. Be careful about pulling off roads and do not violate any traffic laws to sample a riparian plot or observe a species. Always leave gates exactly as you found them. Also, for Placer County sites, it is important that all requirements specified by the landowner are followed. These requirements are attached to the directions, map, and photograph for each plot in Placer County.

PREFIELD TASKS

Prior to performing the field surveys, please review the following materials that will be provided in the field packets:

- Road maps and maps of the individual streams showing roads and access points so that survey routes can be planned and surveyed efficiently;
- PRBO field notes giving directions to individual sites, vegetation descriptions, and bird species lists for survey plots;
- Aerial photographs of individual creeks and rivers (as available).

Plan your route to the riparian sites and consult the field checklist to ensure that you have gathered all the necessary equipment to complete the RAP survey work you will be conducting (an equipment and contact list is included as Attachment 1).

LOCATING THE PLOT

Proceed to the coordinates for the center point of the 100 m by 100 m plot. Centered on this point, the plot edge is 100 m along the stream bank edge of the riparian zone (50 m up and 50 m down stream), and then extends 100 m inland (away from the stream bank).

SEARCHING FOR MAMMALS

Area searches are conducted for approximately 1 hour to ensure comparable search effort on each plot. Begin the area search by entering the observer, date, time and site information at the top of the *Mammal Area Search* form. During the census, carefully record the name of each species seen or heard. Please use the species' common name (not 4-letter codes) to avoid later confusion. The area search involves walking throughout the entire (100 m by 100 m) plot.

POST-FIELD CHECKLIST

- Check over the field data forms and make sure everything is completed and clear.
- Surveyors should review each other's completed forms for completeness and accuracy in the field.

- Photocopy all your field forms. File the copes in the file cabinet in Ted’s office and the originals in the Placer Legacy office.
- Cross off, date, and initial your completed site on the master list to ensure that field work is not repeated.
- Report progress to the project manager and obtain additional survey packages.

Mammal Area Search Form

Site: ______________________________________ **Plot**: ______________

Date: ______________ **Start Time**: ______ **Stop Time:** _____

Observer: _______________________________

Temperature: _______ **Cloud Cover**: ________

Species	Visual Observation	Vocalization	Scat	Tracks	Prey Remains	Notes

Additional Comments:

Riparian Ecosystem Assessment Amphibian & Reptile Search Protocol

INTRODUCTION

These protocols provide a guide to assist the survey team in obtaining the required information as efficiently as possible. Minor modifications to these protocols may be necessary depending on access constraints and time available to complete the surveys. All RAP surveys will be done at riparian sites that PRBO has surveyed previously and at Placer County riparian sites where permission is granted from the landowners. Assume that all land is private and do not trespass if you are uncertain about the land ownership. Also, avoid stopping in front of residences and generally be discrete about displaying maps, cameras, and clipboards. Be careful about pulling off roads and do not violate any traffic laws to sample a riparian plot or observe a species. Always leave gates exactly as you found them. Also, for Placer County sites, it is important that all requirements specified by the landowner are followed. These requirements are attached to the directions, map, and photograph for each plot in Placer County.

PREFIELD TASKS

Prior to performing the field surveys, please review the following materials that will be provided in the field packets:

- Road maps and maps of the individual streams showing roads and access points so that survey routes can be planned and surveyed efficiently;
- PRBO field notes giving directions to individual sites, vegetation descriptions, and bird species lists for survey plots;
- Aerial photographs of individual creeks and rivers (as available).

Plan your route to the riparian sites and consult the field checklist to ensure that you have gathered all the necessary equipment to complete the RAP survey work you will be conducting (an equipment and contact list is included as Attachment 1).

Where data on amphibians and reptiles will be collected, cover boards will be placed out during the first visit to the site, and will be checked during the next visit (at least a week later).

LOCATING COVER BOARDS WITHIN THE PLOT

Proceed to the coordinates for the center point of the 100 m by 100 m plot. Centered on this point, the plot edge is 100 m along the stream bank edge of the riparian zone (50 m up and 50 m down stream), and then extends 100 m inland (away from the stream bank). Locate the first 100 m line of cover boards along the length of the stream bank side of the plot. Place 10 cover boards, evenly spaced apart, along this first line. Place an additional 10 cover boards along a second 100 m line 10 m in from the stream bank side of the plot and parallel to the first line of cover boards.

SEARCHING FOR AMPHIBIANS AND REPTILES

Area searches are conducted for approximately 1 hour to ensure comparable search effort on each plot. (If area searches deviate from the 1 hour duration, note this in the “Additional Comments” section of the data form.) Begin the area search by entering the observer, date, time and site information at the top of the *Amphibian and Reptile Data Collection* form. During the census, carefully record the name of each species seen or heard. Please use the species' common name (not 4-letter codes) to avoid later confusion. The area search involves walking throughout the entire (100 m by 100 m) plot and also checking under all cover boards. In checking cover boards, quickly lift each cover board and identify species present. Only handle amphibians and reptiles if you have a DFG permit and you cannot identify them. Most species should be identifiable without handling them. After it has been checked, replace each board in its original position. Please collect all cover boards and remove any flagging after the final plot survey.

POST-FIELD CHECKLIST

- Check over the field data forms and make sure everything is completed and clear.
- Surveyors should review each other's completed forms for completeness and accuracy in the field.
- Photocopy all your field forms. File the copes in the file cabinet in Ted's office and the originals in the Placer Legacy office.
- Cross off, date, and initial your completed site on the master list to ensure that field work is not repeated.
- Report progress to the project manager and obtain additional survey packages.

Amphibian and Reptile Data Collection Form

Site: ______________________________________ **Plot**: ______________

Date: ______________ **Start Time**: _______ **Stop Time:** _____

Observer: _________________________

Temperature: ________ **Cloud Cover**: _________

Species	Visual Observation	Vocalization	Under Cover	Notes

Additional Comments:

Riparian Ecosystem Assessment Butterfly Search Protocol

INTRODUCTION

These protocols provide a guide to assist the survey team in obtaining the required information as efficiently as possible. Minor modifications to these protocols may be necessary depending on access constraints and time available to complete the surveys. All RAP surveys will be done at riparian sites that PRBO has surveyed previously and at Placer County riparian sites where permission is granted from the landowners. Assume that all land is private and do not trespass if you are uncertain about the land ownership. Also, avoid stopping in front of residences and generally be discrete about displaying maps, cameras, and clipboards. Be careful about pulling off roads and do not violate any traffic laws to sample a riparian plot or observe a species. Always leave gates exactly as you found them. Also, for Placer County sites, it is important that all requirements specified by the landowner are followed. These requirements are attached to the directions, map, and photograph for each plot in Placer County.

PREFIELD TASKS

Prior to performing the field surveys, please review the following materials that will be provided in the field packets:

- Road maps and maps of the individual streams showing roads and access points so that survey routes can be planned and surveyed efficiently;
- PRBO field notes giving directions to individual sites, vegetation descriptions, and bird species lists for survey plots;
- Aerial photographs of individual creeks and rivers (as available).

Plan your route to the riparian sites and consult the field checklist to ensure that you have gathered all the necessary equipment to complete the RAP survey work you will be conducting (an equipment and contact list is included as Attachment 1).

Where data on amphibians and reptiles will be collected, cover boards will be placed out during the first visit to the site, and will be checked during the next visit (at least a week later).

SEARCHING FOR BUTERFLIES

All butterfly area searches must take place between 9 AM and 4 PM because of the daily flight patterns of butterflies. Area searches are conducted for approximately 1 hour to ensure comparable search effort on each plot. (If area searches deviate from the 1 hour duration, note why in the “Additional Comments” section of the data form.) Begin the area search by entering the observer and site information at the top of the *Butterfly Area Search* form. The area search involves walking throughout the entire (100 m by 100 m) plot. During the census, carefully record the name of each species seen. Please use the species’ scientific name (not 4-letter codes) to avoid later confusion. Indicate the relative abundance of each species in the *General Abundance* column of the data form using the following scale: Rare (1 individual), Uncommon (2-5 individuals), Common (5-10 individuals), Abundant (> 10 individuals).

POST-FIELD CHECKLIST

- Check over the field data forms and make sure everything is completed and clear.

- Surveyors should review each other's completed forms for completeness and accuracy in the field.
- Photocopy all your field forms. File the copes in the file cabinet in Ted's office and the originals in the Placer Legacy office.
- Cross off, date, and initial your completed site on the master list to ensure that field work is not repeated.
- Report progress to the project manager and obtain additional survey packages.

Area Search for Butterfly Species

Site: ______________________________________ **Plot**: ______________

Date: ______________ **Start Time**: ______ **Stop Time**: ____

Observer: _________________________

Notes on Weather: ____

____

Species	In Riparian	Out of Riparian	General Abundance	Notes

Additional Comments:

Riparian Ecosystem Assessment Small Mammal Trapping Protocol

INTRODUCTION

These protocols provide a guide to assist the survey team in obtaining the required information as efficiently as possible. Minor modifications to these protocols may be necessary depending on access constraints and time available to complete the surveys. All RAP surveys will be done at riparian sites that PRBO has surveyed previously and at Placer County riparian sites where permission is granted from the landowners. Assume that all land is private and do not trespass if you are uncertain about the land ownership. Also, avoid stopping in front of residences and generally be discrete about displaying maps, cameras, and clipboards. Be careful about pulling off roads and do not violate any traffic laws to sample a riparian plot or observe a species. Always leave gates exactly as you found them. Also, for Placer County sites, it is important that all requirements specified by the landowner are followed. These requirements are attached to the directions, map, and photograph for each plot in Placer County.

PREFIELD TASKS

Prior to performing the field surveys, please review the following materials that will be provided in the field packets:

- Road maps and maps of the individual streams showing roads and access points so that survey routes can be planned and surveyed efficiently;
- PRBO field notes giving directions to individual sites, vegetation descriptions, and bird species lists for survey plots;
- Aerial photographs of individual creeks and rivers (as available).

Plan your route to the riparian sites and consult the field checklist to ensure that you have gathered all the necessary equipment to complete the RAP survey work you will be conducting (an equipment and contact list is included as Attachment 1).

LOCATING TRAPS WITHIN THE PLOT

Proceed to the coordinates for the center point of the 100 m by 100 m plot. Centered on this point, the plot edge is 100 m along the stream bank edge of the riparian zone (50 m up and 50 m down stream), and then extends 100 m inland (away from the stream bank). Locate the first 100 m line of traps along the length of the stream bank side of the plot. Place 15 traps, evenly spaced apart, along this first line. Place an additional 15 traps along a second 100 m line 10 m in from the stream bank side of the plot and parallel to the first line of traps.

CONDUCTING THE SMALL MAMMAL TRAPPING

Trapping will be conducted for three consecutive nights at each plot All traps will be set within 2 hours of sunset and checked within 3 hours after sunrise the following morning. Each trap will be baited with peanut butter and rolled oats, and a wad of cotton was placed at the back of each trap for bedding.

Each animal captured will be identified to species, and its age, sex, reproductive condition, and general health will be evaluated and noted. The time, location of capture, and general weather and habitat conditions also will be recorded. Photographs will be taken of each study plot and each new species captured. All data will be recorded on standardized Jones & Stokes field forms

(Attached). Each captured animal will be marked with a permanent nontoxic felt pen so it could be identified as a recapture if trapped on subsequent trap-nights. All animals will be released at the site of capture.

All Jones & Stokes biologists conducting the small mammal surveys will wear appropriate protective clothing and respirators during the handling of the animals to avoid potential exposure to Hantivirus. Standard precautionary measures identified in Mills et al. (1995) *Guidelines for Working with Rodents Potentially Infected with Hantivirus* will be observed during this work.

Once tapping has been completed all traps and flagging will be removed from the site.

POST-FIELD CHECKLIST

- Check over the field data forms and make sure everything is completed and clear.
- Surveyors should review each other's completed forms for completeness and accuracy in the field.
- Photocopy all your field forms. File the copes in the file cabinet in Ted's office and the originals in the Placer Legacy office.
- Cross off, date, and initial your completed site on the master list to ensure that field work is not repeated.
- Report progress to the project manager and obtain additional survey packages.

Project: Placer Riparian Ecosystem Assessment

Site:_______________ **Plot:** ___________

Date:_____/_____/03 **Start Survey Time:**___________ **End Survey Time:**___________

Team Members: ____

____

Weather: Temp:______F; **Wind:** _______mph from_______; **Clouds:** __________; **Precip:**________
Other Site Conditions: ____

____

Photos: ____

Trap Survey Results

Time	Site	Location	CI	Species	Sex	Age	Condition	Recapture?	Marked?	

Trap check-off

Trap #	Trap Line		
	1	2	3
1			
2			
3			
4			
5			
6			
7			
7			
8			
10			
11			
12			
13			
14			
15			

Enter species code for each capture.
If trap is empty, put "x" in box

Notes:

Project Manager sign-off:

Draft 19 May, 2003

A KEY TO THE WOODY PLANTS OF RIPARIAN ZONES IN CALIFORNIA"S CENTRAL VALLEY

By John C. Hunter, Jones & Stokes, 2600 V Street, Sacramento CA 95818 jhunter@jsanet.com

1. Plant a large (up to several m high), densely clumped grass, with thick (> 2 cm) woody stems … *Arundo donax* (Giant reed)
1. Plant not a grass … 2
    2. Leaves compound (the thin flat portion of the leaf discontinuous) … 3
        3. Leaves opposite (> 1 leaf attached to stem in same plane) … 4
            4. Leaflets palmately arranged (radiating from a central point), flowers > 1 cm long, fruit with a husk that separates from the large (> 3 cm in diameter) round seed … *Aesculus californica* (California buckeye)
            4. Leaflets pinnately arranged (feather-like, arranged like ribs off a backbone), flowers < 1 cm long and fruits either flat and winged or small (<5 mm across) round and fleshy … 5
                5. Fruits dry and winged (with a thin flat extension), flowers inconspicuous, pith (in center of stem) not particularly large … 6
                    6. Fruit two-parted, each part with a wing; Leaves with 3-7 leaflets; Leaflet margins coarsely toothed … *Acer negundo* (box elder)
                    6. Fruit one-parted with one wing; Leaves with 5-7 leaflets; Leaflet margins smooth or with fine (small) teeth … *Fraxinus latifolia* (Oregon ash)
                5. Fruits fleshy without a wing, pith conspicuously large and spongy, flowers small and white (or cream) but showy in a dense inflorescence (cluster) … 7
                    7. Flowers in a broad flat clusters, Fruits black (sometimes white) with a white waxy coating that causes them to appear blue … *Sambucus mexicana* (Blue elderberry)
                    7. Flowers in rounded to cylindrical clusters, Fruits red, or black, without a waxy covering … *Sambucus racemosa* (Red elderberry)
        3. Leaves alternate (just 1 leaf attached to stem at any perpendicular plane) … 8
            8. Plant a legume (Our woody species in the Central Valley have pea-like flowers in drooping clusters, fruit a dry pod with multiple seeds) … 9
                9. A tree with white flowers, spines at the base of leaves, and a flat pod … *Robinia pseudoacacia* (black locust)
                9. A shrub or small tree with red flowers, no spines, and a pod with four "wings" … *Sesbania punecia*
            8. Plant not a legume … 10
                10. Plant w/ prickles … 11
                    11. Fruits dry, enclosed in a fruit-like fleshy to leathery sac (a rose hip); Leaflets pinnately arranged (feather-like, arranged like ribs off a backbone) … *Rosa californica* (California rose)
                    11. Fruits fleshy, blackberry-like; Leaflets palmately arranged (radiating from a central point) … 12
                        12. Leaves white on underside; Prickles broad-based; Stems often stout and ribbed (ridged); Leaflets 3-5; Flowers/fruits > 10 in each inflorescence (cluster) … *Rubus procerus* (Himilayan blackberry)
                        12. Leaves light green on underside; Prickles slender; Stems round; Leaflets 3; Flowers/fruits 2-15 in an inflorescence … *Rubus ursinus* (California blackberry)
                10. Plant w/o prickles … 13
                    13. Leaflets with a round gland (a thickened dot) near the base, fruit flat, dry with a wing … Ailanthus (Tree-of-Heaven)
                    13. Leaflets without a basal gland, fruit round, fleshy or leathery and without a wing … 14
                        14. Plant a vine or shrub; Leaflets 3-5; Leaflet margins lobed, coarsely toothed or smooth; Fruits small (< 1 cm) … *Toxicodendron diversilobum* (Poison oak)

                        14. Plant a tree, Leaflets 11-19; Leaflet margins sharply toothed but not lobed; Fruits large (> 2.5 cm across) … *Juglans californica* var. *hindsii* (Northern California black walnut)

Draft 19 May, 2003

2. Leaves simple (the thin flat portion of the leaf continuous)
    15. Plant a willow: Fruit a capsule with seeds embedded in cottony fluff; Leaves alternate, deciduous and narrow (ranging from linear (almost not taper) to lance-shaped); Buds covered by a single scale; Bark bitter tasting and astringent with an aspirin-like flavor … 16
        16. Scale covering bud in axil of leaf (where leaf meets stem) has free and overlapping margins (you can see this by pressing down on the tip of the bud and rocking it from side to side); Axillary bud small (< 3 mm), conical and pointed … 17
            17. Leaf dull green on both sides; stipules (a pair of small leafy or dry and papery bracts where the leaf joins the stem) absent; Twigs of the current year tend to be yellow to olive, Plant a tree to 30 m high … *Salix gooddingii* (Gooding's black willow)
            17. Leaf glossy green above and glaucous (waxy white) below; stipules generally present; Current year twigs typically red to yellowish brown; Plant a tree to 14 m … *Salix laevigata* (Red willow)
        16. Scale covering bud in axil has margins fused together so that the scale forms a cap; Axillary bud small to large, with a rounded tip and shape elliptic to conical … 18
            18. Leaves narrow (linear and generally < 1 cm wide) with upper and lower surfaces similar, both covered (thickly or thinly) in silky hairs; Plant a clonal, multi-stemmed shrub to 6 m … *Salix exigua* (Sandbar or Narrow leaf willow)
            18. Leaves broader (elliptic to lance-shaped and generally > 1 cm wide) with upper surfaces shiny green and lower surfaces pale green or glaucous (waxy white), hairs generally restricted to young leaves; Plant a shrub or small tree to 18 m … 19
                19. Petiole (stalk of leaf) with glands at base of blade (these glands appear as small warty, irregular protrusions); Leaves 5-17 cm long, lance-shaped and gradually tapering towards the tip with concave sides (long acuminate)… *Salix lucida* var. *lasiandra*, (Shining willow)
                19. Petiole without glands; Leaves 3-12 cm long, narrowly lance-shaped to elliptic, tapers to tip with convex sides … *Salix lasiolepis*, (Arroyo willow)
    15. Plant not a willow and the complete set of attributes not as above; Fremont's cottonwood is in the willow family and shares some of the traits described above except that its leaves are broad and triangular to heart-shaped and its buds have > 1 scale; For other species: Fruit not a capsule and seeds not embedded in cottony fluff; Leaves alternate or opposite, deciduous or evergreen and narrow or broad; Buds covered by more than one scale; Bark taste varied but without an aspirin-like flavor;
        20. Plant an oak: Fruit an acorn; Buds clustered near the branch tips; Plant a tree … 21
            21. Leaves with bristles *Quercus wislizenii* (Interior live oak) – However, at higher elevations, if underside of leaf has a pale bluish cast and it covered in powdery dust, the plant could be could be *Quercus chrysolepis* (Canyon live oak)
            21. Leaves w/o bristles … 22
                22. Leaves deeply lobed (often > ½ distance to midrib); Acorn 3-5 cm long; Leaves upper surface with a greenish cast … *Quercus lobata* (Valley oak)
                22. Leaves shallowly lobed (< ½ distance to midrib) or wavy margined; Acorn 2-3.5 cm long; Leaves upper surface often with a bluish cast … *Quercus douglasii* (Blue oak)
        20. Plant not an oak: Fruit not an acorn; Buds generally not clustered near branch tips; Plant a tree, shrub or vine … 23
            23. Plant a woody vine … 24
                24. Plant evergreen, lacking tendrils … *Hedera helix* (Ivy)
                24. Plant deciduous and with tendrils opposite leaves … *Vitis californica* (California wild grape)
            23. Plant a shrub or tree … 25
                25. Plant evergreen … 26
                    26. Plant a shrub, often sticky; Flowers in dense clusters (surrounded by bracts so that they almost appear to be a single flower) developing into dry fruits with a tuft of bristles (pappus) at the top … 27
                        27. Leaves up to 15 cm long, narrow with a gradual taper, widest near middle; Leaf stalks (petioles) winged (i.e., having a thin, flat extension running along them) … *Baccharis salicifolia* (mule fat)

27. Leaves up to 5 cm long, broad and strongly tapering to base, often widest above middle; Leaf stalks very short … *Baccharis pilularis* (coyote brush)

26. Plant a shrub or tree, not sticky; Flowers not as above, clearly on separate stalks (pedicels), and fruits fleshy … 28

28. Leaf margin entire (smooth); Fruits 1-3 cm long, green or black when mature … 29

29. Leaves alternate, green on both sides, aromatic … *Umbellularia californica* (California bay laurel)

29. Leaves opposite, green above, silvery below, not particularly aromatic … *Olea europea* (olive)

28. Leaf margin toothed; Fruits about 0.6 cm long, red when mature … *Heteromeles arbutifolia* (toyon)

25. Plant deciduous … 30

30. Leaves opposite or whorled … 31

31. Leaf margins jagged (toothed); Fruit 2-parted, each part with a wing (a thin flat extension), and not splitting open, seeds not hairy … *Acer saccharinum* (Silver maple)

31. Leaf margins smooth; Fruit lacking a wing, seeds with or without a fringe of hairs …

32. Fruits arranged in a dense ball at or near tips of branches, and each fruit composed of two hard, dry pieces; Seeds without a fringe of hairs; Plant a shrub or small tree; Leaves with a dry scale (interpetiolar stipule) between adjacent leaf bases … *Cephalanthus occidentalis* (Button-willow)

32. Fruit a long woody pod; Seeds with fringes of hairs at their ends; Plant a tree; Leaves without scales (stipules) at the base of their stalks … *Catalpa* species (common name also Catalpa)

30. Leaves alternate … 33

33. Leaves small (< 3mm), triangular and close against the stem; Petioles (leaf stalks) absent … *Tamarix parviflora* (Smallflower tamarisk)

33. Leaves larger (> 1 cm), shapes various but not triangular, and spreading away from stem; Petioles present … 34

34. Leaves lobed … 35

35. Leaves 2-5 cm wide and hairless, base of leaf stalk does not completely enclose bud; Plant a shrub … *Ribes aureum* (Golden currant)

35. Leaves 10-20 cm wide and pubescent, base of leaf stalk either encircles stem or completely encloses bud; Plant a large shrub to large tree … 36

36. Leaves and stems exude milky sap when broken; Fruit fleshy; Bark relatively smooth and not flaking … *Ficus carica* (Fig)

36. Leaves and stem do not exude milky sap when broken; Fruit hard and dry with a tuft of hairs, arranged in dense round heads; Bark flakes in thin sheets to reveal smooth pale surface … *Platanus racemosa* (Western sycamore)

34. Leaves toothed but not lobed; Bark varied but not as above; Fruits various but not as above ... 37

37. Leaves triangular to heart-shaped; Petiole (leaf stalk) flattened near leaf blade; Fruit a capsule opening to release small seeds in cottony fluff; Plant a large tree to 30 m … *Populus fremontii* (Fremont's cottonwood)

37. Leaves elliptic to lance-shaped; petiole more or less round, not conspicuously flattened; Fruit not a capsule and seeds not embedded in cottony fluff; Plant a small to large tree … 38

38. Plant with two types of shoots – long and short shoots, the short shoots with closely spaced leaves and also bearing the flowers and fruits; Leaves with lateral veins that fork and bend before reaching the leaf margin (the edge of the leaf) … *Prunus* species (the stone fruits including cherries and almond)

38. Plant with one type of shoot, though these may vary in orientation and spacing of leaves; Leaves with straight lateral veins only some of which fork before reaching the leaf margin … 39

    39. Fruits produced on woody scales arranged in a cone-like structure; Buds on a small stalk, not offset from leaf stalk … *Alnus rhombifolia* (White alder)

    39. Fruits not produced in a cone-like structure; Buds not stalked, offset from leaf stalk … *Ulmus* species (Elm species)

Appendix B
Summary of Species Observations

Table B-1. Frequency of Observed Odonate Species

Common Name	Scientific Name	Total (%) *N = 43*	Placer County Plots (%) *N = 20*	Other Plots (%) *N = 23*
Damselflies	**Zygoptera**			
American Rubyspot	*Hetaerina americana*	47	50	43
Spotted Spreadwing	*Lestes congener*	2	0	4
California Spreadwing	*Archilestes californica*	7	0	13
California Dancer	*Argia agrioides*	19	20	17
Emma's Dancer	*Argia emma*	28	25	30
Sooty Dancer	*Argia lugens*	14	5	22
Aztec Dancer	*Argia nahuana*	2	0	4
Vivid Dancer	*Argia vivida*	40	45	35
Unknown sp. teneral dancer	*Argia* sp.	5	10	0
Boreal Bluet	*Enallagma boreale*	5	5	4
Familiar Bluet	*Enallagma civile*	44	40	48
Unknown sp. female bluet	*Enallagma* sp.	5	5	4
Pacific Forktail	*Ischnura cervula*	42	35	48
Western Forktail	*Ischnura perparva*	5	10	0
Desert Firetail	*Telebasis salva*	2	5	0
Dragonflies	**Anisoptera**			
Blue-eyed Darner	*Aeshna multicolor*	65	75	57
Common Green Darner	*Anax junius*	93	90	96
Pale-faced Clubskimmer	*Brechmorhoga mendax*	42	50	35
Western Pondhawk	*Erythemis collocata*	26	20	30
Eight-spotted Skimmer	*Libellula forensis*	0	0	0
Widow Skimmer	*Libellula luctuosa*	9	10	9
Common Whitetail	*Plathemis lydia*	7	10	4
Twelve-spotted Skimmer	*Libellula pulchella*	9	5	13
Flame Skimmer	*Libellula saturata*	21	0	39
Blue Dasher	*Pachydiplax longipennis*	30	35	26
Red Rock Skimmer	*Paltothemis lineatipes*	5	0	9
Wandering Glider	*Pantala flavescens*	44	40	48
Spot-winged Glider	*Pantala hymenaea*	26	25	26
Variegated Meadowhawk	*Sympetrum corruptum*	51	40	61
Striped Meadowhawk	*Sympetrum pallipes*	5	0	9
Black Saddlebags	*Tramea lacerata*	84	85	83

Table B-2. Observed Butterfly Species

Common Name	Scientific Name	Total (%) *N = 43*	Placer County Plots (%) *N = 23*	Other Plots (%) *N = 24*
California Sister	*Adelpha bredowii*	11	13	8
Sara Orange-tip	*Anthocharis sara*	6	9	4
Field Skipper	*Atlopedes campestris*	23	35	13
Pipevine Swallowtail	*Battus philenor*	72	70	75
Persius Duskywing	*Erynnis persius*	2	0	4
Northern Checkerspot	*Charidryas palla*	4	4	4
California Ringlet	*Coenonympha tullia*	45	70	21
Orange Sulphur	*Colias eurytheme*	77	74	79
Monarch	*Danaus plexipus*	0	0	0
Propertius Duskywing	*Erynnis propertius*	6	4	8
Mournful Duskywing	*Erynnis tristis*	2	4	0
Common Checkerspot	*Euphydryas chalcedona*	4	0	8
Eastern Tailed Blue	*Everes comyntas*	51	57	46
Gorgon Copper	*Gaeides gorgon*	2	0	4
Fiery Skipper	*Hylephila phyleus*	6	13	0
Buckeye	*Junonia coenia*	96	96	96
Lorquin's Admiral	*Limentis lorquini*	15	30	0
Purplish Copper	*Lycaena helloides*	4	9	0
Mourning Cloak	*Nymphalis antiopa*	11	17	4
The Farmer	*Ochlodes agricola*	4	9	0
Pale Swallowtail	*Papilio eurymedon*	2	4	0
Western Tiger	*Papilio rutulus*	70	78	63
Anise Swallowtail	*Paplio zelicaon*	13	17	8
Umber Skipper	*Paratrytone melane*	13	22	4
Common sSoty-wing	*Pholisora catullus*	2	0	4
Mylitta Crescent	*Phyciodes mylitta*	34	52	17
Cabbage Butterfly	*Pieris rapae*	89	91	88
Acmon Blue	*Plebejus acmon*	30	17	42
Sandhill Skipper	*Polites sabuleti*	2	4	0
Satyr Comma	*Polygonia satyrus*	4	0	8
Checkered White	*Pontia protodice*	2	4	0
Common Checkered	*Pyrgus communis*	4	0	8
California Hairstreak	*Satyrium californicum*	17	17	17
Hedge-row Hairstreak	*Satyrium saepium*	0	0	0
Sylvan Hairstreak	*Satyrium sylvinus*	11	9	13
Common Hairstreak	*Strymon melinus*	28	48	8
West Coast Lady	*Vanessa annabella*	4	0	8
Red Admiral	*Vanessa atalanta*	34	43	25
Painted Lady	*Vanessa cardui*	55	61	50
American Lady	*Vanessa virginiensis*	6	13	0

Table B-3. Amphibian and Reptile Species Observed During One Survey of Plots

Common Name	Scientific Name	Total (%) *N = 47*	Placer County Plots (%) *N = 23*	Other Plots (%) *N = 24*
Pacific Treefrog	*Pseudacris regilla*	2	4	0
Foothill Yellow-legged Frog	*Rana boylii*	0	0	0
Bullfrog	*Rana catesbeiana*	32	26	38
Western Pond Turtle	*Emys marmorata*	0	0	0
Western Fence Lizard	*Sceloporus occidentalis*	28	26	29
Western Skink	*Eumeces skiltonianus*	0	0	0
Aligator Lizard	*Elgaria* sp.	13	4	21
Gopher Snake	*Pituophis catenifer*	2	0	4
Garter Snake	*Thamnophis* sp.	2	0	4
Western Rattlesnake	*Crotalis viridis*	6	4	8

Table B-4. Amphibian and Reptile Species Observed During Four Surveys of Plots

Common Name	Scientific Name	Total (%) *N = 12*	Placer County Plots (%) *N = 8*	Other Plots (%) *N = 4*
Pacific Treefrog	*Pseudacris regilla*	8	0	25
Foothill Yellow-legged Frog	*Rana boylii*	8	13	0
Bullfrog	*Rana catesbeiana*	42	38	50
Western Pond Turtle	*Emys marmorata*	8	0	25
Western Fence Lizard	*Sceloporus occidentalis*	83	88	75
Western Skink	*Eumeces skiltonianus*	0	0	0
Aligator Lizard	*Elgaria* sp.	33	50	0
Gopher Snake	*Pituophis catenifer*	8	13	0
Garter Snake	*Thamnophis* sp.	0	0	0
Western Rattlesnake	*Crotalis viridis*	8	0	25

Table B-5. Mammal Species Observed During One Survey of Plots

Common Name	Scientific Name	Total (%) *N = 47*	Placer County Plots (%) *N = 23*	Other Plots (%) *N = 24*
Virginian Opossum	*Didelphis virginiana*	2	0	4
Desert Cottontail	*Sylivlagus audubonii*	4	4	4
Black-tailed Jackrabbit	*Lepus californicus*	11	13	8
Western Gray Squirrel	*Sciurus griseus*	19	22	17
Botta's Pocket Gopher	*Thomomys bottae*	9	4	13
American Beaver	*Castor canadensis*	6	0	12.5
Coyote	*Canis latrans*	6	9	4
Racoon	*Procyon lotor*	40	35	46
Northern River Otter	*Lontra canadensis*	2	0	4
Bobcat	*Lynx rufus*	9	9	8
Mule Deer	*Odocoileus hemionus*	34	26	42

Table B-6. Mammal Species Observed During Four Surveys of Plots

Common Name	Scientific Name	Total (%) *N = 12*	Placer County Plots (%) *N = 8*	Other Plots (%) *N = 4*
Virginian Opossum	*Didelphis virginiana*	8	13	0
Desert Cottontail	*Sylivlagus audubonii*	8	0	25
Black-tailed Jackrabbit	*Lepus californicus*	17	13	25
Western Gray Squirrel	*Sciurus griseus*	33	38	25
Botta's Pocket Gopher	*Thomomys bottae*	8	0	25
Deer Mouse	*Peromyscus maniculatus*	8	0	25
California Meadow Mouse	*Microtus californicus*	17	13	25
Feral Dog	*Canis familiaris*	8	0	25
Coyote	*Canis latrans*	17	25	0
Gray Fox	*Urocyon cinereoargenteus*	8	0	25
Raccoon	*Procyon lotor*	75	75	75
Feral Cat	*Felis catus*	17	25	0
Bobcat	*Lynx rufus*	17	13	25
Mule Deer	*Odocoileus hemionus*	67	63	75
Muskrat	*Ondatra zibethicus*	8	0	25

Table B-7. Mean Abundance of Small Mammals Trapped at Plots[1]

Common Name	Scientific Name	Total *N = 10*	Placer County Plots *N = 6*	Other Plots *N = 4*
Opossum	*Didelphis virginiana*	0.1 ± 0.1	0.2 ± 0.2	–
Brush Mouse	*Peromyscus boylii*	3.5 ± 2.3	–	8.8 ± 5.1
Deer Mouse	*Peromyscus maniculatus*	5.1 ± 1.8	2.0 ± 1.6	9.8 ± 2.5
California Meadow Mouse	*Microtus californicus*	3.2 ± 2.5	1.2 ± 0.7	6.3 ± 6.3
House Mouse	*Mus musculus*	1.3 ± 0.9	0.8 ± 0.8	2.0 ± 2.0
Black Rat	*Rattus rattus*	0.6 ± 0.2	0.7 ± 0.3	0.5 ± 0.3

[1] Values are means ± 1 standard error.

Table B-8. Bird Species Observed During One Survey of Plots

Common Name	Scientific Name	Summer Resident	Migrant	Total (%) *N = 47*	Placer County Plots (%) *N = 23*	Other Plots (%) *N = 24*
Pied-billed Grebe	*Podilymbus podiceps*	X		2	4	0
Great Blue Heron	*Ardea herodias*	X		2	4	0
Green Heron	*Butorides virescens*	X		2	0	4
Wood Duck	*Aix sponsa*	X		2	4	0
Mallard	*Anas platyrhynchos*	X		11	17	4
Cinnamon Teal	*Anas cyanoptera*	X		2	4	0
Common Merganser	*Mergus merganser*	X		0	0	0
Turkey Vulture	*Cathartes aura*	X		4	4	4
White-tailed Kite	*Elanus leucurus*	X		2	0	4
Cooper's Hawk	*Accipiter cooperii*	X		2	4	0
Red-shouldered Hawk	*Buteo lineatus*	X		11	13	8
Swainson's Hawk	*Buteo swainsoni*	X		2	4	0
Red-tailed Hawk	*Buteo jamaicensis*	X		6	0	13
American Kestrel	*Falco sparverius*	X		0	0	0
Ring-necked Pheasant	*Phasianus colchicus*	X		2	4	0
Wild Turkey	*Meleagris gallopavo*	X		4	9	0
California Quail	*Callipepla californica*	X		17	13	21
Common Moorhen	*Gallinula chloropus*	X		2	4	0
American Coot	*Fulica americana*	X		2	4	0
Killdeer	*Charadrius vociferus*	X		9	4	13
Spotted Sandpiper	*Tringa macularia*	X		0	0	0
Mourning Dove	*Zenaida macroura*	X		28	26	29
Barn Owl	*Tyto alba*	X		0	0	0

Table B-8. Continued

Common Name	Scientific Name	Summer Resident	Migrant	Total (%) *N = 47*	Placer County Plots (%) *N = 23*	Other Plots (%) *N = 24*
Great Horned Owl	*Bubo virginianus*	X		0	0	0
Black-chinned Hummingbird	*Archilochus alexandri*	X		17	17	17
Anna's Hummingbird	*Calypte anna*	X		32	30	33
Belted Kingfisher	*Megaceryle alcyon*	X		11	9	13
Acorn Woodpecker	*Melanerpes formicivorus*	X		30	48	13
Nuttall's Woodpecker	*Picoides nuttallii*	X		60	52	67
Downy Woodpecker	*Picoides pubescens*	X		40	39	42
Hairy Woodpecker	*Picoides villosus*	X		2	0	4
Northern Flicker	*Colaptes auratus*	X		11	4	17
Western Wood-Pewee	*Contopus sordidulus*	X		32	26	38
Willow Flycatcher	*Empidonax traillii*		X	13	22	4
Dusky Flycatcher	*Empidonax oberholseri*		X	2	4	0
Pacific-slope Flycatcher	*Empidonax difficilis*	X		19	22	17
Black Phoebe	*Sayornis nigricans*	X		51	61	42
Ash-throated Flycatcher	*Myiarchus cinerascens*	X		68	70	67
Western Kingbird	*Tyrannus verticalis*	X		30	26	33
Hutton's Vireo	*Vireo huttoni*	X		9	13	4
Warbling Vireo	*Vireo gilvus*	?		28	30	25
Western Scrub-Jay	*Aphelocoma californica*	X		57	65	50
Yellow-billed Magpie	*Pica nuttalli*	X		19	26	13
American Crow	*Corvus brachyrhynchos*	X		2	4	0
Common Raven	*Corvus corax*	X		0	0	0
Tree Swallow	*Tachycineta bicolor*	X		38	26	50
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	X		15	4	25
Cliff Swallow	*Hirundo pyrrhonota*	X		4	0	8

Table B-8. Continued

Common Name	Scientific Name	Summer Resident	Migrant	Total (%) *N = 47*	Placer County Plots (%) *N = 23*	Other Plots (%) *N = 24*
Barn Swallow	*Hirundo rustica*	X		2	4	0
Oak Titmouse	*Parus inornatus*	X		53	61	46
Bushtit	*Psaltriparus minimus*	X		57	61	54
White-breasted Nuthatch	*Sitta carolinensis*	X		51	65	38
Bewick's Wren	*Thryomanes bewickii*	X		40	26	54
House Wren	*Troglodytes aedon*	X		55	74	38
Western Bluebird	*Sialia mexicana*	X		9	4	13
Swainson's Thrush	*Catharus ustulatus*		X	9	0	17
American Robin	*Turdus migratorius*	X		30	30	29
Wrentit	*Chamaea fasciata*	X		15	26	4
Northern Mockingbird	*Mimus polyglottos*	X		13	17	8
European Starling	*Sturnus vulgaris*	X		40	48	33
Cedar Waxwing	*Bombycilla cedrorum*		X	2	0	4
Phainopepla	*Phainopepla nitens*	X		0	0	0
Orange-crowned Warbler	*Vermivora celata*	X		19	22	17
Nashville Warbler	*Vermivora ruficapilla*		X	2	0	4
Yellow Warbler	*Dendroica petechia*		X	21	13	29
Common Yellowthroat	*Geothlypis trichas*	X		11	9	13
Wilson's Warbler	*Wilsonia pusilla*	?		30	17	42
Yellow-breasted Chat	*Icteria virens*	X		30	22	38
Western Tanager	*Piranga ludoviciana*		X	26	22	29
Black-headed Grosbeak	*Pheucticus melanocephalus*	X		45	35	54
Blue Grosbeak	*Guiraca caerulea*	X		4	0	8
Lazuli Bunting	*Passerina amoena*	X		19	22	17
Spotted Towhee	*Pipilo maculatus*	X		28	30	25

Table B-8. Continued

Common Name	Scientific Name	Summer Resident	Migrant	Total (%) *N = 47*	Placer County Plots (%) *N = 23*	Other Plots (%) *N = 24*
California Towhee	*Pipilo crissalis*	X		19	9	29
Lark Sparrow	*Chondestes grammacus*	X		2	0	4
Savannah Sparrow	*Passerculus sandwichensis*	X		2	0	4
Song Sparrow	*Melospiza melodia*	X		26	26	25
Red-winged Blackbird	*Agelaius phoeniceus*	X		13	17	8
Western Meadowlark	*Sturnella neglecta*	X		13	13	13
Brewer's Blackbird	*Euphagus cyanocephalus*	X		11	0	21
Brown-headed Cowbird	*Molothrus ater*	X		51	30	71
Bullock's Oriole	*Icterus bullockii*	X		32	13	50
House Finch	*Carpodacus mexicanus*	X		49	43	54
Lesser Goldfinch	*Carduelis psaltria*	X		45	57	33
American Goldfinch	*Carduelis tristis*	X		45	48	42
House Sparrow	*Passer domesticus*	X		9	9	8

Table B-9. Bird Species Observed During Four Site Visits

Common Name	Scientific Name	Summer Resident	Migrant	Total (%) *N = 12*	Placer County Plots (%) *N = 8*	Other Plots (%) *N = 4*
Pied-billed Grebe	*Podilymbus podiceps*	X		0	0	0
Great Blue Heron	*Ardea herodias*	X		0	0	0
Green Heron	*Butorides virescens*	X		8	13	0
Wood Duck	*Aix sponsa*	X		17	25	0
Mallard	*Anas platyrhynchos*	X		25	38	0
Cinnamon Teal	*Anas cyanoptera*	X		0	0	0
Common Merganser	*Mergus merganser*	X		8	0	25
Turkey Vulture	*Cathartes aura*	X		17	13	25
White-tailed Kite	*Elanus leucurus*	X		8	0	25
Cooper's Hawk	*Accipiter cooperii*	X		8	13	0
Red-shouldered Hawk	*Buteo lineatus*	X		42	63	0
Swainson's Hawk	*Buteo swainsoni*	X		8	0	25
Red-tailed Hawk	*Buteo jamaicensis*	X		25	13	50
American Kestrel	*Falco sparverius*	X		8	13	0
Ring-necked Pheasant	*Phasianus colchicus*	X		8	13	0
Wild Turkey	*Meleagris gallopavo*	X		0	0	0
California Quail	*Callipepla californica*	X		42	25	75
Common Moorhen	*Gallinula chloropus*	X		0	0	0
American Coot	*Fulica americana*	X		0	0	0
Killdeer	*Charadrius vociferus*	X		17	13	25
Spotted Sandpiper	*Tringa macularia*	X		8	0	25
Mourning Dove	*Zenaida macroura*	X		58	38	100
Barn Owl	*Tyto alba*	X		0	0	0

Table B-9. Continued

Common Name	Scientific Name	Summer Resident	Migrant	Total (%) *N = 12*	Placer County Plots (%) *N = 8*	Other Plots (%) *N = 4*
Great Horned Owl	*Bubo virginianus*	X		8	13	0
Black-chinned Hummingbird	*Archilochus alexandri*	X		58	50	75
Anna's Hummingbird	*Calypte anna*	X		67	88	25
Belted Kingfisher	*Megaceryle alcyon*	X		42	38	50
Acorn Woodpecker	*Melanerpes formicivorus*	X		83	88	75
Nuttall's Woodpecker	*Picoides nuttallii*	X		92	88	100
Downy Woodpecker	*Picoides pubescens*	X		75	88	50
Hairy Woodpecker	*Picoides villosus*	X		0	0	0
Northern Flicker	*Colaptes auratus*	X		17	25	0
Western Wood-Pewee	*Contopus sordidulus*	X		58	50	75
Willow Flycatcher	*Empidonax traillii*		X	33	38	25
Dusky Flycatcher	*Empidonax oberholseri*		X	8	13	0
Pacific-slope Flycatcher	*Empidonax difficilis*	X		33	50	0
Black Phoebe	*Sayornis nigricans*	X		92	88	100
Ash-throated Flycatcher	*Myiarchus cinerascens*	X		100	100	100
Western Kingbird	*Tyrannus verticalis*	X		33	13	75
Hutton's Vireo	*Vireo huttoni*	X		17	25	0
Warbling Vireo	*Vireo gilvus*	?		33	38	25
Western Scrub-Jay	*Aphelocoma californica*	X		75	75	75
Yellow-billed Magpie	*Pica nuttalli*	X		25	25	25
American Crow	*Corvus brachyrhynchos*	X		17	25	0
Common Raven	*Corvus corax*	X		8	0	25
Tree Swallow	*Tachycineta bicolor*	X		58	38	100
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	X		50	50	50
Cliff Swallow	*Hirundo pyrrhonota*	X		17	25	0

Table B-9. Continued

Common Name	Scientific Name	Summer Resident	Migrant	Total (%) *N = 12*	Placer County Plots (%) *N = 8*	Other Plots (%) *N = 4*
Barn Swallow	*Hirundo rustica*	X		0	0	0
Oak Titmouse	*Parus inornatus*	X		92	100	75
Bushtit	*Psaltriparus minimus*	X		100	100	100
White-breasted Nuthatch	*Sitta carolinensis*	X		92	100	75
Bewick's Wren	*Thryomanes bewickii*	X		83	88	75
House Wren	*Troglodytes aedon*	X		92	88	100
Western Bluebird	*Sialia mexicana*	X		17	13	25
Swainson's Thrush	*Catharus ustulatus*		X	8	0	25
American Robin	*Turdus migratorius*	X		67	75	50
Wrentit	*Chamaea fasciata*	X		33	38	25
Northern Mockingbird	*Mimus polyglottos*	X		25	13	50
European Starling	*Sturnus vulgaris*	X		92	100	75
Cedar Waxwing	*Bombycilla cedrorum*		X	8	13	0
Phainopepla	*Phainopepla nitens*	X		17	13	25
Orange-crowned Warbler	*Vermivora celata*	X		42	50	25
Nashville Warbler	*Vermivora ruficapilla*		X	8	0	25
Yellow Warbler	*Dendroica petechia*		X	25	25	25
Common Yellowthroat	*Geothlypis trichas*	X		17	0	50
Wilson's Warbler	*Wilsonia pusilla*	?		58	50	75
Yellow-breasted Chat	*Icteria virens*	X		42	38	50
Western Tanager	*Piranga ludoviciana*		X	58	50	75
Black-headed Grosbeak	*Pheucticus melanocephalus*	X		83	88	75
Blue Grosbeak	*Guiraca caerulea*	X		0	0	0
Lazuli Bunting	*Passerina amoena*	X		25	25	25
Spotted Towhee	*Pipilo maculatus*	X		67	63	75

Table B-9. Continued

Common Name	Scientific Name	Summer Resident	Migrant	Total (%) *N = 12*	Placer County Plots (%) *N = 8*	Other Plots (%) *N = 4*
California Towhee	*Pipilo crissalis*	X		25	25	25
Lark Sparrow	*Chondestes grammacus*	X		0	0	0
Savannah Sparrow	*Passerculus sandwichensis*	X		0	0	0
Song Sparrow	*Melospiza melodia*	X		42	38	50
Red-winged Blackbird	*Agelaius phoeniceus*	X		0	0	0
Western Meadowlark	*Sturnella neglecta*	X		0	0	0
Brewer's Blackbird	*Euphagus cyanocephalus*	X		8	0	25
Brown-headed Cowbird	*Molothrus ater*	X		75	63	100
Bullock's Oriole	*Icterus bullockii*	X		58	50	75
House Finch	*Carpodacus mexicanus*	X		83	75	100
Lesser Goldfinch	*Carduelis psaltria*	X		92	100	75
American Goldfinch	*Carduelis tristis*	X		75	88	50
House Sparrow	*Passer domesticus*	X		25	25	25

Appendix B

Central Valley Songbird Responses to Riparian Width and Other Site- and Landscape-Scale Habitat Characteristics

Appendix B
Central Valley Songbird Responses to Riparian Width and Other Site- and Landscape-Scale Habitat Characteristics

Introduction

To address Placer County's interest in developing riparian setback guidelines for conservation purposes, we analyzed six years of riparian bird count data with respect to width of the riparian zone. Using a subset of PRBO bird survey sites, supplemented by new sites in Placer County, Jones & Stokes (2004) detected a positive relationship between riparian bird species richness and riparian zone width. Thus we wanted to investigate whether additional relationships could be detected using our comprehensive Central Valley riparian point count dataset. In our analysis, we also examined local vegetation and GIS-generated habitat types and surrounding landscape characteristics. Our primary goal was to characterize songbird relationships with riparian zone width, and to identify appropriate widths for riparian buffer zones (development setbacks), given a range of habitat and landscape characteristics.

Methods

Data used for analysis were obtained from bird point count surveys (Ralph et al. 1993) conducted between 1998 and 2003. Sites included long-term monitoring sites along the Sacramento, Cosumnes and San Joaquin Rivers, as well as sites that were surveyed for shorter periods of time, primarily for inventory purposes (Figure B-1). We used a total of 596 riparian point count stations along 117 streamside transects (Table B-1). Within each transect, points were spaced at least 200 meters apart, and the first point count survey station was selected using a random starting point. Point counts were conducted for five minutes, with 1-3 visits per season. (See http://www.prbo.org/tools/pc/pcprot.doc for detailed methods.)

For each of the 596 survey points, we calculated riparian species richness (as defined in Jones & Stokes 2004) as a cumulative value across all surveys. We also obtained a mean abundance across all surveys for each of these riparian-associated species, as well as presence/absence. A variable representing the number of surveys upon which the species richness and presence/absence values were based was retained in all models, to account for the fact that species richness increases with the number of surveys.

Using standard GIS data layers, point count stations were classified into two general categories, tributary or mainstem, as well as identified by drainage basin (DWR CalWater 2.2), elevation, and dominant vegetation cover type (WHR category based on best available GIS data layer) (Tables B-2 to B-5).

For each point we also calculated surrounding landscape characteristics within a 1-km radius, as well as the dominant surrounding land use—urban, agricultural, or "natural" (everything else). Land use and vegetation types were aggregated into more meaningful categories for analysis (Table B-5). We used three different GIS layers for these calculations:

1. Land use (DWR multi-year composite) (Figure B-2)
2. Vegetation (CDFG/DU 1993 wetlands where available; USFS existing vegetation multi-year composite elsewhere) (Figure B-3)
3. Riparian vegetation (union of available datasets: Chico State Sacramento River, San Joaquin River, CDFG/DU wetlands, DWR land use, Placer County vegetation)

Vegetation data were collected for each point count location using a modified relevé protocol (Ralph et al. 1993, Ralph et al. 1995) within a 50-m radius (see http://www.prbo.org/tools/pc/relevepr.html for detailed methods). A subset of variables representing major structural characteristics was used for this analysis (Table B-5). To reduce the number of variables considered, and because riparian zone width was of primary interest in our analysis, floristic composition variables were not analyzed.

Regression models were developed for riparian-associated bird species richness (as defined by Jones & Stokes 2004), as well as presence/absence of each of these species. We used multiple linear regression for species richness, and logistic regression (Hosmer and Lemeshow 1989) for each individual species' occurrence. Three classes of regression models were developed and compared with respect to the relative importance of riparian width as a predictor of bird species richness / occurrence. The dependent variables for each of these model classes were:

- Riparian width category only
- Riparian width category + potentially significant vegetation and landscape variables (from Pearson correlation analysis, $\alpha = 0.10$)
- Riparian width category + basin, vegetation type (WHR) and stream type

Models were first constructed using a numerical riparian width value (1 = 0-50 m, 2 = 50-100 m, 3 = >100 m), treated as a continuous variable, to test for linear relationships between riparian width and bird species richness and individual species' probability of occurrence. To evaluate differences between each of our three width categories (<50 m, 50-100 m, >100 m), we reran the models treating

Table B-1. Site Summary

Transect Code	Transect Name	County	Basin Name	Number of Points	Number of Visits	Number of Years
ANRP	Anderson River Park	Shasta	Redding	3	1	1
BACR	Battle Creek Parking	Tehama	Redding	15	6	3
BASL	Babel Slough	Yolo	Sacramento Delta	6	1	1
BEHI	Beehive	Glenn	Colusa Basin	6	4	2
BISO	Bloody Island South	Tehama	Redding	4	2	1
BIVI	Bianchi Vineyards	Fresno	South Valley Floor	3	1	1
BRSP	Bidwell-Sacramento River Park	Butte	Tehama	15	4	2
BUCR	Butte Creek	Shasta	Colusa Basin	4	1	1
BUPA	Bussett Park	Kings	South Valley Floor	1	1	1
BUSI	Butte Sink	Shasta	Colusa Basin	2	1	1
CAPA	Camp Pashayan	Fresno	South Valley Floor	2	2	1
CARO	Carpenter Road	Stanislaus	San Joaquin Valley Floor	2	2	1
CCRD	Coal Canyon Road		Colusa Basin	1	1	1
CHCA	Chowchilla Canal	Madera	San Joaquin Valley Floor	10	2	1
CMAT	Cal Mat Cement	Kings	South Valley Floor	9	2	1
CMIN	Calveras Material, Inc.	Merced	San Joaquin Valley Floor	6	2	1
CMSP	Caswell Memorial State Park	San Joaquin	San Joaquin Valley Floor	15	2	1
CNWR	Colusa National Wildlife Refuge	Colusa	Colusa Basin	1	1	1
CODO	Codora	Glenn	Colusa Basin	6	21	7
COLU	Colusa	Colusa	Colusa Basin	7	5	2
COTT	Cottonwood Creek	Shasta	Redding	4	1	1
DCER	Deer Creek at Elliot Road	Sacramento	North Valley Floor	1	1	1

Table B-1. Site Summary

Transect Code	Transect Name	County	Basin Name	Number of Points	Number of Visits	Number of Years
DECR	Deer Creek	Tehama	Tehama	23	6	3
DNWR	Delevan National Wildlife Refuge	Colusa	Colusa Basin	1	1	1
DUFE	Durham Ferry	San Joaquin	San Joaquin Delta	11	2	1
DWRE	Dept. Water Resources	Sacramento	North Valley Floor / San Joaquin Delta	9	23	8
DYCR	Dye Creek	Tehama	Tehama	15	7	3
EFYE	Effie Yeaw County Park	Sacramento	Valley-American	5	2	1
ELAV	Elkhorn Avenue	Kings	South Valley Floor	3	1	1
ELKH	Elkhorn Regional Park	Yolo	Valley Putah-Cache	3	1	1
ENCI	Encinal	Sutter / Yolo	Marysville	3	1	1
ERRO	Evans Reimer Road	Butte	Marysville	1	1	1
FGLS	Fish and Game Llano Seco		Colusa Basin	1	1	1
FIRE	Firebaugh	Madera	San Joaquin Valley Floor	2	2	1
FLYN	Flynn	Tehama	Tehama	14	24	8
FMRO	Four Mile Road		Colusa Basin	1	1	1
FOCO	Four Corners	Merced	San Joaquin Valley Floor	3	2	1
GJHA	Grayson	Stanislaus	San Joaquin Valley Floor	6	2	1
GRAY	Green Field	Stanislaus	Delta-Mendota Canal	5	2	1
GRKL	Grimes to Knights Landing	Colusa / Sutter / Yolo	Colusa Basin / Valley-American	4	1	1
GRLO	Gray Lodge	Butte	Colusa Basin	2	1	1
GVGA	Great Valley Grasslands A	Merced	San Joaquin Valley Floor	3	2	1
GVGB	Great Valley Grasslands B	Merced	Delta-Mendota Canal	3	2	1

Table B-1. Site Summary

Transect Code	Transect Name	County	Basin Name	Number of Points	Number of Visits	Number of Years
HALE	Haleakala	Tehama	Tehama	6	23	8
HAPA	Halgaman Park	Stanislaus	San Joaquin Valley Floor	1	1	1
HAYE	Hayes Avenue	Kings	South Valley Floor	5	1	1
HBRA	Honolulu Bar Recreation Area	Stanislaus	San Joaquin Valley Floor	1	2	1
HOSL	Howard Slough (F&G)		Colusa Basin	3	1	1
HW41	Highway 41	Fresno	South Valley Floor	3	1	1
JACI	Jacinto	Glenn	Colusa Basin	9	3	2
JFBR	Jelly's Ferry Bridge	Tehama	Redding	2	2	1
KAIS	Kaiser	Glenn	Tehama	8	9	3
KCCD	Kings County Conservation District	Kings	South Valley Floor	1	2	1
KOSL	Kopta Slough	Tehama	Tehama	6	17	6
LABA	La Baranca	Tehama	Tehama	15	23	8
LASL	Laird's Slough	Stanislaus	Delta-Mendota Canal	6	2	1
LBCR	Little Butte Creek	Butte	Colusa Basin	1	2	2
LIAV	Lincoln Avenue	Kings	South Valley Floor	1	1	1
LKRP	Layton-Kingston Regional Park	Fresno	South Valley Floor	2	1	1
LLSE	Llano Seco	Butte	Colusa Basin	5	5	3
LODI		Sacramento	North Valley Floor	3	1	1
LOLA	Lost Lake Park	Fresno	San Joaquin Valley Floor	13	2	1
LWWT	Livingston Waste Water Treatment	Merced	San Joaquin Valley Floor	1	1	1
MARO	Maple Road	Fresno	South Valley Floor	1	1	1
MEND	Mendota	Fresno	Delta-Mendota Canal / San Joaquin	4	2	1

Table B-1. Site Summary

Transect Code	Transect Name	County	Basin Name	Number of Points	Number of Visits	Number of Years
			Valley Floor			
MHRA	McHenry Recreation Area	San Joaquin	San Joaquin Valley Floor	4	2	1
MICR	Mill Creek	Tehama	Tehama	17	8	4
MOKE		Sacramento	North Valley Floor	1	1	1
MOON	Mooney	Tehama	Tehama	9	2	1
MORI	Mokelumne River	San Joaquin	North Valley Floor	6	1	1
MRBR	Meiss Road Bridge	Sacramento	North Valley Floor	1	1	1
MSRA	McConnel State Recreation Area	Merced	San Joaquin Valley Floor	5	2	1
OABR	Oakdale Avenue Bridge	Merced	San Joaquin Valley Floor	1	2	1
OBRA	Orange Blossom Recreation Area	Stanislaus	San Joaquin Valley Floor	2	2	1
OFBN	Ord Ferry Bridge North	Glenn	Colusa Basin	4	2	1
OLMI	Old Mill	Shasta	Redding	8	3	1
OSFA		Shasta	Redding	2	1	1
OWAR	Oroville Wildlife Area	Butte / Tehama	Marysville	10	2	2
PACR	Paine's Creek	Tehama	Redding	9	2	1
PAIS	Packer Island	Tehama	Colusa Basin	6	6	2
PARO	Parallel Road	San Joaquin	San Joaquin Valley Floor	3	2	1
PICR	Pine Creek	Butte	Tehama	7	11	4
PRAR	Project Area	Shasta	Redding	13	11	4
PRIN	Princeton	Colusa	Colusa Basin	7	3	2
PUCR	Putah Creek	Tehama	Valley Putah-Cache	3	1	1
PURO	Putnam Road	Colusa	Colusa Basin	2	1	1

Table B-1. Site Summary

Transect Code	Transect Name	County	Basin Name	Number of Points	Number of Visits	Number of Years
QSTR	Q Street	Fresno	Delta-Mendota Canal	1	2	1
RAMI	Ramirez	Fresno	Delta-Mendota Canal	1	1	1
RANK	Rank Island	Fresno	San Joaquin Valley Floor	3	1	1
REBA	Reading Bar	Shasta	Redding	4	11	4
REIS		Shasta	Redding	4	1	1
RIVI	River Vista	Tehama	Tehama	1	25	9
RSPO	Ripon Sewage Ponds	San Joaquin	San Joaquin Valley Floor	6	2	1
RYAN	Ryan	Tehama	Tehama	4	24	8
SACC	Sacramento River	Shasta	Redding	7	9	3
SFBR	Sante Fe Bridge	Stanislaus	San Joaquin Valley Floor	1	1	1
SHFA	Shiloh Fishing Access	Stanislaus	San Joaquin Valley Floor	1	1	1
SHGA	Shooting Gallery	Shasta	Redding	5	12	4
SRCL	Sacramento Refuge Car Loop		Colusa Basin	1	1	1
SRSL	Santa Rita Slough	Merced	Delta-Mendota Canal	1	2	1
STCR	Stony Creek	Glenn	Colusa Basin	6	23	8
STIL	Stillwater Creek	Shasta	Redding	1	1	1
SUNO	Sul Norte	Glenn	Colusa Basin	10	24	8
TAFO	Tall Forest	Sacramento	San Joaquin Delta	13	25	9
TAMO	Table Mountain	Tehama	Redding	7	1	1
THCR	Thomes Creek	Shasta / Tehama	Tehama	11	1	1
THOM	Thomas	Glenn	Colusa Basin	5	6	3
TLSR	Turlock Lake State Rec Area	Stanislaus	San Joaquin Valley Floor	4	2	1

Table B-1. Site Summary

Transect Code	Transect Name	County	Basin Name	Number of Points	Number of Visits	Number of Years
TURL	Turlock Road	Merced	San Joaquin Valley Floor	1	2	1
VALE	Valensin	Sacramento	North Valley Floor	5	20	7
VORA	Valley Oak Recreation Area	Stanislaus	San Joaquin Valley Floor	2	2	1
WELE	Wendell's Levee	Sacramento	San Joaquin Delta	3	25	9
WERO	Wendell's Road	Sacramento	North Valley Floor / San Joaquin Delta	3	23	9
WILA	Wilson's Landing	Butte	Tehama	3	1	1
WISL	Willow Slough	Sacramento	San Joaquin Delta	9	24	9
WIUN	Willow Unit	Fresno	San Joaquin Valley Floor	2	2	1
WOBR	Woodson Bridge State Park	Tehama	Tehama	13	5	3

Table B-2. Summary of Point Count Types -- Stream Type by Hydrologic Unit / Basin

Hydrologic Unit Name	Mainstem	Tributary	Total
Colusa Basin / Marysville	89	13	102
North Valley Floor / San Joaquin Delta	58	7	65
Redding	27	61	88
San Joaquin Valley Floor / Delta-Mendota Canal	117	2	119
South Valley Floor	31	0	31
Tehama	95	72	167
Valley-American / Valley Putah-Cache / Sacramento Delta	15	3	18
Total	432	158	590

Table B-3. Summary of Point Count Types -- Land Use Type by Hydrologic Unit / Basin

Hydrologic Unit Name	Agricultural	Natural	Urban	Total
Colusa Basin / Marysville	57	44	1	102
North Valley Floor / San Joaquin Delta	19	45	3	65
Redding	6	75	7	88
San Joaquin Valley Floor / Delta-Mendota Canal	77	39	3	119
South Valley Floor	20	11	0	31
Tehama	118	49	0	167
Valley-American / Valley Putah-Cache / Sacramento Delta	13	0	5	18
Total	310	263	19	590

Table B-4. Summary of Point Count Types -- WHR Habitat Type by Hydrologic Unit / Basin

Hydrologic Unit Name	AGR	AGS	BOW	CHP
Colusa Basin / Marysville	22	7	0	1
North Valley Floor / San Joaquin Delta	3	14	0	0
Redding	3	10	11	0
San Joaquin Valley Floor / Delta-Mendota Canal	14	18	1	0
South Valley Floor	2	8	0	1
Tehama	34	27	0	0
Valley-American / Valley Putah-Cache / Sacramento Delta	7	3	0	1
Total	85	87	12	3

Hydrologic Unit Name	FEW	URB	VOW	VRI	Total
Colusa Basin / Marysville	3	1	0	67	102
North Valley Floor / San Joaquin Delta	22	3	0	23	65
Redding	6	1	5	52	88
San Joaquin Valley Floor / Delta-Mendota Canal	9	3	0	75	119
South Valley Floor	1	2	0	17	31
Tehama	1	1	3	101	167
Valley-American / Valley Putah-Cache / Sacramento Delta	0	2	0	5	18
Total	42	13	8	340	590

Notes:

AGR = Agriculture

AGS = Annual Grassland

BOW = Blue Oak Woodland

CHP = Chaparral Scrub

FEW = Fresh Emergent Wetland

URB = Urban

VOW = Valley Oak Woodland

VRI = Valley / Foothill Riparian

Table B-5. Definition of Independent Variables Used in Regression Analysis

Variable name	Definition
Riparian width (field-collected)	
width2	riparian width category: 1 is 0-50 m, 2 is 50-100 m, 3 is >100 m)
Geography / habitat variables	
elevation	elevation (m)
huname / huname2	basin name (see Tables 2-4)
whr_new	WHR habitat type (see Table 4)
strm_type	stream type (mainstem or tributary)
Landscape-level vegetation variables	
rip_cov	proportion of riparian cover within a 1 km radius
agric_veg	proportion of agricultural vegetation within a 1 km radius
herb_veg	proportion of grassland vegetation within a 1 km radius
shrub_veg	proportion of shrub vegetation within a 1 km radius
wtlnd_veg	proportion of wetland vegetation within a 1 km radius
forest_veg	proportion of forest vegetation within a 1 km radius
Lanscape-level landuse variables	
agric_use	proportion of agricultural landuse within a 1 km radius
natur_use	proportion of natural landuse within a 1 km radius
urban_use	proportion of urban landuse within a 1 km radius
Site-level (field-collected) vegetation variables	
canopycov	canopy cover
treecov_new	absolute percent cover of the tree layer (>5 m in height); may contain vegetation that is not strictly a tree, such as vines hanging from trees, so long as its within the height range
shrubcov_new	absolute percent cover of the shrub layer (0.5-5 m in height); may contain non-woody plants within the height range
herbcov_new	absolute percent cover of the hebraceous layer (<0.5 m in height); may contain small shrubs and other woody plants less than .5 meters high
hitreeht	*average* height of the upper bounds of the tree layer
hishrubht	*average* height of the upper bounds of the shrub layer
maxtrdbh	maximum diameter at breast height to the nearest 0.1 centimeters, for the tree layer

width as a categorical variable and tested for equality of means within each width category.

This process was repeated for just the subset of point counts representing tributary streams, as well as for the subsets of data representing each dominant land use type within 1 km (agriculture, natural or urban).

Because we were interested in the effect of riparian width, with and without controlling for environmental conditions, we compared the model coefficient for riparian width across the three model classes. We recognized that riparian width could be affected by surrounding landscape characteristics, which may in turn affect local vegetation characteristics. Thus the apparent effect of riparian width could increase or decrease when controlling for other variables that are more strongly associated with a given bird metric. Our approach was intended to identify additional environmental variables associated with the bird metrics in question, and perhaps help explain the importance of riparian width. But we also wished to detect the responses to riparian width that may be obscured by other variables in a more complex model.

Results

Without controlling for any other environmental variables, riparian width was a significant positive predictor of riparian-associated bird species richness, as well as the presence of Black-headed Grosbeak (BHGR) and Common Yellowthroat (COYE) (Table B-6). Blue Grosbeak (BLGR) presence was negatively associated with riparian width. Controlling for the effect of geography (basin, elevation) and habitat type (WHR type and stream type), all of these species except COYE had a reduced, but still significant response to riparian width category, as did species richness. Only BHGR was positively associated with riparian width, and BLGR was negatively associated with riparian width, after also controlling for vegetation and surrounding land use characteristics (Table B-6).

Species richness and BHGR presence were positively associated with riparian width at mainstem, but not tributary sites, while the reverse was true for Yellow Warbler (YWAR) and COYE (Table B-7). For the Song Sparrow (SOSP), there was a significant positive relationship with riparian width at tributary sites, but a negative relationship at mainstem sites (Table B-7). BLGR presence was negatively associated with riparian width only at mainstem sites (Table B-7).

Comparing dominant surrounding land use categories (agricultural or natural), the relative importance of riparian width varied across species. For species richness, the effect was greater in natural than agricultural landscapes (Table B-8). For BHGR and BLGR probability of occurrence, the positive/negative effect of riparian width was greatest in natural landscapes. Warbling Vireo (WAVI) displayed a negative association with riparian width only in natural landscapes, while COYE and SOSP showed significant associations with riparian width only within agricultural landscapes (Table B-8).

Controlling for riparian width and site vegetation, we found a positive association between species richness and the proportion of riparian and wetland vegetation within a 1 km radius (Table B-10). With respect to individual species, we found that (Table B-10):

- YWAR was negatively associated with surrounding agricultural proportion within 1 km;
- BHGR and YWAR were negatively associated with surrounding grassland proportion;
- BLGR was positively associated with surrounding grassland proportion;
- SOSP and YBCH were positively associated with the proportion of surrounding natural land uses;
- YBCH was negatively associated with surrounding wetland proportion; and
- WIFL was positively associated with the proportion of surrounding forest.

Although we found a positive, linear effect of riparian width on species richness, tests for equality of means revealed a significant difference between widths greater than 100 m and those less than 100 m, but could not discriminate between widths less than 100 m (i.e., <50 m vs. 50-100 m) (Table B-6, Figure B-4). The same was true for YWAR and COYE probability of occurrence (Table B-7). However, for BHGR probability of occurrence, there was a threshold at 50 m, with a significant difference between width categories 1 (<50 m) and 2 (50-100 m), as well as between category 3 (>100 m) and category 1 (<50 m).

Summary and Recommendations

Our results indicated that, in California's Central Valley, the number of riparian songbird species was significantly lower where the riparian woodland zone was less than 100 m in width, at least along mainstem river corridors. Four species were also less likely to occur in riparian areas less than 100 m wide: the Black-headed Grosbeak, Common Yellowthroat, Yellow Warbler (a California Bird Species of Special Concern), and Song Sparrow. For the latter three species, this positive response to riparian width was only detected along tributary creeks, while for the Black-headed Grosbeak, it was only along mainstem rivers.

In addition, we found a strong influence of surrounding land use (within a 1-km radius) on which and how many riparian songbird species occurred at a site. The number of species increased with the amount of riparian and wetland habitat found within a 1-km radius. With respect to species composition, we found that the Yellow Warbler was negatively associated with the amount of agricultural land use within 1 km, and that the Song Sparrow and Yellow-breasted Chat were positively associated with the amount of “natural” (i.e., non-agricultural and non-urban) land use. Because few of our study sites were in urban areas, we were not able to evaluate the effect of urban development directly.

Table B-6. Comparison of Riparian Width Effect -- Univariate Models vs. Basin/Habitat Models vs. Vegetation/Landscape Models

		Univariate Model						Basin/Habitat Model						Veg/Landscape Model					
Bird Metric	Total Detections	Coeff	SE	Width test (1)	R2	P-value	n	Coeff	SE	Width test (1)	R2	P-value	n	Coeff	SE	Width test (1)	R2	P-value	n
Species Richness	N/A	0.40	0.08 ***	3>1*	0.67	<0.001	590	0.17	0.00 *	3>1*	0.72	0.01	590	0.13	0.09		0.71	0.15	556
BHGR presence	1499	0.70	0.12 ***	2>1*, 3>1**	0.24	<0.001	590	0.45	0.13 ***	2>1**, 3>1***	0.34	<0.001	587	0.37	0.14 *	2>1*, 3>1**	0.36	<0.001	560
BLGR presence	133	-0.60	0.17 ***		0.14	0.23	590	-0.59	0.19 **	3<1**	0.23	0.05	547	-0.37	0.19 *	3<1*	0.17	0.54	560
COYE presence	603	0.28	0.16 *	3>1*	0.04	<0.001	590	0.24	0.19		0.39	0.01	550	0.15	0.18		0.35	0.00	579
SOSP presence	957	-0.07	0.11		0.00	0.50	590	0.04	0.16 *		0.33	0.06	403	-0.22	0.12 *	3<1*	0.08	0.05	578
SWHA presence	15	0.11	0.60		0.17	0.33	590												
WIFL presence	43	0.07	0.22		0.08	0.42	590							-0.09	0.23		0.09		560
WAVI presence	124	-0.04	0.19		0.23	0.02	590	-0.21	0.22		0.31	0.67	548	-0.03	0.20		0.28	0.27	560
YBCH presence	227	0.08	0.15		0.04	0.14	590	-0.02	0.19		0.21	0.36	415	-0.13	0.17		0.24	0.54	560
YWAR presence	212	0.21	0.16		0.13	0.00	590	0.10	0.19		0.27	0.02	532	-0.04	0.20		0.24	0.27	558

* = P<0.10
** = P<0.01
*** = P<0.001

(1) 1 = 0-50 m
2 = 50-100 m
3 = > 100 m

Table B-7. Effect of Riparian Width -- Comparison Between Tributary and Mainstem Streams

		Univariate Model							Basin/Habitat Model					
Bird Metric		Coeff	SE		P-value	Width test	R2	n	Coeff	SE	P-value	Width test	R2	n
Species Richness	Mainstem	0.47	0.09	***		3>1***	0.71	432	0.14	0.09		3>1*	0.77	432
	Tributaries	0.23	0.15		0.13		0.50	158	0.16	0.15	0.28		0.59	158
BHGR presence	Mainstem	0.88	0.15	***		2>1*, 3>1***	0.12	432	0.56	0.18 **		2>1*, 3>1**	0.42	425
	Tributaries	-0.44	0.33		0.02		0.03	158	0.25	0.22	0.05		0.26	154
BLGR presence	Mainstem	-0.69	0.21	***		3<1***	0.18	432	-0.64	0.24 **		3<1**	0.28	376
	Tributaries	-0.44	0.33		0.27		0.03	158	-0.23	0.35	0.51		0.12	136
COYE presence	Mainstem	0.12	0.20		0.01		0.35	432	-0.17	0.25			0.41	385
	Tributaries	0.64	0.33	*		3>1*	0.21	158	0.98	0.39 *	0.01	3>1*	0.34	130
SOSP presence	Mainstem	-0.57	0.14	***		3<2*, 3<1***	0.06	432	-0.05	0.18			0.35	321
	Tributaries	0.84	0.32	**	0.00	3<1*	0.13	158	0.25	0.55	0.13		0.43	75
WAVI presence	Mainstem	0.16	0.24				0.28	432	0.12	0.29			0.35	388
	Tributaries	-0.63	0.37	*	0.16	3<2**	0.06	158	-0.60	0.42	0.32		0.15	115
YBCH presence	Mainstem	0.27	0.27				0.07	432	-0.38	0.32			0.15	258
	Tributaries	0.20	0.21		0.12		0.06	158	0.17	0.27	0.24		0.30	143
YWAR presence	Mainstem	-0.01	0.30				0.19	432	0.07	0.24			0.25	371
	Tributaries	0.68	0.29	*	0.01	3>1*	0.11	158	0.23	0.37	0.37		0.39	140

*	=	P<0.10
**	=	P<0.01
***	=	P<0.001
(1) 1	=	0-50 m; 2 = 50-100 m; 3 = > 100 m

Table B-8. Riparian Width Effect -- Comparison between Predominantly Agricultural and Predominantly Natural Surrounding Land Uses

Bird Metric		Univariate Model Coeff	SE		Width tests (1)	R^2	n
Species Richness	Natural	0.50	0.10	***	3>1***, 3>2*	0.72	263
	Agricultural	0.31	0.12	**	3>1**	0.64	310
Black-headed Grosbeak presence	Natural	0.92	0.19	***	3>1***, 3>2*	0.22	263
	Agricultural	0.55	0.16	***	3>1**	0.28	310
Blue Grosbeak presence	Natural	-0.77	0.28	**	3<1**	0.21	263
	Agricultural	-0.48	0.22	*	3<1*	0.09	310
Common Yellowthroat presence	Natural	0.19	0.33			0.48	263
	Agricultural	0.38	0.19	*	3>1*	0.24	310
Song Sparrow presence	Natural	-0.02	0.19			0.16	263
	Agricultural	-0.52	0.17	**	3<2*, 3<1**	0.04	310
Warbling Vireo presence	Natural	-0.20	0.26			0.20	263
	Agricultural	0.08	0.31			0.33	310
Yellow-breated Chat presence	Natural	0.01	0.18			0.00	263
	Agricultural	0.16	0.34			0.23	310
Yellow Warbler presence	Natural	0.14	0.23			0.15	263
	Agricultural	0.15	0.27			0.15	310

Notes:

* = P<0.10
** = P<0.01
*** = P<0.001

(1)
1 = 0-50 m
2 = 50-100 m
3 = > 100 m

Table B-9. Significant Variables in Basin/Habitat Models

Bird Metric	n	R2 / Pseudo R2	Number of visits	Riparian width	Basin (1)	WHR Type (2)	Tributary	Elevation
Species Richness	590	0.72	+++		3(+++), 4(---), 6(+++), 7(--)	5(+++), 8(+++)	-	---
Black-headed Grosbeak presence	587	0.34	+++	+++	2(---), 4(---), 5(---), 7(-)		---	
Blue Grosbeak presence	547	0.23	+++	--	2(++), 5(+), 6(+)			
Common Yellowthroat presence	550	0.39	+++		3(+), 6(+)	6(+)		---
Song Sparrow presence	403	0.33	+++		2(+++), 3(+++), 4(+++), 5(+++)	3(-), 7(-), 8(---)		
Warbling Vireo presence	548	0.31	+++		6(+), 7(+)	3(++), 4(+), 8(+)	-	
Yellow-Breasted Chat presence	415	0.21	+++		2(--), 6(-)	2(+)	+	
Yellow Warbler presence	532	0.27	+++		6(-)	5(+++)		+

Notes:

+/- : P<0.10; ++/-- : P<0.01; +++/--- : P<0.001

(1) 1 = Colusa Basin / Marysville, 2 = North Valley Floor / San Joaquin Delta, 3 = Redding, 4 = San Joaquin Valley Floor / Delta-Mendota Canal, 5 = South Valley Floor, 6 = Tehama, 7 = Valley-American / Valley Putah-Cache / Sacramento Delta

(2) 1 = Agriculture (AGR), 2 = Annual Grassland (AGS), 3 = Blue Oak Woodland (BOW), 4 = Chaparral (CHP), 5 = Fresh Emergent Wetland (FEW), 6 = Urban (URB), 7 = Valley Oak Woodland (VOW), 8 = Valley/Foothill Riparian

Table B-10. Significant Independent Variables in Vegetation/Landscape Models

Bird Metric	n	R2 / Pseudo R2	Number of visits	Riparian width	Vegetation variables (2)	Landscape variables (2)
Species Richness	550	0.71	+++		maxtrdbh (+++), shrubcov_new (+++), herbcov_new (--)	rip_cov (+++), wtlnd_veg (+++)
Black-headed Grosbeak presence	560	0.36	+++	++	rip_cov (+++)	herb_veg (---)
Blue Grosbeak presence	560	0.17	+++	-	rip_cov (-)	herb_veg (+)
Common Yellowthroat presence	587	0.35	+++		shrubcov_new (+++)	
Song Sparrow presence	578	0.08	+++	-	treecov_new (-)	natur_use (+)
Swainson’s Hawk presence	-					
Willow Flycather presence	560	0.09	++			forest_veg (+++)
Warbling Vireo presence	560	0.28	+++			shrub_veg (-), forest_veg (+), agric_use (-)
Yellow-breasted Chat presence	560	0.24	+++			shrub_veg (++), wtlnd_veg (---), natur_use (+++)
Yellow Warbler presence	558	0.25	+++		herbcov_new (-)	herb_veg (--), agric_use (---)

+/- = P<0.10
++/-- = P<0.01
+++/--- = P<0.001

(1) 1 = 0-50 m
2 = 50-100 m
3 = > 100 m

(2) See Table 5 for definitions of vegetation and landscape variables.

These findings suggest that, in order to maintain current populations of riparian-associated bird species, riparian woodlands and other natural vegetation should be maintained within at least 100 m on either side of all streams. To restore populations of species that are in decline (e.g., Yellow Warbler) or locally extirpated (e.g., Song Sparrow), the condition of riparian woodlands should be actively enhanced and restored within this zone. The Riparian Bird Conservation Plan (RHJV 2004) lists several recommendations for enhancing riparian habitat for birds and wildlife, which include managing for a diverse understory, increasing the diversity of woody plants, control of invasive plant and animals, and timing of management activities, such as mowing and grazing, to avoid the breeding season. To conserve greater riparian bird diversity, riparian setbacks and activity restrictions should be implemented not only in rural residential and urban areas, but also in agricultural zones.

It is also important to recognize the importance of landscape context in determining habitat suitability for riparian songbirds. The preservation, restoration and linkage of large parcels of undeveloped and uncultivated lands will provide significant benefits to riparian songbird species. Conservation priorities should be large contiguous areas of riparian vegetation surrounded by "natural" uplands to the greatest extent possible. Restoration priorities should be stream segments with large areas of nearby existing riparian habitat.

References

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Figure B-1. Study Sites

Figure B-2. Central Valley Vegetation

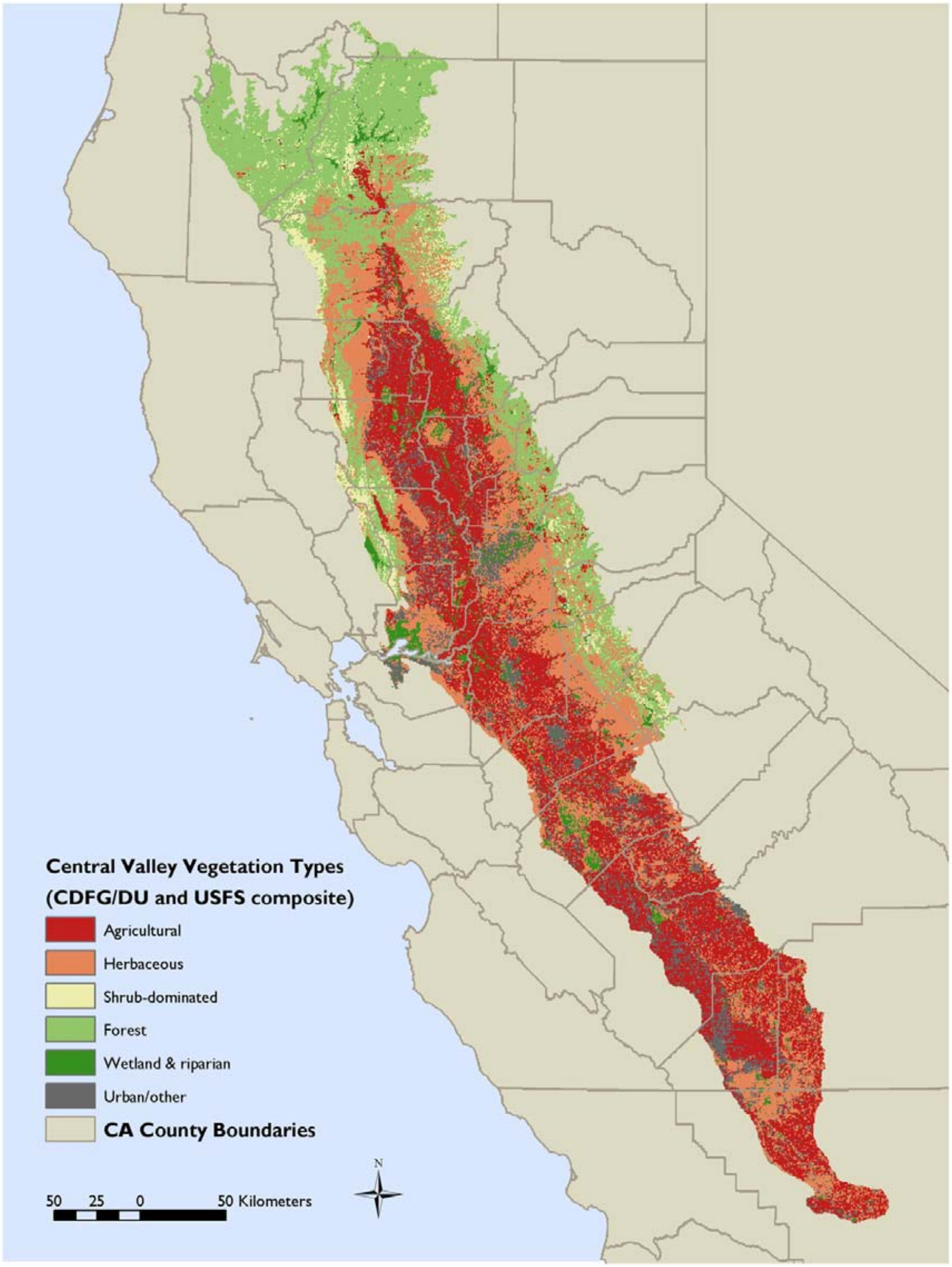


Figure B-3. Central Valley Land Use

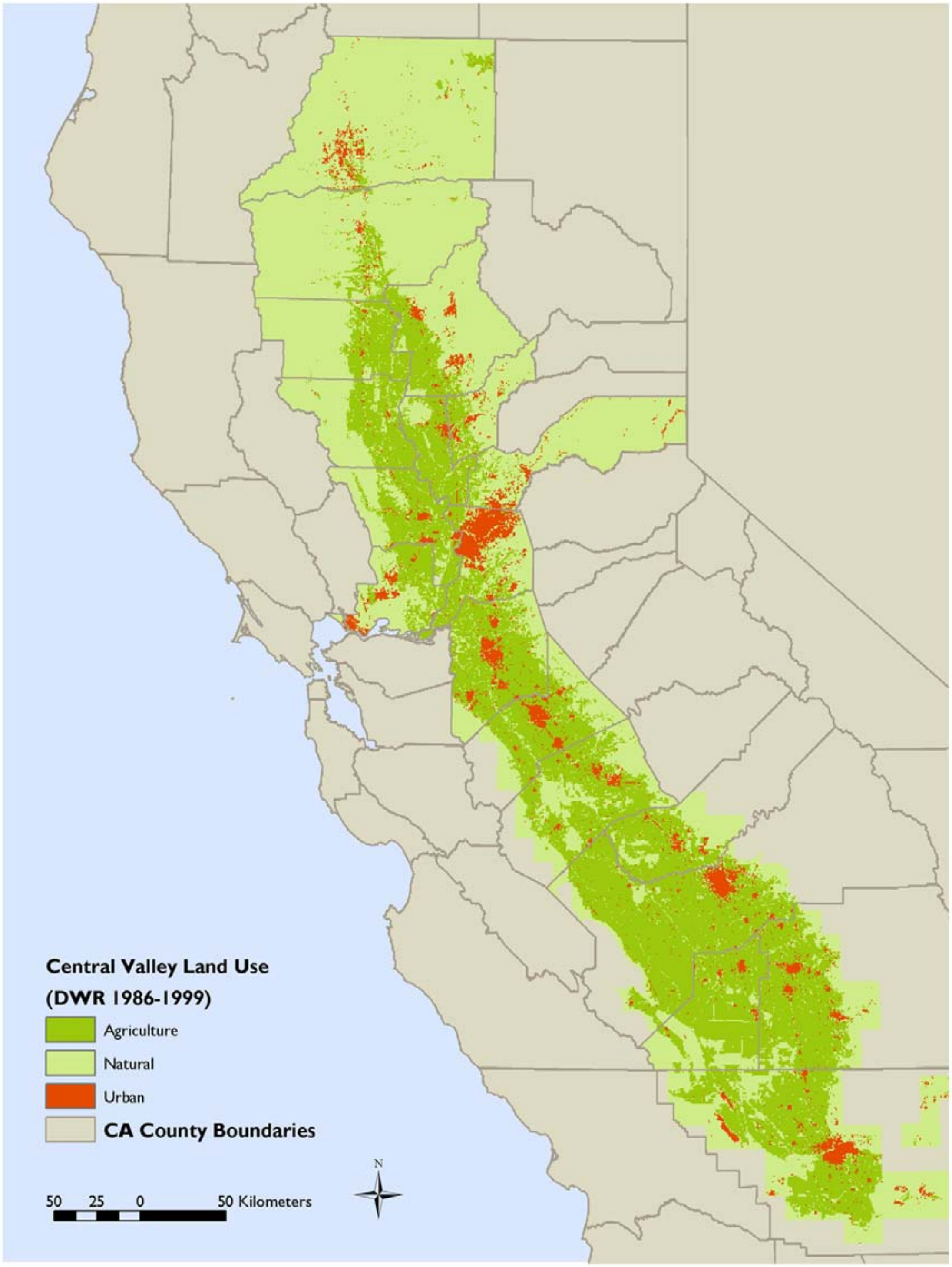
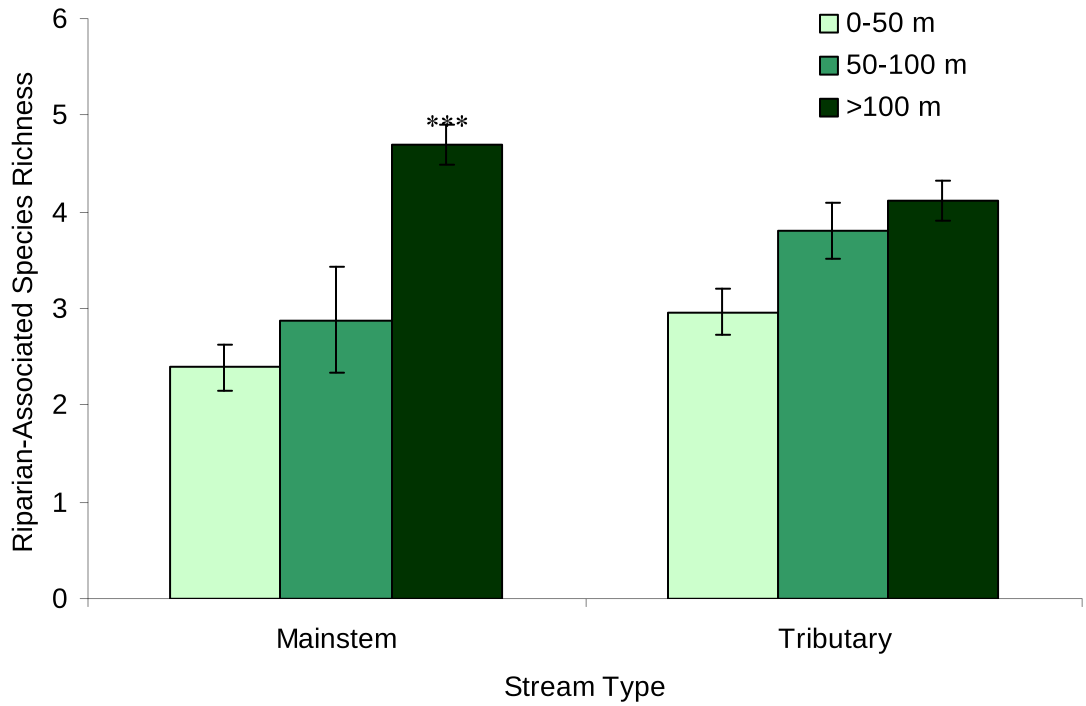


Figure B-4. Mean riparian-associated bird species richness by riparian width category (0-50 m, 50-100 m, >100m) and stream type (mainstem, tributary and wetland). Error bars represent standard errors. Significantly different means are denoted by asterisks (*** = < 0.001)



ZONEDES	PROP_ZON	SP_ZONE	DES_CONT	PLANDEV	OTHER	LUD	AG	EP	IBC_O	MF	PL	COM	RURL	SPECPL	AP_NAN	BOUN	PRCL_ID_1	APN_STATUS	ACREAGE	LEGAL_DESC
AE	PA-20					AP									SLT			0.00000	0.00000	
AE	PA-20					AP									SLT			0.00000	0.00000	
R1	RE-10					AP									SLT			0.00000	0.00000	
RF	RF-L					OS											00601103	11.00000	74.66000	SEC 18 11 10
RF	RF-L					OS											00601112	11.00000	40.00000	SEC 19 11 10
RE-5	RL-10					RR	A		IBC								00601114	0.00000	10.01000	SEC 19 11 10
RE-5	RL-10					RR	A		IBC								00601115	0.00000	10.00000	SEC 19 11 10
RE-10	RL-10					RR	A		IBC								00601119	0.00000	10.00000	SEC 19 11 10
RE-10	RL-10					RR	A		IBC								00601120	0.00000	10.00000	SEC 19 11 10
RE-10	RL-20					AL	A										00601121	0.00000	40.00000	SEC 19 11 10
RA-20	LA-20					AL	A										00601122	0.00000	60.00000	SEC 19 11 10
RA-20	LA-20					AL	A										00601123	0.00000	5.00000	SEC 20 11 10
RE-5	RF-L					TR							LO				00601141	0.00000	5.10000	SEC 18 11 10 ADM
RF	RF-L					TR							LO				00601141	0.00000	5.10000	SEC 18 11 10 ADM
RE-5	RF-L					TR							LO				00601142	11.00000	18.69000	RS 15/115/2
RF	RF-L					TR							LO				00601142	11.00000	18.69000	RS 15/115/2
RF	RF-L					MDR							LO				00601143	11.00000	12.06000	RS 15/115/1
RA-20	RL-20					RR											00601145	11.00000	70.19000	SEC 16 11 10 ADM
RA-20	RL-20					RR											00601146	11.00000	37.00000	SEC 21 11 10
RA-20	LA-20					AL	A										00601149	0.00000	78.72000	POR RS 9/95
RF	RF-L					TR											00601151	11.00000	6.22000	S 18 11 10 L 10
RA-40	RF-L					LDR											00601154	0.00000	6.31000	RS 23/93/1
RF	RF-L					LDR											00601154	0.00000	6.31000	RS 23/93/1
RE-5	RL-10					RR	A		IBC								00601159	0.00000	4.95000	POR SEC 19 11 10
RE-5	RL-10					RR	A		IBC								00601160	0.00000	5.12000	POR SEC 19 11 10
RE-5	LA-10					RR	A		IBC								00601162	0.00000	11.41000	RS 30/148/1
RA-20	RL-20					RR											00601167	0.00000	45.28600	RS 24/134
RA-20	RL-10					RR											00601168	0.00000	12.59000	RS 24/134
RE-10	RL-10					RR											00601168	0.00000	12.59000	RS 24/134
RA-20	RL-20					RR											00601169	0.00000	30.00000	SEC 21 11 10
RA-20	RL-20					RR											00601170	0.00000	40.00000	SEC 21 11 10
RA-20	LA-10					RR											00601172	0.00000	20.00000	PM 48/121/1
RE-5	RL-10					AL	A										00601174	0.00000	20.00000	SEC 19 11 10
RE-5	RL-10					AL	A										00601175	0.00000	18.84300	SEC 18 11 10
RA-20	RL-20					RR											00601179	11.00000	137.58000	PPM 48/121/2 ADM
RA-20	RL-20					RR											00601180	11.00000	19.92800	POR PM 48/121/2
RE-5	RL-10					AL	A										00601181	11.00000	40.00200	RS 30/107/1&2
RF	RL-20					AL	A										00601181	11.00000	40.00200	RS 30/107/1&2
C	CL					AL	A										00601182	0.00000	36.14500	SEC 18 11 10
RE-5	RL-10					AL	A										00601182	0.00000	36.14500	SEC 18 11 10
RF	RL-20					AL	A										00601182	0.00000	36.14500	SEC 18 11 10
RA-20	RL-20					RR			IBC								00601184	0.00000	21.00000	PM 50/30/1
RA-20	RL-20					RR			IBC								00601185	0.00000	26.79000	PM 50/30/2
RE-10	RL-10					RR											00613201	0.00000	0.00000	POR L 1 B 2
RE-10	RL-10					RR											00613202	0.00000	5.13400	POR L1 & 1A

RF	RF-H					TR											00613203	11.00000	4.83000	POR L 1 B 2
RF	RF-H					TR											00613206	11.00000	1.93000	L 3 BLK 2
RF	RF-H					TR											00613207	11.00000	5.21000	SEC 17 11 10
RE-10	RL-10					RR											00613210	0.00000	0.00000	POR L 1 BL 1
RE-10	RF-L					TR											00613214	0.00000	0.00000	L 5 B 1
RE-10	RL-10					RR											00613217	0.00000	3.21000	L 10 B 2
RE-10	RL-10					RR											00613218	0.00000	3.29000	L 11 B 2
RF	RF-H					TR											00613219	11.00000	2.28000	POR BLK 2
RE-10	RL-10					RR											00613227	0.00000	3.35000	RS 28/60/1
RE-10	RL-10					RR											00613228	0.00000	3.57000	RS 28/60/2
RE-10	RL-10					RR											00613230	0.00000	7.91000	PM 47/62/2
RE-10	RL-10					RR											00613231	0.00000	1.86000	PM 47/62/1
RE-10	RL-10					RR											00613235	0.00000	11.82000	PM 48/102/1
RE-10	RL-10					RR											00613238	0.00000	4.29900	PPM 48/102/2
RE-10	RL-10					RR											00613240	0.00000	4.68000	PM 50/116/1
RE-10	RL-10					RR											00613241	0.00000	3.53000	PM 50/116/2
RF	RF-L					TR							CL				00613301	11.00000	0.00000	POR 18 11 10&BL6
RF	RF-L					TR							CL				00613302	11.00000	0.00000	POR 18 11 10&BL6
RF	RF-L					TR							CL				00613303	11.00000	0.53000	POR L 8 BLK 6
RF	RF-L					TR							CL				00613304	11.00000	0.60000	POR L 8 BLK 6
RF	RF-L					TR							CL				00613305	11.00000	0.67000	POR L 8 BLK 6
RF	RF-L					TR							CL				00613306	11.00000	0.00000	POR L8 B6
RF	RF-L					TR							CL				00613307	11.00000	0.00000	L 7 POR L 6
RF	RF-L					TR							CL				00613308	11.00000	0.00000	L 6 BLK 6
C	RF-L					TR							CL				00613401	11.00000	1.32000	SEC 18 11 10
C	CC					C							CL				00613402	11.00000	2.28000	SEC 18 11 10
RF	RF-L					TR							CL				00613403	11.00000	1.62000	SEC 18 11 10
RF	RF-L					TR							CL				00613404	11.00000	2.90000	SEC 18 11 10
RF	RF-L					TR							CL				00613405	11.00000	0.36000	SEC 18 11 10
RF	RF-H					TR											00616201	0.00000	0.58700	POR L 1 & 2 B 4
RF	RF-H					TR											00616206	0.00000	7.50000	17 11 10 & POR
RF	RF-H					TR											00616207	0.00000	5.89000	POR B 4
RF	RF-H					TR											00616301	11.00000	0.00000	POR L 4 BLK 2
RF	RF-H					TR											00616302	11.00000	0.00000	L 5&7 POR 4&6 B2
RF	RF-H					TR											00616303	11.00000	0.00000	POR L 4 BLK 2
RF	RF-L					TR							CL				00616401	11.00000	0.00000	L 2 3 4 & 5 BL 6
RF	RF-L					TR							CL				00616402	0.00000	0.43000	L 1 B 6
RF	RF-L					TR							CL				00616501	11.00000	0.00000	L 2 BLK 7
RF	RF-L					TR							CL				00616501	11.00000	0.00000	L 2 BLK 7
RF	RF-L					TR							CL				00616502	11.00000	2.06000	SEC 17 11 10
RF	RF-L					TR							CL				00616503	11.00000	0.00000	L 3 4 6 & 9 BL 7
RF	RF-L					TR							CL				00616504	11.00000	1.06000	L 5 B 7 COLOMA
RF	RF-L					TR							CL				00616505	11.00000	7.72000	L 7 BLK 7
RF	RF-L					TR							CL				00618101	11.00000	0.00000	POR L 27 BLK 7
RF	RF-L					TR							CL				00618102	11.00000	0.00000	POR L 37 BLK 7
RF	RF-L					TR							CL				00618103	11.00000	0.00000	L 25 & 26 BLK 7

RF	RF-L					TR							CL				00618104	11.00000	0.00000	L 19 POR 18&27B7
RF	RF-L					TR							CL				00618105	11.00000	0.00000	L 24 POR 27 BL 7
RF	RF-L					TR							CL				00618106	11.00000	0.00000	L 23 BLK 7
RF	RF-L					TR							CL				00618107	11.00000	0.00000	L 22 POR 27 BLK7
RF	RF-L					TR							CL				00618108	11.00000	0.00000	L 20&21 POR 18B7
RF	RF-L					TR							CL				00618109	11.00000	0.00000	L 11 BLK 7
RF	RF-L					TR							CL				00618110	11.00000	0.00000	POR BLK 7
RF	RF-L					TR							CL				00618111	11.00000	0.00000	L 6 & 7 BLK 8
RF	RF-L					TR							CL				00618112	11.00000	0.00000	L 3 4 & 5 BLK 8
RF	RF-L					TR							CL				00618113	11.00000	0.00000	L 2 POR L 1 BL 8
RF	RF-L					TR							CL				00618114	11.00000	0.00000	POR L1 BLK 8
RE-10	RF-L					TR							CL				00618115	11.00000	0.00000	LOTS 1 2&3 BLK12
RE-10	RF-L					TR							CL				00618116	11.00000	0.00000	L 4 5 6 B 12
RE-10	RF-L					TR							CL				00618117	11.00000	0.00000	POR L 7 B 12
RE-10	RF-L					TR							CL				00618118	11.00000	0.00000	L 8 B 12
RE-10	RF-L					TR							CL				00618119	11.00000	0.00000	POR B 12
RE-10	RF-L					TR							CL				00618120	11.00000	0.00000	POR L 7 B 12
RF	RF-L					TR							CL				00618121	11.00000	0.00000	L 13 POR 14 B 12
RE-10	R1A					HDR							CL				00618122	0.00000	0.00000	L 19 & L 14 B 12
C	CL					C							CL				00618123	0.00000	0.33000	POR L 14 B 12
RE-10	R1A					HDR							CL				00618124	11.00000	0.00000	L 15 & L 16 B 12
RE-10	RF-L					TR							CL				00618125	11.00000	0.00000	20 11 10 & B 12
RE-10	R1A					HDR							CL				00618126	11.00000	0.00000	20 11 10 & B 12
RF	RF-L					TR							CL				00619101	11.00000	0.00000	L 16 & 17 BLK 9
RF	RF-L					TR							CL				00619102	11.00000	0.00000	L 13 14&15 BLK 9
RF	RF-L					TR							CL				00619103	11.00000	0.00000	L 11 & 12 BLK 9
RF	RF-L					TR							CL				00619104	11.00000	0.00000	L 9 & 10 BLK 9
RF	RF-L					TR							CL				00619105	11.00000	0.00000	L 7 & 8 B 9
RF	RF-L					TR							CL				00619106	11.00000	0.00000	L 5&6 B 9
RF	RF-L					TR							CL				00619112	11.00000	0.00000	POR L 4 B 9
RF	RF-L					TR							CL				00619115	11.00000	0.00000	PORS L1A & 2A B9
RF	RF-L					TR							CL				00619117	11.00000	0.89000	POR L 3 B 9
RF	RF-L					TR							CL				00619118	11.00000	1.09000	POR L 3 B 9
RF	RF-L					TR							CL				00619119	11.00000	0.67000	POR L1 & L3 B9
RF	RF-L					TR							CL				00619201	11.00000	0.00000	L3 BLK 10
RF	RF-L					TR							CL				00619202	11.00000	0.00000	L2 BLK 10
RE-10	RE-5					MDR					PL						00620202	0.00000	0.00000	POR L 3 B 4
RF	RF-H					TR											00620205	0.00000	0.00000	POR L 3 B 4
RF	RF-L					TR											00620206	0.00000	1.40000	17 11 10 & B 4
RE-10	RE-5					MDR					PL						00620208	0.00000	0.00000	POR L 3 B 4
RE-10	RE-5					MDR					PL						00620209	0.00000	0.00000	17 11 10 & B 4
RE-10	RE-5					MDR					PL						00620210	0.00000	0.00000	POR L 3 B 4
RE-10	RL-10					RR											00623126	0.00000	3.41000	PM 48/140/1
RE-10	RL-10					RR											00623127	0.00000	4.33000	PM 48/140/2
RE-10	RL-10					RR											00623128	0.00000	5.00000	PM 48/140/3
RF	RF-H					TR											00623130	0.00000	0.00000	SEC 17 11 10

RF	RF-H					TR											00623131	0.00000	0.00000	SEC 17 11 10
RF	RF-H					TR											00623132	0.00000	0.00000	SEC 17 11 10
RE-10	RF-L					TR											00623137	0.00000	6.76000	PM 50/108/1
RF	RF-L					TR											00623137	0.00000	6.76000	PM 50/108/1
RF	RF-H					TR											00623138	0.00000	2.55000	PM 50/108/2
RF	RF-H					TR											00623139	0.00000	2.53000	PM 50/108/3
RF	RF-H					TR											00623140	0.00000	19.24000	PM 50/108/4
RF	RF-L					TR							CL				00625101	11.00000	0.00000	L 17 B 7
RE-5	RF-L					TR							CL				00625104	11.00000	0.10000	SEC 20 11 10
RF	RE-5					MDR							CL				00625109	0.00000	5.16200	PM 6/23/2
RE-5	RF-L					TR							CL				00625110	11.00000	1.00000	PAR 1 P/M 10-23
RF	RF-L					TR							CL				00625113	11.00000	14.77000	LOTS 12 & 13 B7
RF	RF-L					TR							CL				00625114	11.00000	4.55000	BLK 7
C	CL					C							CL				00626105	0.00000	2.23000	POR B13RS 9-127
RE-10	CC					C							CL				00626105	0.00000	2.23000	POR B13RS 9-127
RE-10	RE-5					MDR							CL				00626108	0.00000	4.56300	RS 28/112/2
RE-10	R1A					HDR							CL				00626109	0.00000	2.09200	RS 28/112/1
RF	RF-L					TR							CL				00629004	0.00000	0.45000	SEC 20 11 10
RE-5	R1A					TR							CL				00629005	0.00000	0.36000	SEC 20 11 10
RE-5	RF-L					TR							CL				00629006	11.00000	2.06000	S20 11 10RS12-57
RE-5	RF-L					TR							CL				00629008	11.00000	0.00000	POR L 14 B 7
RF	RF-L					TR							CL				00629009	11.00000	0.00000	L 15 BLK 7
RE-5	RL-10					RR	A										00630105	0.00000	3.91000	PPM 21/100/C ADM
RE-5	RL-10					RR	A										00630107	0.00000	2.26000	PPM 21/100/C ADM
RE-5	RL-10					RR	A										00630109	0.00000	5.00900	PM 21/100/D
RE-5	RL-10					RR	A										00630111	0.00000	6.10000	RS 27/84/2
RE-10	RL-10					RR	A										00630209	1.00000	0.00000	POR HWY 49
RE-5	RL-10					RR	A										00631104	0.00000	5.51000	SEC 20 11 10
RF	RF-H					TR											00634103	0.00000	6.00000	RS 27/91
RE-10	RL-10					RR											00634104	0.00000	10.00000	PM 33/72/1
RE-10	RL-10					RR											00634105	0.00000	17.79000	PM 33/72/2
C	CC					C							LO				00634107	0.00000	1.60000	SEC 18 11 10
C	CC					C							LO				00634108	0.00000	1.20000	SEC 18 11 10
C	RF-H					TR							LO				00634109	0.00000	15.00000	RS 27/91
RF	RF-H					TR							LO				00634109	0.00000	15.00000	RS 27/91
C	CL					C							LO				00634110	0.00000	1.00000	RS 27/91
C	CC					C							LO				00634113	0.00000	4.09000	SEC 18 11 10
C	CC					C							LO				00634115	0.00000	18.92000	SEC 18 11 10 ADM
RF	CC					C							LO				00634115	0.00000	18.92000	SEC 18 11 10 ADM
RF	RF-H					TR							LO				00634116	0.00000	4.50000	SEC 18 11 10
C	RE-10					RR											00634117	11.00000	10.99000	TR 1 RS 16-118
RF	RE-10					RR											00634117	11.00000	10.99000	TR 1 RS 16-118
C	CC					C							LO				00634118	0.00000	1.10000	SEC 18 11 10
C	CL					C							LO				00634119	0.00000	1.00000	SEC 18 11 10
RE-10	RL-10					RR											00634120	0.00000	15.97000	SEC 18 11 10
RE-10	RL-10					RR											00634121	0.00000	1.11800	RS 16/118/2

RF	RF-L					TR											00634122	0.00000	2.79000	SEC 18 11 10
RF	RF-L					TR											00634123	0.00000	0.12000	SEC 18 11 10
A	RF-L					TR											00634124	11.00000	0.00000	N W 1/4 18-11-10
RF	RF-L					TR											00634124	11.00000	0.00000	N W 1/4 18-11-10
RF	RF-L					TR							CL				00634127	11.00000	0.20000	SEC 18 11 10
RF	RF-L					TR							CL				00634128	11.00000	0.17000	SEC 18 11 10
C	CL					C							LO				00634129	0.00000	0.68000	PM 38/58/1
C	CL					C							LO				00634130	0.00000	0.67000	PM 38/58/2
RF	RF-L					TR							LO				00634131	11.00000	0.59000	POR SEC 18 11 10
RF	RF-L					TR							LO				00634132	11.00000	9.60000	POR SEC 18 11 10
RE-10	RE-5					MDR							LO				00636001	0.00000	0.47000	SEC 18 11 10
C	CC					C							LO				00636004	0.00000	1.16000	SEC 18 11 10
C	CL					C							LO				00636005	0.00000	0.55000	SEC 18 11 10
C	CC					PF							LO				00636006	11.00000	0.74000	SEC 18 11 10
C	CL					C							LO				00636008	0.00000	0.00000	SEC 18 11 10
C	CL					C							LO				00636009	0.00000	0.87500	SEC 18 11 10
C	CL					C							LO				00636009	0.00000	0.87500	SEC 18 11 10
C	CC					C							LO				00637005	0.00000	0.98700	S 18 & 19 11 10
RE-10	RE-5					MDR							LO				00637007	0.00000	13.78700	RS 28/90/1
RE-5	CC					C							LO				00637010	0.00000	1.27000	S 18 & 19 11 10
RE-5	CC					C							LO				00637016	0.00000	4.05000	SEC 18 11 10
C	CC					C							LO				00637017	0.00000	3.74000	SEC 18 11 10
C	CC					C							LO				00637025	0.00000	4.62000	RS 17/51/1
C	CL					C							LO				00637026	0.00000	0.54000	SEC 18 11 10
C	CL					C							LO				00637029	0.00000	0.76000	SEC 18 11 10
C	CL					C							LO				00637030	0.00000	0.37000	SEC 18 11 10
C	CC					C							LO				00637032	0.00000	4.11000	SEC 18 11 10
RE-5	CC					C							LO				00637032	0.00000	4.11000	SEC 18 11 10
C	CC					C							LO				00637034	0.00000	2.33000	RS 14/30 S181110
RE-5	CC					C							LO				00637034	0.00000	2.33000	RS 14/30 S181110
C	CC					C							LO				00637036	0.00000	7.70000	POR TR2 R/S17-51
RE-5	RL-10					RR	A		IBC								00638028	0.00000	3.89800	POR SEC 19 11 10
RE-10	RL-20					AL	A										00640003	0.00000	40.00000	SEC 19 11 10
RE-10	RL-20					AL	A										00640004	0.00000	38.78000	SEC 19 11 10
RE-10	RL-10					RR			IBC								00640008	0.00000	5.02000	PM 13/112/B
RE-10	RL-20					AL	A										00640010	0.00000	6.76000	PM 13/112/A
RE-10	RL-20					AL	A										00640011	0.00000	10.20000	SEC 19 11 10
RE-10	RL-20					AL	A										00640013	0.00000	30.51000	SEC 19 11 10
RE-10	RL-10					RR	A		IBC								00640015	0.00000	10.01000	RS 9/97/1
RE-10	RL-10					RR	A		IBC								00640016	0.00000	10.02000	RS 9/97/2
RE-10	RL-10					RR			IBC								00640021	0.00000	10.12000	PM 33/101/A
RE-10	RL-10					RR			IBC								00640022	0.00000	10.11000	PM 33/101/B
RE-10	RL-20					AL	A										00640031	0.00000	38.47500	PPM 33/101/D
RE-10	RL-10					RR			IBC								00640038	0.00000	8.97000	PPM 33/101/C&D
RE-10	RL-10					RR			IBC								00640039	0.00000	5.02000	PM 13/112/C
RE-10	RL-10					RR	A		IBC								00640047	0.00000	10.03000	RS 31/59/A

RE-10	LA-10					RR	A		IBC								00640048	0.00000	10.00000	RS 31/59/B
RE-10	RE-5					MDR					PL						00644004	0.00000	0.41000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00644005	0.00000	0.71000	SEC 17 11 10
RE-10	RE-5					MDR					PL						00644006	0.00000	0.66000	SEC 17 11 10
RE-10	RE-5					MDR					PL						00644007	0.00000	0.62100	SEC 17 11 10
RE-10	RE-5					MDR					PL						00644011	0.00000	0.92000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00644012	0.00000	0.40000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00644013	0.00000	0.95000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00644014	0.00000	1.13000	S 17 & 20 11 10
RE-10	RE-5					MDR					PL						00644015	0.00000	0.80000	SEC 17 11 10
RE-10	RE-5					MDR					PL						00644017	0.00000	0.77000	SEC 17 11 10
RE-10	RE-5					MDR					PL						00644018	0.00000	0.37700	SEC 20 11 10
RE-10	RE-5					MDR					PL						00644019	0.00000	0.42000	20 11 10RS15-138
RE-10	RE-5					MDR					PL						00644020	0.00000	0.38000	SEC 20 11 10
RE-10	RL-10					RR											00644022	0.00000	5.29000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00644027	0.00000	0.93000	SEC 20 11 10
RE-10	RL-10					RR											00644028	0.00000	2.47000	SEC 20 11 10
RE-10	RL-10					RR											00644029	0.00000	2.51000	RS 32/45/1
RE-10	RE-5					MDR					PL						00644030	0.00000	1.03000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00644031	0.00000	0.23000	SEC 20 11 10
RE-10	RL-10					RR											00644033	0.00000	2.17000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00644035	0.00000	0.61000	PM 42/60/1
RE-10	RE-5					MDR					PL						00644036	0.00000	0.60600	PM 42/60/2
RE-10	RE-5					MDR					PL						00644038	0.00000	6.39600	POR 17&20 11 10
RE-10	RE-5					MDR					PL						00644039	0.00000	0.71000	RS 23/108/1
RE-10	RE-5					MDR					PL						00645004	0.00000	2.10000	SEC 18 11 10
RE-10	RE-5					MDR					PL						00645012	0.00000	1.80000	PM 4/169/A
RE-10	RE-5					MDR					PL						00645015	0.00000	1.45600	PM 17/44/1
RE-10	RE-5					MDR					PL						00645017	0.00000	1.85000	PM 17/44/3
RE-10	RE-5					MDR					PL						00645019	0.00000	2.71000	PM 18/67/1
RE-10	RE-5					MDR					PL						00645020	0.00000	1.00000	PM 18/67/2
RE-10	RE-5					MDR					PL						00645021	0.00000	1.00000	PM 18/67/3
RE-10	RE-5					MDR					PL						00645022	0.00000	1.70000	PM 18/66/1
RE-10	RE-5					MDR					PL						00645023	0.00000	1.83000	PM 18/66/2
RE-10	RF-L					TR											00645024	0.00000	22.86000	SEC 18 11 10
RF	RF-L					TR											00645024	0.00000	22.86000	SEC 18 11 10
RE-10	RE-5					MDR					PL						00645025	0.00000	5.00000	SEC 18 11 10
RE-10	RE-5					MDR					PL						00645032	0.00000	1.05200	POR RS 23/107
RE-10	RE-5					MDR					PL						00645033	0.00000	1.22600	POR RS 23/107
RE-10	RL-10					RR	A										00646002	11.00000	1.04000	SEC 19 11 10
RE-10	RL-10					RR	A		IBC								00646003	0.00000	10.13000	SEC 19 11 10
RE-10	RL-10					RR	A		IBC								00646004	0.00000	10.09000	SEC 19 11 10
RE-5	RL-10					RR	A		IBC								00646012	0.00000	5.21000	SEC 19 11 10
RE-5	RL-10					RR	A										00646015	0.00000	5.00000	PM 3/162/C
RE-5	RL-10					RR	A										00646016	0.00000	5.00000	PM 3/162/D
RE-5	RL-10					RR	A		IBC								00646017	0.00000	2.24000	SEC 19 11 10

RE-5	RL-10					RR	A		IBC								00646019	0.00000	5.00400	PM 4/175/A
RE-5	RL-10					RR	A		IBC								00646021	0.00000	5.00000	PM 4/175/C
RE-5	RL-10					RR	A		IBC								00646023	0.00000	10.08000	PM 4/179/A
RE-5	RL-10					RR	A		IBC								00646024	0.00000	5.00000	PM 4/179/B
RE-5	RL-10					RR	A		IBC								00646025	0.00000	4.69000	PM 5/73/A
RE-5	RL-10					RR	A		IBC								00646026	0.00000	4.61000	PM 5/73/B
RE-5	RL-10					RR	A		IBC								00646027	0.00000	4.70000	PM 5/73/C
RE-5	RL-10					RR	A		IBC								00646028	0.00000	13.22000	PM 6/5/A
RE-5	RL-10					RR	A		IBC								00646029	0.00000	5.57000	PM 6/5/B
RE-5	RL-10					RR	A		IBC								00646030	0.00000	5.04000	PM 6/74/A
RE-5	RL-10					RR	A		IBC								00646031	0.00000	5.03000	PM 6/74/B
RE-5	RL-10					RR	A		IBC								00646032	0.00000	5.05000	PM 18/1/1
RE-5	RL-10					RR	A		IBC								00646033	0.00000	5.02200	PM 18/1/2
RE-10	RL-10					RR	A										00646035	0.00000	12.08000	PM 26/50/2
RE-10	LA-10					RR	A										00646040	0.00000	12.08000	POR PM 26/50/1
RE-5	RL-10					RR	A										00646041	0.00000	5.00000	POR PM 3/162/B
RE-5	RL-10					RR	A		IBC								00646043	0.00000	8.85000	SEC 19 11 10
RE-5	RL-10					RR	A		IBC								00646044	0.00000	1.09000	RS 28/57/1
RE-5	RL-10					RR	A		IBC								00646045	0.00000	2.06000	SEC 19 11 10
RE-5	RL-10					RR	A		IBC								00646046	2.00000	0.73000	SEC 19 11 10 AW
RE-10	RL-20					AL	A										00647004	0.00000	31.03000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00647019	0.00000	2.05000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00647021	0.00000	2.15000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00647022	0.00000	2.30000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00647024	0.00000	4.80000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00647025	0.00000	2.80500	PM 2/154/3
RE-10	RE-5					MDR					PL						00647026	0.00000	2.35000	PM 2/154/1
RE-10	RE-5					MDR					PL						00647027	0.00000	2.43000	PM 2/154/2
RA-20	RL-20					RR											00647032	0.00000	36.66000	SEC 20 11 10
RE-10	RL-10					RR											00647035	0.00000	5.41000	SEC 20 11 10
RA-20	RL-10					RR											00647036	0.00000	5.13000	SEC 20 11 10
RE-10	RL-10					RR	A										00647039	0.00000	10.26000	PM 28/11/A
RE-10	LA-10					RR	A										00647040	0.00000	15.03400	PM 28/11/B
RE-10	LA-10					RR	A										00647041	0.00000	10.98000	PM 28/11/C
RA-20	RE-5					MDR					PL						00647042	0.00000	1.00000	RS 18/73 S201110
RE-10	RE-5					MDR					PL						00647043	0.00000	2.60000	SEC 20 11 10
RE-10	RL-10					RR	A										00647045	0.00000	12.05000	RS 22/143
RE-5	RL-10					RR	A										00648004	0.00000	5.66000	PAR 3 14-35 AMEN
RE-5	RL-10					RR	A										00648005	0.00000	10.00000	PAR 4 14-35 AMEN
RE-10	RL-10					RR	A										00648006	11.00000	1.00000	SEC 20 11 10
R3A	RF-L					TR							CL				00648007	11.00000	2.80000	SEC 20 11 10
RE-5	RL-10					RR	A										00648011	0.00000	2.13000	SEC 20 11 10
RE-5	RL-10					RR	A										00648012	0.00000	3.51500	RS 29/38/1
RA-20	LA-20					RR	A										00648014	0.00000	12.97000	POR PM 3/139/1
RE-10	RL-10					RR	A										00648017	0.00000	10.11000	PM 14/35/2
RE-10	LA-10					RR	A										00648019	0.00000	43.03000	PAR 1 14-35 AMEN

RE-10	RL-10					RR	A										00648024	0.00000	10.00000	PM 28/83/A
RA-20	LA-20					AL	A										00648025	0.00000	9.45000	PM 28/83/B
RE-10	RL-20					AL	A										00648025	0.00000	9.45000	PM 28/83/B
RE-5	RL-10					AL	A										00648025	0.00000	9.45000	PM 28/83/B
RE-5	RL-10					RR	A										00648030	0.00000	5.00100	PM 41/61/2
RE-5	RL-10					RR	A										00648031	0.00000	5.00100	PM 41/61/3
RE-5	RL-10					RR	A										00648032	0.00000	5.00000	PM 41/61/4
RE-5	RL-10					RR	A										00648033	0.00000	5.01000	RS 17/58/2
RE-5	R3A					MDR							CL				00648035	0.00000	4.95600	RS 17/58/1
RA-20	LA-20					AL	A										00649002	0.00000	28.79000	SEC 20 11 10
RA-20	LA-20					AL	A										00649003	0.00000	29.40000	SEC 20 11 10
RE-10	RE-5					MDR					PL						00650003	0.00000	4.10000	SEC 7 11 10
RE-10	RE-5					MDR					PL						00650005	0.00000	5.35000	PM 14/136/A
RE-10	RE-5					MDR					PL						00650006	0.00000	3.00000	PM 14/136/B
RE-10	RE-5					MDR					PL						00650007	0.00000	3.00000	PM 14/136/C
RA-20	RL-20					RR											00651018	0.00000	81.67000	PAR 1&2 PM 19-8
RA-20	RL-20					RR											00651027	0.00000	30.33000	PM 37/97/C
RA-20	LA-10					RR											00651028	0.00000	41.14000	PM 37/97/D
RA-20	LA-10					RR											00651036	0.00000	31.70000	RS 19/138/1
RA-20	LA-10					RR											00651037	0.00000	22.54000	RS 19/138/2
RA-20	RL-10					RR											00651039	0.00000	5.23000	PM 44/14/1
RE-10	RL-10					RR											00651039	0.00000	5.23000	PM 44/14/1
RA-20	RL-10					RR											00651040	0.00000	9.33000	PM 44/14/2
RE-10	RL-10					RR											00651040	0.00000	9.33000	PM 44/14/2
RA-20	RL-20					RR											00651041	0.00000	31.34000	PM 44/14/3
RA-20	RL-20					RR											00651042	0.00000	31.34000	PM 44/14/4
AE	RL-10					RR											00652002	0.00000	0.00000	
AE	RL-10					RR											00652003	0.00000	121.95000	SEC 16 11 10
AE	RL-10					RR											00653008	0.00000	164.44000	S 16 & 21 11 10
AE	RL-10					RR											00653009	0.00000	16.70000	SEC 17 & 20 1110
RA-20	PA-10					RR											00653014	0.00000	6.00000	PPM 42/78/3 ADM
RE-10	PA-20					RR											00653016	0.00000	44.42000	PM 42/78/1
RE-10	RL-10					RR											00653017	0.00000	44.42000	PM 42/78/2
RE-10	PA-10					RR											00653018	0.00000	9.52000	PPM 42/78/3 ADM
RE-10	PA-20					RR											00653019	0.00000	44.42000	PM 42/78/4
RE-10	RL-10					RR											00654003	0.00000	13.89000	RS 12/93/A
RE-10	RL-10					RR											00654004	0.00000	10.00200	RS 12/93/B
C	CC					C							LO				00655021	0.00000	1.45000	PM 25/57/A
C	CC					C							LO				00655022	0.00000	3.00000	PM 25/57/B
C	CC					C							LO				00655024	0.00000	2.19000	PM 25/58/2
C	CC					C							LO				00655027	0.00000	1.13000	PM 26/102/C
C	CL					C							LO				00655028	0.00000	0.92000	SEC 18 10 11
CP	CC					C							LO				00655029	0.00000	3.16000	POR PAR 1 14-77
CP	CC					C							LO				00655030	0.00000	6.11000	POR PAR 1 14-77
RE-5	CC					C							LO				00655030	0.00000	6.11000	POR PAR 1 14-77
C	CL					C							LO				00655035	0.00000	0.90000	PM 29/108/1

C	CC					C							LO				00655036	0.00000	1.06000	PM 29/108/2
C	CC					C							LO				00655037	0.00000	1.45000	PM 40/97/1
C	CC					C							LO				00655038	0.00000	1.13000	PM 40/97/2
RA-40	RE-5					OS											00655053	0.00000	7.78000	RS 23/106/2
RF	RE-5					OS											00655053	0.00000	7.78000	RS 23/106/2
RA-40	RE-10					OS											00655054	0.00000	23.42000	RS 23/106/3
RE-5	RE-10					OS											00655054	0.00000	23.42000	RS 23/106/3
RF	RE-10					OS											00655054	0.00000	23.42000	RS 23/106/3
RF	RE-5					MDR							LO				00655055	0.00000	1.70000	RS 23/106/1
RE-10	RL-10					RR			IBC								00658001	0.00000	22.71800	PM 48/142/1
RE-10	RL-10					RR			IBC								00658002	0.00000	5.00600	PM 48/142/2
RE-10	RL-10					RR			IBC								00658003	0.00000	14.21200	PM 48/142/3
RF	RL-10					RR			IBC								00658003	0.00000	14.21200	PM 48/142/3
A	FR-160					NR											00901001	11.00000	49.11000	SEC 7 11 13
A	FR-160					NR											00901004	11.00000	0.00000	SEC 7 11 13
A	FR-160					NR											00901005	11.00000	0.00000	SEC 7 11 13
RA-160	FR-160					NR											00901006	11.00000	0.00000	SEC 8 11 13
RA-160	FR-160					NR											00902002	11.00000	0.00000	10 11 13RS11-141
RA-160	FR-160					NR											00902003	11.00000	0.00000	SEC 11 11 13
RA-160	FR-160					NR											00902004	11.00000	0.00000	SEC 12 11 13
RA-40	RL-160					NR											00903008	0.00000	20.00000	SEC 21 11 13
RA-40	RL-160					NR											00903009	0.00000	20.00000	SEC 21 11 13
RA-40	RL-160					NR											00903011	0.00000	40.82000	SEC 21 11 13
RA-40	RL-160					NR											00903012	0.00000	40.00000	SEC 21 11 13
RA-40	RL-160					NR											00903013	0.00000	40.00000	SEC 21 11 13
RA-40	RL-20					RR					PL						00903015	0.00000	10.43000	PM 25/129/1
RE-10	RL-10					RR					PL						00903016	0.00000	18.40000	SEC 21 11 13
RE-10	RL-10					RR					PL						00903017	0.00000	12.24000	SEC 21 11 13
A	FR-160					NR											00903018	11.00000	0.00000	SEC 19,20-11-13
RA-160	FR-160					NR											00903018	11.00000	0.00000	SEC 19,20-11-13
A	FR-160					NR											00903019	0.00000	122.81000	16 11 13RS11-138
A	FR-160					NR											00903020	11.00000	0.00000	SEC 17&18-11-13
RA-160	FR-160					NR											00903020	11.00000	0.00000	SEC 17&18-11-13
RA-160	FR-160					NR											00903021	11.00000	0.00000	POR SEC 21-11-13
RE-10	RL-10					RR					PL						00904014	0.00000	0.32000	SEC 23 11 13
RE-10	RL-10					RR					PL						00904015	0.00000	0.32000	SEC 23 11 13
RA-40	RL-160					NR											00904016	0.00000	40.00000	SEC 22 11 13
RA-40	RL-20					RR					PL						00904017	0.00000	1.25000	SEC 22 11 13
RA-40	RL-160					NR											00904019	0.00000	40.00000	SEC 22 11 13
RA-40	RL-160					NR											00904020	0.00000	40.00000	SEC 22 11 13
RE-10	RL-10					RR					PL						00904023	0.00000	8.81000	RS 22/102
RA-40	RL-20					RR					PL						00904026	0.00000	20.00000	SEC 22 11 13
RA-40	RL-160					NR											00904028	0.00000	39.50000	SEC 22 11 13
RA-40	RL-160					NR											00904029	0.00000	40.00000	SEC 22 11 13
RA-40	RL-20					RR					PL						00904030	0.00000	11.81000	SEC 22 11 13
RA-40	RL-20					RR					PL						00904031	0.00000	6.94000	SEC 22 11 13

RA-40	RL-20					RR					PL						00904037	0.00000	10.00000	PM 28/7/A
RA-40	RL-20					RR					PL						00904038	0.00000	10.00000	PM 28/7/B
RA-40	RL-20					RR					PL						00904039	0.00000	9.53000	PM 28/7/C
RA-40	RL-20					RR					PL						00904040	0.00000	10.00000	PM 28/7/D
RA-40	RL-160					NR											00904041	0.00000	40.00000	SEC 23 11 13
RA-40	RL-160					NR											00904042	0.00000	40.00000	SEC 23 11 13
RA-40	RL-160					NR											00904043	0.00000	82.65000	SEC 23 11 13
RA-160	FR-160					NR											00904044	11.00000	0.00000	SEC 22 11 13
RA-160	FR-160					NR											00904045	11.00000	0.00000	POR SEC 23-11-13
RA-160	FR-160					NR											00904046	11.00000	0.00000	POR SEC 24-11-13
RA-160	FR-160					NR											00904047	11.00000	0.00000	15 11 13RS11-121
RA-160	FR-160					NR											00904048	11.00000	0.00000	POR SEC 23-11-13
RA-160	FR-160					NR											00904049	11.00000	0.00000	SEC 14-11-13
RA-160	FR-160					NR											00904050	11.00000	0.00000	SEC 13-11-13
RA-160	FR-160					NR											00904051	11.00000	0.00000	SEC 22 11 13
RA-80	RL-160					NR											00905101	0.00000	40.00000	SEC 30 11 13
RA-80	FR-160					NR											00905102	11.00000	47.00000	SEC 29 11 13
RA-80	FR-160					NR											00905103	11.00000	33.96000	SEC 29 11 13
RA-80	FR-160					NR											00905104	11.00000	31.50000	SEC 29 11 13
RA-80	RL-160					NR											00905105	0.00000	0.00000	SEC 31 11 13 ADM
RA-80	RL-160					NR											00905106	0.00000	23.00000	SEC 31 11 13 ADM
RA-20	RE-10					LDR						CPP					00905110	11.00000	5.47000	SEC 32 11 13
RA-20	RE-5					LDR						CPP					00905116	0.00000	0.62000	SEC 33 11 13
RA-20	RL-160					NR											00905117	0.00000	15.40000	SEC 33 11 13
RA-20	RL-160					NR											00905118	0.00000	46.35000	SEC 33 11 13
RA-20	RL-160					NR											00905119	0.00000	6.08000	SEC 33 11 13
RA-80	FR-160					NR											00905123	11.00000	0.00000	SEC 19&30 11 13
RA-80	FR-160					NR											00905123	11.00000	0.00000	SEC 19&30 11 13
RA-80	FR-160					NR											00905124	11.00000	40.00000	SEC 30 11 13
RA-80	FR-160					NR											00905125	11.00000	0.00000	SEC 28&29 11 13
RA-80	FR-160					NR											00905126	11.00000	0.00000	S 33 11 13
RA-80	FR-160					NR											00905126	11.00000	0.00000	S 33 11 13
RA-80	FR-160					NR											00905126	11.00000	0.00000	S 33 11 13
RA-80	FR-160					LDR						CPP					00905127	11.00000	0.00000	SEC 32 &33 11 13
RA-80	FR-160					LDR						CPP					00905127	11.00000	0.00000	SEC 32 &33 11 13
RE-10	FR-40					NR											00906009	0.00000	7.32000	S 33 & 34 11 13
RA-80	FR-160					NR											00906010	11.00000	0.00000	SEC 34 11 13
RA-40	FR-160					NR											00906022	11.00000	50.26000	SEC 36 11 13
RA-160	RL-160					NR											00906026	0.00000	29.61000	SEC 34 11 13
RA-20	RL-160					NR											00906026	0.00000	29.61000	SEC 34 11 13
RA-20	RL-160					NR											00906027	0.00000	10.00000	SEC 34 11 13
RA-160	FR-160					NR											00906028	11.00000	0.00000	SEC 26&35-11-13
RA-160	FR-160					NR											00906028	11.00000	0.00000	SEC 26&35-11-13
RA-160	FR-160					NR											00906028	11.00000	0.00000	SEC 26&35-11-13
RA-160	FR-160					NR											00906028	11.00000	0.00000	SEC 26&35-11-13
RA-80	FR-160					NR											00906028	11.00000	0.00000	SEC 26&35-11-13

RA-80	FR-160					NR											00906028	11.00000	0.00000	SEC 26&35-11-13
TPZ	FR-160					NR											00906028	11.00000	0.00000	SEC 26&35-11-13
TPZ	FR-160					NR											00906028	11.00000	0.00000	SEC 26&35-11-13
TPZ	FR-160					NR											00906028	11.00000	0.00000	SEC 26&35-11-13
R1	TPZ					NR											00906029	0.00000	190.34700	RS 25/24/1
R1	TPZ					NR											00906029	0.00000	190.34700	RS 25/24/1
RA-20	TPZ					NR											00906029	0.00000	190.34700	RS 25/24/1
RA-20	TPZ					NR											00906029	0.00000	190.34700	RS 25/24/1
RA-80	FR-160					NR											00906031	11.00000	0.00000	SEC27 &34 11 13
RA-160	FR-160					NR											00906032	11.00000	0.00000	SEC 25 11 13
RA-160	FR-160					NR											00906032	11.00000	0.00000	SEC 25 11 13
RA-80	FR-160					NR											00906033	11.00000	0.00000	SEC 34 11 13
R1	CC					C					PL						00910103	11.00000	0.00000	L 9 10 11 12
R1	FR-160					NR											00912001	0.00000	0.23000	RS 25/24/2
R1	FR-160					NR											00912006	0.00000	1.16000	SEC 34 11 13
R1	FR-160					NR											00913007	0.00000	0.23000	SEC 34 11 13
R1	FR-160					NR											00914018	0.00000	0.65000	SEC 34 11 13
R1	FR-160					NR											00914018	0.00000	0.65000	SEC 34 11 13
C	CC				DS	C					PL						00914019	0.00000	4.19000	SEC 34 11 13
RE-10	FR-160					NR											00916003	0.00000	7.05000	RS 8/144 S351113
RE-10	FR-160					NR											00916004	0.00000	1.05000	RS 8/144 S351113
R1	FR-160					NR											00917007	0.00000	1.00000	SEC 35 11 13
C	CL				DS	C						CPP					00918008	0.00000	0.73000	PM 32/94/1
C	CL				DS	C						CPP					00918010	0.00000	0.82000	PM 32/94/3
C	CC				DS	C						CPP					00918013	0.00000	1.39000	PM 32/94/4
C	CL				DS	C						CPP					00918014	0.00000	0.58000	PM 32/94/2
R1	CL					C						CPP					00919318	0.00000	0.00000	L 2 B 3
C	CL				DS	C						CPP					00919319	0.00000	0.36000	RS 30/11/1
C	CL				DS	C						CPP					00919601	0.00000	0.53000	PM 4/28/1
C	CC				DS	C						CPP					00919604	0.00000	3.20300	31 11 13&P4/28/2
RA-80	RL-160					NR											00922010	0.00000	5.67000	SEC 32 11 12
RE-10	FR-160					NR											00925003	0.00000	0.28000	SEC 33 11 13
RE-10	FR-160					NR											00925004	0.00000	0.41000	SEC 33 11 13
R1A	R20K					HDR						CPP					00926038	11.00000	0.70000	SEC 30 11 13
RE-5	R1A					HDR						CPP					00926040	11.00000	0.89000	SEC 30 11 13
RE-10	RL-10					RR											00927003	0.00000	3.75000	SEC 29 11 13
R2A	R1A					MDR						CPP					00927021	0.00000	0.83000	PM 3/89/2
R2A	R1A					MDR						CPP					00927024	0.00000	1.32000	PM 3/172/1
R2A	R1A					MDR						CPP					00927025	0.00000	0.78000	PM 3/172/2
R2A	R1A					MDR						CPP					00927029	0.00000	0.62000	PM 5/89/B
R2A	R1A					MDR						CPP					00927030	0.00000	0.67500	RS 27/15/1
R2A	R1A					MDR						CPP					00927032	0.00000	0.54000	PM 5/92/A
R2A	R1A					MDR						CPP					00927033	0.00000	0.57000	PM 5/92/B
R2A	R1A					MDR						CPP					00927034	0.00000	0.60000	PM 5/92/C
R2A	R1A					MDR						CPP					00927035	0.00000	1.38000	PPM 2/173/A&C
R2A	R1A					MDR						CPP					00927036	0.00000	1.10000	PPM 2/173/B&C

R2A	R1A					MDR						CPP					00927037	0.00000	1.00000	PM 3/89/3
R2A	R1A					MDR						CPP					00927038	0.00000	1.05000	PM 3/89/4
R2A	R1A					MDR						CPP					00927040	0.00000	1.21000	PM 9/17/A
R2A	R1A					MDR						CPP					00927041	0.00000	1.25000	PM 9/17/B
R2A	R1A					MDR						CPP					00927042	0.00000	1.30000	PM 9/17/C
R2A	R1A					MDR						CPP					00927049	0.00000	1.50000	PM 9/71/1
R2A	R1A					MDR						CPP					00927050	0.00000	1.01000	PM 9/71/2
R2A	R1A					MDR						CPP					00927051	0.00000	1.39600	PM 9/71/3
R2A	RL-10					RR											00927052	0.00000	2.25000	PM 12/49/1
R2A	RL-10					RR											00927053	0.00000	2.25000	PM 12/49/2
R2A	R1A					MDR						CPP					00927056	0.00000	0.95000	SEC 29 11 13
R2A	R1A					MDR						CPP					00927057	0.00000	1.01300	PM 20/50/1
R2A	R1A					MDR						CPP					00927058	0.00000	1.01300	PM 20/50/2
R2A	R1A					MDR						CPP					00927059	0.00000	1.02000	PM 20/50/3
R2A	R1A					MDR						CPP					00927061	0.00000	0.72600	RS 18/10/2
R2A	R1A					MDR						CPP					00927063	0.00000	0.91000	RS 18/10/1
R2A	RL-10					RR											00927064	0.00000	2.42000	PM 9/42/A
R2A	RL-10					RR											00927065	0.00000	5.36000	PM 9/42/C
C	CL				DS	C						CPP					00930345	0.00000	0.35700	RS 28/1/1
C	CL				DS	C						CPP					00930346	0.00000	0.84500	RS 28/1/2
R2	R1				DS	HDR						CPP					00930347	0.00000	0.29000	POR L 22 RS17-62
C	CL				DS	C						CPP					00930348	0.00000	0.31000	POR L 23 RS17-62
C	CL				DS	C						CPP					00930349	0.00000	0.30000	POR L 24 RS17-62
A	FR-160					NR											00931002	11.00000	0.00000	SEC 3 11 13
A	FR-160					NR											00931003	11.00000	0.00000	SEC 2 11 13
A	FR-160					NR											00931004	11.00000	0.00000	SEC 1 11 13
A	FR-160					NR											00932003	11.00000	0.00000	SEC 4 5&6 11 13
A	FR-160					NR											00932004	11.00000	0.00000	SEC 4 5&6 11 13
RE-10	RL-160					NR											00933007	0.00000	7.00000	SEC 31 11 13
MP	RM					MFR						CPP					00933057	0.00000	7.23500	POR SEC 31 11 13
MP	RM					MFR						CPP					00933060	0.00000	4.24500	POR SEC 31 11 13
MP	RM					MFR						CPP					00933061	0.00000	2.16300	SEC 31 11 13
I	CG				DS	C						CPP					00933063	0.00000	1.87000	PM 49/131/A
I	CG				DS	C						CPP					00933064	0.00000	1.87000	PM 49/131/B
R2A	R1A					HDR						CPP					00934010	0.00000	1.07000	RS 9/11 S291113
RE-10	RL-10					RR											00934011	0.00000	5.82000	SEC 29 11 13
RE-10	RL-10					RR											00934012	0.00000	8.18000	SEC 29 11 13
RE-10	RL-10					RR											00934013	0.00000	4.00000	SEC 29 11 13
RE-10	RL-10					RR											00934014	0.00000	0.35000	SEC 29 11 13
RE-10	RL-10					RR											00934015	0.00000	11.65000	SEC 29 11 13
R2A	R1A					HDR						CPP					00934016	0.00000	1.00000	PM 22/39/A
R2A	R1A					HDR						CPP					00934018	0.00000	1.34000	RS 12/4 S291113
R2A	R1A					HDR						CPP					00934021	0.00000	1.10000	PM 34/124/A
R2A	R1A					HDR						CPP					00934022	0.00000	1.00000	PM 34/124/B
R2A	R1A					HDR						CPP					00934023	0.00000	1.20000	PM 34/124/C
R2A	R1A					HDR						CPP					00934025	0.00000	1.08000	PM 35/38/B

R2A	R1A					HDR						CPP					00934030	0.00000	1.01000	22-3935-38RS16-5
R2A	R1A					HDR						CPP					00934031	0.00000	1.01000	22-3935-38RS16-5
C	CL				DS	C						CPP					00935017	11.00000	0.55000	SEC 31 11 13
TC	R1					HDR						CPP					00935042	0.00000	0.28000	PM 21/83/A
C	CL				DS	C						CPP					00935049	0.00000	0.97000	PM 28/91/1
C	CC			PD	DS	HDR						CPP					00935062	0.00000	3.18000	PM 44/72/1
C	CC			PD	DS	C						CPP					00935063	0.00000	1.14000	PM 44/72/2
C	CL			PD	DS	C						CPP					00935064	0.00000	0.69000	PM 44/72/3
C	CL			PD	DS	C						CPP					00935065	0.00000	0.69000	PM 44/72/4
RA-20	RE-10					LDR						CPP					00937055	11.00000	12.84000	SEC 32 11 13
RA-20	RE-5					LDR						CPP					00937058	0.00000	5.00000	PM 36/84/3
RA-20	RL-160					NR											00939032	0.00000	16.13000	PM 22/143/A
RA-20	RL-160					NR											00939033	0.00000	22.80000	PM 22/143/B
RA-20	RL-160					NR											00939034	0.00000	10.55000	PM 22/143/C
RA-20	RL-160					NR											00939035	0.00000	23.37000	PM 22/143/D
RA-20	RE-5					LDR						CPP					00939049	0.00000	5.67000	PM 42/66/4
RE-10	RL-160					NR											00939050	0.00000	16.12000	PM 44/114/1
RE-10	RL-160					NR											00939051	0.00000	10.00000	PM 44/114/2
RA-20	RL-160					NR											00939059	0.00000	38.66400	RS 32/8/1
R1	R1A					HDR						CPP					00939061	0.00000	5.00000	PM 42/66/1
RE-5	R1A					HDR						CPP					00939061	0.00000	5.00000	PM 42/66/1
R1	OS					HDR						CPP					00948001	2.00000	0.00000	COMMON AREA AW
RF	RF-H					HDR						CPP					00949003	2.00000	7.72000	S 31&32 11 13 AW
RF	RF-H					HDR						CPP					00949004	2.00000	3.45000	S 5 10 13
RF	RF-H					HDR						CPP					00949005	2.00000	9.39000	SEC 5 10 13 AW
OS	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
OS	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
OS	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
OS	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
OS	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
OS	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
OS	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
OS	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
OS	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
RE-10	R1					HDR						CPP					00959001	2.00000	0.00000	COMMON AREA AW
RE-10	RL-10					RR											00960002	0.00000	0.47000	SEC 32 11 13
RE-10	RL-10					RR											00960003	0.00000	1.03000	SEC 32 11 13
RE-10	RL-10					RR											00960004	0.00000	1.90000	SEC 32 11 13
RE-10	RL-10					RR											00960005	0.00000	1.00000	SEC 32 11 13
RE-10	RL-10					RR											00960009	0.00000	12.56000	SEC 33 11 13
RE-10	RL-10					RR					PL						00961013	0.00000	14.10000	PM 6/176/1
RE-10	RL-10					RR					PL						00961014	0.00000	12.62000	PM 6/176/2
RE-10	RL-10					RR					PL						00961015	0.00000	11.99000	PM 6/176/3
RE-10	RL-10					RR					PL						00961016	0.00000	15.16000	PM 6/176/4
RE-10	RL-10					RR					PL						00961017	0.00000	11.87000	PM 6/177/1
RE-10	RL-10					RR					PL						00961018	0.00000	10.13000	PM 6/177/2

RE-10	RL-10					RR					PL						00961019	0.00000	11.83000	PM 6/177/3
RE-10	RL-10					RR					PL						00961020	0.00000	10.61000	PM 6/177/4
RE-10	RL-10					RR					PL						00961022	0.00000	10.70000	PM 9/14/2
RE-10	RL-10					RR					PL						00961023	0.00000	10.24000	PM 9/14/3
RE-10	RL-10					RR					PL						00961024	0.00000	10.05000	PM 19/111/A
RE-10	RL-10					RR					PL						00961025	0.00000	10.11000	PM 19/111/B
RA-20	RL-160					NR											00963007	0.00000	5.00000	PPM 45/72/2 ADM
RA-20	RL-160					NR											00963008	0.00000	5.00000	PPM 45/72/1 ADM
RA-20	RL-160					NR											00963009	0.00000	21.67500	PPM 45/72/2 ADM
RA-20	RL-160					NR											00963010	0.00000	5.00000	PPM 45/72/1 ADM
RA-20	RL-160					NR											00963014	0.00000	10.53400	POR PM 24-139-1
RE-10	RL-10					RR											00964002	0.00000	6.60000	SEC 32 11 13
RA-20	LA-10					LDR						CPP					00964003	0.00000	14.19000	PM 27/65/1
RA-20	RE-10					LDR						CPP					00964004	0.00000	14.71300	PM 27/65/2
RA-20	RE-10					LDR						CPP					00964005	0.00000	15.00000	PM 27/65/3
RA-20	RE-10					LDR						CPP					00964006	0.00000	10.00000	PM 27/65/4
RA-20	FR-160					NR											00966003	11.00000	0.28000	SEC 30 11 13
RA-20	FR-160					NR											00966005	11.00000	21.11000	SEC 30 11 13
RA-20	RL-160					NR											00966006	0.00000	6.45000	SEC 30 11 13
RA-20	FR-160					NR											00966007	11.00000	0.15000	SEC 30 11 13
RA-20	RE-10					LDR						CPP					00966011	0.00000	12.02000	30 11 13 RS20-94
RA-20	RE-10					LDR						CPP					00966011	0.00000	12.02000	30 11 13 RS20-94
R1	R1A					HDR						CPP					00967005	0.00000	1.72000	POR PM 28/65/D
RE-5	R1A					HDR						CPP					00967005	0.00000	1.72000	POR PM 28/65/D
RA-20	RL-160					NR											00972003	0.00000	5.06500	RS 10/77 S331113
RA-20	RL-160					NR											00972006	0.00000	10.06000	PM 44/49/1
C	CC				DS	C					PL						00972008	0.00000	6.00000	PM 45/91/1
RA-20	RL-160					NR											00972010	0.00000	24.00000	PPM 45/91/2 ADM
RA-20	RL-160					NR											00972011	0.00000	16.00300	PPM 45/91/2 ADM
A	FR-160					NR											01001005	11.00000	0.00000	SEC 31& 32 14 14
A	FR-160					NR											01001006	11.00000	417.17000	33 14 14RS15-137
A	FR-160					NR											01002011	11.00000	0.00000	36 14 14RS11-140
A	FR-160					NR											01002016	11.00000	0.00000	SEC 36 14 14
A	FR-160					NR											01002017	11.00000	0.00000	SEC 34 14 14
A	FR-160					NR											01003006	11.00000	0.00000	S8 13 14 RS 6-89
A	FR-160					NR											01003007	11.00000	0.00000	S4 13 14 RS 6-92
A	FR-160					NR											01003008	11.00000	0.00000	SEC 5 & 6 13 14
A	FR-160					NR											01003009	11.00000	0.00000	SEC 4 & 9 13 14
A	FR-40					NR											01004002	0.00000	40.00000	SEC 3 13 14
A	FR-160					NR											01004016	11.00000	137.00000	S 11 & 12 13 14
A	FR-160					NR											01004017	11.00000	23.00000	S 11 & 12 13 14
A	FR-160					NR											01004018	11.00000	41.10000	S11 13 14RS10-20
A	FR-160					NR											01004019	11.00000	125.67000	S12 13 14RS10-43
A	FR-160					NR											01004020	11.00000	163.36000	S12 13 14RS10-43
A	FR-160					NR											01004021	11.00000	166.38000	S2 13 14 RS10-44
A	FR-160					NR											01004022	11.00000	160.14000	S2 13 14 RS10-44

A	FR-160					NR											01004023	11.00000	82.77000	S2 13 14 RS10-44
A	FR-160					NR											01004024	11.00000	0.00000	S3 13 14 RS 6-79
A	FR-160					NR											01004025	11.00000	0.00000	S 10 13 14RS6-80
A	FR-160					NR											01004026	11.00000	82.43000	S10 13 14RS6-80
A	FR-160					NR											01004027	11.00000	0.00000	SEC 1 13 14
A	FR-160					NR											01004028	11.00000	0.00000	POR SEC 2 13 14
A	FR-160					NR											01004029	11.00000	0.00000	POR SEC 3 13 14
A	FR-160					NR											01004030	11.00000	0.00000	POR SEC 10 13 14
A	FR-160					NR											01004031	11.00000	0.00000	PORSEC 11 13 14
A	FR-160					NR											01004032	11.00000	0.00000	POR SEC 12 13 14
A	FR-160					NR											01004032	11.00000	0.00000	POR SEC 12 13 14
A	FR-160					NR											01004033	11.00000	0.00000	P S 10&11 13 14
A	FR-40					NR											01005001	0.00000	296.87000	RS 9/115 S171314
A	FR-160					NR											01005007	11.00000	0.00000	S17 13 14 RS9-45
A	FR-160					NR											01005008	11.00000	0.00000	S17 13 14 RS9-45
A	FR-160					NR											01005009	11.00000	0.00000	S18 13 14RS9-115
A	FR-160					NR											01005010	11.00000	0.00000	S19 13 14RS9-115
A	FR-160					NR											01005011	11.00000	0.00000	S20 13 14RS9-115
A	FR-160					NR											01005012	11.00000	0.00000	S21 13 14RS9-115
A	FR-160					NR											01006011	0.00000	37.47000	RS 6/63 S241314
AE	TPZ					NR											01006024	0.00000	250.00000	S 22 & 23 13 14
A	FR-160					NR											01006032	0.00000	32.84000	SEC 15 13 14
A	FR-160					NR											01006033	11.00000	17.79000	SEC 15 13 14
A	FR-160					NR											01006036	11.00000	0.00000	POR SEC 22-13-14
A	FR-160					NR											01006037	11.00000	39.34000	S13 13 14RS 8-32
A	FR-160					NR											01006038	11.00000	39.16000	S13 13 14RS8-22
A	FR-160					NR											01006039	11.00000	39.02000	S13 13 14 RS8-5
A	FR-160					NR											01006040	11.00000	0.00000	S13 13 14RS8-32
A	FR-160					NR											01006041	11.00000	158.13000	S14 13 14 RS8-34
A	FR-160					NR											01006042	11.00000	79.84000	S14 13 14RS 8-34
A	FR-160					NR											01006043	11.00000	83.71000	S14 13 14 RS8-34
A	FR-160					NR											01006044	11.00000	40.06000	S14 13 14 RS8-34
A	FR-160					NR											01006045	11.00000	0.00000	S24 13 14 RS6-63
A	FR-160					NR											01006046	11.00000	0.00000	POR SEC 13 13 14
A	FR-160					NR											01006047	11.00000	0.00000	POR SEC 15 13 14
A	FR-160					NR											01006048	11.00000	0.00000	POR SEC 23 14 13
A	FR-160					NR											01007011	11.00000	0.00000	S30 13 14RS9-115
A	FR-160					NR											01007012	11.00000	0.00000	S29 13 14RS9-115
A	FR-160					NR											01007013	0.00000	0.00000	RS 9/115 S291314
A	FR-160					NR											01007014	11.00000	0.00000	S28 13 14RS7-146
A	FR-160					NR											01007015	11.00000	0.00000	POR SEC 15 13 14
A	FR-160					NR											01007016	0.00000	0.00000	POR SEC 31 13 14
A	FR-160					NR											01007017	11.00000	0.00000	POR SEC 33 13 14
A	TPZ					NR											01008025	0.00000	150.00000	SEC 35 13 14
AE	TPZ					NR											01008025	0.00000	150.00000	SEC 35 13 14
C	CC					C					PL						01008042	0.00000	7.00000	SEC 35 13 14

C	FR-160					NR											01008043	0.00000	3.00000	SEC 35 13 14
A	FR-160					NR											01008044	11.00000	40.72000	27 13 14RS17-122
A	FR-160					NR											01008045	11.00000	0.00000	S35 13 14RS 2-13
A	FR-40					NR											01008046	0.00000	40.00000	RS 2/13 S351314
A	FR-160					NR											01008047	11.00000	0.00000	S25 13 14RS2-58
A	FR-160					NR											01008048	11.00000	0.00000	S25 13 14RS 2-58
A	FR-160					NR											01008049	11.00000	0.00000	S26 13 14RS 2-59
A	FR-160					NR											01008050	11.00000	0.00000	S34 13 14 RS2-60
AE	FR-160					NR											01008051	11.00000	80.39000	27 13 14RS17-122
A	FR-160					NR											01008052	11.00000	0.00000	POR SEC 34 13 14
A	FR-160					NR											01009001	0.00000	640.54000	SEC 31 14 15
A	FR-160					NR											01009014	0.00000	211.98000	SEC 33 14 15
A	FR-160					NR											01009016	11.00000	0.40000	SEC 33 14 15
A	FR-160					NR											01009017	11.00000	0.25000	SEC 33 14 15
A	FR-160					NR											01009018	11.00000	1.30000	SEC 33 14 15
A	FR-160					NR											01009019	11.00000	1.50000	SEC 33 14 15
A	FR-160					NR											01009020	11.00000	30.00000	SEC 33 14 15
A	FR-160					NR											01009023	11.00000	0.00000	POR SEC 32 14 15
A	FR-160					NR											01010002	11.00000	0.00000	SEC 34 14 15
A	FR-160					NR											01011004	11.00000	30.00000	SEC 5 13 15
A	FR-160					NR											01011005	11.00000	0.00000	IMP AT LOON LAKE
A	FR-160					NR											01011006	11.00000	0.00000	POR SEC 4 13 15
A	FR-160					NR											01011007	11.00000	0.00000	POR SEC 5 13 15
A	FR-160					NR											01011008	11.00000	0.00000	POR SEC 6 13 15
A	FR-160					NR											01011009	11.00000	0.00000	POR SEC 7 13 15
A	FR-160					NR											01011010	11.00000	0.00000	POR SEC 8 13 15
A	FR-160					NR											01012006	0.00000	39.23000	SEC 3 13 15
A	FR-160					NR											01012007	11.00000	18.00000	SEC 3 13 15
A	FR-160					NR											01012008	11.00000	0.00000	SEC 2 13 15
A	FR-160					NR											01012009	11.00000	0.00000	POR SEC 3 13 15
A	FR-160					NR											01012010	11.00000	0.00000	SEC 10 13 15
A	FR-160					NR											01012011	11.00000	0.00000	SEC 11 13 15
A	FR-160					NR											01013004	0.00000	10.00000	RS 17/88/1
A	FR-160					NR											01013005	11.00000	320.00000	SEC 16 13 15
A	FR-160					NR											01013006	11.00000	280.00000	SEC 16 13 15
A	FR-160					NR											01013010	11.00000	0.00000	POR SEC 16 13 15
A	FR-160					NR											01013011	11.00000	0.00000	SEC 17 13 15
A	FR-160					NR											01013012	11.00000	0.00000	SEC 18 13 15
A	FR-160					NR											01013013	11.00000	0.00000	SEC 19 13 15
A	FR-160					NR											01013014	11.00000	0.00000	SEC 20 13 15
A	FR-160					NR											01013015	11.00000	0.00000	POR SEC 21 13 15
A	FR-160					NR											01014001	11.00000	160.00000	SEC 15 13 15
A	FR-160					NR											01014003	11.00000	0.00000	SEC 14 13 15
A	FR-160					NR											01014004	11.00000	0.00000	POR SEC 15 13 15
A	FR-160					NR											01014005	11.00000	0.00000	POR SEC 22 13 15
A	FR-160					NR											01014006	11.00000	0.00000	SEC 23 13 15

A	FR-160					NR											01015018	11.00000	0.00000	POR SEC 28 13 15
A	FR-160					NR											01015019	11.00000	0.00000	POR SEC 29 13 15
A	FR-160					NR											01015020	11.00000	0.00000	SEC 30 13 15
A	FR-160					NR											01015021	11.00000	0.00000	POR SEC 31 13 15
A	FR-160					NR											01015022	11.00000	0.00000	POR SEC 32 13 15
A	FR-160					NR											01015023	11.00000	0.00000	POR SEC 33 13 15
A	FR-160					NR											01016003	11.00000	0.00000	SEC 26 13 15
A	FR-160					NR											01016004	11.00000	0.00000	POR SEC 27 13 15
A	FR-160					NR											01016005	11.00000	0.00000	POR SEC 34 13 15
A	FR-160					NR											01016006	11.00000	0.00000	SEC 35 13 15
TA	FR-160					AP											01017001	11.00000	49.72000	SEC 24 14 16
TA	FR-160					AP											01017002	11.00000	186.68000	SEC 24 14 16
A	FR-160					NR											01018001	0.00000	320.00000	SEC 29 14 16
A	FR-160					NR											01018004	11.00000	640.00000	SEC 33 14 16
TA	FR-160					NR											01018004	11.00000	640.00000	SEC 33 14 16
A	FR-160					NR											01018008	11.00000	0.00000	SEC 28 14 16
A	FR-160					NR											01018009	11.00000	0.00000	POR SEC 32 14 16
A	FR-160					NR											01019001	11.00000	320.00000	SEC 27 14 16
TA	FR-160					NR											01019001	11.00000	320.00000	SEC 27 14 16
TA	FR-160					AP											01019002	11.00000	640.00000	SEC 25 14 16
TA	FR-160					AP											01019003	11.00000	640.00000	SEC 35 14 16
TA	FR-160					AP											01019005	11.00000	0.00000	SEC 26 14 16
A	FR-160					AP											01019006	11.00000	0.00000	SEC 34 14 16
A	FR-160					AP											01019006	11.00000	0.00000	SEC 34 14 16
TA	FR-160					AP											01019006	11.00000	0.00000	SEC 34 14 16
TA	FR-160					AP											01019007	11.00000	0.00000	SEC 36 14 16
A	FR-160					NR											01020002	11.00000	0.00000	SEC 4 13 16
A	FR-160					NR											01020003	11.00000	0.00000	SEC 5 13 16
A	FR-160					NR											01020004	11.00000	0.00000	POR SEC 6 13 16
A	FR-160					NR											01020005	11.00000	0.00000	SEC 7 13 16
A	FR-160					NR											01020006	11.00000	0.00000	SEC 8 13 16
A	FR-160					NR											01020007	11.00000	0.00000	SEC 9 13 16
TA	FR-160					AP											01021001	11.00000	0.00000	SEC 1 13 16
TA	FR-160					AP											01021002	11.00000	0.00000	SEC 2 13 16
A	FR-160					AP											01021003	11.00000	0.00000	SEC 3 13 16
TA	FR-160					AP											01021003	11.00000	0.00000	SEC 3 13 16
A	FR-160					NR											01021004	11.00000	0.00000	SEC 10 13 16
TA	FR-160					NR											01021004	11.00000	0.00000	SEC 10 13 16
A	FR-160					AP											01021005	11.00000	0.00000	SEC 11 13 16
TA	FR-160					AP											01021005	11.00000	0.00000	SEC 11 13 16
TA	FR-160					AP											01021006	11.00000	0.00000	SEC 12 18 16
A	FR-160					NR											01022001	11.00000	0.00000	SEC 16 13 16
A	FR-160					NR											01022002	11.00000	0.00000	SEC 17 13 16
A	FR-160					NR											01022003	11.00000	0.00000	SEC 18 13 16
A	FR-160					NR											01022004	11.00000	0.00000	SEC 19 13 16
A	FR-160					NR											01022005	11.00000	0.00000	SEC 20 13 16

A	FR-160					NR											01022006	11.00000	0.00000	SEC 21 13 16
A	FR-160					NR											01023001	11.00000	0.00000	SEC 13 13 16
TA	FR-160					NR											01023001	11.00000	0.00000	SEC 13 13 16
A	FR-160					NR											01023002	11.00000	0.00000	SEC 14 13 16
TA	FR-160					NR											01023002	11.00000	0.00000	SEC 14 13 16
A	FR-160					NR											01023003	11.00000	0.00000	SEC 15 13 16
A	FR-160					NR											01023004	11.00000	0.00000	SEC 22 10 11
A	FR-160					NR											01023005	11.00000	0.00000	SEC 23 13 16
A	FR-160					NR											01023006	11.00000	0.00000	SEC 24 13 16
A	FR-160					NR											01024001	11.00000	0.00000	SEC 28 13 16
A	FR-160					NR											01024002	11.00000	0.00000	SEC 29 13 16
A	FR-160					NR											01024003	11.00000	0.00000	SEC 30 13 16
A	FR-160					NR											01024004	11.00000	0.00000	SEC 31 13 16
A	FR-160					NR											01024005	11.00000	0.00000	SEC 32 13 16
A	FR-160					NR											01024006	11.00000	0.00000	SEC 33 13 16
A	FR-160					NR											01025001	11.00000	0.00000	SEC 25 13 16
A	FR-160					NR											01025002	11.00000	0.00000	SEC 26 13 16
A	FR-160					NR											01025003	11.00000	0.00000	SEC 27 13 16
A	FR-160					NR											01025004	11.00000	0.00000	SEC 34 13 16
A	FR-160					NR											01025005	11.00000	0.00000	SEC 35 13 16
A	FR-160					NR											01025006	11.00000	0.00000	SEC 36 13 16
TA	FR-160					NR											01025006	11.00000	0.00000	SEC 36 13 16
A	FR-160					NR											01026001	11.00000	0.28000	L 35
A	FR-160					NR											01026002	11.00000	0.00000	LOT 34
A	FR-160					NR											01026003	11.00000	0.00000	LOT 33
A	FR-160					NR											01026004	11.00000	0.00000	LOT 32
A	FR-160					NR											01026005	11.00000	0.00000	LOT 31
A	FR-160					NR											01026006	11.00000	0.00000	LOT 30
A	FR-160					NR											01026007	11.00000	0.00000	LOT 29
A	FR-160					NR											01026008	11.00000	0.00000	LOT 28
A	FR-160					NR											01026009	11.00000	0.00000	LOT 27
A	FR-160					NR											01026010	11.00000	0.00000	LOT 36
A	FR-160					NR											01026011	11.00000	0.28000	L 37
A	FR-160					NR											01026012	11.00000	0.00000	LOT 38
A	FR-160					NR											01026013	11.00000	0.00000	LOT 39
A	FR-160					NR											01026014	11.00000	0.00000	LOT 24
A	FR-160					NR											01026015	11.00000	0.00000	LOT 25
A	FR-160					NR											01026016	11.00000	0.00000	LOT 26
A	FR-160					NR											01026017	11.00000	0.00000	LOT 22
A	FR-160					NR											01026018	11.00000	0.00000	L 21
A	FR-160					NR											01026019	11.00000	0.00000	LOT 7
A	FR-160					NR											01026020	11.00000	0.00000	LOT 6
A	FR-160					NR											01026021	11.00000	0.00000	LOT 5
A	FR-160					NR											01026025	11.00000	0.00000	LOT 4
A	FR-160					NR											01026026	11.00000	0.00000	LOT 1
A	FR-160					NR											01026027	11.00000	0.00000	LOT 2

A	FR-160					NR											01026028	11.00000	0.00000	LOT 3
A	FR-160					NR											01027001	11.00000	0.00000	LOT 43
A	FR-160					NR											01027002	11.00000	0.00000	LOT 42
A	FR-160					NR											01027003	11.00000	0.00000	LOT 41
A	FR-160					NR											01027004	11.00000	0.00000	LOT 40
A	FR-160					NR											01027005	11.00000	0.00000	LOT 20
A	FR-160					NR											01027006	11.00000	0.00000	LOT 19
A	FR-160					NR											01027007	11.00000	0.00000	LOT 18
A	FR-160					NR											01027008	11.00000	0.00000	LOT 17
A	FR-160					NR											01027009	11.00000	0.00000	LOT 15
A	FR-160					NR											01027010	11.00000	0.00000	LOT 14
A	FR-160					NR											01027011	11.00000	0.00000	LOT 47
A	FR-160					NR											01027012	11.00000	0.00000	LOT 46
A	FR-160					NR											01027013	11.00000	0.00000	LOT 45
A	FR-160					NR											01027014	11.00000	0.00000	LOT 44
A	FR-160					NR											01027015	11.00000	0.00000	LOT 8
A	FR-160					NR											01027016	11.00000	0.00000	LOT 9
A	FR-160					NR											01027017	11.00000	0.00000	LOT 10
A	FR-160					NR											01027018	11.00000	0.00000	LOT 11
A	FR-160					NR											01027019	11.00000	0.00000	LOT 12
A	FR-160					NR											01027020	11.00000	0.00000	LOT 13
A	FR-160					NR											01101015	11.00000	0.00000	SEC 4 12 14
A	FR-160					NR											01101016	0.00000	0.00000	POR SEC 6 12 14
A	FR-160					NR											01102016	0.00000	49.53000	SEC 11 12 14
A	FR-160					NR											01102017	11.00000	7.60000	SEC 11 12 14
A	FR-160					NR											01102018	11.00000	22.47000	SEC 11 12 14
A	FR-160					NR											01102019	11.00000	12.90000	SEC 11 12 14
A	FR-160					NR											01102032	11.00000	0.00000	RS 2/15 S121214
A	FR-160					NR											01102033	11.00000	0.00000	PRS2/17 S2 12 14
A	FR-160					NR											01102034	11.00000	0.00000	S 1 12 14RS 2-56
A	FR-160					NR											01102035	11.00000	0.00000	SEC 10 12 14
A	FR-160					NR											01103020	0.00000	286.20000	S 16 & 21 12 14
A	FR-160					NR											01103020	0.00000	286.20000	S 16 & 21 12 14
A	FR-160					NR											01103020	0.00000	286.20000	S 16 & 21 12 14
A	FR-160					NR											01103021	11.00000	47.76000	SEC 21 12 14
A	FR-160					NR											01103022	0.00000	380.79000	SECS 16 17 20&21
A	FR-160					NR											01103023	11.00000	27.20000	SEC 20 12 14
A	FR-160					NR											01103024	0.00000	146.46000	S 17 & 20 12 14
A	FR-160					NR											01103025	11.00000	210.60000	T 12N R 14E
A	FR-160					NR											01103035	11.00000	40.99000	S16 12 14RS10-85
A	FR-160					NR											01103036	11.00000	28.80000	SEC 17 12 14
A	FR-160					NR											01103037	11.00000	248.08000	SEC 17 12 14
AE	FR-160					NR											01103038	11.00000	16.19000	SEC 16 12 14
A	FR-160					NR											01103041	11.00000	80.00000	SEC 17 12 14
A	FR-160					NR											01103042	11.00000	80.00000	SEC 17 12 14
A	FR-160					NR											01103043	11.00000	120.00000	SEC 16 12 14

A	FR-160					NR											01103044	0.00000	5.16900	RS 32/69/1
A	FR-160					NR											01103047	11.00000	0.00000	S18 & 19 RS16-57
A	FR-160					NR											01103048	11.00000	39.91000	S18 12 14RS16-57
A	FR-160					NR											01103049	11.00000	0.00000	SEC 19&20 12 14
A	FR-160					NR											01103050	11.00000	0.00000	SEC 21 12 14
A	FR-160					NR											01103051	11.00000	0.00000	POR SEC 20 12 14
A	FR-160					NR											01104025	11.00000	20.23000	S 151214 RS10-85
A	FR-160					NR											01104027	0.00000	54.67000	SEC 14 12 14
A	FR-160					NR											01104028	11.00000	44.43000	S 14&15 15 12 14
A	FR-160					NR											01104029	11.00000	7.90000	SEC 14 12 14
A	FR-160					NR											01104030	0.00000	387.04000	SECS T 12 R 14
A	FR-160					NR											01104031	0.00000	52.41000	SEC 22 12 14
A	FR-160					NR											01104032	0.00000	17.45000	S 22 & 23 12 14
A	FR-160					NR											01104033	11.00000	38.20000	S 14 23 24 12 14
A	FR-160					NR											01104035	0.00000	58.49000	S 15 & 22 12 14
A	FR-160					NR											01104039	11.00000	0.00000	SEC 13&24-12-14
A	FR-160					NR											01104040	11.00000	80.85000	S 13 12 14RS14-5
A	FR-160					NR											01104041	11.00000	76.52000	S 14 12 14RS14-6
A	FR-160					NR											01104042	11.00000	74.24000	S 14 12 14RS14-6
A	FR-160					NR											01104043	11.00000	158.50000	S 24 12 14RS14-7
A	FR-160					NR											01104048	11.00000	290.58000	6SEC T12N R14E
A	FR-160					NR											01104048	11.00000	290.58000	6SEC T12N R14E
TPZ	FR-160					NR											01104048	11.00000	290.58000	6SEC T12N R14E
A	FR-160					NR											01104049	11.00000	0.00000	POR SEC 14 12 14
A	FR-160					NR											01104050	11.00000	0.00000	POR SEC 15 12 14
A	FR-160					NR											01104051	11.00000	0.00000	POR SEC 22 12 14
A	FR-160					NR											01104052	11.00000	0.00000	POR SEC 23 12 14
AE	TPZ					NR											01105011	0.00000	153.73000	SEC 31 12 14
A	FR-160					NR											01105019	0.00000	287.40000	S 28 & 29 12 14
A	FR-160					NR											01105020	11.00000	3.60000	SEC 28 12 14
A	FR-160					NR											01105020	11.00000	3.60000	SEC 28 12 14
A	FR-160					NR											01105021	11.00000	30.70000	SEC 28&29 12 14
A	FR-160					NR											01105025	11.00000	40.00000	SEC 30 12 14
A	FR-160					NR											01105026	0.00000	32.54000	SEC 30 12 14
A	FR-160					NR											01105027	0.00000	8.60000	SEC 30 12 14
A	FR-160					NR											01105028	11.00000	9.40000	SEC 30 12 14
A	FR-160					NR											01105029	11.00000	2.00000	SEC 30 12 14
A	FR-160					NR											01105030	11.00000	212.02000	SEC 30 12 14
A	FR-160					NR											01105031	11.00000	197.70000	S32 12 14 RS8-37
A	FR-160					NR											01105032	11.00000	38.75000	S31 12 14 RS8-38
A	FR-160					NR											01105033	11.00000	0.00000	S31 12 14 RS8-38
A	FR-160					NR											01105034	11.00000	40.94000	RS 7/138 S331214
AE	FR-160					NR											01105035	11.00000	0.00000	S29 12 14 RS2-18
A	FR-160					NR											01105036	11.00000	0.00000	POR SEC 28 12 14
A	FR-160					NR											01105037	11.00000	0.00000	POR SEC 29 12 14
A	FR-160					NR											01105038	11.00000	0.00000	POR SEC 30 12 14

A	FR-160					NR											01105039	11.00000	0.00000	POR SEC 31 12 14
A	FR-160					NR											01105040	11.00000	0.00000	POR SEC 33 12 14
A	FR-160					NR											01106015	0.00000	14.90000	SEC 26 12 14
A	FR-160					NR											01106016	11.00000	25.70000	SEC 26&35 12 14
A	FR-160					NR											01106017	0.00000	228.40000	SEC 27 12 14
A	FR-160					NR											01106018	11.00000	30.00000	SEC 27 12 14
A	FR-160					NR											01106019	11.00000	0.10000	SEC 27 12 14
A	FR-160					NR											01106021	11.00000	500.00000	SEC 34&35 12 14
RE-5	FR-160					NR											01106025	0.00000	5.00000	PM 11/73/B
RE-5	FR-160					NR											01106032	0.00000	19.59000	SEC 35 12 14
RE-5	FR-160					NR											01106034	0.00000	5.00000	PM 30/138/1
RE-5	FR-160					NR											01106035	0.00000	9.84000	PM 30/138/2
A	FR-160					NR											01106044	11.00000	0.00000	S35 12 14RS2-141
A	FR-160					NR											01106045	11.00000	0.00000	S25 12 14RS1-171
A	FR-160					NR											01106047	11.00000	0.00000	POR SEC 26 12 14
A	FR-160					NR											01106048	11.00000	0.00000	POR S27&34 12 14
RA-160	FR-160					NR											01107011	0.00000	32.91000	RS 12/80 S41114
RA-160	FR-160					NR											01107012	11.00000	97.27000	S7 11 14 RS8-33
RA-160	FR-160					NR											01107013	11.00000	113.84000	S7 11 14 RS8-33
TPZ	FR-160					NR											01107013	11.00000	113.84000	S7 11 14 RS8-33
TPZ	FR-160					NR											01107013	11.00000	113.84000	S7 11 14 RS8-33
RA-160	FR-160					NR											01107014	11.00000	40.70000	S8 11 14 RS 8-36
RA-160	FR-160					NR											01107015	11.00000	82.68000	S 8 11 14 RS8-36
A	FR-160					NR											01107016	11.00000	0.00000	S6 11 14 RS4-24
RA-160	FR-160					NR											01107017	11.00000	0.00000	POR SEC 7 11 14
RA-160	FR-160					NR											01107018	11.00000	0.00000	POR SEC 8 11 14
RA-80	FR-160					NR											01108012	0.00000	77.50000	SEC 11 11 14
RA-160	FR-160					NR											01108016	0.00000	72.61000	SEC 1 11 14
RA-160	FR-160					NR											01108021	11.00000	31.20000	SEC 1 11 14
RA-160	FR-160					NR											01108022	11.00000	18.61000	SEC 1 11 14
RA-160	FR-160					NR											01108023	11.00000	5.68000	SEC 1 11 14
RA-160	FR-160					NR											01108024	11.00000	0.15000	SEC 1 11 14
RA-160	FR-160					NR											01108025	11.00000	142.81000	SEC 2 & 3 11 14
RA-160	FR-160					NR											01108027	0.00000	207.80000	SEC 1 11 14
RA-160	FR-160					NR											01108028	11.00000	45.00000	SEC 1 11 14
RA-160	FR-160					NR											01108029	11.00000	83.58000	S10&11 RS 12-112
RA-160	FR-160					NR											01108030	11.00000	32.93000	POR RS 12/112
RA-160	FR-160					NR											01108031	11.00000	0.00000	POR SEC 1 11 14
RA-160	FR-160					NR											01108032	11.00000	0.00000	POR SEC 2 11 14
RA-20	RL-20					RR					PL						01109016	0.00000	20.00000	SEC 18 11 14
RA-20	RL-10					RR					PL						01109017	0.00000	10.00000	SEC 18 11 14
RA-20	RL-10					RR					PL						01109018	0.00000	10.00000	SEC 18 11 14
RA-20	RL-10					RR					PL						01109019	0.00000	10.00000	SEC 18 11 14
RA-20	RL-20					RR					PL						01109020	0.00000	20.00000	SEC 18 11 14
RA-20	RL-10					RR					PL						01109022	0.00000	10.00000	SEC 18 11 14
RA-20	RL-20					RR					PL						01109024	0.00000	20.00000	SEC 18 11 14

RA-20	FR-160					NR											01109030	0.00000	40.00000	SEC 18 11 14
RA-80	FR-160					NR											01109030	0.00000	40.00000	SEC 18 11 14
RA-160	FR-160					NR											01109031	11.00000	159.81000	S17 11 14RS7-108
RA-160	FR-160					NR											01109032	11.00000	81.96000	S17 11 14RS7-108
RA-160	FR-160					NR											01109033	11.00000	65.90000	21 11 14RS13-150
RA-160	FR-160					NR											01109034	11.00000	275.64000	19&20 RS 13-150
RA-160	FR-160					NR											01109035	11.00000	147.32000	20 11 14RS13-150
RA-160	FR-160					NR											01109036	11.00000	21.45000	19 11 14RS13-150
RA-20	RL-10					RR					PL						01109041	0.00000	9.74800	RS 18/38/1
RA-20	RL-10					RR					PL						01109042	0.00000	9.76800	RS 18/38/2
RA-160	FR-160					NR											01110014	11.00000	40.21000	S24 11 14RS13-93
RA-160	FR-160					NR											01110015	11.00000	404.46000	S24 11 14RS13-93
RA-160	FR-160					NR											01110016	11.00000	127.31000	13 11 14RS13-104
RA-160	FR-160					NR											01110017	11.00000	575.37000	22 11 14RS13-150
RA-160	FR-160					NR											01110018	11.00000	474.58000	23 11 14RS13-150
RA-160	FR-160					NR											01110019	11.00000	119.60000	15 11 14RS13-150
RA-160	FR-160					NR											01110020	11.00000	358.17000	14&15 RS 13-150
RA-20	RL-160					NR											01111007	0.00000	38.25000	SEC 29 11 14
RA-160	RL-160					NR											01111008	0.00000	10.50000	SEC 29 11 14
RA-40	RL-160					NR											01111020	0.00000	24.45000	SEC 30 11 14
RA-40	RL-160					NR											01111021	0.00000	0.30000	SEC 30 11 14
RA-160	FR-160					NR											01111022	11.00000	347.16000	29 11 14RS13-150
RA-160	FR-160					NR											01111025	11.00000	279.38000	30 11 14RS13-150
RA-160	FR-160					NR											01111026	11.00000	230.22000	S 29&30 RS13-150
RA-160	FR-160					NR											01111027	11.00000	289.00000	28 11 14RS13-150
RA-40	RL-160					NR											01111028	0.00000	65.07000	SEC 30 11 14
TPZ	FR-160					NR											01111028	0.00000	65.07000	SEC 30 11 14
RA-40	FR-160					NR											01111029	11.00000	1.29000	SEC 30 11 14
RA-160	FR-160					NR											01111030	0.00000	38.76000	31 11 14RS14-150
RA-160	FR-160					NR											01111031	11.00000	293.67000	31 11 14RS14-150
RA-160	FR-160					NR											01111032	11.00000	0.00000	SEC 32 11 14
RA-160	FR-160					NR											01111033	11.00000	0.00000	S 28 & 33 11 14
RA-160	TPZ					NR											01112018	0.00000	480.00000	S 34 & 35 11 14
RA-160	FR-160					NR											01112022	11.00000	47.69000	SEC 36 11 14
RA-160	FR-160					NR											01112023	11.00000	5.66000	SEC 36 11 14
RA-160	FR-160					NR											01112031	11.00000	77.66000	S34 11 14RS12-61
RA-160	FR-160					NR											01112032	11.00000	155.38000	S34 11 14RS12-61
RA-160	FR-160					NR											01112035	11.00000	272.43000	25 11 14RS13-148
RA-160	FR-160					NR											01112036	11.00000	299.12000	25 11 14RS13-148
RA-80	RL-160					NR											01112043	0.00000	138.98000	RS 19/64 S261114
RA-80	RL-160					NR											01112043	0.00000	138.98000	RS 19/64 S261114
RA-80	FR-160					NR											01112044	11.00000	14.25000	S26 11 14RS19-64
RA-160	FR-160					NR											01112045	11.00000	0.00000	S27 11 14RS20-74
RA-160	FR-160					NR											01112046	11.00000	0.00000	26 27&35 RS20-83
RA-160	FR-160					NR											01112047	11.00000	0.00000	S 26 & 35 11 14
RA-160	FR-160					NR											01113001	11.00000	0.00000	LOT 9

RA-160	FR-160					NR											01113002	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											01113003	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											01113004	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											01113005	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											01113006	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											01113007	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											01113008	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											01114001	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											01114002	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											01114003	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											01114004	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											01114005	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											01114006	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											01114007	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											01114008	11.00000	0.00000	LOT 2
C	CL					C					PL						01115007	0.00000	0.00000	L 1 2 & 3
C	CC					C					PL						01116006	0.00000	1.32000	SEC 27 11 14
RE-5	FR-160					NR											01116007	11.00000	0.11000	SEC 27 11 14
RE-5	FR-160					NR											01116009	11.00000	5.73000	SEC 27 11 14
RE-5	FR-160					NR											01116012	11.00000	5.15000	POR 27 11 14
RE-5	FR-160					NR											01116013	0.00000	0.04000	RS 31/5/1
C	CC					C					PL						01118001	0.00000	1.12000	SEC 27 11 14
C	CL					C					PL						01118012	0.00000	0.62000	SEC 27 11 14
C	CL					C					PL						01119010	0.00000	0.73000	SEC 27 11 14
R1	RE-5					LDR					PL						01119023	0.00000	5.65000	4 12-31&27 11 14
R1	CL					C					PL						01120004	0.00000	0.34000	SEC 27 11 14
RE-5	R1A					HDR					PL						01123030	0.00000	0.25500	RS 20/80/5
RE-5	R1A					HDR					PL						01123035	0.00000	8.27300	SEC 27 11 14
RA-160	FR-160					NR											01124001	11.00000	0.13000	LOT 8
RA-160	FR-160					NR											01124002	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											01124003	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											01124004	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											01124005	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											01124006	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											01124007	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											01124008	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											01124009	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											01125001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											01126001	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											01126002	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											01126003	11.00000	0.00000	LOT 26
RA-160	FR-160					NR											01126004	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											01126005	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											01126006	11.00000	0.00000	LOT 21
RA-160	FR-160					NR											01126007	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											01126008	11.00000	0.00000	LOT 23

RA-160	FR-160					NR											01126009	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											01126010	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											01126011	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											01126012	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											01126013	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											01126014	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											01126015	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											01126016	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											01126017	11.00000	0.58000	LOT 14
RA-160	FR-160					NR											01127001	11.00000	0.16000	LOT 4
RA-160	FR-160					NR											01127002	11.00000	0.21000	LOT 5
RA-160	FR-160					NR											01127003	11.00000	0.26000	LOT 6
RA-160	FR-160					NR											01127004	11.00000	0.27000	LOT 7
RA-160	FR-160					NR											01127005	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											01127006	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											01127007	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											01127008	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											01127009	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											01128001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											01128002	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											01128003	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											01128004	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											01128005	11.00000	0.21000	L 5
A	FR-160					NR											01201007	11.00000	0.00000	S7 12 15 RS2-54
A	FR-160					NR											01201008	11.00000	0.00000	S6 12 15 RS 2-55
A	FR-160					NR											01201012	11.00000	0.00000	S 4 12 15RS16-62
A	FR-160					NR											01201013	11.00000	0.00000	S 5 12 15RS16-62
A	FR-160					NR											01201014	11.00000	0.00000	S 5 12 15RS16-62
A	FR-160					NR											01201015	11.00000	0.00000	S 8 & 5 12 15
A	FR-160					NR											01201016	11.00000	0.00000	SEC 9 12 15
A	FR-160					NR											01202004	0.00000	80.00000	SEC 10 12 15
A	FR-160					NR											01202005	0.00000	80.00000	SEC 10&15 12 15
A	FR-160					NR											01202006	11.00000	0.00000	S 10&11 RS16-62
A	FR-160					NR											01202007	11.00000	0.00000	S14 & 15 RS16-62
A	FR-160					NR											01202008	11.00000	0.00000	S 14&15 RS 16-62
A	FR-160					NR											01202009	11.00000	0.00000	SEC 2&3 12 15
A	FR-160					NR											01203008	11.00000	163.99500	POR RS 10/52
A	FR-160					NR											01203009	11.00000	0.00000	S20 12 15 RS2-14
A	FR-160					NR											01203010	11.00000	0.00000	S18 12 15RS2-51
A	FR-160					NR											01203011	11.00000	0.00000	S18 12 15RS2-51
A	FR-160					NR											01203012	11.00000	0.00000	S17 12 15 RS2-52
A	FR-160					NR											01203013	11.00000	0.00000	S16 12 15RS16-62
A	FR-160					NR											01203014	11.00000	0.00000	S16 12 15RS16-62
A	FR-160					NR											01203015	11.00000	0.00000	SEC 21 12 15
A	FR-160					NR											01204002	11.00000	378.54000	S34 12 15RS7-74
A	FR-160					NR											01204003	11.00000	199.09000	S34 12 15RS 7-74

A	FR-160					NR											01204004	11.00000	0.00000	S 22 & 23 12 15
A	FR-160					NR											01204005	11.00000	0.00000	S26 27 &35 12 15
A	FR-160					NR											01205008	11.00000	0.00000	31 12 15RS11-139
A	FR-160					NR											01205009	11.00000	0.00000	S28 12 15 RS7-74
A	FR-160					NR											01205010	11.00000	0.00000	S33 12 15 RS7-74
A	FR-160					NR											01205011	11.00000	0.00000	S32 12 15RS1-169
A	FR-160					NR											01205012	11.00000	0.00000	S32 12 15RS1-169
A	FR-160					NR											01205013	11.00000	0.00000	S29 12 15RS1-170
A	FR-160					NR											01205014	11.00000	0.00000	S29 12 15RS1-170
A	FR-160					NR											01205015	11.00000	0.00000	POR SEC 31 12 15
RA-160	FR-160					NR											01207020	0.00000	437.88000	S 5 6 7&8 11 15
RA-160	FR-160					NR											01207021	11.00000	178.49000	SEC 6 11 15
RA-160	FR-160					NR											01207022	11.00000	97.74000	S 6 7 8 11 15
RA-160	FR-160					NR											01207025	11.00000	39.27000	S8 11 15RS12-114
A	FR-160					NR											01207026	11.00000	108.46000	S4 11 15 RS10-42
A	FR-160					NR											01207027	11.00000	39.39000	S4 11 15 RS10-42
RA-160	FR-160					NR											01207028	11.00000	0.00000	S5 11 15RS 1-172
RA-160	FR-160					NR											01207029	11.00000	0.00000	S5 11 15 RS1-172
A	FR-160					NR											01207030	11.00000	0.00000	POR SEC 4 11 15
A	FR-160					NR											01207030	11.00000	0.00000	POR SEC 4 11 15
TPZ	FR-160					NR											01207030	11.00000	0.00000	POR SEC 4 11 15
RA-160	FR-160					NR											01207031	11.00000	0.00000	POR SEC 8 11 15
A	FR-160					NR											01207032	11.00000	0.00000	POR SEC 9 11 15
A	FR-160					NR											01208015	11.00000	48.22000	S3 11 15 RS10-33
A	FR-160					NR											01208016	11.00000	121.32000	S3 11 15 RS10-33
A	FR-160					NR											01208017	11.00000	163.45000	S10 11 15RS10-52
A	FR-160					NR											01208018	11.00000	196.32000	S10 11 15RS10-52
A	FR-160					NR											01208019	11.00000	0.00000	P S2 3 &11 11 16
RA-160	FR-160					NR											01209007	11.00000	39.87000	17 11 15RS12-113
RA-160	FR-160					NR											01209008	11.00000	39.00000	17 11 15RS12-113
RA-160	FR-160					NR											01209009	11.00000	0.00000	S20 11 15RS 2-19
RA-160	FR-160					NR											01209010	11.00000	0.00000	S21 11 15 RS2-61
RA-160	FR-160					NR											01209011	11.00000	235.26000	19 11 15RS13-103
RA-160	FR-160					NR											01209012	11.00000	0.00000	POR SEC 18 11 15
RA-160	FR-160					NR											01209013	11.00000	0.00000	POR SEC 19 11 15
RA-160	FR-160					NR											01210006	11.00000	0.00000	S22 11 15 RS8-99
RA-160	FR-160					NR											01210007	11.00000	0.00000	S15 11 15RS2-16
RA-160	FR-160					NR											01210008	11.00000	0.00000	S15 11 15 RS2-16
RA-160	FR-160					NR											01210009	11.00000	0.00000	SEC 22 11 15
A	FR-160					NR											01210010	11.00000	537.44000	SEC 23 & 14
AE	FR-160					NR											01210010	11.00000	537.44000	SEC 23 & 14
RA-160	FR-160					NR											01210010	11.00000	537.44000	SEC 23 & 14
RA-160	FR-160					NR											01211018	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											01211019	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											01211036	11.00000	17.00000	SEC 29 11 15
RA-160	FR-160					NR											01211037	11.00000	15.74000	SEC 29 11 15

RA-160	FR-160					NR											01211041	11.00000	18.27000	R/S 25-111
RA-80	RL-160					NR											01211042	0.00000	5.00000	SEC 30 11 15
RA-80	RL-160					NR											01211043	0.00000	108.46000	SEC 30 11 15
RE-10	TPZ					NR											01211047	11.00000	0.00000	POR SEC 29 11 15
RA-160	FR-160					NR											01211056	11.00000	0.00000	S28 11 15 RS4-57
RA-160	FR-160					NR											01211065	11.00000	0.00000	S32&33 RS17-46
RA-160	FR-160					NR											01211066	11.00000	0.00000	S33 11 15RS17-46
RA-160	FR-160					NR											01211067	11.00000	0.00000	S 28&29 RS17-87
RA-160	FR-160					NR											01211068	11.00000	0.00000	S29&30 RS 17-87
RA-160	FR-160					NR											01211069	11.00000	0.00000	SEC 30&31 11 15
RA-160	FR-160					NR											01211070	11.00000	0.00000	S29 11 15RS17-87
RA-160	FR-160					NR											01211071	11.00000	0.00000	SEC 31 11 15
RA-40	RL-160					NR											01211073	0.00000	48.28000	PPM 39/70/B ADM
RA-40	RL-160					NR											01211074	0.00000	31.73000	PPM 39/70/B ADM
RA-160	FR-160					NR											01212008	11.00000	0.00000	S26 & 27 11 15
A	FR-160					NR											01212009	11.00000	0.00000	S34 & 35 11 15
RA-160	FR-160					NR											01213001	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											01213002	11.00000	0.35000	LOT 17
RA-160	FR-160					NR											01213003	11.00000	0.00000	LOT 41
RA-160	FR-160					NR											01213004	11.00000	0.18000	LOT 16
RA-160	FR-160					NR											01213005	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											01213006	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											01213007	11.00000	0.19000	LOT 13
RA-160	FR-160					NR											01213008	11.00000	0.00000	LOT 36
RA-160	FR-160					NR											01213009	11.00000	0.00000	LOT 35
RA-160	FR-160					NR											01213010	11.00000	0.00000	LOT 34
RA-160	FR-160					NR											01213011	11.00000	0.00000	LOT 33
RA-160	FR-160					NR											01213012	11.00000	0.00000	LOT 32
RA-160	FR-160					NR											01213013	11.00000	0.00000	LOT 31
RA-160	FR-160					NR											01213014	11.00000	0.00000	LOT 30
RA-160	FR-160					NR											01213015	11.00000	0.35000	LOT 29
RA-160	FR-160					NR											01213016	11.00000	0.00000	LOT 28
RA-160	FR-160					NR											01213017	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											01213018	11.00000	0.20000	LOT 26
RA-160	FR-160					NR											01213019	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											01213020	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											01213021	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											01214001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											01214002	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											01214003	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											01214004	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											01214005	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											01214006	11.00000	0.22000	LOT 6
RA-160	FR-160					NR											01214007	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											01214008	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											01214009	11.00000	0.00000	LOT 9

RA-160	FR-160					NR											01214010	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											01214011	11.00000	0.22000	LOT 11
RA-160	FR-160					NR											01214012	11.00000	0.24000	LOT 12
RA-160	FR-160					NR											01214013	11.00000	0.00000	LOT 37
RA-160	FR-160					NR											01214014	11.00000	0.00000	LOT 38
RA-160	FR-160					NR											01214015	11.00000	0.00000	LOT 39
RA-160	FR-160					NR											01214016	11.00000	0.00000	LOT 40
RA-160	FR-160					NR											01214017	11.00000	0.00000	LOT 42
RA-160	FR-160					NR											01214018	11.00000	0.00000	LOT 43
C	CL					C							KSF				01215007	0.00000	0.56000	PM 44/116/1
C	CC					C							KSF				01215008	0.00000	1.27000	PM 44/116/2
R1	CL					C							KSF				01215009	0.00000	0.25000	PM 44/116/3
RE-10	OS					OS							KSF				01216003	11.00000	0.07000	SEC 29 11 15
C	R1					HDR							KSF				01217001	0.00000	0.18000	SEC 28 11 15
C	R1					HDR							KSF				01217002	0.00000	0.05000	SEC 28 11 15
C	R1					HDR							KSF				01217104	0.00000	0.00000	L 40
C	CL					C							KSF				01217114	0.00000	0.00000	LOTS 43 & 44
C	CL					C							KSF				01217115	0.00000	0.90000	POR SEC 28 11 15
C	CL					C							KSF				01217116	0.00000	0.30700	L 42
RE-10	R1A					HDR							KSF				01218015	0.00000	0.00000	POR SEC 28 11 15
RE-5	R1A					HDR							KSF				01218017	11.00000	0.66500	RS 16/24
RA-160	FR-160					NR											01220001	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											01220002	11.00000	0.00000	LOT 21
RA-160	FR-160					NR											01220003	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											01221001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											01221002	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											01221003	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											01221004	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											01221005	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											01221006	11.00000	0.46000	LOT 6
RA-160	FR-160					NR											01221007	11.00000	0.33000	LOT 7
RA-160	FR-160					NR											01221008	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											01221009	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											01221010	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											01222001	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											01222002	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											01222003	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											01222004	11.00000	0.00000	LOT 14-A
RA-160	FR-160					NR											01222005	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											01222006	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											01222007	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											01222008	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											01222009	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											01222010	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											01222011	11.00000	0.00000	L 21
RA-160	FR-160					NR											01222012	11.00000	0.00000	L 22

RA-160	FR-160					NR											01222013	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											01222014	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											01222015	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											01222016	11.00000	0.00000	LOT 26
RA-160	FR-160					NR											01222017	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											01222018	11.00000	0.04000	LOT 14
RA-160	FR-160					NR											01223001	11.00000	0.00000	LOT 28
RA-160	FR-160					NR											01223002	11.00000	0.00000	LOT 29
RA-160	FR-160					NR											01224001	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											01224002	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											01224003	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											01224004	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											01224005	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											01224006	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											01224007	11.00000	0.26000	LOT 11
RA-160	FR-160					NR											01224008	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											01224009	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											01224010	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											01224011	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											01224012	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											01224013	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											01225001	11.00000	0.24000	LOT 15
RA-160	FR-160					NR											01225002	11.00000	0.59000	L 14
RA-160	FR-160					NR											01225003	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											01225004	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											01225005	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											01225006	11.00000	0.13000	LOT 31
RA-160	FR-160					NR											01225007	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											01225008	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											01225009	11.00000	0.23000	LOT 18
RA-160	FR-160					NR											01225010	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											01225011	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											01225012	11.00000	0.00000	LOT 21
RA-160	FR-160					NR											01225013	11.00000	0.28000	L 22
RA-160	FR-160					NR											01225014	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											01225015	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											01226001	11.00000	0.31000	LOT 26
RA-160	FR-160					NR											01226002	11.00000	0.45000	LOT 10
RA-160	FR-160					NR											01226003	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											01226004	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											01226005	11.00000	0.00000	LOT 29
RA-160	FR-160					NR											01226006	11.00000	0.00000	LOT 30
RA-160	FR-160					NR											01226007	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											01226008	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											01226009	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											01226010	11.00000	0.00000	LOT 6

RA-160	FR-160					NR											01226011	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											01226012	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											01226013	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											01226014	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											01226015	11.00000	0.20000	L 1
RA-160	FR-160					NR											01226016	11.00000	0.00000	LOT 28
RA-20	R1A					HDR							KSF				01227005	0.00000	75.67000	SEC 28&29 11 15
RE-5	R1A					HDR							KSF				01227005	0.00000	75.67000	SEC 28&29 11 15
R1	R1A					HDR							KSF				01227013	0.00000	23.14800	SEC 28 11 15
RE-10	R1A					HDR							KSF				01227013	0.00000	23.14800	SEC 28 11 15
RE-10	R1A					HDR							KSF				01227013	0.00000	23.14800	SEC 28 11 15
RE-10	R1A					HDR							KSF				01227013	0.00000	23.14800	SEC 28 11 15
C	CL					C							KSF				01230101	0.00000	0.00000	L F
C	CL					C							KSF				01230226	0.00000	0.36000	SEC 27 11 15
RT	CC					C							KSF				01230230	0.00000	0.00000	POR LOT A
RT	R1					HDR							KSF				01230231	0.00000	0.00000	POR LOT A
RT	R1					HDR							KSF				01230232	0.00000	0.00000	POR LOT A
C	CL					C							KSF				01232204	0.00000	0.00000	L E
R1	CL					C							KSF				01232208	0.00000	0.00000	POR LOT D
C	R1					HDR							KSF				01232211	0.00000	0.00000	POR LOT C & D
R1	R1A					HDR							KSF				01233017	0.00000	4.11000	SEC 28 11 15
R1	R1A					HDR							KSF				01233017	0.00000	4.11000	SEC 28 11 15
R2A	R1A					HDR							KSF				01233017	0.00000	4.11000	SEC 28 11 15
R1	R1A					HDR							KSF				01233022	0.00000	2.47000	SEC 28 11 15
RE-5	R1A					HDR							KSF				01233022	0.00000	2.47000	SEC 28 11 15
RE-5	OS					OS							KSF				01233034	11.00000	4.50000	SEC 28 11 15
R3A	RE-5					LDR											01233045	0.00000	5.00000	PM 37/64/1
R3A	RE-5					LDR											01233046	0.00000	5.00000	PM 37/64/2
R3A	RE-5					LDR											01233047	0.00000	5.00000	PM 37/64/3
A	FR-160					NR											01301002	11.00000	0.00000	S 7 12 16RS16-62
A	FR-160					NR											01301003	11.00000	0.00000	S 8 12 16RS16-62
A	FR-160					NR											01301004	11.00000	0.00000	SEC 9 12 16
A	FR-160					NR											01301005	11.00000	0.00000	SEC 6 12 16
A	FR-160					NR											01301006	11.00000	0.00000	SEC 5 12 16
A	FR-160					NR											01301007	11.00000	0.00000	SEC 4 12 16
A	FR-160					NR											01302001	11.00000	0.00000	SEC 1 12 16
TA	FR-160					NR											01302001	11.00000	0.00000	SEC 1 12 16
A	FR-160					NR											01302002	11.00000	0.00000	SEC 2 12 16
A	FR-160					NR											01302003	11.00000	0.00000	SEC 3 12 16
A	FR-160					NR											01302004	11.00000	0.00000	SEC 10 12 16
A	FR-160					NR											01302005	11.00000	0.00000	SEC 11 12 16
A	FR-160					NR											01302006	11.00000	0.00000	SEC 12 12 16
TA	FR-160					NR											01302006	11.00000	0.00000	SEC 12 12 16
A	FR-160					NR											01303001	11.00000	100.00000	SEC 18 12 16
A	FR-160					NR											01303003	11.00000	160.00000	SEC 16 12 16
A	TPZ					NR											01303005	0.00000	93.36000	SEC 18 12 16

A	FR-160					NR											01303006	0.00000	9.31000	SEC 19 12 16
A	FR-160					NR											01303007	11.00000	0.00000	POR RS 16/62
A	FR-160					NR											01303008	11.00000	0.00000	POR RS 16/62
A	FR-160					NR											01303009	11.00000	0.00000	SEC 18 12 16
A	FR-160					NR											01303010	11.00000	0.00000	SEC 16 12 16
A	FR-160					NR											01303011	11.00000	0.00000	SEC 19 12 16
A	FR-160					NR											01303012	11.00000	0.00000	SEC 20 12 16
A	FR-160					NR											01303013	11.00000	0.00000	SEC 21 12 16
A	FR-160					NR											01304001	11.00000	0.00000	SEC 24 12 16
A	FR-160					NR											01304002	11.00000	0.00000	SEC 13 12 16
TA	FR-160					NR											01304002	11.00000	0.00000	SEC 13 12 16
A	FR-160					NR											01304003	11.00000	0.00000	SEC 14 12 16
A	FR-160					NR											01304004	11.00000	0.00000	SEC 15 12 16
A	FR-160					NR											01304005	11.00000	0.00000	SEC 22 12 16
A	FR-160					NR											01304006	11.00000	0.00000	SEC 23 12 16
A	FR-160					NR											01304007	11.00000	0.00000	POR SEC 24 12 16
A	FR-160					NR											01305001	11.00000	0.00000	SEC 28 12 16
A	FR-160					NR											01305002	11.00000	0.00000	POR SEC 29 12 16
A	FR-160					NR											01305003	11.00000	0.00000	SEC 30 12 16
A	FR-160					NR											01305004	11.00000	0.00000	SEC 31 12 16
A	FR-160					NR											01305005	11.00000	0.00000	POR SEC 32 12 16
A	FR-160					NR											01305006	11.00000	0.00000	POR SEC 33 12 16
A	FR-160					NR											01306001	1.00000	0.00000	POR SEC 25 12 16
A	FR-160					NR											01306002	11.00000	0.00000	SEC 26 12 16
A	FR-160					NR											01306003	11.00000	0.00000	SEC 27 12 16
A	FR-160					NR											01306004	11.00000	0.00000	SEC 34 12 16
A	FR-160					NR											01306005	11.00000	0.00000	SEC 35 12 16
A	FR-160					NR											01306006	11.00000	0.00000	SEC 36 12 16
A	FR-160					NR											01307001	11.00000	0.00000	LOT 7
A	FR-160					NR											01307002	11.00000	0.00000	LOT 6
A	FR-160					NR											01307003	11.00000	0.00000	LOT 5
A	FR-160					NR											01307004	11.00000	0.00000	LOT 4
A	FR-160					NR											01307005	11.00000	0.00000	LOT 3
A	FR-160					NR											01307006	11.00000	0.00000	LOT 2
A	FR-160					NR											01307007	11.00000	0.00000	LOT 1
A	FR-160					NR											01307008	11.00000	0.22000	LOT 8
A	FR-160					NR											01308001	11.00000	0.00000	LOT 1
A	FR-160					NR											01308002	11.00000	0.00000	LOT 2
A	FR-160					NR											01308004	11.00000	0.00000	LOT 4
A	FR-160					NR											01308005	11.00000	0.00000	LOT 5
A	FR-160					NR											01308006	11.00000	0.00000	LOT 6
A	FR-160					NR											01308007	11.00000	0.00000	LOT 7
A	FR-160					NR											01308008	11.00000	0.00000	LOT 8
A	FR-160					NR											01308009	11.00000	0.00000	LOT 9
A	FR-160					NR											01308010	11.00000	0.00000	LOT 10
A	FR-160					NR											01308011	11.00000	0.00000	LOT 11

A	FR-160					NR											01308012	11.00000	0.00000	LOT 12
A	FR-160					NR											01308013	11.00000	0.00000	LOT 13
A	FR-160					NR											01308014	11.00000	0.00000	LOT 14
A	FR-160					NR											01308015	11.00000	0.00000	LOT 39
A	FR-160					NR											01308016	11.00000	0.00000	LOT 40
A	FR-160					NR											01308017	11.00000	0.00000	LOT 41
A	FR-160					NR											01308019	11.00000	0.00000	LOT 3
A	FR-160					NR											01309001	11.00000	0.00000	LOT 30
A	FR-160					NR											01309002	11.00000	0.00000	LOT 31
A	FR-160					NR											01309003	11.00000	0.00000	LOT 32
A	FR-160					NR											01309004	11.00000	0.28000	LOT 33
A	FR-160					NR											01309005	11.00000	0.31000	LOT 34
A	FR-160					NR											01309006	11.00000	0.00000	LOT 35
A	FR-160					NR											01309007	11.00000	0.36000	L 36
A	FR-160					NR											01309008	11.00000	0.00000	LOT 37
A	FR-160					NR											01309009	11.00000	0.00000	LOT 38
A	FR-160					NR											01310001	11.00000	0.00000	LOT 16
A	FR-160					NR											01310002	11.00000	0.00000	LOT 17
A	FR-160					NR											01310004	11.00000	0.00000	LOT 19
A	FR-160					NR											01310005	11.00000	0.00000	LOT 20
A	FR-160					NR											01310006	11.00000	0.00000	LOT 21
A	FR-160					NR											01310007	11.00000	0.00000	LOT 22
A	FR-160					NR											01310008	11.00000	0.00000	LOT 23
A	FR-160					NR											01310009	11.00000	0.00000	LOT 24
A	FR-160					NR											01310010	11.00000	0.00000	LOT 25
A	FR-160					NR											01310011	11.00000	0.00000	LOT 26
A	FR-160					NR											01310012	11.00000	0.00000	LOT 27
A	FR-160					NR											01310013	11.00000	0.00000	LOT 18
A	FR-160					NR											01311001	11.00000	0.00000	LOT 42
A	FR-160					NR											01311002	11.00000	0.00000	LOT 43
A	FR-160					NR											01311003	11.00000	0.00000	LOT 44
A	FR-160					NR											01311004	11.00000	0.00000	LOT 45
A	FR-160					NR											01311005	11.00000	0.00000	LOT 46
A	FR-160					NR											01311006	11.00000	0.00000	LOT 47
A	FR-160					NR											01311007	11.00000	0.00000	LOT 48
A	FR-160					NR											01311008	11.00000	0.00000	LOT 49
A	FR-160					NR											01311009	11.00000	0.00000	LOT 50
A	FR-160					NR											01311010	11.00000	0.00000	LOT 51
A	FR-160					NR											01311011	11.00000	0.00000	LOT 52
A	FR-160					NR											01311012	11.00000	0.00000	LOT 53
A	FR-160					NR											01311013	11.00000	0.00000	LOT 54
A	FR-160					NR											01311014	11.00000	0.00000	LOT 55
A	FR-160					NR											01311015	11.00000	0.00000	LOT 59
A	FR-160					NR											01311016	11.00000	0.00000	LOT 60
A	FR-160					NR											01311017	11.00000	0.00000	LOT 56
A	FR-160					NR											01311018	11.00000	0.00000	LOT 57

A	FR-160					NR											01311019	11.00000	0.00000	LOT 58
A	FR-160					NR											01312001	11.00000	0.00000	LOT 67
A	FR-160					NR											01312002	11.00000	0.00000	LOT 68
A	FR-160					NR											01312003	11.00000	0.00000	L 69
A	FR-160					NR											01312004	11.00000	0.00000	LOT 61
A	FR-160					NR											01312005	11.00000	0.00000	LOT 62
A	FR-160					NR											01312006	11.00000	0.00000	LOT 63
A	FR-160					NR											01312007	11.00000	0.00000	LOT 64
A	FR-160					NR											01312008	11.00000	0.00000	LOT 65
A	FR-160					NR											01312009	11.00000	0.00000	LOT 66
A	FR-160					NR											01312010	11.00000	0.00000	LOT 73
A	FR-160					NR											01312011	11.00000	0.00000	LOT 72
A	FR-160					NR											01312012	11.00000	0.00000	LOT 71
A	FR-160					NR											01312013	11.00000	0.00000	LOT 70
AE	FR-160					NR											01313006	0.00000	1.22000	SEC 7 11 16
AE	FR-160					NR											01313008	0.00000	1.29000	SEC 7 11 16
A	FR-160					NR											01313011	11.00000	341.80000	S8 11 16 RS11-42
A	FR-160					NR											01313012	11.00000	275.81000	S9 11 16 RS11-42
A	FR-160					NR											01313013	11.00000	0.00000	S4 11 16RS11-42
A	FR-160					NR											01313014	11.00000	40.67000	S6 11 16RS11-109
A	FR-160					NR											01313015	11.00000	0.00000	S6 11 16RS11-109
A	FR-160					NR											01313018	11.00000	0.00000	S5 11 16 RS10-46
A	FR-160					NR											01313019	11.00000	128.28000	S7 11 16RS11-110
A	FR-160					NR											01313023	0.00000	39.89000	RS 15/102/1
AE	FR-160					NR											01313023	0.00000	39.89000	RS 15/102/1
A	FR-160					NR											01313024	11.00000	90.34000	S7 11 16RS15-102
A	FR-160					NR											01313025	11.00000	0.00000	POR SEC 5 11 16
A	FR-160					NR											01313026	11.00000	0.00000	POR SEC 6 11 16
A	FR-160					NR											01314004	11.00000	77.27000	S10 11 16RS11-42
A	FR-160					NR											01314005	11.00000	77.32000	S10 11 16RS11-42
A	FR-160					NR											01314006	11.00000	0.00000	S3 11 16RS 11-42
A	FR-160					NR											01314007	11.00000	0.00000	S 1&2 RS 20-119
A	FR-160					NR											01314008	11.00000	0.00000	POR SEC 11 11 16
RA-160	FR-160					NR											01315006	11.00000	385.88000	S16 11 16RS11-42
A	FR-160					NR											01315007	11.00000	165.95000	S 8 11 16RS11-42
A	FR-160					NR											01315008	11.00000	244.80000	S9 11 16 RS11-42
A	FR-160					NR											01315009	11.00000	0.00000	S7 11 16RS11-110
A	FR-160					NR											01315010	11.00000	0.00000	S17 11 16 S8-100
A	FR-160					NR											01315013	11.00000	124.83000	S 18 11 16RS20-2
A	FR-160					NR											01315014	11.00000	0.00000	RS 20/2 S181116
A	FR-160					NR											01315015	11.00000	0.00000	POR SEC 7 11 16
A	FR-160					NR											01316003	11.00000	154.34000	S10 11 16RS11-42
A	FR-160					NR											01316004	11.00000	77.64000	S10 11 16RS11-42
A	FR-160					NR											01316005	11.00000	0.00000	S 11&12 RS20-119
RA-160	FR-160					NR											01316005	11.00000	0.00000	S 11&12 RS20-119
RA-160	FR-160					NR											01317001	11.00000	0.00000	POR S21&28 11 16

RA-160	FR-160					NR											01317002	11.00000	0.00000	POR S20&29 11 16
RA-160	FR-160					NR											01317003	11.00000	0.00000	POR SEC 20 11 16
RA-160	FR-160					NR											01317004	11.00000	0.00000	POR SEC 19 11 16
RA-160	FR-160					NR											01317005	11.00000	0.00000	POR S19&30 11 16
RA-160	FR-160					NR											01317006	11.00000	0.00000	POR SEC 30 11 16
RA-160	FR-160					NR											01317007	11.00000	0.00000	POR SEC 29 11 16
RA-160	FR-160					NR											01317008	11.00000	0.00000	POR SEC 28 11 16
RA-160	FR-160					NR											01318001	11.00000	0.00000	POR SEC 24 11 16
RA-160	FR-160					NR											01318002	11.00000	0.00000	POR SEC 23 11 16
RA-160	FR-160					NR											01318003	11.00000	0.00000	POR SEC 22 11 16
A	FR-160					NR											01318004	11.00000	0.00000	SEC 27 11 16
A	FR-160					NR											01318005	11.00000	0.00000	SEC 26 11 16
A	FR-160					NR											01318006	11.00000	0.00000	SEC 25 11 16
RA-160	FR-160					NR											01319001	11.00000	0.00000	L 1
RA-160	FR-160					NR											01319002	11.00000	0.00000	L 2
RA-160	FR-160					NR											01319003	11.00000	0.00000	L 3
RA-160	FR-160					NR											01319004	11.00000	0.00000	L 4
RA-160	FR-160					NR											01319005	11.00000	0.00000	L 5
RA-160	FR-160					NR											01319006	11.00000	0.00000	L 6
RA-160	FR-160					NR											01319007	11.00000	0.00000	L 7
RA-160	FR-160					NR											01319008	11.00000	0.00000	L 8
RA-160	FR-160					NR											01320001	11.00000	0.00000	L 9
RA-160	FR-160					NR											01320002	11.00000	0.00000	L 10
RA-160	FR-160					NR											01320003	11.00000	0.00000	L 11
RA-160	FR-160					NR											01320004	11.00000	0.00000	L 12
RA-160	FR-160					NR											01320005	11.00000	0.00000	L 13
RA-160	FR-160					NR											01320006	11.00000	0.00000	L 14
RA-160	FR-160					NR											01320007	11.00000	0.00000	L 15
RA-160	FR-160					NR											01321001	11.00000	0.00000	L 1
RA-160	FR-160					NR											01321002	11.00000	0.00000	L 2
RA-160	FR-160					NR											01321003	11.00000	0.00000	L 3
RA-160	FR-160					NR											01321004	11.00000	0.00000	L 4
RA-160	FR-160					NR											01321005	11.00000	0.00000	L 5
RA-160	FR-160					NR											01321006	11.00000	0.00000	L 8
RA-160	FR-160					NR											01321007	11.00000	0.23000	L 7
RA-160	FR-160					NR											01321008	11.00000	0.00000	L 6
RA-160	FR-160					NR											01322001	11.00000	0.00000	L 9
RA-160	FR-160					NR											01322002	11.00000	0.00000	L 10
RA-160	FR-160					NR											01322003	11.00000	0.00000	L 11
RA-160	FR-160					NR											01322004	11.00000	0.00000	L 12
RA-160	FR-160					NR											01322005	11.00000	0.00000	L 13
RA-160	FR-160					NR											01322006	11.00000	0.00000	L 14
RA-160	FR-160					NR											01322007	11.00000	0.00000	L 15
RA-160	FR-160					NR											01322008	11.00000	0.26000	L 16
RA-160	FR-160					NR											01323001	11.00000	0.20000	L 17
RA-160	FR-160					NR											01323002	11.00000	0.00000	L 18

RA-160	FR-160					NR											01323003	11.00000	0.00000	L 19
RA-160	FR-160					NR											01323004	11.00000	0.00000	L 20
RA-160	FR-160					NR											01323005	11.00000	0.00000	L 21
RA-160	FR-160					NR											01323006	11.00000	0.00000	L 22
RA-160	FR-160					NR											01323007	11.00000	0.00000	L 25
RA-160	FR-160					NR											01323008	11.00000	0.00000	L 24
RA-160	FR-160					NR											01323009	11.00000	0.00000	L 23
RA-160	FR-160					NR											01324001	11.00000	0.00000	L 1
RA-160	FR-160					NR											01324002	11.00000	0.00000	SEC 30 11 16
RA-160	FR-160					NR											01325001	11.00000	0.34000	L 1
RA-160	FR-160					NR											01326001	11.00000	0.00000	L 43
RA-160	FR-160					NR											01326002	11.00000	0.00000	L 42
RA-160	FR-160					NR											01327001	11.00000	0.00000	L 27
RA-160	FR-160					NR											01327002	11.00000	0.00000	L 40
RA-160	FR-160					NR											01327003	11.00000	0.00000	L 41
RA-160	FR-160					NR											01327004	11.00000	0.00000	L 28
RA-160	FR-160					NR											01327005	11.00000	0.00000	L 31
RA-160	FR-160					NR											01327006	11.00000	0.00000	L 29
RA-160	FR-160					NR											01327007	11.00000	0.00000	L 30
RA-160	FR-160					NR											01327008	11.00000	0.00000	L 32
RA-160	FR-160					NR											01327009	11.00000	0.00000	L 33
RA-160	FR-160					NR											01327010	11.00000	0.29200	L 34
RA-160	FR-160					NR											01327011	11.00000	0.00000	L 35
RA-160	FR-160					NR											01327012	11.00000	0.00000	L 36
RA-160	FR-160					NR											01327013	11.00000	0.00000	L 37
RA-160	FR-160					NR											01327014	11.00000	0.00000	L 38
RA-160	FR-160					NR											01327015	11.00000	0.00000	L 39
RA-160	FR-160					NR											01327016	11.00000	0.00000	L 42
RA-160	FR-160					NR											01327017	11.00000	0.00000	L 43
RA-160	FR-160					NR											01328001	11.00000	0.00000	L 44
RA-160	FR-160					NR											01328002	11.00000	0.00000	L 45
RA-160	FR-160					NR											01328003	11.00000	0.00000	L 46
RA-160	FR-160					NR											01328004	11.00000	0.00000	L 47
RA-160	FR-160					NR											01328005	11.00000	0.00000	L 48
RA-160	FR-160					NR											01328006	11.00000	0.00000	L 49
RA-160	FR-160					NR											01328007	11.00000	0.00000	L 50
RA-160	FR-160					NR											01328008	11.00000	0.00000	L 51
RA-160	FR-160					NR											01328009	11.00000	0.00000	L 52
RA-160	FR-160					NR											01329001	11.00000	0.00000	L 24
RA-160	FR-160					NR											01329002	11.00000	0.00000	L 25
RA-160	FR-160					NR											01329003	11.00000	0.00000	L 26
RA-160	FR-160					NR											01329005	11.00000	0.00000	L 9
RA-160	FR-160					NR											01330001	11.00000	0.00000	L 21
RA-160	FR-160					NR											01330002	11.00000	0.00000	L 22
RA-160	FR-160					NR											01330003	11.00000	0.00000	L 23
RA-160	FR-160					NR											01330004	11.00000	0.00000	L 20

RA-160	FR-160					NR											01330005	11.00000	0.00000	L 19
RA-160	FR-160					NR											01330006	11.00000	0.00000	L 18
RA-160	FR-160					NR											01330007	11.00000	0.00000	L 17
RA-160	FR-160					NR											01330008	11.00000	0.00000	L 16
RA-160	FR-160					NR											01330009	11.00000	0.29000	L 15
RA-160	FR-160					NR											01330010	11.00000	0.00000	L 14
RA-160	FR-160					NR											01330011	11.00000	0.28000	L 13
RA-160	FR-160					NR											01330012	11.00000	0.00000	L 12
RA-160	FR-160					NR											01330013	11.00000	0.00000	L 11
RA-160	FR-160					NR											01330014	11.00000	0.00000	L 10
RA-160	FR-160					NR											01330015	11.00000	0.00000	L 8
RA-160	FR-160					NR											01330016	11.00000	0.00000	L 7
RA-160	FR-160					NR											01330017	11.00000	0.00000	L 6
RA-160	FR-160					NR											01330018	11.00000	0.00000	L 1
RA-160	FR-160					NR											01330019	11.00000	0.00000	L 2
RA-160	FR-160					NR											01330020	11.00000	0.00000	L 3
RA-160	FR-160					NR											01330021	11.00000	0.00000	L 4
RA-160	FR-160					NR											01330022	11.00000	0.00000	L 5
RA-160	FR-160					NR											01331001	11.00000	0.26000	L 1
RA-160	FR-160					NR											01331002	11.00000	0.00000	L 2
RA-160	FR-160					NR											01331003	11.00000	0.00000	L 3
RA-160	FR-160					NR											01331004	11.00000	0.00000	L 4
RA-160	FR-160					NR											01331005	11.00000	0.00000	L 5
RA-160	FR-160					NR											01331006	11.00000	0.00000	L 6
RA-160	FR-160					NR											01331007	11.00000	0.00000	L 7
RA-160	FR-160					NR											01332001	11.00000	0.00000	L 35
RA-160	FR-160					NR											01332002	11.00000	0.00000	L 1
RA-160	FR-160					NR											01332003	11.00000	0.00000	L 2
RA-160	FR-160					NR											01332004	11.00000	0.55000	L 3
RA-160	FR-160					NR											01332005	11.00000	0.00000	L 4
RA-160	FR-160					NR											01332006	11.00000	0.00000	L 5
RA-160	FR-160					NR											01332007	11.00000	0.00000	L 6
RA-160	FR-160					NR											01332008	11.00000	0.00000	L 7
RA-160	FR-160					NR											01332009	11.00000	0.44000	L 8
RA-160	FR-160					NR											01332010	11.00000	0.00000	L 9
RA-160	FR-160					NR											01332011	11.00000	0.00000	L 10
RA-160	FR-160					NR											01332012	11.00000	0.00000	L 11
RA-160	FR-160					NR											01332013	11.00000	0.00000	L 27
RA-160	FR-160					NR											01332014	11.00000	0.00000	L 28
RA-160	FR-160					NR											01332015	11.00000	0.00000	L 29
RA-160	FR-160					NR											01332016	11.00000	0.31000	L 30
RA-160	FR-160					NR											01332017	11.00000	0.00000	L 31
RA-160	FR-160					NR											01332018	11.00000	0.00000	L 32
RA-160	FR-160					NR											01332019	11.00000	0.00000	L 33
RA-160	FR-160					NR											01332020	11.00000	0.00000	L 34
RA-160	FR-160					NR											01333001	11.00000	0.00000	L 26

RA-160	FR-160					NR											01333002	11.00000	0.00000	L 25
RA-160	FR-160					NR											01333003	11.00000	0.00000	L 24
RA-160	FR-160					NR											01333004	11.00000	0.00000	L 23
RA-160	FR-160					NR											01333005	11.00000	0.24000	L 22
RA-160	FR-160					NR											01333006	11.00000	0.35000	L 21
RA-160	FR-160					NR											01333007	11.00000	0.00000	L 20
RA-160	FR-160					NR											01333008	11.00000	0.00000	L 19
RA-160	FR-160					NR											01333009	11.00000	0.00000	L 38
RA-160	FR-160					NR											01333010	11.00000	0.00000	L 37
RA-160	FR-160					NR											01333011	11.00000	0.00000	L 18
RA-160	FR-160					NR											01333012	11.00000	0.00000	L 17
RA-160	FR-160					NR											01333013	11.00000	0.00000	L 16
RA-160	FR-160					NR											01333014	11.00000	0.00000	L 15
RA-160	FR-160					NR											01333015	11.00000	0.00000	L 36
RA-160	FR-160					NR											01333016	11.00000	0.00000	L 14
RA-160	FR-160					NR											01333017	11.00000	0.00000	L 13
RA-160	FR-160					NR											01333018	11.00000	0.00000	L 12
RA-160	FR-160					NR											01334001	11.00000	0.19000	L 39
RA-160	FR-160					NR											01334002	11.00000	0.00000	L 40
RA-160	FR-160					NR											01334003	11.00000	0.00000	L 41
TR1	FR-160					AP											01402101	11.00000	59.59000	SEC 18 14 17
TR1	FR-160					AP											01402102	11.00000	81.00000	SEC 18 14 17
TR1	FR-160					AP											01402106	11.00000	29.06000	SEC 18 14 17
TR1	FR-160					AP											01402107	11.00000	42.56000	SEC 18 14 17
TR1	FR-160					AP											01402108	11.00000	22.73000	SEC 18 14 17
TR1	FR-160					AP											01402109	11.00000	20.41000	SEC 18 14 17
TR1	FR-160					AP											01402110	11.00000	76.24000	SEC 18 14 17
TR1	R1					AP											01402111	0.00000	2.75000	SEC 18 14 17
TR1	R1					AP											01402112	0.00000	0.82000	SEC 18 14 17
TR1	R1					AP											01402113	0.00000	0.55000	SEC 18 14 17
TA	FR-160					AP											01403101	11.00000	640.00000	SEC 19 14 17
TR1	FR-160					AP											01403102	11.00000	80.00000	SEC 30 14 17
TA	FR-160					AP											01403104	11.00000	160.00000	SEC 31 14 17
TR1	FR-160					AP											01403105	11.00000	5.85000	SEC 31 14 17
TR1	FR-160					AP											01403109	11.00000	74.15000	SEC 31 14 17
TR1	FR-160					AP											01403110	11.00000	160.00000	SEC 30 14 17
TA	FR-160					AP											01403111	11.00000	80.00000	SEC 31 14 17
TA	FR-160					AP											01403112	11.00000	0.00000	S30 14 17 RS3-11
TA	FR-160					AP											01403114	11.00000	0.00000	S31 14 17 RS3-11
TA	FR-160					AP											01403115	11.00000	0.00000	S 30 14 17RS3-11
TA	FR-160					AP											01403116	11.00000	116.81000	L 1 2 3 30 14 17
A	FR-160					AP											01404001	11.00000	0.00000	S5-8 17&18 13 17
TA	FR-160					AP											01404001	11.00000	0.00000	S5-8 17&18 13 17
TA	FR-160					AP											01405001	11.00000	0.00000	19 20 29-32 1317
A	FR-160					AP											01405002	11.00000	0.00000	S 19 30&31 13 17
A	FR-160					AP											01406001	11.00000	0.00000	S5-8 17&18 12 17

TA	FR-160					AP											01406001	11.00000	0.00000	S5-8 17&18 12 17
TA	FR-160					AP											01407101	11.00000	40.57000	SEC 16 12 17
TR1	FR-160					AP											01407103	11.00000	20.00000	SEC 3 12 17
TR1	FR-160					AP											01407104	11.00000	18.00000	SEC 3 12 17
A	FR-160					NR											01408001	11.00000	0.00000	SEC 20&29 12 17
TA	FR-160					NR											01408001	11.00000	0.00000	SEC 20&29 12 17
A	FR-160					NR											01408002	11.00000	0.00000	SEC 19&30 12 17
A	FR-160					NR											01408003	11.00000	0.00000	SEC 31&32 12 17
A	FR-160					NR											01408004	11.00000	0.00000	19 & 30 12 17
A	FR-160					NR											01408004	11.00000	0.00000	19 & 30 12 17
A	FR-160					NR											01408004	11.00000	0.00000	19 & 30 12 17
TA	FR-160					NR											01408004	11.00000	0.00000	19 & 30 12 17
TA	FR-160					AP											01409103	11.00000	0.18000	SEC 21 12 17
TA	FR-160					AP											01409104	11.00000	78.89000	S 21 & 22 12 17
TA	FR-160					AP											01409105	0.00000	2.32000	SEC 22 12 17
TA	FR-160					AP											01409106	11.00000	0.00000	POR S21&22 12 17
TR1	FR-160					AP											01409106	11.00000	0.00000	POR S21&22 12 17
TA	FR-160					AP											01409107	11.00000	0.00000	SEE REMARKS
TA	FR-160					AP											01409108	11.00000	0.00000	POR SEC 34 12 17
TA	FR-160					AP											01409109	11.00000	0.00000	POR SEC 33 12 17
A	FR-160					NR											01409110	11.00000	0.00000	POR SEC 33 12 17
A	FR-160					NR											01409111	11.00000	0.00000	POR SEC 28 12 17
TA	FR-160					AP											01410103	11.00000	20.00000	SEC 25 12 17
TA	FR-160					AP											01410104	11.00000	140.00000	SEC 25 12 17
TA	FR-160					AP											01410105	11.00000	0.00000	SEC 23&24 12 17
TA	FR-160					AP											01410106	11.00000	0.00000	SEC 25&26 12 17
TR1	R1					AP											01413001	11.00000	0.00000	LOT 15
TR1	R1					AP											01413003	11.00000	0.00000	LOT 4
TR1	R1					AP											01413004	11.00000	0.00000	L 3
TR1	R1					AP											01413005	11.00000	0.00000	LOT 2
TR1	R1					AP											01413006	11.00000	0.00000	LOT 1
TR1	R1					AP											01413007	11.00000	0.00000	LOT 7
TR1	R1					AP											01413008	11.00000	0.00000	LOT 8
TR1	R1					AP											01413009	11.00000	0.00000	LOT 10
TR1	R1					AP											01413010	11.00000	0.00000	LOT 13
TR1	R1					AP											01414101	11.00000	1.25000	SEC 23 12 17
A	FR-160					NR											01416001	11.00000	0.29000	LOT 7
A	FR-160					NR											01416002	11.00000	0.29000	LOT 6
A	FR-160					NR											01416003	11.00000	0.29000	LOT 5
A	FR-160					NR											01416004	11.00000	0.29000	LOT 4
A	FR-160					NR											01416005	11.00000	0.29000	LOT 3
A	FR-160					NR											01416006	11.00000	0.23000	LOT 2
A	FR-160					NR											01416007	11.00000	0.00000	LOT 1
A	FR-160					NR											01417002	11.00000	0.92000	LOT 2
A	FR-160					NR											01417003	11.00000	0.72000	LOT 3
A	FR-160					NR											01417004	11.00000	3.28000	POR LOT 1

A	FR-160					NR											01417005	11.00000	0.69000	POR LOT 1
TA	FR-160					AP											01418001	11.00000	0.00000	LOT 1/2
TA	FR-160					AP											01418001	11.00000	0.00000	LOT 1/2
TA	FR-160					AP											01419001	11.00000	0.00000	LOT 13
TA	FR-160					AP											01419002	11.00000	0.00000	LOT 9
TA	FR-160					AP											01419003	11.00000	0.00000	LOT 8
TA	FR-160					AP											01419004	11.00000	0.00000	LOT 7
TA	FR-160					AP											01419005	11.00000	0.00000	LOT 6
TA	FR-160					AP											01419006	11.00000	0.00000	LOT 5
TA	FR-160					AP											01419007	11.00000	0.00000	LOT 4
TA	FR-160					AP											01419008	11.00000	0.00000	LOT 3
TA	FR-160					AP											01419009	11.00000	0.00000	LOT 2
TA	FR-160					AP											01419010	11.00000	0.00000	LOT 1
TA	FR-160					AP											01419011	11.00000	0.00000	LOT 10
TA	FR-160					AP											01419012	11.00000	0.00000	LOT 11
TA	FR-160					AP											01419013	11.00000	0.00000	L 12
TA	FR-160					AP											01420001	11.00000	0.00000	LOT 1
TA	FR-160					AP											01420002	11.00000	0.00000	LOT 2
TA	FR-160					AP											01420009	11.00000	0.00000	LOT 3
TA	FR-160					AP											01420010	11.00000	0.00000	LOT 4
TA	FR-160					AP											01421001	11.00000	4.00000	SEC 21 12 17
TR1	R1					AP											01422001	11.00000	0.00000	LOT 12
TR1	R1					AP											01422002	11.00000	0.00000	LOT 11
TR1	R1					AP											01422003	11.00000	0.00000	LOT 10
TR1	R1					AP											01422004	11.00000	0.00000	LOT 9
TR1	R1					AP											01422005	11.00000	0.00000	LOT 8
TR1	R1					AP											01422006	11.00000	0.00000	LOT 7
TR1	R1					AP											01422007	11.00000	0.00000	LOT 6
TR1	R1					AP											01422008	11.00000	0.00000	LOT 5
TR1	R1					AP											01422009	11.00000	0.00000	LOT 4
TR1	R1					AP											01422010	11.00000	0.00000	LOT 3
TR1	R1					AP											01422011	11.00000	0.00000	LOT 2
TR1	R1					AP											01422012	11.00000	0.00000	LOT 1
TR1	R1					AP											01423105	0.00000	0.00000	L 5 B 4 RS19-150
TR1	R1					AP											01423107	0.00000	0.23000	L 3 B 4
TR1	R1					AP											01423108	0.00000	0.00000	L 4 B 4
TR1	R1					AP											01423109	0.00000	0.32500	RS 25/91/1
TR1	R1					AP											01423110	0.00000	0.22900	L 2 B 4
TR1	R1					AP											01423201	0.00000	0.00000	L 10 B 3
TR1	R1					AP											01423202	0.00000	0.00000	L 9 B 3
TR1	R1					AP											01423203	0.00000	0.00000	L 1 B 3
TR1	R1					AP											01423204	11.00000	0.00000	L 2 BLK 3
TR1	R1					AP											01423207	0.00000	0.00000	L 7 B 3
TR1	R1					AP											01423208	0.00000	0.30400	L 8 B 3
TR1	R1					AP											01423209	0.00000	0.46000	L 5 B 3
TR1	R1					AP											01423210	0.00000	0.00000	L 4 B 3

TR1	R1					AP											01423304	0.00000	0.23000	L 6 B 2
TR1	R1					AP											01423305	0.00000	0.00000	L 5 B 2
TR1	R1					AP											01423308	0.00000	0.00000	L 4 B 2
TR1	R1					AP											01423309	0.00000	0.00000	L 7 B 2
TR1	R1					AP											01423310	0.00000	0.00000	L 1 B 2
TR1	R1					AP											01423311	0.00000	0.23000	L 2 B 2
TR1	R1					AP											01423312	0.00000	0.00000	L 9 B 2
TR1	R1					AP											01423313	0.00000	0.00000	L 10 B 2
TR1	R1					AP											01423314	0.00000	0.00000	L 8 B 2
TR1	R1					AP											01423315	0.00000	0.00000	L 3 B 2
TR1	R1					AP											01423402	0.00000	0.00000	L 8 B 1
TR1	R1					AP											01423403	0.00000	0.00000	L 7 B 1
TR1	R1					AP											01423406	0.00000	0.00000	L 10 B 1
TR1	R1					AP											01423409	0.00000	0.00000	L 1 B 1
TR1	R1					AP											01423410	0.00000	0.00000	L 2 B 1
TR1	R1					AP											01423411	0.00000	0.24600	L 9 B 1
TR1	R1					AP											01423412	0.00000	0.24400	L 6 B 1
TR1	R1					AP											01423413	0.00000	0.00000	L 5 B 1
TR1	R1					AP											01423414	0.00000	0.00000	L 4 B 1
TR1	R1					AP											01423415	0.00000	0.00000	L 3 B 1
TR1	R1					AP											01423505	0.00000	0.23000	L 3 B 5
TR1	R1					AP											01423506	0.00000	0.00000	L 5 B 5
TR1	R1					AP											01423508	0.00000	0.22900	L 4 B 5 RS19-150
TR1	R1					AP											01423510	0.00000	0.29800	L 2&POR L 1B 5
TR1	R1					AP											01423510	0.00000	0.29800	L 2&POR L 1B 5
TR1	R1					AP											01423511	11.00000	0.00000	POR L 1 BLK 5
TR1	R1					AP											01423603	0.00000	0.00000	L 6 & 7 B 6
TR1	R1					AP											01423604	0.00000	0.00000	L 5 B 6
TR1	R1					AP											01423605	0.00000	0.00000	L 2 B 6
TR1	R1					AP											01423606	0.00000	0.00000	L 1 B 6
TR1	R1					AP											01423607	0.00000	0.00000	L 9 B 6
TR1	R1					AP											01423608	0.00000	0.00000	L 10 B 6
TR1	R1					AP											01423610	0.00000	0.00000	L 8 B 6
TR1	R1					AP											01423611	0.00000	0.00000	L 3 B 6
TR1	R1					AP											01423612	0.00000	0.23000	L 4 B 6
TR1	R1					AP											01423701	0.00000	0.00000	L 10 B 7
TR1	R1					AP											01423703	0.00000	0.00000	L 8 B 7
TR1	R1					AP											01423704	0.00000	0.00000	L 1 B 7
TR1	R1					AP											01423705	0.00000	0.22900	L 9 B 7
TR1	R1					AP											01423707	0.00000	0.00000	L 2 B 7
TR1	R1					AP											01423708	0.00000	0.00000	L 3 B 7
TR1	R1					AP											01423710	0.00000	0.00000	L 5 B 7
TR1	R1					AP											01423711	0.00000	0.00000	L 4 B 7
TR1	R1					AP											01423712	0.00000	0.22700	L 6 B 7
TR1	R1					AP											01423713	0.00000	0.00000	L 7 B 7
TR1	R1					AP											01423804	0.00000	0.00000	L 1 B 8

TR1	R1					AP											01423806	0.00000	0.00000	L 2 B 8
TR1	R1					AP											01423808	11.00000	0.00000	L 5 B 8
TR1	R1					AP											01423811	0.00000	0.00000	L 9 B 8
TR1	R1					AP											01423812	0.00000	0.00000	RS 27/148 L10 B8
TR1	R1					AP											01423813	0.00000	0.00000	L 7 B 8
TR1	R1					AP											01423814	0.00000	0.00000	L 6 B 8
TR1	R1					AP											01423815	0.00000	0.00000	L 8 B 8
TR1	R1					AP											01423816	11.00000	0.00000	L 3 B 8
TR1	R1					AP											01423817	11.00000	0.00000	LOT 4 BLK 8
TR1	R1					AP											01424102	11.00000	0.00000	L 4 & 5 B 12
TR1	R1					AP											01424106	0.00000	0.29800	L 1 B 12
TR1	R1					AP											01424107	0.00000	0.23000	RS 31/40 L3 B 12
TR1	R1					AP											01424108	11.00000	0.23000	L 2 B 12
TR1	R1					AP											01424202	11.00000	0.00000	POR B 11
TR1	R1					AP											01424206	0.00000	0.00000	L 1 B 11
TR1	R1					AP											01424207	11.00000	0.00000	L 3 B 11
TR1	R1					AP											01424208	0.00000	0.23000	L 2 B 11
TR1	R1					AP											01424210	11.00000	0.00000	L 8 B 11
TR1	R1					AP											01424211	11.00000	0.00000	L 9 B 11
TR1	R1					AP											01424212	11.00000	0.00000	LOT 10 BLK 11
TR1	R1					AP											01424301	11.00000	0.00000	L 10 BLK 10
TR1	R1					AP											01424303	11.00000	0.00000	POR B 10
TR1	R1					AP											01424307	0.00000	0.00000	L 8 B 10
TR1	R1					AP											01424310	0.00000	0.00000	L 1 B 10
TR1	R1					AP											01424312	0.00000	0.00000	L 2 3 & 9 B10
TR1	R1					AP											01424405	0.00000	0.24600	L 3 B 9
TR1	R1					AP											01424406	0.00000	0.24600	L 8 B 9
TR1	R1					AP											01424407	0.00000	0.00000	L 2 B 9
TR1	R1					AP											01424409	11.00000	0.00000	L 1 B 9
TR1	R1					AP											01424410	0.00000	0.00000	L 10 B 9
TR1	R1					AP											01424411	0.00000	0.00000	L 9 B 9
TR1	R1					AP											01424412	0.00000	0.00000	L 7 B 9
TR1	R1					AP											01424413	11.00000	0.50000	LOT 4 & 6 B 15
TR1	R1					AP											01424501	11.00000	0.00000	POR B 13
TR1	R1					AP											01424601	11.00000	0.00000	POR B 14
TR1	R1					AP											01424703	11.00000	0.00000	L 6 & 7 B 15
TR1	R1					AP											01424705	11.00000	0.00000	LOTS 1 2&3BLK 15
TR1	R1					AP											01424706	0.00000	0.00000	L 4
TR1	R1					AP											01424707	0.00000	0.00000	L 5
TR1	R1					AP											01424708	0.00000	0.00000	L 8
TR1	R1					AP											01424709	0.00000	0.00000	L 9
TR1	R1					AP											01424710	0.00000	0.00000	L 10
TR1	R1					AP											01424711	0.00000	0.00000	L 11
TR1	R1					AP											01424712	0.00000	0.00000	L 12
TR1	R1					AP											01424713	0.00000	0.00000	L 13
TR1	R1					AP											01424802	11.00000	0.00000	L 1 B 16

TR1	R1					AP											01424810	11.00000	0.00000	L 7
TR1	R1					AP											01424811	11.00000	0.00000	L 8
TR1	R1					AP											01424812	11.00000	0.00000	POR LOT 2
TR1	R1					AP											01424814	11.00000	0.00000	POR LOT 3
TR1	R1					AP											01424815	11.00000	0.00000	POR LOT 3
TR1	R1					AP											01424816	0.00000	0.00000	POR LOT 4 BLK 16
TR1	R1					AP											01424817	11.00000	0.00000	POR LOT 4 BLK 16
TR1	R1					AP											01424818	0.00000	0.00000	POR LOT 5
TR1	R1					AP											01424819	11.00000	0.00000	POR LOT 5
TR1	R1					AP											01424820	11.00000	0.00000	POR LOT 6
TR1	R1					AP											01424821	11.00000	0.00000	POR LOT 6
TR1	R1					AP											01426101	0.00000	0.00000	L 40
TR1	R1					AP											01426102	0.00000	0.00000	L 41
TR1	R1					AP											01426103	0.00000	0.00000	L 42
TR1	R1					AP											01426104	0.00000	0.00000	L 43
TR1	R1					AP											01426105	0.00000	0.00000	L 44
TR1	R1					AP											01426106	0.00000	0.00000	L 45
TR1	R1					AP											01426107	0.00000	0.00000	L 46
TR1	R1					AP											01426108	0.00000	0.00000	L 47
TR1	R1					AP											01426109	0.00000	0.00000	L 48
TR1	R1					AP											01426110	11.00000	0.00000	L 49
TR1	R1					AP											01426111	11.00000	0.00000	L 50
TR1	R1					AP											01426201	0.00000	0.00000	L 1
TR1	R1					AP											01426202	0.00000	0.26100	L 2
TR1	R1					AP											01426203	0.00000	0.00000	L 3
TR1	R1					AP											01426204	0.00000	0.00000	L 4
TR1	R1					AP											01426205	0.00000	0.00000	L 5
TR1	R1					AP											01426206	0.00000	0.00000	L 6
TR1	R1					AP											01426207	0.00000	0.00000	L 7
TR1	R1					AP											01426208	0.00000	0.00000	L 21
TR1	R1					AP											01426209	0.00000	0.00000	L 22
TR1	R1					AP											01426210	0.00000	0.00000	L 23
TR1	R1					AP											01426211	0.00000	0.00000	L 24
TR1	R1					AP											01426212	0.00000	0.00000	L 25
TR1	R1					AP											01426213	0.00000	0.00000	L 26
TR1	R1					AP											01426214	0.00000	0.00000	L 27
TR1	R1					AP											01426215	0.00000	0.23100	L 28
TR1	R1					AP											01426216	0.00000	0.00000	L 29
TR1	R1					AP											01426217	11.00000	0.00000	L 30
TR1	R1					AP											01427101	0.00000	0.00000	L 80
TR1	R1					AP											01427102	0.00000	0.00000	L 81
TR1	R1					AP											01427103	0.00000	0.00000	L 82
TR1	R1					AP											01427104	0.00000	0.00000	L 83
TR1	R1					AP											01427105	0.00000	0.00000	L 84
TR1	R1					AP											01427106	0.00000	0.00000	L 85
TR1	R1					AP											01427107	0.00000	0.00000	L 86

TR1	R1					AP											01427108	0.00000	0.00000	L 87
TR1	R1					AP											01427109	0.00000	0.00000	L 88
TR1	R1					AP											01427110	0.00000	0.00000	L 89
TR1	R1					AP											01427201	0.00000	0.00000	L 51
TR1	R1					AP											01427202	0.00000	0.00000	L 52
TR1	R1					AP											01427203	0.00000	0.25900	L 53
TR1	R1					AP											01427204	0.00000	0.00000	L 54
TR1	R1					AP											01427205	0.00000	0.00000	L 55
TR1	R1					AP											01427206	0.00000	0.00000	L 56
TR1	R1					AP											01427207	0.00000	0.00000	L 57
TR1	R1					AP											01427301	0.00000	0.00000	L 8
TR1	R1					AP											01427302	0.00000	0.00000	L 9
TR1	R1					AP											01427303	0.00000	0.00000	L 10
TR1	R1					AP											01427304	0.00000	0.00000	L 11
TR1	R1					AP											01427305	0.00000	0.00000	L 31
TR1	R1					AP											01427306	0.00000	0.00000	L 32
TR1	R1					AP											01427307	0.00000	0.00000	L 33
TR1	R1					AP											01427308	0.00000	0.00000	L 34
TR1	R1					AP											01427401	0.00000	0.00000	L 12
TR1	R1					AP											01427402	0.00000	0.00000	L 13
TR1	R1					AP											01427403	0.00000	0.00000	L 14
TR1	R1					AP											01427404	0.00000	0.00000	L 15
TR1	R1					AP											01427405	0.00000	0.00000	L 16
TR1	R1					AP											01427406	0.00000	0.00000	L 17
TR1	R1					AP											01427407	0.00000	0.00000	L 18
TR1	R1					AP											01427408	0.00000	0.00000	L 19
TR1	R1					AP											01427409	0.00000	0.00000	L 20
TR1	R1					AP											01427413	0.00000	0.00000	L 38
TR1	R1					AP											01427414	0.00000	0.00000	L 39
TR1	R1					AP											01427418	0.00000	0.35200	RS 24/49/1
TR1	R1					AP											01427419	0.00000	0.33300	RS 24/49/2
TR1	R1					AP											01428101	0.00000	0.00000	L 1
TR1	R1					AP											01428102	0.00000	0.22900	SEC 18 14 17
TR1	R1					AP											01428103	0.00000	0.23000	SEC 18 14 17
TR1	R1					AP											01428104	0.00000	0.23000	SEC 18 14 17
TR1	R1					AP											01428106	0.00000	0.23000	SEC 18 14 17
TR1	R1					AP											01428107	0.00000	0.23000	SEC 18 14 17
TR1	R1					AP											01428201	0.00000	0.24400	L 2
TR1	R1					AP											01428202	0.00000	0.00000	L 3
TR1	R1					AP											01428203	0.00000	0.00000	L 4
TR1	R1					AP											01428204	0.00000	0.00000	L 5
TR1	R1					AP											01428205	0.00000	0.00000	L 6
TR1	R1					AP											01428206	11.00000	0.00000	L 7
TR1	R1					AP											01428207	0.00000	0.46800	L 8
TR1	R1					AP											01428208	0.00000	0.00000	L 9
TR1	R1					AP											01428209	0.00000	0.00000	L 10

TR1	R1					AP											01428210	0.00000	0.00000	L 11
TR1	R1					AP											01428211	0.00000	0.00000	L 12
TR1	R1					AP											01428212	0.00000	0.23300	L 13
TR1	R1					AP											01428213	0.00000	0.00000	L 14
TR1	R1					AP											01428214	0.00000	0.00000	L 15
TR1	R1					AP											01428301	0.00000	0.00000	L 16
TR1	R1					AP											01428302	0.00000	0.00000	L 17
TR1	R1					AP											01428303	0.00000	0.00000	L 18
TR1	R1					AP											01428304	0.00000	0.00000	L 19
TR1	R1					AP											01428305	0.00000	0.00000	L 20
TR1	R1					AP											01428306	0.00000	0.23400	L 21
TR1	R1					AP											01428307	0.00000	0.23900	L 22
TR1	R1					AP											01428308	0.00000	0.00000	L 23
TR1	R1					AP											01428309	11.00000	0.00000	L 24
TR1	R1					AP											01428310	0.00000	0.00000	L 25
TR1	R1					AP											01428311	0.00000	0.23100	L 26
TR1	R1					AP											01428312	0.00000	0.00000	L 27
TR1	R1					AP											01428313	11.00000	0.00000	L 28
TR1	R1					AP											01428314	0.00000	0.00000	L 29
TR1	R1					AP											01428315	0.00000	0.00000	L 30
TR1	R1					AP											01428401	0.00000	0.00000	L 31
TR1	R1					AP											01428402	0.00000	0.00000	L 32
TR1	R1					AP											01428403	0.00000	0.00000	L 33
TR1	R1					AP											01428404	0.00000	0.00000	L 34
TR1	R1					AP											01428405	0.00000	0.00000	L 35
TR1	R1					AP											01428406	0.00000	0.00000	L 36
TR1	R1					AP											01428407	0.00000	0.00000	L 37
TR1	R1					AP											01428408	0.00000	0.00000	L 38
TR1	R1					AP											01428409	11.00000	0.00000	L 39
TR1	R1					AP											01428410	0.00000	0.00000	L 40
TR1	R1					AP											01428411	0.00000	0.00000	L 41
TR1	R1					AP											01428412	0.00000	0.00000	L 42
TR1	R1					AP											01428413	0.00000	0.00000	L 43
TR1	R1					AP											01428414	0.00000	0.00000	L 44
TR1	R1					AP											01428415	0.00000	0.00000	L 45
TR1	R1					AP											01428416	0.00000	0.00000	L 46
TR1	R1					AP											01428417	0.00000	0.00000	L 47
TR1	R1					AP											01428418	0.00000	0.00000	L 48
TR1	R1					AP											01428419	0.00000	0.00000	L 49
TR1	R1					AP											01428420	0.00000	0.00000	L 50
TR1	R1					AP											01428421	0.00000	0.00000	L 51
TR1	R1					AP											01428503	0.00000	0.27000	RS 19/86/3
TR1	R1					AP											01428504	0.00000	0.00000	L 55
TR1	R1					AP											01428505	0.00000	0.00000	L 56
TR1	R1					AP											01428510	0.00000	0.23000	RS 19/86/2
TR1	R1					AP											01428511	0.00000	0.23000	RS 19/86/1

TR1	R1					AP											01428601	0.00000	0.00000	L 57
TR1	R1					AP											01428602	0.00000	0.00000	L 58
TR1	R1					AP											01428603	0.00000	0.23200	L 59
TR1	R1					AP											01428604	0.00000	0.23200	L 60
TR1	R1					AP											01428605	0.00000	0.00000	L 61
TR1	R1					AP											01428606	0.00000	0.00000	L 62
TR1	R1					AP											01429101	0.00000	0.00000	L 58
TR1	R1					AP											01429104	0.00000	0.00000	L 61
TR1	R1					AP											01429105	0.00000	0.00000	L 62
TR1	R1					AP											01429106	0.00000	0.00000	L 63
TR1	R1					AP											01429107	0.00000	0.00000	L 64
TR1	R1					AP											01429108	0.00000	0.00000	L 65
TR1	R1					AP											01429109	0.00000	0.00000	L 66
TR1	R1					AP											01429110	0.00000	0.00000	L 67
TR1	R1					AP											01429111	0.00000	0.00000	L 68
TR1	R1					AP											01429112	0.00000	0.45900	LOT 59 & LOT 60
TR1	R1					AP											01429201	0.00000	0.00000	L 79
TR1	R1					AP											01429202	0.00000	0.00000	L 78
TR1	R1					AP											01429203	11.00000	0.00000	L 77
TR1	R1					AP											01429204	11.00000	0.00000	L 76
TR1	R1					AP											01429205	0.00000	0.00000	L 75
TR1	R1					AP											01429206	0.00000	0.00000	L 74
TR1	R1					AP											01429207	0.00000	0.00000	L 73
TR1	R1					AP											01429208	0.00000	0.00000	L 72
TR1	R1					AP											01429209	0.00000	0.22900	L 71
TR1	R1					AP											01429210	0.00000	0.23000	L 70
TR1	R1					AP											01429211	0.00000	0.00000	L 69
TR1	R1					AP											01429212	0.00000	0.24700	L 90
TR1	R1					AP											01429213	0.00000	0.00000	L 91
TR1	R1					AP											01429214	0.00000	0.00000	L 92
TR1	R1					AP											01429215	0.00000	0.23700	L 93
TR1	R1					AP											01429216	0.00000	0.00000	L 94
TR1	R1					AP											01429217	0.00000	0.00000	L 95
TR1	R1					AP											01429218	0.00000	0.23600	L 96
TR1	R1					AP											01429219	11.00000	0.00000	L 97
TR1	R1					AP											01429220	0.00000	0.23600	L 98
TR1	R1					AP											01429221	0.00000	0.00000	L 99
TR1	R1					AP											01429222	0.00000	0.00000	L 100
TR1	R1					AP											01429223	11.00000	0.00000	L 101
TR1	R1					AP											01429224	0.00000	0.00000	L 102
TR1	R1					AP											01429225	0.00000	0.00000	L 103
TR1	R1					AP											01429226	0.00000	0.00000	L 104
TR1	R1					AP											01430101	0.00000	0.00000	L 1
TR1	R1					AP											01430102	0.00000	0.00000	L 2
TR1	R1					AP											01430103	0.00000	0.00000	L 3
TR1	R1					AP											01430104	0.00000	0.00000	L 4

TR1	R1					AP											01430105	0.00000	0.00000	L 5
TR1	R1					AP											01430106	0.00000	0.00000	L 6
TR1	R1					AP											01430107	0.00000	0.00000	L 7
TR1	R1					AP											01430108	0.00000	0.00000	L 8
TR1	R1					AP											01430109	0.00000	0.00000	L 9
TR1	R1					AP											01430110	11.00000	0.00000	L A
TR1	R1					AP											01430201	0.00000	0.00000	L 10
TR1	R1					AP											01430202	11.00000	0.00000	L 11
TR1	R1					AP											01430203	11.00000	0.00000	L 12
TR1	R1					AP											01430204	0.00000	0.00000	L 13
TR1	R1					AP											01430205	11.00000	0.00000	L 14
TR1	R1					AP											01430206	0.00000	0.00000	L 15
TR1	R1					AP											01430207	11.00000	0.00000	L 16
TR1	R1					AP											01430208	11.00000	0.00000	L 17
TR1	R1					AP											01430209	0.00000	0.00000	L 18
TR1	R1					AP											01430210	11.00000	0.00000	L 19
TR1	R1					AP											01430211	0.00000	0.00000	L 20
TR1	R1					AP											01430212	11.00000	0.00000	L 21
TR1	R1					AP											01430213	0.00000	0.00000	L 22
TR1	R1					AP											01430214	0.00000	0.00000	L 23
TR1	R1					AP											01430215	0.00000	0.00000	L 24
TR1	R1					AP											01430216	0.00000	0.28200	L 25
TR1	R1					AP											01430217	0.00000	0.00000	L 26
TR1	R1					AP											01430218	0.00000	0.00000	L 27
TR1	R1					AP											01430219	0.00000	0.00000	L 28
TR1	R1					AP											01430301	0.00000	0.00000	L 29
TR1	R1					AP											01430302	11.00000	0.00000	L 30
TR1	R1					AP											01430303	0.00000	0.00000	L 31
TR1	R1					AP											01430304	0.00000	0.00000	L 32
TR1	R1					AP											01430305	0.00000	0.00000	L 33
TR1	R1					AP											01430306	0.00000	0.00000	L 34
TR1	R1					AP											01430307	0.00000	0.00000	L 35
TR1	R1					AP											01430308	0.00000	0.00000	L 36
TR1	R1					AP											01430309	0.00000	0.00000	L 37
TR1	R1					AP											01430310	0.00000	0.00000	L 38
TR1	R1					AP											01430311	0.00000	0.00000	L 39
TR1	R1					AP											01430312	11.00000	0.00000	L 40
TR1	R1					AP											01430313	0.00000	0.00000	L 41
TR1	R1					AP											01430314	11.00000	0.00000	L 42
TR1	R1					AP											01430315	0.00000	0.00000	L 43
TR1	R1					AP											01430316	11.00000	0.00000	L 44
TR1	R1					AP											01430317	0.00000	0.00000	L 45
TR1	R1					AP											01430401	0.00000	0.00000	L 46
TR1	R1					AP											01430402	11.00000	0.00000	L 47
TR1	R1					AP											01430403	0.00000	0.00000	L 48
TR1	R1					AP											01430404	0.00000	0.00000	L 49

TR1	R1					AP											01430405	0.00000	0.00000	L 50
TR1	R1					AP											01430406	11.00000	0.00000	L 51
TR1	R1					AP											01430407	0.00000	0.00000	L 52
TR1	R1					AP											01430408	0.00000	0.00000	L 53
TA	FR-160					AP											01431001	11.00000	38.75000	SEC 22 12 17
TA	FR-160					AP											01431005	0.00000	3.57000	SEC 22 12 17
TA	FR-160					AP											01431006	0.00000	0.94800	SEC 22 12 17
TA	FR-160					AP											01431007	11.00000	9.12000	SEC 22 12 17
TA	FR-160					AP											01431008	0.00000	1.20000	SEC 22 12 17
TA	FR-160					AP											01431009	0.00000	3.40000	SEC 22 12 17
TA	FR-160					AP											01431011	11.00000	4.56000	SEC 22 12 17
TA	FR-160					AP											01431012	0.00000	4.56000	SEC 22 12 17
TA	FR-160					AP											01431017	0.00000	4.61000	SEC 22 12 17
TA	FR-160					AP											01431018	0.00000	4.70000	SEC 22 12 17
TR1	R1					AP											01432101	0.00000	0.00000	L 54
TR1	R1					AP											01432102	0.00000	0.00000	L 55
TR1	R1					AP											01432103	11.00000	0.00000	L 56
TR1	R1					AP											01432104	0.00000	0.00000	L 57
TR1	R1					AP											01432105	0.00000	0.00000	L 58
TR1	R1					AP											01432106	0.00000	0.38900	L 59
TR1	R1					AP											01432107	0.00000	0.00000	L 60
TR1	R1					AP											01432108	0.00000	0.00000	L 61
TR1	R1					AP											01432109	0.00000	0.00000	L 62
TR1	R1					AP											01432110	0.00000	0.00000	L 63
TR1	R1					AP											01432111	0.00000	0.00000	L 64
TR1	R1					AP											01432201	0.00000	0.24000	L 65
TR1	R1					AP											01432202	0.00000	0.00000	L 66
TR1	R1					AP											01432203	0.00000	0.00000	L 67
TR1	R1					AP											01432204	0.00000	0.23100	L 68
TR1	R1					AP											01432205	0.00000	0.00000	L 69
TR1	R1					AP											01432206	0.00000	0.00000	L 70
TR1	R1					AP											01432207	0.00000	0.00000	L 71
TR1	R1					AP											01432208	0.00000	0.00000	L 72
TR1	R1					AP											01432209	0.00000	0.00000	L 73
TR1	R1					AP											01432210	0.00000	0.00000	L 74
TR1	R1					AP											01432211	0.00000	0.00000	L 75
TR1	R1					AP											01432212	0.00000	0.00000	L 76
TR1	R1					AP											01432213	0.00000	0.00000	L 77
TR1	R1					AP											01432214	0.00000	0.00000	L 78
TR1	R1					AP											01432215	0.00000	0.00000	L 79
TR1	R1					AP											01432216	11.00000	0.00000	L 80
TR1	R1					AP											01432217	0.00000	0.00000	L 81
TR1	R1					AP											01432218	0.00000	0.33900	L 82
TR1	R1					AP											01432219	0.00000	0.00000	L 83
TR1	R1					AP											01432220	0.00000	0.00000	L 84
TR1	R1					AP											01432221	11.00000	0.00000	L 85

TR1	R1					AP											01432301	0.00000	0.00000	L 86
TR1	R1					AP											01432302	11.00000	0.00000	L 87
TR1	R1					AP											01432303	0.00000	0.00000	L 88
TR1	R1					AP											01432304	0.00000	0.00000	L 89
TR1	R1					AP											01432401	0.00000	0.00000	L 90
TR1	R1					AP											01432404	11.00000	0.00000	L 93
TR1	R1					AP											01432405	0.00000	0.23100	L 94
TR1	R1					AP											01432406	0.00000	0.00000	L 95
TR1	R1					AP											01432407	0.00000	0.00000	L 96
TR1	R1					AP											01432408	0.00000	0.46300	LOT 91 & 92
TR1	R1					AP											01433101	11.00000	0.00000	L 30
TR1	R1					AP											01433102	11.00000	0.00000	L 31
TR1	R1					AP											01433103	0.00000	0.00000	L 32
TR1	R1					AP											01433104	0.00000	0.22700	L 33
TR1	R1					AP											01433105	0.00000	0.00000	L 34
TR1	R1					AP											01433106	0.00000	0.00000	L 35
TR1	R1					AP											01433107	0.00000	0.00000	L 36
TR1	R1					AP											01433108	0.00000	0.00000	L 37
TR1	R1					AP											01433109	0.00000	0.00000	L 38
TR1	R1					AP											01433110	0.00000	0.00000	L 39
TR1	R1					AP											01433201	0.00000	0.00000	L 18
TR1	R1					AP											01433202	0.00000	0.23000	L 19
TR1	R1					AP											01433203	0.00000	0.00000	L 20
TR1	R1					AP											01433204	0.00000	0.22900	L 21
TR1	R1					AP											01433205	0.00000	0.00000	L 22
TR1	R1					AP											01433206	0.00000	0.00000	L 23
TR1	R1					AP											01433207	0.00000	0.00000	L 24
TR1	R1					AP											01433208	0.00000	0.00000	L 25
TR1	R1					AP											01433209	0.00000	0.23400	L 26
TR1	R1					AP											01433210	0.00000	0.00000	L 27
TR1	R1					AP											01433211	0.00000	0.00000	L 28
TR1	R1					AP											01433212	11.00000	0.00000	L 29
TR1	R1					AP											01434101	0.00000	0.00000	L 40
TR1	R1					AP											01434102	0.00000	0.23000	L 41
TR1	R1					AP											01434103	0.00000	0.23000	L 42
TR1	R1					AP											01434104	0.00000	0.00000	L 43
TR1	R1					AP											01434105	0.00000	0.00000	L 44
TR1	R1					AP											01434106	11.00000	0.00000	L 45
TR1	R1					AP											01434201	0.00000	0.00000	L 12
TR1	R1					AP											01434202	0.00000	0.00000	L 13
TR1	R1					AP											01434203	0.00000	0.00000	L 14
TR1	R1					AP											01434204	0.00000	0.00000	L 15
TR1	R1					AP											01434205	0.00000	0.00000	L 16
TR1	R1					AP											01434206	0.00000	0.00000	L 17
TR1	R1					AP											01434301	0.00000	0.00000	L 6
TR1	R1					AP											01434302	0.00000	0.00000	L 7

TR1	R1					AP											01434303	0.00000	0.00000	L 8
TR1	R1					AP											01434304	11.00000	0.00000	L 9
TR1	R1					AP											01434305	0.00000	0.00000	L 10
TR1	R1					AP											01434306	0.00000	0.00000	L 11
TR1	R1					AP											01435101	0.00000	0.00000	L 46
TR1	R1					AP											01435102	0.00000	0.00000	L 47
TR1	R1					AP											01435103	0.00000	0.00000	L 48
TR1	R1					AP											01435104	0.00000	0.00000	L 49
TR1	R1					AP											01435105	0.00000	0.00000	L 50
TR1	R1					AP											01435106	0.00000	0.00000	L 51
TR1	R1					AP											01435107	11.00000	0.00000	L 52
TR1	R1					AP											01435108	0.00000	0.00000	L 53
TR1	R1					AP											01435109	0.00000	0.00000	L 54
TR1	R1					AP											01435201	0.00000	0.00000	L 1
TR1	R1					AP											01435202	0.00000	0.00000	L 2
TR1	R1					AP											01435203	0.00000	0.00000	L 3
TR1	R1					AP											01435204	0.00000	0.00000	L 4
TR1	R1					AP											01435205	0.00000	0.00000	L 5
TA	FR-160					AP											01501219	11.00000	89.66000	SEC 16&17 14 17
TA	FR-160					AP											01501219	11.00000	89.66000	SEC 16&17 14 17
CP	CC					AP											01501226	11.00000	4.00000	SEC 17 14 17
TA	FR-160					AP											01502002	11.00000	268.84000	SEC 16&17 14 17
TR1	R1					AP											01503103	0.00000	0.00000	L 12 13 B 5
TR1	R1					AP											01503105	0.00000	0.00000	L 7 B 5
TR1	R1					AP											01503106	0.00000	0.00000	L 6 B 5
TR1	R1					AP											01503107	0.00000	0.14300	L 5 B 5
TR1	R1					AP											01503108	0.00000	0.28000	RS 32/23 L3&4 B5
TR1	R1					AP											01503109	0.00000	0.00000	POR L 1 2 BLK 5
TR1	R1					AP											01503110	0.00000	0.00000	POR L 1 2 BLK 5
TR1	R1					AP											01503112	0.00000	0.00000	L16 S1/2 L17 B 5
TR1	R1					AP											01503113	0.00000	0.14300	L 8 B 5
TR1	R1					AP											01503115	0.00000	0.00000	L 11 B 5
TR1	R1					AP											01503116	0.00000	0.00000	L 14 B 5
TR1	R1					AP											01503117	0.00000	0.00000	L 15 B 5
TR1	R1					AP											01503118	0.00000	0.00000	POR B 5
TR1	R1					AP											01503119	0.00000	0.00000	POR L 17&18 B 5
TR1	R1					AP											01503120	0.00000	0.14000	L 9 B 5
TR1	R1					AP											01503121	0.00000	0.00000	L 10
TR1	R1					AP											01503203	0.00000	0.00000	L 16 B 4
TR1	R1					AP											01503204	0.00000	0.00000	L 15 B 4
TR1	R1					AP											01503205	0.00000	0.00000	L 14 B 4
TR1	R1					AP											01503208	0.00000	0.14300	L 11 B 4
TR1	R1					AP											01503213	0.00000	0.00000	POR B 4
TR1	R1					AP											01503214	0.00000	0.00000	L 6 POR L 7 B4
TR1	R1					AP											01503218	0.00000	0.14300	L 12 B 4
TR1	R1					AP											01503219	0.00000	0.00000	L 13 B 4

TR1	R1					AP											01503220	0.00000	0.00000	L 9 B 4
TR1	R1					AP											01503221	0.00000	0.00000	L 10 B 4
TR1	R1					AP											01503222	0.00000	0.00000	L 5 B 4
TR1	R1					AP											01503223	0.00000	0.00000	L 3 & 4 B 4
TR1	R1					AP											01503224	0.00000	0.14000	L 1 B 4
TR1	R1					AP											01503225	0.00000	0.14000	L 2 B 4
TR1	R1					AP											01503226	0.00000	0.14300	RS 30/15 L17 B4
TR1	R1					AP											01503228	0.00000	0.14300	L 20 B 4
TR1	R1					AP											01503229	0.00000	0.28700	L 18&19 B 4
TR1	R1					AP											01503303	11.00000	0.00000	L 12 BLK 3
TR1	R1					AP											01503304	11.00000	0.00000	L 11 BLK 3
TR1	R1					AP											01503305	11.00000	0.00000	L 10 BLK 3
TR1	R1					AP											01503306	0.00000	0.00000	L 9 B 3
TR1	R1					AP											01503307	0.00000	0.14300	L 8 B 3
TR1	R1					AP											01503308	0.00000	0.00000	L 7 B 3
TR1	R1					AP											01503309	0.00000	0.00000	L 5 B 3
TR1	R1					AP											01503311	0.00000	0.14300	L 6 B 3
TR1	R1					AP											01503314	0.00000	0.00000	POR L 1 & 2 BL 3
TR1	R1					AP											01503315	0.00000	0.00000	POR L 1 & 2 BL 3
TR1	R1					AP											01503316	0.00000	0.00000	POR B 3
TR1	R1					AP											01503317	0.00000	0.00000	POR B 3
TR1	R1					AP											01503319	0.00000	0.00000	L 14 B 3
TR1	R1					AP											01503320	0.00000	0.00000	L 13 B 3
TR1	R1					AP											01503321	0.00000	0.00000	L 15 B 3
TR1	R1					AP											01503323	0.00000	0.00000	L 16 B 3
TR1	R1					AP											01503324	0.00000	0.00000	L 17 B 3
TR1	R1					AP											01503325	0.00000	0.00000	L 18 B 3
TR1	R1					AP											01503326	0.00000	0.00000	L 3 B 3
TR1	R1					AP											01503327	0.00000	0.00000	L 4 B 3
TR1	R1					AP											01503402	0.00000	0.00000	L 18 B 2
TR1	R1					AP											01503403	0.00000	0.00000	L 17 B 2
TR1	R1					AP											01503404	0.00000	0.00000	L 16 B 2
TR1	R1					AP											01503405	0.00000	0.00000	L 15 B 2
TR1	R1					AP											01503406	0.00000	0.00000	L 14 B 2
TR1	R1					AP											01503407	0.00000	0.00000	L 13 B 2
TR1	R1					AP											01503409	0.00000	0.00000	L 10 B 2
TR1	R1					AP											01503410	0.00000	0.00000	L 9 B 2
TR1	R1					AP											01503412	0.00000	0.00000	L 6 B 2
TR1	R1					AP											01503413	0.00000	0.00000	L 5 B 2
TR1	R1					AP											01503414	0.00000	0.00000	L 4 B 2
TR1	R1					AP											01503415	0.00000	0.00000	L 3 B 2
TR1	R1					AP											01503417	0.00000	0.00000	RS 25/89
TR1	R1					AP											01503419	0.00000	0.00000	L 19 & 20 B 2
TR1	R1					AP											01503420	0.00000	0.06900	POR B 2
TR1	R1					AP											01503421	0.00000	0.00000	POR L 1&2 B 2
TR1	R1					AP											01503422	0.00000	0.00000	POR L 1&2 B 2

TR1	R1					AP											01503423	0.00000	0.00000	L 11 B 2
TR1	R1					AP											01503424	0.00000	0.00000	L 12 B 2
TR1	R1					AP											01503425	0.00000	0.00000	L 8 B 2
TR1	R1					AP											01503426	0.00000	0.14300	L 7 B 2
TR1	R1					AP											01503501	0.00000	0.20300	POR L 1 BL 1
TR1	R1					AP											01503502	11.00000	0.00000	SEC 17 14 17
TR1	R1					AP											01503503	0.00000	0.00000	POR L 1 BL 1
TR1	R1					AP											01503504	0.00000	0.00000	L 2 B 1
TR1	R1					AP											01506105	0.00000	0.00000	L 7 B 10
TR1	R1					AP											01506108	0.00000	0.00000	L 4 B 10
TR1	R1					AP											01506110	0.00000	0.14300	L 17 B 10
TR1	R1					AP											01506113	0.00000	0.00000	RS 30/115 L14-16
TR1	R1					AP											01506114	0.00000	0.00000	L 20 B 10
TR1	R1					AP											01506115	0.00000	0.00000	L 3 B 10
TR1	R1					AP											01506116	0.00000	0.00000	L 1 B 10
TR1	R1					AP											01506117	0.00000	0.00000	L 2 B 10
TR1	R1					AP											01506118	0.00000	0.00000	L 19 B 10
TR1	R1					AP											01506119	0.00000	0.00000	L 18 B 10
TR1	R1					AP											01506121	0.00000	0.00000	L 12 B 10
TR1	R1					AP											01506122	0.00000	0.00000	L 11 B 10
TR1	R1					AP											01506123	0.00000	0.00000	L 10 B 10
TR1	R1					AP											01506124	0.00000	0.00000	L 13 B 10
TR1	R1					AP											01506125	0.00000	0.14300	L 9 B 10
TR1	R1					AP											01506126	0.00000	0.00000	L 8 B 10
TR1	R1					AP											01506127	0.00000	0.00000	LOT 5&LOT 6B10
TR1	R1					AP											01506206	0.00000	0.00000	L 7 B 9
TR1	R1					AP											01506208	0.00000	0.00000	L 3 4 B 9
TR1	R1					AP											01506209	0.00000	0.14300	L 2 B 9
TR1	R1					AP											01506210	0.00000	0.00000	L 1 B 9
TR1	R1					AP											01506211	0.00000	0.00000	L 18 B 9
TR1	R1					AP											01506212	0.00000	0.00000	L 17 B 9
TR1	R1					AP											01506213	0.00000	0.00000	L 8 B 9
TR1	R1					AP											01506214	0.00000	0.14300	L 9 B 9
TR1	R1					AP											01506216	0.00000	0.14300	L 13 B 9
TR1	R1					AP											01506217	0.00000	0.00000	L 14 B 9
TR1	R1					AP											01506218	0.00000	0.00000	L 10 B 9
TR1	R1					AP											01506220	0.00000	0.00000	L 5 B 9
TR1	R1					AP											01506221	0.00000	0.00000	L 16 B 9
TR1	R1					AP											01506222	0.00000	0.14300	L 15 B 9
TR1	R1					AP											01506223	0.00000	0.00000	L 6 B 9
TR1	R1					AP											01506224	0.00000	0.00000	L 20 B 9
TR1	R1					AP											01506225	0.00000	0.00000	L 19 B 9
TR1	R1					AP											01506226	0.00000	0.14300	LOT 11 & 12
TR1	R1					AP											01506301	0.00000	0.00000	L 20 B 8
TR1	R1					AP											01506302	0.00000	0.00000	L 18 19 B 8
TR1	R1					AP											01506304	0.00000	0.00000	L 10 B 8

TR1	R1					AP											01506305	0.00000	0.00000	L 9 B 8
TR1	R1					AP											01506306	0.00000	0.14300	L 8 B 8
TR1	R1					AP											01506307	11.00000	0.00000	L 7 BLK 8
TR1	R1					AP											01506308	0.00000	0.00000	L 6 B 8
TR1	R1					AP											01506309	11.00000	0.00000	L 5 BLK 8
TR1	R1					AP											01506310	0.00000	0.00000	L 3 4 B 8
TR1	R1					AP											01506314	0.00000	0.00000	L 17 B 8
TR1	R1					AP											01506315	0.00000	0.00000	L 16 B 8
TR1	R1					AP											01506316	0.00000	0.00000	L 15 B 8
TR1	R1					AP											01506317	0.00000	0.00000	L 12 13 14 B 8
TR1	R1					AP											01506318	11.00000	0.00000	L 11 BLK 8
TR1	R1					AP											01506319	0.00000	0.00000	L 1 B 8
TR1	R1					AP											01506320	0.00000	0.14300	RS 29/122 L2 B8
TR1	R1					AP											01506401	0.00000	0.00000	L 20 B 7
TR1	R1					AP											01506402	0.00000	0.00000	L 19 B 7
TR1	R1					AP											01506403	0.00000	0.00000	L 18 B 7
TR1	R1					AP											01506404	0.00000	0.00000	L 17 B 7
TR1	R1					AP											01506406	0.00000	0.00000	L 14 B 7
TR1	R1					AP											01506407	0.00000	0.00000	L 13 B 7
TR1	R1					AP											01506408	0.00000	0.00000	L 12 B 7
TR1	R1					AP											01506409	0.00000	0.14300	L 11 B 7
TR1	R1					AP											01506411	0.00000	0.14300	RS 30/21 L4 B7
TR1	R1					AP											01506413	0.00000	0.00000	L 15 B 7
TR1	R1					AP											01506414	0.00000	0.00000	L 16 B 7
TR1	R1					AP											01506416	0.00000	0.00000	L 5 B 7
TR1	R1					AP											01506420	0.00000	0.00000	L 6 B 7
TR1	R1					AP											01506421	0.00000	0.00000	L 3 B 7
TR1	R1					AP											01506423	0.00000	0.00000	L 7 B 7
TR1	R1					AP											01506424	0.00000	0.00000	L 9 10 B 7
TR1	R1					AP											01506425	0.00000	0.14300	RS 30/21 L8 B7
TR1	R1					AP											01506426	0.00000	0.00000	L 1 & 2 B 7
TR1	R1					AP											01506501	0.00000	0.00000	L 1 B 6
TR1	R1					AP											01506503	0.00000	0.24400	POR LOT 2 BLK 6
TR1	R1					AP											01506504	11.00000	0.00000	POR LOT 2 BLK 6
TR1	R1					AP											01510101	0.00000	0.00000	L 20 B 18
TR1	R1					AP											01510102	0.00000	0.00000	L 19 B 18
TR1	R1					AP											01510103	11.00000	0.00000	L 18 BLK 18
TR1	R1					AP											01510104	0.00000	0.14300	L 17 B 18
TR1	R1					AP											01510106	0.00000	0.14300	L 1 B 18
TR1	R1					AP											01510107	0.00000	0.00000	L 16 B 18
TR1	R1					AP											01510108	0.00000	0.00000	L 5 RS 27/147
TR1	R1					AP											01510109	0.00000	0.14300	L 15 B 18
TR1	R1					AP											01510112	0.00000	0.14300	L 12 B 18
TR1	R1					AP											01510113	0.00000	0.00000	L 11 B 18
TR1	R1					AP											01510114	0.00000	0.00000	L 10 B 18
TR1	R1					AP											01510115	0.00000	0.00000	L 9 B 18

TR1	R1					AP											01510116	11.00000	0.00000	L 8 BLK 18
TR1	R1					AP											01510117	0.00000	0.00000	L 7 B 18
TR1	R1					AP											01510118	0.00000	0.00000	L 6 B 18
TR1	R1					AP											01510119	0.00000	0.00000	L 4 B 18
TR1	R1					AP											01510120	0.00000	0.00000	L 3 B 18
TR1	R1					AP											01510121	0.00000	0.00000	L 2 B 18
TR1	R1					AP											01510122	0.00000	0.00000	P L 13&14 B 18
TR1	R1					AP											01510123	0.00000	0.00000	P L 13&14 B 18
TR1	R1					AP											01510206	0.00000	0.00000	L 8 B 17
TR1	R1					AP											01510207	0.00000	0.00000	L 9 B 17
TR1	R1					AP											01510208	0.00000	0.00000	L 10 B 17
TR1	R1					AP											01510209	0.00000	0.00000	L 11 B 17
TR1	R1					AP											01510210	0.00000	0.00000	L 12 B 17
TR1	R1					AP											01510211	0.00000	0.00000	L 13 B 17
TR1	R1					AP											01510212	0.00000	0.00000	L 14 B 17
TR1	R1					AP											01510213	0.00000	0.00000	L 15 B 17
TR1	R1					AP											01510216	11.00000	0.00000	L 3 BLK 17
TR1	R1					AP											01510221	11.00000	0.00000	L 6 BLK 17
TR1	R1					AP											01510222	0.00000	0.00000	L 7 B 17
TR1	R1					AP											01510223	0.00000	0.14300	L 1 B 17
TR1	R1					AP											01510224	0.00000	0.14300	L 2 B 17
TR1	R1					AP											01510225	0.00000	0.21500	POR B 17
TR1	R1					AP											01510226	0.00000	0.00000	POR B 17
TR1	R1					AP											01510227	0.00000	0.00000	L 19 B 17
TR1	R1					AP											01510228	0.00000	0.00000	L 20 B 17
TR1	R1					AP											01510229	11.00000	0.00000	POR LOT 5 BLK 17
TR1	R1					AP											01510231	0.00000	0.18900	LOT 4 & POR LOT5
TR1	R1					AP											01510304	0.00000	0.00000	L 10 B 16
TR1	R1					AP											01510305	0.00000	0.00000	L 9 B 16
TR1	R1					AP											01510306	0.00000	0.14300	L 8 B 16
TR1	R1					AP											01510307	0.00000	0.00000	L 7 B 16
TR1	R1					AP											01510308	0.00000	0.00000	L 5 B 16
TR1	R1					AP											01510310	0.00000	0.00000	L 1 B 16
TR1	R1					AP											01510311	0.00000	0.14300	L 2 B 16
TR1	R1					AP											01510312	0.00000	0.00000	L 11 B 16
TR1	R1					AP											01510313	0.00000	0.00000	L 6 B 16
TR1	R1					AP											01510316	0.00000	0.00000	L 14 B 16
TR1	R1					AP											01510317	0.00000	0.14300	L 15 B 16
TR1	R1					AP											01510318	0.00000	0.00000	L 16 B 16
TR1	R1					AP											01510321	0.00000	0.00000	L 3 B 16
TR1	R1					AP											01510322	0.00000	0.00000	L 4 B 16
TR1	R1					AP											01510323	11.00000	0.00000	LOT 18 BLK 16
TR1	R1					AP											01510324	11.00000	0.00000	LOT 17 BLK 16
TR1	R1					AP											01510329	0.00000	0.14300	PM 43/91/1
TR1	R1					AP											01510330	0.00000	0.14300	PM 43/91/2
TR1	R1					AP											01510331	0.00000	0.00000	L 12 & 13 B 16

TR1	R1					AP											01510402	0.00000	0.00000	L 18 B 15
TR1	R1					AP											01510403	0.00000	0.00000	L 17 B 15
TR1	R1					AP											01510404	0.00000	0.00000	L 16 B 15
TR1	R1					AP											01510407	0.00000	0.00000	L 7 B 15
TR1	R1					AP											01510408	0.00000	0.14300	L 6 B 15
TR1	R1					AP											01510409	0.00000	0.00000	L 3 4 5 B 15
TR1	R1					AP											01510410	0.00000	0.00000	L 2 B 15
TR1	R1					AP											01510411	0.00000	0.00000	L 1 B 15
TR1	R1					AP											01510412	0.00000	0.00000	L 11 B 15
TR1	R1					AP											01510413	0.00000	0.00000	RS 31/140 L12B15
TR1	R1					AP											01510414	0.00000	0.00000	L 13 B 15
TR1	R1					AP											01510415	0.00000	0.14300	L 14 B 15
TR1	R1					AP											01510416	0.00000	0.00000	L 15 B 15
TR1	R1					AP											01510417	0.00000	0.00000	L 19 B 15
TR1	R1					AP											01510418	0.00000	0.00000	L 20 B 15
TR1	R1					AP											01510420	0.00000	0.14200	RS 30/3/1
TR1	R1					AP											01510421	0.00000	0.00000	L 9 B 15
TR1	R1					AP											01510422	0.00000	0.00000	L 10 B 15
TR1	R1					AP											01511103	0.00000	0.32400	RS 30/55 L1 B11
TR1	R1					AP											01511104	0.00000	0.45700	SEC 17 14 17
TR1	R1					AP											01511204	0.00000	0.00000	L 3 B 14
TR1	R1					AP											01511205	11.00000	0.00000	L 4 BLK 14
TR1	R1					AP											01511206	11.00000	0.00000	L 5 BLK 14
TR1	R1					AP											01511207	0.00000	0.00000	L 6 B 14
TR1	R1					AP											01511208	0.00000	0.00000	L 7 B 14
TR1	R1					AP											01511209	0.00000	0.14300	L 8 B 14
TR1	R1					AP											01511210	0.00000	0.00000	L 9 B 14
TR1	R1					AP											01511211	0.00000	0.00000	L 10 B 14
TR1	R1					AP											01511213	0.00000	0.00000	L 1 B 14
TR1	R1					AP											01511214	0.00000	0.00000	L 2 B 14
TR1	R1					AP											01511301	0.00000	0.00000	L 10 B 13
TR1	R1					AP											01511302	11.00000	0.00000	L 9 BLK 13
TR1	R1					AP											01511303	0.00000	0.00000	L 8 B 13
TR1	R1					AP											01511304	0.00000	0.00000	L 7 B 13
TR1	R1					AP											01511305	11.00000	0.00000	L 6 B 13
TR1	R1					AP											01511306	11.00000	0.00000	L 5 BLK 13
TR1	R1					AP											01511307	11.00000	0.00000	L 4 BLK 13
TR1	R1					AP											01511308	11.00000	0.00000	L 3 BLK 13
TR1	R1					AP											01511311	11.00000	0.00000	POR B 13
TR1	R1					AP											01511312	11.00000	0.00000	POR B 13
TR1	R1					AP											01511402	0.00000	0.00000	L 2 B 12
TR1	R1					AP											01511405	0.00000	0.00000	L 5 B 12
TR1	R1					AP											01511406	0.00000	0.00000	L 1 B 12
TR1	R1					AP											01511407	0.00000	0.00000	LOTS 3 & 4
TR1	R1					AP											01515102	0.00000	0.00000	L 17 18 B 25
TR1	R1					AP											01515104	0.00000	0.00000	L 14 B 25

TR1	R1					AP											01515107	0.00000	0.00000	L 2 3 B 25
TR1	R1					AP											01515108	0.00000	0.00000	L 1 B 25
TR1	R1					AP											01515109	0.00000	0.00000	L 6 B 25
TR1	R1					AP											01515110	0.00000	0.14300	L 7 B 25
TR1	R1					AP											01515111	0.00000	0.00000	L 8 B 25
TR1	R1					AP											01515114	0.00000	0.00000	L 11 B 25
TR1	R1					AP											01515115	0.00000	0.00000	L 12 B 25
TR1	R1					AP											01515116	0.00000	0.00000	L 13 B 25
TR1	R1					AP											01515117	0.00000	0.00000	L 16 B 25
TR1	R1					AP											01515118	0.00000	0.14300	L 15 B 25
TR1	R1					AP											01515119	0.00000	0.00000	L 20 B 25
TR1	R1					AP											01515120	0.00000	0.00000	L 19 B 25
TR1	R1					AP											01515121	0.00000	0.00000	LOTS 9 & 10 B 25
TR1	R1					AP											01515122	0.00000	0.00000	LOT 4 & 5 B 1
TR1	R1					AP											01515201	0.00000	0.14300	L 18 B 24
TR1	R1					AP											01515203	0.00000	0.00000	L 5 B 24
TR1	R1					AP											01515205	0.00000	0.14300	L 2 B 24
TR1	R1					AP											01515206	0.00000	0.00000	L 1 B 24
TR1	R1					AP											01515207	0.00000	0.00000	L 20 B 24
TR1	R1					AP											01515208	0.00000	0.00000	L 19 B 24
TR1	R1					AP											01515209	0.00000	0.14300	L 17 B 24
TR1	R1					AP											01515210	0.00000	0.00000	L 16 B 24
TR1	R1					AP											01515211	0.00000	0.00000	L 15 B 24
TR1	R1					AP											01515212	0.00000	0.00000	L 14 B 24
TR1	R1					AP											01515213	0.00000	0.00000	L 13 B 24
TR1	R1					AP											01515214	0.00000	0.00000	L 12 B 24
TR1	R1					AP											01515215	0.00000	0.00000	L 11 B 24
TR1	R1					AP											01515216	0.00000	0.00000	L 10 B 24
TR1	R1					AP											01515217	0.00000	0.14300	L 3 B 24
TR1	R1					AP											01515218	0.00000	0.00000	L 4 B 24
TR1	R1					AP											01515219	0.00000	0.00000	L 6 B 24
TR1	R1					AP											01515220	0.00000	0.00000	L 8 B 24
TR1	R1					AP											01515221	0.00000	0.00000	L 9 B 24
TR1	R1					AP											01515222	0.00000	0.14300	L 7 B 24
TR1	R1					AP											01515301	0.00000	0.00000	L 16 B 23
TR1	R1					AP											01515302	0.00000	0.00000	L 11 B 23
TR1	R1					AP											01515303	0.00000	0.00000	L 10 B 23
TR1	R1					AP											01515304	11.00000	0.00000	L 9 BLK 23
TR1	R1					AP											01515305	0.00000	0.28700	L 7 8 B 23
TR1	R1					AP											01515307	0.00000	0.00000	L 4 B 23
TR1	R1					AP											01515308	0.00000	0.00000	L 3 B 23
TR1	R1					AP											01515309	0.00000	0.14000	RS 29/54 L2 B23
TR1	R1					AP											01515310	0.00000	0.00000	L 1 B 23
TR1	R1					AP											01515311	0.00000	0.00000	L 20 B 23
TR1	R1					AP											01515312	0.00000	0.00000	L 19 B 23
TR1	R1					AP											01515313	11.00000	0.00000	L 18 BLK 23

TR1	R1					AP											01515314	0.00000	0.00000	L 17 B 23
TR1	R1					AP											01515315	0.00000	0.00000	L 15 B 23
TR1	R1					AP											01515316	0.00000	0.00000	L 14 B 23
TR1	R1					AP											01515317	0.00000	0.00000	L 13 B 23
TR1	R1					AP											01515318	0.00000	0.00000	L 12 B 23
TR1	R1					AP											01515319	11.00000	0.00000	LOT 5 BLK 23
TR1	R1					AP											01515320	11.00000	0.00000	LOT 6 BLK 23
TR1	R1					AP											01515402	0.00000	0.14300	L 17 B 22
TR1	R1					AP											01515404	0.00000	0.00000	L 15 B 22
TR1	R1					AP											01515406	11.00000	0.00000	L 11 BLK 22
TR1	R1					AP											01515408	0.00000	0.00000	L 4 B 22
TR1	R1					AP											01515409	0.00000	0.00000	L 3 B 22
TR1	R1					AP											01515410	0.00000	0.00000	L 2 B 22
TR1	R1					AP											01515411	0.00000	0.14300	RS 28/115 L1 B22
TR1	R1					AP											01515412	0.00000	0.00000	L 7 B 22
TR1	R1					AP											01515413	0.00000	0.14300	L 8 B 22
TR1	R1					AP											01515414	11.00000	0.00000	L 9 B 22
TR1	R1					AP											01515415	0.00000	0.00000	L 10 B 22
TR1	R1					AP											01515416	0.00000	0.00000	L 20 B 22
TR1	R1					AP											01515417	0.00000	0.00000	L 19 B 22
TR1	R1					AP											01515418	0.00000	0.00000	L 18 B 22
TR1	R1					AP											01515419	0.00000	0.00000	L 16 B 22
TR1	R1					AP											01515421	0.00000	0.00000	L 12 B 22
TR1	R1					AP											01515422	0.00000	0.00000	L 14 B 22
TR1	R1					AP											01515423	0.00000	0.14300	L 13 B 22
TR1	R1					AP											01515424	0.00000	0.29000	PM 25/99/A
TR1	R1					AP											01516101	11.00000	0.00000	L 20 BLK 21
TR1	R1					AP											01516102	0.00000	0.00000	L 19 B 21
TR1	R1					AP											01516103	0.00000	0.00000	L 18 B 21
TR1	R1					AP											01516104	11.00000	0.00000	L 6 B 21
TR1	R1					AP											01516105	0.00000	0.00000	L 1 B 21
TR1	R1					AP											01516106	11.00000	0.00000	L 2 B 21
TR1	R1					AP											01516107	11.00000	0.00000	L 3 BLK 21
TR1	R1					AP											01516108	11.00000	0.00000	L 4 BLK 21
TR1	R1					AP											01516109	11.00000	0.00000	L 5 BLK 21
TR1	R1					AP											01516110	11.00000	0.00000	L 7 BLK 21
TR1	R1					AP											01516111	11.00000	0.00000	L 8 BLK 21
TR1	R1					AP											01516112	0.00000	0.00000	L 9 B 21
TR1	R1					AP											01516113	0.00000	0.00000	L 10 B 21
TR1	R1					AP											01516114	0.00000	0.00000	L 11 B 21
TR1	R1					AP											01516115	11.00000	0.00000	L 12 BLK 21
TR1	R1					AP											01516116	0.00000	0.14300	RS 31/55/1
TR1	R1					AP											01516117	0.00000	0.00000	L 14 B 21
TR1	R1					AP											01516118	0.00000	0.00000	L 15 B 21
TR1	R1					AP											01516119	0.00000	0.00000	L 16 B 21
TR1	R1					AP											01516120	11.00000	0.00000	L 17 B 21

TR1	R1					AP											01516201	11.00000	0.00000	L 18 BLK 20
TR1	R1					AP											01516205	0.00000	0.00000	L 6 B 20
TR1	R1					AP											01516206	0.00000	0.00000	L 5 B 20
TR1	R1					AP											01516210	0.00000	0.00000	L 11 B 20
TR1	R1					AP											01516211	0.00000	0.14300	L 12 B 20
TR1	R1					AP											01516212	0.00000	0.00000	L 13 B 20
TR1	R1					AP											01516213	0.00000	0.00000	L 14 B 20
TR1	R1					AP											01516214	11.00000	0.00000	L 15 BLK 20
TR1	R1					AP											01516215	0.00000	0.00000	L 16 B 20
TR1	R1					AP											01516216	0.00000	0.00000	L 19 B 20
TR1	R1					AP											01516217	0.00000	0.00000	L 20 B 20
TR1	R1					AP											01516219	0.00000	0.00000	L 17 B 20
TR1	R1					AP											01516220	0.00000	0.00000	L 3 B 20
TR1	R1					AP											01516221	0.00000	0.14300	L 4 B 20
TR1	R1					AP											01516223	0.00000	0.00000	L7,8,9,& 10 B20
TR1	R1					AP											01516224	0.00000	0.28700	LOT 1 & 2 B 20
TR1	R1					AP											01516301	0.00000	0.00000	L 1 B 19
TR1	R1					AP											01516302	0.00000	0.00000	L 2 B 19
TR1	R1					AP											01516303	0.00000	0.00000	L 3 B 19
TR1	R1					AP											01516304	0.00000	0.11500	L 4 B 19
TR1	R1					AP											01516305	0.00000	0.00000	L 5 B 19
TR1	R1					AP											01516306	0.00000	0.00000	L 6 B 19
TR1	R1					AP											01516307	0.00000	0.00000	L 7 B 19
TR1	R1					AP											01516309	0.00000	0.23000	L 9 & 10 B 19
TR1	R1					AP											01516310	0.00000	0.00000	L 8 B 19
TR1	R1					AP											01516401	0.00000	0.00000	L 12 B 26
TR1	R1					AP											01516405	0.00000	0.00000	L 3 B 26
TR1	R1					AP											01516408	0.00000	0.00000	L 11 B 26
TR1	R1					AP											01516409	0.00000	0.00000	L 10 B 26
TR1	R1					AP											01516410	0.00000	0.00000	L 9 B 26
TR1	R1					AP											01516411	0.00000	0.00000	L 7 B 26
TR1	R1					AP											01516412	0.00000	0.00000	L 8 B 26
TR1	R1					AP											01516413	0.00000	0.00000	L 6 B 26
TR1	R1					AP											01516414	0.00000	0.14300	L 5 B 26
TR1	R1					AP											01516415	11.00000	0.00000	LOT 4 BLK 26
TR1	R1					AP											01516416	11.00000	0.00000	LOT 2 BLK 26
TR1	R1					AP											01516417	11.00000	0.00000	LOT 1 BLK 26
TR1	R1					AP											01520103	0.00000	0.14300	L 15 B 35
TR1	R1					AP											01520104	0.00000	0.00000	L 14 B 35
TR1	R1					AP											01520105	0.00000	0.00000	L 4 B 35
TR1	R1					AP											01520107	0.00000	0.00000	L 3 B 35
TR1	R1					AP											01520109	0.00000	0.00000	L 16 B 35
TR1	R1					AP											01520110	0.00000	0.14400	RS 21/45/1
TR1	R1					AP											01520111	0.00000	0.00000	L 6 B 35
TR1	R1					AP											01520112	0.00000	0.14300	L 7 B 35
TR1	R1					AP											01520113	0.00000	0.00000	L 8 B 35

TR1	R1					AP											01520114	11.00000	0.00000	L 9 BLK 35
TR1	R1					AP											01520115	0.00000	0.00000	L 10 B 35
TR1	R1					AP											01520116	0.00000	0.00000	L 11 B 35
TR1	R1					AP											01520117	0.00000	0.00000	L 12 B 35
TR1	R1					AP											01520118	0.00000	0.00000	L 13 B 35
TR1	R1					AP											01520122	0.00000	0.00000	L 17 B 35
TR1	R1					AP											01520123	0.00000	0.00000	L 18 B 35
TR1	R1					AP											01520124	0.00000	0.00000	PM 43/10/1
TR1	R1					AP											01520125	0.00000	0.00000	L 19 B 35
TR1	R1					AP											01520126	0.00000	0.00000	L 20 B 35
TR1	R1					AP											01520201	0.00000	0.00000	L 17 B 34
TR1	R1					AP											01520202	0.00000	0.00000	L 3 B 34
TR1	R1					AP											01520203	0.00000	0.00000	L 2 B 34
TR1	R1					AP											01520204	0.00000	0.00000	L 1 B 34
TR1	R1					AP											01520205	0.00000	0.14000	RS28/116 L20 B34
TR1	R1					AP											01520206	0.00000	0.00000	L 19 B 34
TR1	R1					AP											01520207	0.00000	0.00000	L 18 B 34
TR1	R1					AP											01520208	0.00000	0.00000	L 16 B 34
TR1	R1					AP											01520209	0.00000	0.00000	L 15 B 34
TR1	R1					AP											01520210	11.00000	0.00000	L 14 B 34
TR1	R1					AP											01520211	11.00000	0.00000	L 13 BLK 34
TR1	R1					AP											01520212	0.00000	0.00000	L 12 B 34
TR1	R1					AP											01520213	0.00000	0.00000	L 11 B 34
TR1	R1					AP											01520214	11.00000	0.00000	L 10 BLK 34
TR1	R1					AP											01520215	0.00000	0.00000	RS 32/86 L9 B34
TR1	R1					AP											01520216	11.00000	0.00000	L 8 BLK 34
TR1	R1					AP											01520217	11.00000	0.00000	L 7 BLK 34
TR1	R1					AP											01520218	11.00000	0.00000	L 6 B 34
TR1	R1					AP											01520219	11.00000	0.00000	L 5 B 34
TR1	R1					AP											01520220	11.00000	0.00000	L 4 BLK 34
TR1	R1					AP											01520301	0.00000	0.00000	L 20 B 33
TR1	R1					AP											01520306	0.00000	0.00000	L 7 B 33
TR1	R1					AP											01520307	0.00000	0.00000	L 6 B 33
TR1	R1					AP											01520312	0.00000	0.00000	L 1 B 33
TR1	R1					AP											01520313	11.00000	0.00000	L 15 B 33
TR1	R1					AP											01520316	0.00000	0.00000	L 19 B 33
TR1	R1					AP											01520317	0.00000	0.00000	L 18 B 33
TR1	R1					AP											01520318	0.00000	0.00000	L 8 B 33
TR1	R1					AP											01520319	0.00000	0.00000	L 9 B 33
TR1	R1					AP											01520320	0.00000	0.00000	L 10 B 33
TR1	R1					AP											01520321	11.00000	0.00000	L 11 B 33
TR1	R1					AP											01520325	11.00000	0.00000	L 14 B 33
TR1	R1					AP											01520326	11.00000	0.00000	L 12 B 33
TR1	R1					AP											01520327	11.00000	0.00000	L 13 B 33
TR1	R1					AP											01520328	11.00000	0.00000	L 3 B 33
TR1	R1					AP											01520329	0.00000	0.00000	L 2 B 33

TR1	R1					AP											01520330	11.00000	0.00000	LOT 16 BLK 33
TR1	R1					AP											01520331	11.00000	0.14000	L 17 B 33
TR1	R1					AP											01520333	11.00000	0.00000	POR L 4 B 33
TR1	R1					AP											01520334	0.00000	0.00000	L 5 & POR L4 B33
TR1	R1					AP											01520402	11.00000	0.00000	L 19 BLK 32
TR1	R1					AP											01520403	0.00000	0.14300	RS27/80 L18 B32
TR1	R1					AP											01520404	11.00000	0.00000	L 17 BLK 32
TR1	R1					AP											01520407	0.00000	0.14300	L 11 B 32
TR1	R1					AP											01520408	0.00000	0.14300	L 10 B 32
TR1	R1					AP											01520409	0.00000	0.00000	POR B 32
TR1	R1					AP											01520410	0.00000	0.14300	L 7 B 32
TR1	R1					AP											01520412	11.00000	0.00000	L 3 B 32
TR1	R1					AP											01520413	11.00000	0.00000	L 2 BLK 32
TR1	R1					AP											01520414	0.00000	0.00000	L 12 B 32
TR1	R1					AP											01520415	0.00000	0.00000	L 13 B 32
TR1	R1					AP											01520416	0.00000	0.00000	L 6 B 32
TR1	R1					AP											01520418	11.00000	0.00000	L 20 B 32
TR1	R1					AP											01520419	0.00000	0.00000	L 1 B 32
TR1	R1					AP											01520421	0.00000	0.00000	L 14 B 32
TR1	R1					AP											01520422	0.00000	0.00000	L 4 B 32
TR1	R1					AP											01520423	0.00000	0.00000	L 5 B 32
TR1	R1					AP											01520424	0.00000	0.00000	L 16 B 32
TR1	R1					AP											01520425	0.00000	0.14300	L 15 B 32
TR1	R1					AP											01521101	0.00000	0.00000	L 20 B 31
TR1	R1					AP											01521103	0.00000	0.00000	L 17 B 31
TR1	R1					AP											01521104	0.00000	0.00000	L 16 B 31
TR1	R1					AP											01521105	0.00000	0.28700	POR B 31
TR1	R1					AP											01521106	0.00000	0.00000	RS 30/54 L13 B31
TR1	R1					AP											01521109	0.00000	0.00000	L 10 B 31
TR1	R1					AP											01521110	0.00000	0.00000	L 6 B 31
TR1	R1					AP											01521111	0.00000	0.00000	L 1 B 31
TR1	R1					AP											01521112	0.00000	0.00000	L 2 B 31
TR1	R1					AP											01521113	0.00000	0.00000	L 3 B 31
TR1	R1					AP											01521114	0.00000	0.00000	L 4 B 31
TR1	R1					AP											01521115	0.00000	0.14300	L 5 B 31
TR1	R1					AP											01521116	0.00000	0.00000	L 7 B 31
TR1	R1					AP											01521117	0.00000	0.00000	L 8 B 31
TR1	R1					AP											01521118	0.00000	0.00000	L 9 B 31
TR1	R1					AP											01521119	0.00000	0.00000	L 18 B 31
TR1	R1					AP											01521120	11.00000	0.00000	L 19 BLK 31
TR1	R1					AP											01521122	0.00000	0.14300	L 11 B 31
TR1	R1					AP											01521123	0.00000	0.14300	L 12 B 31
TR1	R1					AP											01521201	0.00000	0.00000	L 20 B 30
TR1	R1					AP											01521203	0.00000	0.00000	L 15 B 30
TR1	R1					AP											01521204	0.00000	0.00000	L 14 B 30
TR1	R1					AP											01521205	0.00000	0.00000	L 13 B 30

TR1	R1					AP											01521207	0.00000	0.00000	L 10 B 30
TR1	R1					AP											01521210	0.00000	0.00000	L 2 B 30
TR1	R1					AP											01521211	0.00000	0.00000	L 1 B 30
TR1	R1					AP											01521212	0.00000	0.00000	L 16 B 30
TR1	R1					AP											01521213	0.00000	0.00000	L 17 B 30
TR1	R1					AP											01521214	0.00000	0.00000	L 18 B 30
TR1	R1					AP											01521215	0.00000	0.00000	L 19 B 30
TR1	R1					AP											01521217	0.00000	0.00000	L 7 B 30
TR1	R1					AP											01521219	0.00000	0.00000	L 3 B 30
TR1	R1					AP											01521220	0.00000	0.00000	POR B 30
TR1	R1					AP											01521221	11.00000	0.00000	POR B 30
TR1	R1					AP											01521222	0.00000	0.00000	L 12 B 30
TR1	R1					AP											01521223	0.00000	0.00000	L 11 B 30
TR1	R1					AP											01521224	0.00000	0.00000	L 8 B 30
TR1	R1					AP											01521225	0.00000	0.00000	L 9 B 30
TR1	R1					AP											01521302	0.00000	0.00000	L 18 B 29
TR1	R1					AP											01521304	0.00000	0.00000	L 1 B 29
TR1	R1					AP											01521305	0.00000	0.00000	L 2 B 29
TR1	R1					AP											01521306	0.00000	0.00000	L 3 B 29
TR1	R1					AP											01521307	0.00000	0.00000	L 4 B 29
TR1	R1					AP											01521308	0.00000	0.00000	L 5 B 29
TR1	R1					AP											01521309	0.00000	0.00000	L 6 B 29
TR1	R1					AP											01521310	0.00000	0.00000	L 7 B 29
TR1	R1					AP											01521311	0.00000	0.00000	L 8 B 29
TR1	R1					AP											01521314	0.00000	0.00000	L 11 B 29
TR1	R1					AP											01521315	0.00000	0.00000	L 12 B 29
TR1	R1					AP											01521316	0.00000	0.00000	L 13 B 29
TR1	R1					AP											01521317	0.00000	0.00000	L 14 B 29
TR1	R1					AP											01521320	0.00000	0.00000	L 19 B 29
TR1	R1					AP											01521321	0.00000	0.00000	RS 26/119
TR1	R1					AP											01521322	0.00000	0.00000	POR L 9&10 B 29
TR1	R1					AP											01521323	0.00000	0.00000	POR L 9&10 B 29
TR1	R1					AP											01521325	0.00000	0.14300	L 15 B 29
TR1	R1					AP											01521326	0.00000	0.00000	L 16 B 29
TR1	R1					AP											01521327	0.00000	0.14300	L 17 B 29
TR1	R1					AP											01521401	11.00000	0.00000	L 20 B 28
TR1	R1					AP											01521404	0.00000	0.14300	L 13 B 28
TR1	R1					AP											01521406	0.00000	0.14300	L 10 B 28
TR1	R1					AP											01521407	0.00000	0.00000	L 9 B 28
TR1	R1					AP											01521408	0.00000	0.00000	L 8 B 28
TR1	R1					AP											01521409	0.00000	0.00000	L 6 B 28
TR1	R1					AP											01521410	11.00000	0.00000	L 3 BLK 28
TR1	R1					AP											01521411	11.00000	0.00000	L 2 BLK 28
TR1	R1					AP											01521412	11.00000	0.00000	L 1 B 28
TR1	R1					AP											01521413	11.00000	0.00000	L 5 BLK 28
TR1	R1					AP											01521414	0.00000	0.14300	L 7 B 28

TR1	R1					AP											01521415	11.00000	0.00000	L 4 BLK 28
TR1	R1					AP											01521417	0.00000	0.00000	L 15 B 28
TR1	R1					AP											01521418	0.00000	0.14300	L 14 B 28
TR1	R1					AP											01521419	0.00000	0.00000	L 16 B 28
TR1	R1					AP											01521420	11.00000	0.00000	L 17 B 28
TR1	R1					AP											01521422	0.00000	0.28600	LOTS 18 & 19 B 4
TR1	R1					AP											01521423	0.00000	0.00000	L 12
TR1	R1					AP											01521424	0.00000	0.00000	L 11
TR1	R1					AP											01521501	0.00000	0.00000	L 1 B 27
TR1	R1					AP											01521502	0.00000	0.00000	L 2 B 27
TR1	R1					AP											01521503	0.00000	0.00000	L 3 B 27
TR1	R1					AP											01521504	0.00000	0.00000	L 4 B 27
TR1	R1					AP											01521505	0.00000	0.17200	L 5 B 27
TR1	R1					AP											01521508	0.00000	0.00000	L 10 B 27
TR1	R1					AP											01521509	0.00000	0.00000	L 6 B 27
TR1	R1					AP											01521510	0.00000	0.00000	L 7 B 27
TR1	R1					AP											01521511	0.00000	0.00000	L 9 B 27
TR1	R1					AP											01521512	0.00000	0.00000	L 8 B 27
TR1	R1					AP											01525101	0.00000	0.00000	L 20 B 44
TR1	R1					AP											01525104	0.00000	0.00000	L 16 B 44
TR1	R1					AP											01525106	0.00000	0.00000	L 14 B 44
TR1	R1					AP											01525107	0.00000	0.00000	L 13 B 44
TR1	R1					AP											01525110	11.00000	0.00000	L 7 BLK 44
TR1	R1					AP											01525112	11.00000	0.00000	L 4 BLK 44
TR1	R1					AP											01525113	0.00000	0.00000	L 3 B 44
TR1	R1					AP											01525116	0.00000	0.00000	L 15 B 44
TR1	R1					AP											01525117	0.00000	0.00000	L 17 B 44
TR1	R1					AP											01525119	11.00000	0.00000	L 8 B 44
TR1	R1					AP											01525121	0.00000	0.14300	POR L 9 & 10
TR1	R1					AP											01525122	0.00000	0.14300	POR L 9 & 10
TR1	R1					AP											01525123	0.00000	0.00000	L 1 B 44
TR1	R1					AP											01525124	0.00000	0.00000	L 2 B 44
TR1	R1					AP											01525125	0.00000	0.00000	L 12 B 44
TR1	R1					AP											01525126	0.00000	0.00000	L 11 B 44
TR1	R1					AP											01525128	0.00000	0.00000	LOT 5 & 6
TR1	R1					AP											01525129	0.00000	0.14300	L 18 B 44
TR1	R1					AP											01525130	0.00000	0.14300	L 19 B 44
TR1	R1					AP											01525201	11.00000	0.00000	L 17 BLK 43
TR1	R1					AP											01525202	11.00000	0.00000	L 16 BLK 43
TR1	R1					AP											01525203	11.00000	0.00000	L 15 BLK 43
TR1	R1					AP											01525204	11.00000	0.00000	L 14 BLK 43
TR1	R1					AP											01525205	0.00000	0.00000	L 13 B 43
TR1	R1					AP											01525206	0.00000	0.00000	L 12 B 43
TR1	R1					AP											01525207	0.00000	0.00000	L 11 B 43
TR1	R1					AP											01525208	0.00000	0.00000	L 10 B 43
TR1	R1					AP											01525209	0.00000	0.00000	L 9 B 43

TR1	R1					AP										01525210	0.00000	0.00000	L 8 B 43
TR1	R1					AP										01525211	0.00000	0.00000	L 7 B 43
TR1	R1					AP										01525212	0.00000	0.00000	L 6 B 43
TR1	R1					AP										01525213	0.00000	0.00000	L 5 B 43
TR1	R1					AP										01525214	0.00000	0.00000	L 4 B 43
TR1	R1					AP										01525215	0.00000	0.00000	L 3 B 43
TR1	R1					AP										01525216	0.00000	0.00000	L 2 B 43
TR1	R1					AP										01525217	0.00000	0.00000	L 1 B 43
TR1	R1					AP										01525218	11.00000	0.00000	L 20 BLK 43
TR1	R1					AP										01525219	0.00000	0.00000	L 19 B 43
TR1	R1					AP										01525220	0.00000	0.00000	L 18 B 43
TR1	R1					AP										01525301	0.00000	0.00000	POR B 42
TR1	R1					AP										01525302	0.00000	0.14300	L 19 B 42
TR1	R1					AP										01525307	0.00000	0.00000	L 13 B 42
TR1	R1					AP										01525308	0.00000	0.00000	L 12 B 42
TR1	R1					AP										01525309	0.00000	0.14300	L 11 B 42
TR1	R1					AP										01525311	0.00000	0.07200	POR B 42
TR1	R1					AP										01525312	0.00000	0.14300	L 8 B 42
TR1	R1					AP										01525315	0.00000	0.14300	L 14 B 42
TR1	R1					AP										01525316	0.00000	0.00000	L 7 B 42
TR1	R1					AP										01525317	0.00000	0.00000	L 15 B 42
TR1	R1					AP										01525318	0.00000	0.00000	L 6 B 42
TR1	R1					AP										01525321	0.00000	0.00000	L 3 B 42
TR1	R1					AP										01525322	0.00000	0.00000	L 4 B 42
TR1	R1					AP										01525323	0.00000	0.00000	L 17 B 42
TR1	R1					AP										01525324	0.00000	0.00000	L 18 B 42
TR1	R1					AP										01525325	0.00000	0.00000	L 9 & 10 B 42
TR1	R1					AP										01525326	0.00000	0.14300	L 16
TR1	R1					AP										01525327	0.00000	0.00000	L 5
TR1	R1					AP										01525328	0.00000	0.00000	LOT 1&2 B 42
TR1	R1					AP										01525407	0.00000	0.00000	L 8 B 41
TR1	R1					AP										01525411	0.00000	0.00000	L 4 B 41
TR1	R1					AP										01525415	0.00000	0.00000	L 3 B 41
TR1	R1					AP										01525416	0.00000	0.00000	L 17 B 41
TR1	R1					AP										01525417	0.00000	0.00000	L 18 B 41
TR1	R1					AP										01525419	0.00000	0.00000	L 20 B 41
TR1	R1					AP										01525420	0.00000	0.00000	L 19 B 41
TR1	R1					AP										01525421	0.00000	0.00000	L 1 B 41
TR1	R1					AP										01525422	0.00000	0.14000	RS 28/17
TR1	R1					AP										01525423	0.00000	0.00000	L 16 B 41
TR1	R1					AP										01525424	0.00000	0.00000	L 5 & 6 B 41
TR1	R1					AP										01525425	0.00000	0.00000	L 14 & 15 B 41
TR1	R1					AP										01525426	0.00000	0.00000	L 7 B 41
TR1	R1					AP										01525428	0.00000	0.00000	L 13
TR1	R1					AP										01525430	0.00000	0.00000	L 9
TR1	R1					AP										01525435	0.00000	0.00000	L 10

TR1	R1					AP											01525437	0.00000	0.00000	L 11 B 41
TR1	R1					AP											01525438	0.00000	0.00000	L 12 B 41
TR1	R1					AP											01526103	0.00000	0.00000	L 17 B 40
TR1	R1					AP											01526112	0.00000	0.00000	L 3 B 40
TR1	R1					AP											01526118	0.00000	0.00000	L 4 B 40
TR1	R1					AP											01526121	0.00000	0.00000	L 18 B 40
TR1	R1					AP											01526124	0.00000	0.00000	L 2 B 40
TR1	R1					AP											01526125	0.00000	0.00000	L 1
TR1	R1					AP											01526133	0.00000	0.29000	PM 42/10/1
TR1	R1					AP											01526137	0.00000	0.00000	LOTS 5 THRU 16
TR1	R1					AP											01526201	0.00000	0.00000	L 20 B 39
TR1	R1					AP											01526203	0.00000	0.00000	L 17 B 39
TR1	R1					AP											01526205	0.00000	0.14300	L 13 B 39
TR1	R1					AP											01526206	0.00000	0.00000	L 12 B 39
TR1	R1					AP											01526207	0.00000	0.00000	L 11 B 39
TR1	R1					AP											01526208	0.00000	0.00000	L 10 B 39
TR1	R1					AP											01526209	0.00000	0.00000	L 9 B 39
TR1	R1					AP											01526210	0.00000	0.00000	L 8 B 39
TR1	R1					AP											01526214	0.00000	0.00000	L 4 B 39
TR1	R1					AP											01526215	0.00000	0.00000	L 3 B 39
TR1	R1					AP											01526216	0.00000	0.00000	L 1&2 B 39
TR1	R1					AP											01526217	0.00000	0.00000	L 14 B 39
TR1	R1					AP											01526219	0.00000	0.00000	L 15 B 39
TR1	R1					AP											01526220	0.00000	0.00000	L 16 B 39
TR1	R1					AP											01526222	0.00000	0.00000	L 19
TR1	R1					AP											01526223	0.00000	0.00000	L 18
TR1	R1					AP											01526224	0.00000	0.43000	PM 32/51/A
TR1	R1					AP											01526301	0.00000	0.00000	L 5 B 38
TR1	R1					AP											01526302	0.00000	0.14300	L 6 B 38
TR1	R1					AP											01526303	0.00000	0.00000	L 7 B 38
TR1	R1					AP											01526304	0.00000	0.00000	L 8 B 38
TR1	R1					AP											01526305	0.00000	0.00000	L 9 B 38
TR1	R1					AP											01526306	0.00000	0.00000	L 10 B 38
TR1	R1					AP											01526307	0.00000	0.00000	L 11 B 38
TR1	R1					AP											01526308	0.00000	0.00000	L 12 B 38
TR1	R1					AP											01526309	0.00000	0.00000	L 13 B 38
TR1	R1					AP											01526310	0.00000	0.00000	L 14 B 38
TR1	R1					AP											01526311	0.00000	0.00000	L 15 B 38
TR1	R1					AP											01526312	0.00000	0.14300	L 16 B 38
TR1	R1					AP											01526313	0.00000	0.00000	L 17 B 38
TR1	R1					AP											01526314	0.00000	0.00000	L 18 B 38
TR1	R1					AP											01526315	0.00000	0.00000	L 19 B 38
TR1	R1					AP											01526316	0.00000	0.00000	L 20 B 38
TR1	R1					AP											01526317	0.00000	0.00000	L 1 B 38
TR1	R1					AP											01526318	0.00000	0.00000	L 2 B 38
TR1	R1					AP											01526319	0.00000	0.00000	L 3 B 38

TR1	R1					AP											01526320	0.00000	0.00000	L 4 B 38
TR1	R1					AP											01526401	0.00000	0.00000	POR B 37
TR1	R1					AP											01526402	0.00000	0.00000	L 15 B 37
TR1	R1					AP											01526403	0.00000	0.00000	POR B 37
TR1	R1					AP											01526404	0.00000	0.00000	L 12 B 37
TR1	R1					AP											01526405	0.00000	0.00000	L 11 B 37
TR1	R1					AP											01526406	0.00000	0.00000	L 10 B 37
TR1	R1					AP											01526407	0.00000	0.00000	L 9 B 37
TR1	R1					AP											01526409	0.00000	0.14300	L 6 B 37
TR1	R1					AP											01526414	0.00000	0.00000	L 2 B 37
TR1	R1					AP											01526415	0.00000	0.00000	L 1 B 37
TR1	R1					AP											01526417	0.00000	0.00000	POR B 37
TR1	R1					AP											01526418	0.00000	0.00000	L 7 B 37
TR1	R1					AP											01526419	0.00000	0.00000	L 8 B 37
TR1	R1					AP											01526422	0.00000	0.21500	POR B 37
TR1	R1					AP											01526503	0.00000	0.00000	L 3 B 36
TR1	R1					AP											01526504	0.00000	0.00000	L 4 B 36
TR1	R1					AP											01526506	0.00000	0.00000	L 8 B 36
TR1	R1					AP											01526507	0.00000	0.00000	L 9 B 36
TR1	R1					AP											01526508	0.00000	0.00000	L 10 B 36
TR1	R1					AP											01526510	0.00000	0.00000	POR B 36
TR1	R1					AP											01526511	0.00000	0.00000	POR L 5 B 36
TR1	R1					AP											01526512	0.00000	0.00000	POR B 36
TR1	R1					AP											01526513	0.00000	0.00000	L 1 & 2 B 36
TR1	R1					AP											01530101	0.00000	0.14300	RS 28/86 L26 B53
TR1	R1					AP											01530102	0.00000	0.14300	L 25 B 53
TR1	R1					AP											01530103	0.00000	0.00000	POR B 53
TR1	R1					AP											01530106	0.00000	0.14300	L 16 B 53
TR1	R1					AP											01530108	0.00000	0.00000	L 7 B 53
TR1	R1					AP											01530109	0.00000	0.14300	L 6 B 53
TR1	R1					AP											01530110	11.00000	0.00000	L 5 BLK 53
TR1	R1					AP											01530111	11.00000	0.00000	L 4 BLK 53
TR1	R1					AP											01530112	11.00000	0.00000	L 3 BLK 53
TR1	R1					AP											01530113	11.00000	0.00000	L 2 BLK 53
TR1	R1					AP											01530114	0.00000	0.00000	L 1 B 53
TR1	R1					AP											01530117	0.00000	0.00000	L 12 B 53
TR1	R1					AP											01530118	0.00000	0.00000	L 13 B 53
TR1	R1					AP											01530119	11.00000	0.00000	L 14 BLK 53
TR1	R1					AP											01530120	0.00000	0.00000	L 15 B 53
TR1	R1					AP											01530121	0.00000	0.00000	L 8 B 53
TR1	R1					AP											01530122	11.00000	0.00000	L 9 BLK 53
TR1	R1					AP											01530124	0.00000	0.29000	RS 21/3/1
TR1	R1					AP											01530125	0.00000	0.00000	L 17 B 53
TR1	R1					AP											01530126	11.00000	0.00000	L 18 B 53
TR1	R1					AP											01530129	0.00000	0.29000	PM 41/138/1
TR1	R1					AP											01530130	0.00000	0.00000	L 10 & 11 B 53

TR1	R1					AP											01530204	0.00000	0.00000	POR B 52
TR1	R1					AP											01530208	0.00000	0.14300	L 16 B 52
TR1	R1					AP											01530213	0.00000	0.00000	L 7 B 52
TR1	R1					AP											01530215	0.00000	0.00000	L 4 B 52
TR1	R1					AP											01530216	0.00000	0.00000	L 3 B 52
TR1	R1					AP											01530217	0.00000	0.00000	L 2 B 52
TR1	R1					AP											01530218	0.00000	0.00000	L 1 B 52
TR1	R1					AP											01530221	0.00000	0.00000	L 10 B 52
TR1	R1					AP											01530223	0.00000	0.00000	L 24 B 52
TR1	R1					AP											01530224	0.00000	0.00000	L 8 B 52
TR1	R1					AP											01530225	0.00000	0.00000	L 9 B 52
TR1	R1					AP											01530226	0.00000	0.00000	L 5 B 52
TR1	R1					AP											01530227	0.00000	0.00000	L 6 B 52
TR1	R1					AP											01530228	11.00000	0.00000	L 15 B 52
TR1	R1					AP											01530229	0.00000	0.00000	L 14 B 52
TR1	R1					AP											01530230	0.00000	0.14000	POR L 25&26 B52
TR1	R1					AP											01530231	11.00000	0.00000	POR L 25&26 B52
TR1	R1					AP											01530233	0.00000	0.00000	L 18 B 52
TR1	R1					AP											01530234	0.00000	0.00000	L 19 B 52
TR1	R1					AP											01530235	0.00000	0.43000	LOTS 11 12 13B52
TR1	R1					AP											01530238	0.00000	0.28700	L 22 & 23 B 52
TR1	R1					AP											01530239	0.00000	0.00000	L 17 B 52
TR1	R1					AP											01530302	11.00000	0.00000	L 25 BLK 51
TR1	R1					AP											01530306	0.00000	0.00000	L 17 B 51
TR1	R1					AP											01530308	0.00000	0.00000	L 14 B 51
TR1	R1					AP											01530309	0.00000	0.00000	L 13 B 51
TR1	R1					AP											01530310	0.00000	0.00000	L 12 B 51
TR1	R1					AP											01530311	0.00000	0.14300	L 11 B 51
TR1	R1					AP											01530312	0.00000	0.00000	L 10 B 51
TR1	R1					AP											01530314	0.00000	0.14300	RS 28/87 L 5 B51
TR1	R1					AP											01530315	0.00000	0.00000	RS 28/87 L 4 B51
TR1	R1					AP											01530316	0.00000	0.00000	L 3 B 51
TR1	R1					AP											01530317	0.00000	0.00000	L 2 B 51
TR1	R1					AP											01530318	0.00000	0.00000	L 24 B 51
TR1	R1					AP											01530319	0.00000	0.00000	L 23 B 51
TR1	R1					AP											01530320	0.00000	0.00000	L 22 B 51
TR1	R1					AP											01530321	0.00000	0.00000	L 16 B 51
TR1	R1					AP											01530322	0.00000	0.00000	L 15 B 51
TR1	R1					AP											01530324	0.00000	0.00000	L 9 B 51
TR1	R1					AP											01530325	0.00000	0.00000	L 7 B 51
TR1	R1					AP											01530326	0.00000	0.00000	RS 28/87 L 6 B51
TR1	R1					AP											01530327	0.00000	0.00000	L 26 B 51
TR1	R1					AP											01530328	0.00000	0.00000	L 1 B 51
TR1	R1					AP											01530329	0.00000	0.00000	L 8 B 51
TR1	R1					AP											01530330	0.00000	0.00000	L 18 B 51
TR1	R1					AP											01530333	0.00000	0.00000	L 21 B 51

TR1	R1					AP											01530334	0.00000	0.00000	LOT 19&20 B 51
TR1	R1					AP											01530401	0.00000	0.00000	L 26 B 50
TR1	R1					AP											01530402	0.00000	0.00000	L 25 B 50
TR1	R1					AP											01530406	0.00000	0.00000	L 19 B 50
TR1	R1					AP											01530407	0.00000	0.00000	L 18 B 50
TR1	R1					AP											01530408	0.00000	0.00000	L 17 B 50
TR1	R1					AP											01530409	11.00000	0.00000	L 16 BLK 50
TR1	R1					AP											01530411	0.00000	0.00000	L 13 B 50
TR1	R1					AP											01530412	0.00000	0.00000	L 12 B 50
TR1	R1					AP											01530413	0.00000	0.00000	L 11 B 50
TR1	R1					AP											01530414	0.00000	0.00000	L 10 B 50
TR1	R1					AP											01530415	0.00000	0.00000	L 9 B 50
TR1	R1					AP											01530416	0.00000	0.00000	L 8 B 50
TR1	R1					AP											01530417	0.00000	0.00000	L 7 B 50
TR1	R1					AP											01530420	0.00000	0.14300	L 5 B 50
TR1	R1					AP											01530421	0.00000	0.00000	L 6 B 50
TR1	R1					AP											01530422	0.00000	0.00000	RS 31/81 L 20
TR1	R1					AP											01530423	0.00000	0.14300	L 21 B 50
TR1	R1					AP											01530424	0.00000	0.00000	L 22 B 50
TR1	R1					AP											01530425	0.00000	0.00000	L 1 B 50
TR1	R1					AP											01530426	0.00000	0.00000	L 2 B 50
TR1	R1					AP											01530429	0.00000	0.00000	L 14 B 50
TR1	R1					AP											01530430	0.00000	0.00000	L 15 B 50
TR1	R1					AP											01530431	0.00000	0.00000	L 23 & 24 B 50
TR1	R1					AP											01530432	0.00000	0.00000	L 3 & 4 B 50
TR1	R1					AP											01531103	0.00000	0.00000	L 22 B 49
TR1	R1					AP											01531104	0.00000	0.00000	L 21 B 49
TR1	R1					AP											01531105	0.00000	0.00000	L 20 B 49
TR1	R1					AP											01531106	0.00000	0.00000	L 18 B 49
TR1	R1					AP											01531107	0.00000	0.00000	L 16 B 49
TR1	R1					AP											01531108	0.00000	0.14300	L 15 B 49
TR1	R1					AP											01531109	0.00000	0.14300	L 14 B 49
TR1	R1					AP											01531110	0.00000	0.00000	L12 & L13 B 49
TR1	R1					AP											01531111	0.00000	0.00000	L 11 B 49
TR1	R1					AP											01531113	0.00000	0.14300	L 7 B 49
TR1	R1					AP											01531114	0.00000	0.00000	RS 26/120
TR1	R1					AP											01531116	0.00000	0.00000	L2 & L3 B 49
TR1	R1					AP											01531117	0.00000	0.00000	L 1 B 49
TR1	R1					AP											01531119	0.00000	0.00000	L 19 B 49
TR1	R1					AP											01531120	0.00000	0.00000	L 17 B 49
TR1	R1					AP											01531122	0.00000	0.14300	L 8 B 49
TR1	R1					AP											01531123	0.00000	0.00000	L 10 B 49
TR1	R1					AP											01531124	0.00000	0.00000	L 9 B 49
TR1	R1					AP											01531125	0.00000	0.00000	L 24 B 49
TR1	R1					AP											01531126	0.00000	0.00000	L 23 B 49
TR1	R1					AP											01531129	0.00000	0.00000	L 4 B 49

TR1	R1					AP											01531130	0.00000	0.14300	L 5 B 49
TR1	R1					AP											01531131	0.00000	0.29000	PM 32/43/A
TR1	R1					AP											01531201	0.00000	0.14300	L26 B48 R/S28/23
TR1	R1					AP											01531202	0.00000	0.00000	L 25 B 48
TR1	R1					AP											01531203	0.00000	0.00000	L 24 B 48
TR1	R1					AP											01531206	0.00000	0.00000	L 19 B 48
TR1	R1					AP											01531207	0.00000	0.00000	L 18 B 48
TR1	R1					AP											01531208	0.00000	0.00000	L 17 B 48
TR1	R1					AP											01531209	0.00000	0.00000	L 16 B 48
TR1	R1					AP											01531211	0.00000	0.00000	L12 & L13 B 48
TR1	R1					AP											01531212	0.00000	0.00000	L 11 B 48
TR1	R1					AP											01531213	0.00000	0.00000	L 10 B 48
TR1	R1					AP											01531214	0.00000	0.00000	L 9 B 48
TR1	R1					AP											01531215	0.00000	0.14300	L 8 B 48
TR1	R1					AP											01531221	0.00000	0.00000	L 3 B 48
TR1	R1					AP											01531223	0.00000	0.00000	L 23 B 48
TR1	R1					AP											01531225	0.00000	0.00000	L 6 B 48
TR1	R1					AP											01531226	0.00000	0.00000	L 7 B 48
TR1	R1					AP											01531227	0.00000	0.14300	L 4 B 48
TR1	R1					AP											01531228	0.00000	0.14300	L 5 B 48
TR1	R1					AP											01531229	0.00000	0.00000	L 15 B 48
TR1	R1					AP											01531230	0.00000	0.14300	L 14 B 48
TR1	R1					AP											01531232	0.00000	0.00000	L 1 B 48
TR1	R1					AP											01531233	0.00000	0.00000	L 2 B 48
TR1	R1					AP											01531234	0.00000	0.00000	PM 43/137/1
TR1	R1					AP											01531236	0.00000	0.00000	PM 43/137/2
TR1	R1					AP											01531303	0.00000	0.00000	L 22 B 47
TR1	R1					AP											01531304	0.00000	0.00000	L 21 B 47
TR1	R1					AP											01531305	0.00000	0.00000	L19 & L20 B 47
TR1	R1					AP											01531306	0.00000	0.00000	L 18 B 47
TR1	R1					AP											01531309	0.00000	0.00000	L 13 B 47
TR1	R1					AP											01531310	0.00000	0.00000	L 12 B 47
TR1	R1					AP											01531314	0.00000	0.00000	L 14 B 47
TR1	R1					AP											01531315	0.00000	0.00000	L 5 B 47
TR1	R1					AP											01531316	0.00000	0.14300	RS 31/80 L 6
TR1	R1					AP											01531317	0.00000	0.00000	L 7 B 47
TR1	R1					AP											01531318	0.00000	0.00000	L 8 B 47
TR1	R1					AP											01531319	0.00000	0.00000	L 9 B 47
TR1	R1					AP											01531321	0.00000	0.00000	L 17 B 47
TR1	R1					AP											01531323	0.00000	0.00000	L 1 B 47
TR1	R1					AP											01531330	0.00000	0.00000	L 23 B 47
TR1	R1					AP											01531331	0.00000	0.00000	L15 & L16 B 47
TR1	R1					AP											01531333	0.00000	0.00000	L 26
TR1	R1					AP											01531334	0.00000	0.28700	LOTS 24 & 25
TR1	R1					AP											01531335	0.00000	0.00000	LOTS 10 & 11
TR1	R1					AP											01531341	0.00000	0.00000	L 2

TR1	R1					AP											01531342	0.00000	0.00000	L 3 B 47
TR1	R1					AP											01531343	0.00000	0.00000	L 4
TR1	R1					AP											01531401	0.00000	0.00000	L 26 B 46
TR1	R1					AP											01531402	0.00000	0.00000	L 25 B 46
TR1	R1					AP											01531403	0.00000	0.00000	L 24 B 46
TR1	R1					AP											01531404	0.00000	0.14300	L 23 B 46
TR1	R1					AP											01531405	0.00000	0.14300	L 22 B 46
TR1	R1					AP											01531406	0.00000	0.00000	L 21 B 46
TR1	R1					AP											01531407	0.00000	0.00000	L 20 B 46
TR1	R1					AP											01531413	0.00000	0.00000	L 8 B 46
TR1	R1					AP											01531416	0.00000	0.00000	L 4 B 46
TR1	R1					AP											01531417	0.00000	0.14300	L 3 B 46
TR1	R1					AP											01531418	0.00000	0.00000	L 2 B 46
TR1	R1					AP											01531419	0.00000	0.00000	L 1 B 46
TR1	R1					AP											01531420	0.00000	0.00000	L 17 B 46
TR1	R1					AP											01531421	0.00000	0.00000	L9 & L10 B 46
TR1	R1					AP											01531422	0.00000	0.14300	L 19 B 46
TR1	R1					AP											01531423	0.00000	0.14300	L 18 B 46
TR1	R1					AP											01531425	0.00000	0.14300	L 11 B 46
TR1	R1					AP											01531426	0.00000	0.00000	L 12 B 46
TR1	R1					AP											01531427	0.00000	0.14300	L 13 B 46
TR1	R1					AP											01531428	0.00000	0.43000	LOTS 5 6&7 B46
TR1	R1					AP											01531429	0.00000	0.14300	RS 28/103 L14B46
TR1	R1					AP											01531430	0.00000	0.28700	L 15 & 16 B 46
TR1	R1					AP											01531502	0.00000	0.00000	L 3 B 45
TR1	R1					AP											01531503	0.00000	0.00000	L 4 B 45
TR1	R1					AP											01531504	0.00000	0.00000	L 5 B 45
TR1	R1					AP											01531505	0.00000	0.00000	L 6 B 45
TR1	R1					AP											01531506	0.00000	0.17200	L 7 B 45
TR1	R1					AP											01531507	0.00000	0.17200	L 8 B 45
TR1	R1					AP											01531508	0.00000	0.17200	L 9 B 45
TR1	R1					AP											01531509	0.00000	0.00000	L 10 B 45
TR1	R1					AP											01531512	0.00000	0.17200	L 11 B 45
TR1	R1					AP											01531513	0.00000	0.17200	W75' L1&2 BLK 45
TR1	R1					AP											01531514	0.00000	0.00000	E75' L1&2 BLK 45
TR1	R1					AP											01531515	0.00000	0.17200	L 12 B 45
TR1	R1					AP											01531516	0.00000	0.17200	L 13 B 45
TR1	R1					AP											01532201	0.00000	0.00000	L 1
TR1	R1					AP											01532202	0.00000	0.00000	L 2
TR1	R1					AP											01532203	0.00000	0.00000	L 3
TR1	R1					AP											01532204	0.00000	0.00000	L 4
TR1	R1					AP											01532205	11.00000	0.00000	L 5
TR1	R1					AP											01532206	0.00000	0.00000	L 6
TR1	R1					AP											01532209	11.00000	0.00000	L 9
TR1	R1					AP											01532210	11.00000	0.00000	L 10
TR1	R1					AP											01532211	0.00000	0.00000	L 11

TR1	R1					AP											01532212	0.00000	0.00000	L 12 & 13
TR1	R1					AP											01532213	0.00000	0.00000	L 14
TR1	R1					AP											01532214	0.00000	0.00000	L 15
TR1	R1					AP											01532215	0.00000	0.00000	L 16
TR1	R1					AP											01532216	0.00000	0.00000	L 17
TR1	R1					AP											01532217	0.00000	0.00000	L 18
TR1	R1					AP											01532226	0.00000	0.23000	PM 31/37/A
TR1	R1					AP											01532301	0.00000	0.00000	L 19
TR1	R1					AP											01532302	0.00000	0.00000	L 20
TR1	R1					AP											01532303	11.00000	0.00000	L 21
TR1	R1					AP											01532304	0.00000	0.00000	L 22
TR1	R1					AP											01532305	0.00000	0.00000	L 23
TR1	R1					AP											01532306	0.00000	0.00000	L 24
TR1	R1					AP											01532307	0.00000	0.00000	L 25
TR1	R1					AP											01532308	0.00000	0.00000	L 26
TR1	R1					AP											01532309	0.00000	0.00000	L 27
TR1	R1					AP											01532310	0.00000	0.00000	L 28
TR1	R1					AP											01532311	11.00000	0.00000	L 29
TR1	R1					AP											01532312	11.00000	0.00000	L 30
TR1	R1					AP											01532313	0.00000	0.00000	L 31
TR1	R1					AP											01532314	0.00000	0.00000	L 32
TR1	R1					AP											01532315	11.00000	0.00000	L 33
TR1	R1					AP											01532316	0.00000	0.00000	L 34
TR1	R1					AP											01532317	0.00000	0.00000	L 35
TR1	R1					AP											01532318	0.00000	0.00000	L 36
TR1	R1					AP											01532319	0.00000	0.00000	L 52
TR1	R1					AP											01532320	0.00000	0.11800	L 51
TR1	R1					AP											01532321	0.00000	0.00000	L 50
TR1	R1					AP											01532322	0.00000	0.00000	L 49
TR1	R1					AP											01532323	0.00000	0.00000	L 48
TR1	R1					AP											01532324	0.00000	0.00000	L 47
TR1	R1					AP											01532327	0.00000	0.00000	L 44
TR1	R1					AP											01532328	0.00000	0.00000	L 43
TR1	R1					AP											01532329	0.00000	0.00000	L 42
TR1	R1					AP											01532330	11.00000	0.00000	L 41
TR1	R1					AP											01532331	11.00000	0.00000	L 40
TR1	R1					AP											01532332	0.00000	0.00000	L 39
TR1	R1					AP											01532333	0.00000	0.00000	RS 27/44
TR1	R1					AP											01532334	0.00000	0.22600	RS 27/44
TR1	R1					AP											01532335	0.00000	0.23000	LOTS 45 & 46 B 3
TR1	R1					AP											01532401	11.00000	0.00000	L 53
TR1	R1					AP											01532402	11.00000	0.00000	L 54
TR1	R1					AP											01532403	0.00000	0.00000	L 55
TR1	R1					AP											01532404	11.00000	0.00000	L 56
TR1	R1					AP											01532405	0.00000	0.00000	L 57
TR1	R1					AP											01532406	11.00000	0.00000	L 58

TR1	R1					AP											01532407	0.00000	0.00000	RS 31/139 L 59
TR1	R1					AP											01532408	0.00000	0.00000	L 60
TR1	R1					AP											01532409	0.00000	0.00000	L 61
TR1	R1					AP											01532410	0.00000	0.00000	L 62
TR1	R1					AP											01532411	0.00000	0.00000	L 63
TR1	R1					AP											01532412	0.00000	0.00000	L 64
TR1	R1					AP											01532413	0.00000	0.00000	POR L 65
TR1	R1					AP											01532416	0.00000	0.00000	L 73
TR1	R1					AP											01532417	0.00000	0.00000	L 72
TR1	R1					AP											01532418	0.00000	0.00000	L 71
TR1	R1					AP											01532419	0.00000	0.00000	L 70
TR1	R1					AP											01532420	0.00000	0.00000	L 69
TR1	R1					AP											01532421	0.00000	0.00000	L 68
TR1	R1					AP											01532422	0.00000	0.00000	L 67
TR1	R1					AP											01532423	0.00000	0.00000	L 66
TR1	R1					AP											01532424	0.00000	0.00000	L 74 75 & P L 65
TR1	R1					AP											01532501	0.00000	0.00000	L 76
TR1	R1					AP											01532502	0.00000	0.00000	L 77
TR1	R1					AP											01532503	0.00000	0.00000	L 82
TR1	R1					AP											01532601	0.00000	0.00000	PORS L 78 79
TR1	R1					AP											01532602	0.00000	0.00000	PORS L 78 79
TR1	R1					AP											01532603	0.00000	0.00000	L 83
TR1	R1					AP											01532604	0.00000	0.00000	L 84
TR1	R1					AP											01532605	0.00000	0.00000	L 85
TR1	R1					AP											01532606	0.00000	0.00000	L 80
TR1	R1					AP											01532607	0.00000	0.12300	L 81
CT	CC					AP											01533102	0.00000	0.00000	POR L 1
CT	CC					AP											01533103	0.00000	0.00000	POR L 1
CT	CC					AP											01533104	0.00000	0.00000	POR L 1
CT	CC					AP											01533105	0.00000	1.26000	L 2
CT	CC					AP											01533110	0.00000	0.47500	RS 22/80/1
CT	CC					AP											01533111	0.00000	0.00000	POR L 1
CT	CC					AP											01533112	0.00000	0.00000	POR SEC 17 14 17
CT	CC					AP											01533114	0.00000	0.00000	POR SEC 17 14 17
CT	CC					AP											01533115	0.00000	0.00000	POR SEC 17 14 17
CT	CC					AP											01533117	0.00000	0.25000	POR L 4
CT	CC					AP											01533119	0.00000	0.00000	POR L 3
CT	CC					AP											01533120	0.00000	0.25100	POR L 3
CT	CC					AP											01533124	11.00000	0.00000	POR LOT 3 BLK 1
CT	CC					AP											01533125	0.00000	0.00000	POR LOT 3 BLK 1
CT	CC					AP											01533128	0.00000	0.00000	PM 26/57/A
CT	CC					AP											01533129	11.00000	0.00000	5-59-1&26-57-B
TR1	R1					AP											01534001	0.00000	1.73000	SEC 17 14 17
TR1	R1					AP											01534004	0.00000	0.23000	SEC 17 14 17
TR1	R1					AP											01534005	0.00000	0.23000	SEC 17 14 17
TR1	R1					AP											01534006	0.00000	0.06000	SEC 17 14 17

TR1	R1					AP											01534007	0.00000	0.46000	SEC 17 14 17
TR1	R1					AP											01534009	0.00000	0.02000	SEC 17 14 17
TR1	R1					AP											01534010	0.00000	0.81000	SEC 17 14 17
TR1	R1					AP											01534015	0.00000	2.30000	RS 20/75 S171417
TR1	R1					AP											01534016	0.00000	2.44000	SEC 17 14 17
TR1	R1					AP											01534017	0.00000	1.28000	SEC 17 14 17
TR1	R1					AP											01534018	0.00000	1.53000	SEC 17 14 17
TR1	R1					AP											01534019	0.00000	2.39800	PM 10-106
TRT	RF-L					AP											01535101	2.00000	0.00000	COMMON AREA
TRT	RF-L					AP											01535102	0.00000	0.00000	UNIT 1 B 1
TRT	RF-L					AP											01535103	0.00000	0.00000	UNIT 2 B 1
TRT	RF-L					AP											01535104	0.00000	0.00000	UNIT 3 B 1
TRT	RF-L					AP											01535105	0.00000	0.00000	UNIT 4 B 1
TRT	RF-L					AP											01535106	0.00000	0.00000	UNIT 5 B 1
TRT	RF-L					AP											01535107	0.00000	0.00000	UNIT 6 B 1
TRT	RF-L					AP											01535108	0.00000	0.00000	UNIT 7 B 1
TRT	RF-L					AP											01535109	0.00000	0.00000	UNIT 8 B 1
TRT	RF-L					AP											01535110	0.00000	0.00000	UNIT 9 B 1
TRT	RF-L					AP											01535111	0.00000	0.00000	UNIT 10 B 1
TRT	RF-L					AP											01535112	0.00000	0.00000	UNIT 11 B 1
TRT	RF-L					AP											01535113	0.00000	0.00000	UNIT 12 B 1
TRT	RF-L					AP											01535114	0.00000	0.00000	UNIT 13 B 1
TRT	RF-L					AP											01535115	0.00000	0.00000	UNIT 14 B 1
TRT	RF-L					AP											01535116	0.00000	0.00000	UNIT 15 B 1
TRT	RF-L					AP											01535117	0.00000	0.00000	UNIT 20 B 1
TRT	RF-L					AP											01535118	0.00000	0.00000	UNIT 21 B 1
TRT	RF-L					AP											01535119	0.00000	0.00000	UNIT 22 B 1
TRT	RF-L					AP											01535120	0.00000	0.00000	UNIT 23 B 1
TRT	RF-L					AP											01535121	0.00000	0.00000	UNIT 24 B 1
TRT	RF-L					AP											01535122	0.00000	0.00000	UNIT 25 B 1
TRT	RF-L					AP											01535123	0.00000	0.00000	UNIT 26 B 1
TRT	RF-L					AP											01535124	0.00000	0.00000	UNIT 27 B 1
TRT	RF-L					AP											01535125	0.00000	0.00000	UNIT A-3-28
TRT	RF-L					AP											01535126	0.00000	0.00000	UNIT 29 B 1
TRT	RF-L					AP											01535127	0.00000	0.00000	UNIT 30 B 1
TRT	RF-L					AP											01535128	0.00000	0.00000	UNIT 31 B 1
TRT	RF-L					AP											01535129	0.00000	0.00000	UNIT 32 B 1
TRT	RF-L					AP											01535130	0.00000	0.00000	UNIT 33 B 1
TRT	RF-L					AP											01535131	0.00000	0.00000	UNIT 34 B 1
TRT	RF-L					AP											01535132	0.00000	0.00000	UNIT 35 B 1
TRT	RF-L					AP											01535133	0.00000	0.00000	UNIT 36 B 1
TRT	RF-L					AP											01535134	0.00000	0.00000	UNIT 37 B 1
TRT	RF-L					AP											01535135	0.00000	0.00000	UNIT 38 B 1
TRT	RF-L					AP											01535136	0.00000	0.00000	UNIT 39 B 1
TRT	RF-L					AP											01535202	2.00000	0.00000	POR B 2 AW
TR1	R1					AP											01537001	0.00000	1.62000	SEC 17 14 17

TR1	R1					AP											01537003	0.00000	1.21000	RS 20/64/1
TR1	R1					AP											01537004	0.00000	1.25000	RS 20/64/2
TR1	R1					AP											01537005	0.00000	1.35000	SEC 17 14 17
TR1	R1					AP											01537006	0.00000	1.38000	RS 22/12/1
TR1	R1					AP											01537007	0.00000	2.91000	SEC 17 14 17
TR1	R1					AP											01537008	0.00000	1.76000	RS 18/69/1
TR1	R1					AP											01537010	0.00000	0.14000	RS 18/69/2
TR1	R1					AP											01537011	0.00000	1.08000	SEC 17 14 17
TR1	R1					AP											01537012	0.00000	0.40000	SEC 17 14 17
TR1	R1					AP											01537013	0.00000	0.40000	SEC 17 14 17
TR1	R1					AP											01537015	0.00000	0.30000	SEC 17 14 17
TR1	R1					AP											01537016	0.00000	0.29600	SEC 17 14 17
TR1	R1					AP											01537017	0.00000	0.43000	SEC 17 14 17
TR1	R1					AP											01537018	0.00000	0.18000	SEC 17 14 17
TR1	R1					AP											01537019	0.00000	0.40000	SEC 17 14 17
TR1	R1					AP											01537020	0.00000	0.71000	RS 31/11
TR1	R1					AP											01537021	0.00000	0.39000	SEC 17 14 17
TR1	R1					AP											01537022	0.00000	1.10000	SEC 17 14 17
TR1	R1					AP											01537023	0.00000	1.23000	SEC 17 14 17
TR1	R1					AP											01537024	0.00000	0.39500	SEC 17 14 17
TR1	R1					AP											01537025	0.00000	0.39500	SEC 17 14 17
TRT	RF-L					AP											01538101	2.00000	0.00000	LOT A AW
TRT	RF-L					AP											01538102	0.00000	0.00000	UNIT 1
TRT	RF-L					AP											01538103	0.00000	0.00000	UNIT 2
TRT	RF-L					AP											01538104	0.00000	0.00000	UNIT 3
TRT	RF-L					AP											01538105	0.00000	0.00000	UNIT 4
TRT	RF-L					AP											01538106	0.00000	0.00000	UNIT 5
TRT	RF-L					AP											01538107	0.00000	0.00000	UNIT 6
TRT	RF-L					AP											01538108	0.00000	0.00000	UNIT 7
TRT	RF-L					AP											01538109	0.00000	0.00000	UNIT 8
TRT	RF-L					AP											01538110	0.00000	0.00000	UNIT 9
TRT	RF-L					AP											01538111	0.00000	0.00000	UNIT 10
TRT	RF-L					AP											01538112	0.00000	0.00000	UNIT 11
TRT	RF-L					AP											01538113	0.00000	0.00000	UNIT 12
TRT	RF-L					AP											01538114	0.00000	0.00000	UNIT 13
TRT	RF-L					AP											01538115	0.00000	0.00000	UNIT 14
TRT	RF-L					AP											01538116	0.00000	0.00000	UNIT 15
TRT	RF-L					AP											01538117	0.00000	0.00000	UNIT 16
TRT	RF-L					AP											01538118	0.00000	0.00000	UNIT 17
TRT	RF-L					AP											01538119	0.00000	0.00000	UNIT 18
TRT	RF-L					AP											01538120	0.00000	0.00000	UNIT 19
TRT	RF-L					AP											01538121	0.00000	0.00000	UNIT 20
TR1	R1					AP											01539101	2.00000	0.00000	COMMON AREA
TR1	R1					AP											01539102	0.00000	0.00000	UNIT 1
TR1	R1					AP											01539103	0.00000	0.00000	UNIT 2
TR1	R1					AP											01539104	0.00000	0.00000	UNIT 3

TR1	R1					AP											01539105	0.00000	0.00000	UNIT 4
TR1	R1					AP											01539106	0.00000	0.00000	UNIT 5
TR1	R1					AP											01539107	0.00000	0.00000	UNIT 6
TR1	R1					AP											01539108	0.00000	0.00000	UNIT 7
TR1	R1					AP											01539109	0.00000	0.00000	UNIT 8
TR1	R1					AP											01539110	0.00000	0.00000	UNIT 9
TR1	R1					AP											01539111	0.00000	0.00000	UNIT 10
TR1	R1					AP											01539112	0.00000	0.00000	UNIT 11
TR1	R1					AP											01539113	0.00000	0.00000	UNIT 12
TR1	R1					AP											01539114	0.00000	0.00000	UNIT 13
TR1	R1					AP											01539115	0.00000	0.00000	UNIT 14
TR1	R1					AP											01539116	0.00000	0.00000	UNIT 15
TR1	R1					AP											01539117	0.00000	0.00000	UNIT 16
TR1	R1					AP											01539118	0.00000	0.00000	UNIT 17
TR1	R1					AP											01539119	0.00000	0.00000	UNIT 18
TR1	R1					AP											01539120	0.00000	0.00000	UNIT 19
TR1	R1					AP											01539121	0.00000	0.00000	UNIT 20
TR1	R1					AP											01539122	0.00000	0.00000	UNIT 21
TR1	R1					AP											01539123	0.00000	0.00000	UNIT 22
TR1	R1					AP											01539124	0.00000	0.00000	UNIT 23
TR1	R1					AP											01539125	0.00000	0.00000	UNIT 24
TR1	R1					AP											01539126	0.00000	0.00000	UNIT 25
TR1	R1					AP											01539127	0.00000	0.00000	UNIT 26
TR2	RM					AP											01541001	0.00000	1.62000	POR TR1 RS19/112
TR2	RM					AP											01542001	0.00000	0.04000	L 1
TR2	RM					AP											01542002	0.00000	0.04000	L 2
TR2	RM					AP											01542003	0.00000	0.04000	L 3
TR2	RM					AP											01542004	0.00000	0.04000	L 4
TR2	RM					AP											01542005	0.00000	0.04000	L 5
TR2	RM					AP											01542006	0.00000	0.05000	L 6
TR2	RM					AP											01542007	0.00000	0.06000	L 7
TR2	RM					AP											01542008	0.00000	0.05000	L 8
TR2	RM					AP											01542009	0.00000	0.04000	L 9
TR2	RM					AP											01542010	0.00000	0.04000	L 10
TR2	RM					AP											01542011	0.00000	0.04000	L 11
TR2	RM					AP											01542012	0.00000	0.06000	L 12
TR2	RM					AP											01542013	0.00000	0.05000	L 13
TR2	RM					AP											01542014	0.00000	0.05000	L 14
TR2	RM					AP											01542015	0.00000	0.09000	L 15
TR2	RM					AP											01542016	2.00000	1.46000	LOT A
TA	FR-160					AP											01601103	11.00000	294.81000	SEC 20 14 17
TA	FR-160					AP											01601103	11.00000	294.81000	SEC 20 14 17
TR1	FR-160					AP											01601104	11.00000	16.19000	SEC 20 14 17
TA	FR-160					AP											01602103	11.00000	42.19000	SEC 21 14 17
TR1	FR-160					AP											01602106	11.00000	19.80000	SEC 20 14 17
CT	CC					AP											01603108	11.00000	13.00000	SEC 20 14 17

CT	CC					AP											01603112	11.00000	0.00000	POR SEC 20 14 17
TR1	R1					AP											01603123	11.00000	0.67000	SEC 20 14 17
TR1	FR-160					AP											01603124	11.00000	80.00000	SEC 20 14 17
TR1	R1					AP											01603127	0.00000	0.13000	SEC 20 14 17
CT	CC					AP											01603128	11.00000	0.12000	SEC 20 14 17
CT	CC					AP											01603129	11.00000	0.07000	SEC 20 14 17
TR1	FR-160					AP											01603130	11.00000	76.17000	SEC 20 14 17
TR1	R1					AP											01603138	11.00000	0.00000	POR SEC 20 14 17
CT	FR-160					AP											01604106	11.00000	117.50000	SEC 29 14 17
TR1	FR-160					AP											01604106	11.00000	117.50000	SEC 29 14 17
CT	CC					AP											01604108	11.00000	0.33000	SEC 29 14 17
CT	CC					AP											01604110	11.00000	29.66000	SEC 29 14 17
TR1	R1					AP											01605102	11.00000	0.00000	LOTS 25 & 26
TR1	R1					AP											01605103	0.00000	0.00000	L 24
TR1	R1					AP											01605109	0.00000	0.00000	L 12
TR1	R1					AP											01605110	0.00000	0.00000	L 11
TR1	R1					AP											01605112	0.00000	0.00000	L 9
TR1	R1					AP											01605113	0.00000	0.00000	L 8
TR1	R1					AP											01605114	0.00000	0.00000	L 7
TR1	R1					AP											01605116	11.00000	0.00000	POR L 17 & 18
TR1	R1					AP											01605126	0.00000	0.00000	L 10
TR1	R1					AP											01605129	11.00000	0.00000	LOT 29
TR1	R1					AP											01605130	11.00000	0.00000	LOT 28
TR1	R1					AP											01605131	11.00000	0.00000	LOT 27
TR1	R1					AP											01605133	0.00000	0.00000	L 21
TR1	R1					AP											01605134	0.00000	0.00000	L 20
TR1	R1					AP											01605135	0.00000	0.00000	L 19
TR1	R1					AP											01605137	0.00000	0.00000	POR L 10
TR1	R1					AP											01605149	0.00000	0.00000	L 16
TR1	R1					AP											01605150	0.00000	0.00000	L 15
TR1	R1					AP											01605151	0.00000	0.00000	POR L 14
TR1	R1					AP											01605152	0.00000	0.00000	L 13 & POR 14
TR1	R1					AP											01605155	0.00000	0.00000	LOTS 3 & 4
TR1	R1					AP											01605156	0.00000	0.00000	L 5
TR1	R1					AP											01605157	0.00000	0.00000	L 6
TR1	R1					AP											01605158	0.00000	0.00000	LOT 22 & 23
TR1	R1					AP											01605159	0.00000	0.00000	L 17
TR1	R1					AP											01605160	0.00000	0.00000	L 18
TR1	R1					AP											01605203	0.00000	0.00000	L 46 B 3
TR1	R1					AP											01605204	0.00000	0.00000	L 45 B 3
TR1	R1					AP											01605205	0.00000	0.00000	L 44 B 3
TR1	R1					AP											01605206	0.00000	0.00000	L 43 B 3
TR1	R1					AP											01605207	0.00000	0.00000	L 42 B 3
TR1	R1					AP											01605208	0.00000	0.00000	POR SEC 29 14 17
TR1	R1					AP											01605303	0.00000	0.00000	L 39 B 2
TR1	R1					AP											01605304	0.00000	0.00000	L 38 B 2

TR1	R1					AP											01605305	0.00000	0.00000	L 37 B 2
TR1	R1					AP											01605306	0.00000	0.00000	L 36 B 2
TR1	R1					AP											01605307	0.00000	0.00000	L 35 B 2
TR1	R1					AP											01605308	0.00000	0.00000	L 40 & 41
TR1	R1					AP											01606101	0.00000	0.00000	L 2 & POR L 1
TR1	R1					AP											01606106	0.00000	0.00000	POR SEC 28 & 29
TR1	R1					AP											01606201	0.00000	0.22000	POR L 34 B 2
TR1	R1					AP											01606202	0.00000	0.00000	POR L 33 BLK 2
TR1	R1					AP											01606204	0.00000	0.00000	L 30 B 2
TR1	R1					AP											01606206	11.00000	0.00000	POR L 32 B 2
TR1	R1					AP											01606208	0.00000	0.00000	L 31 & POR L 30
TR1	R1					AP											01606301	0.00000	0.00000	POR SEC 28 14 17
TR1	R1					AP											01606305	0.00000	0.00000	POR SEC 28 14 17
TR1	R1					AP											01606308	0.00000	0.00000	POR SEC 28 14 17
TR1	R1					AP											01606310	0.00000	0.00000	POR SEC 28 14 17
TR1	R1					AP											01606311	0.00000	0.00000	POR SEC 28 14 17
TR1	R1					AP											01606312	0.00000	0.45700	RS 24/126
TR1	R1					AP											01606313	11.00000	0.00000	POR SEC 28 14 17
TR1	R1					AP											01606314	0.00000	0.00000	POR SEC 28 14 17
TR1	R1					AP											01606315	0.00000	0.00000	.25 A SEC 29 14
TR1	R1					AP											01606316	0.00000	0.00000	POR SEC 28 14 17
TR1	FR-160					AP											01607111	11.00000	29.00000	SEC 29 14 17
TR1	FR-160					AP											01607112	11.00000	130.32000	SEC 29 14 17
TR1	FR-160					AP											01607113	11.00000	8.00000	SEC 29 14 17
TR1	R1					AP											01608102	0.00000	0.00000	L 59
TR1	R1					AP											01608103	0.00000	0.00000	L 58
TR1	R1					AP											01608104	0.00000	0.00000	L 57
TR1	R1					AP											01608106	0.00000	0.00000	L 55
TR1	R1					AP											01608107	0.00000	0.00000	L 54
TR1	R1					AP											01608108	0.00000	0.00000	L 53
TR1	R1					AP											01608109	0.00000	0.00000	L 52
TR1	R1					AP											01608110	0.00000	0.00000	L 51
TR1	R1					AP											01608112	0.00000	0.00000	L 49
TR1	R1					AP											01608118	0.00000	0.00000	L 39
TR1	R1					AP											01608120	0.00000	0.00000	L 61
TR1	R1					AP											01608121	0.00000	0.00000	POR L 42
TR1	R1					AP											01608128	0.00000	0.00000	L 40
TR1	R1					AP											01608129	0.00000	0.00000	L 41 & POR 42
TR1	R1					AP											01608130	0.00000	0.00000	L 60
TR1	R1					AP											01608136	0.00000	0.00000	L 50
TR1	R1					AP											01608137	0.00000	0.00000	L 45 & POR L 46
TR1	R1					AP											01608138	0.00000	0.00000	L 38
TR1	R1					AP											01608139	0.00000	0.00000	L 56
TR1	R1					AP											01608140	0.00000	0.00000	L 43
TR1	R1					AP											01608141	0.00000	0.00000	L 44
TR1	R1					AP											01608142	0.00000	0.20000	L 48

TR1	R1					AP											01608143	0.00000	0.37000	LOT 47 POR L 46
TR1	R1					AP											01609104	0.00000	0.00000	L 67
TR1	R1					AP											01609105	0.00000	0.00000	L 68
TR1	R1					AP											01609108	0.00000	0.00000	L 74
TR1	R1					AP											01609116	0.00000	0.00000	L 29
TR1	R1					AP											01609118	0.00000	0.00000	L 27
TR1	R1					AP											01609119	0.00000	0.00000	L 26
TR1	R1					AP											01609120	0.00000	0.00000	L 23 24 25
TR1	R1					AP											01609121	0.00000	0.00000	L 22
TR1	R1					AP											01609122	0.00000	0.00000	L 21
TR1	R1					AP											01609123	0.00000	0.00000	POR L 20
TR1	R1					AP											01609125	0.00000	0.00000	L 62
TR1	R1					AP											01609126	0.00000	0.00000	L 69
TR1	R1					AP											01609127	0.00000	0.00000	L 75
TR1	R1					AP											01609128	0.00000	0.00000	L 76
TR1	R1					AP											01609129	11.00000	0.00000	L 118
TR1	R1					AP											01609130	0.00000	0.00000	L 117
TR1	R1					AP											01609133	0.00000	0.00000	POR L 20
TR1	R1					AP											01609135	0.00000	0.00000	L 63 & 64
TR1	R1					AP											01609140	0.00000	0.00000	POR L 65
TR1	R1					AP											01609141	0.00000	0.00000	L 66 & POR 65
TR1	R1					AP											01609144	11.00000	0.00000	L 37
TR1	R1					AP											01609145	0.00000	0.00000	L 36
TR1	R1					AP											01609146	0.00000	0.00000	L 28
TR1	R1					AP											01609147	2.00000	0.00000	COMMON AREA
TR1	R1					AP											01609148	0.00000	0.00000	L 30 RS 18-18
TR1	R1					AP											01609149	0.00000	0.00000	L 31
TR1	R1					AP											01609150	0.00000	0.11700	L 32
TR1	R1					AP											01609151	0.00000	0.11500	L 33
TR1	R1					AP											01609155	0.00000	0.00000	L 35
TR1	R1					AP											01609156	0.00000	0.00000	L 34
TR1	R1					AP											01609157	0.00000	0.00000	L 70
TR1	R1					AP											01609158	0.00000	0.00000	L 71 & POR 72
TR1	R1					AP											01609159	0.00000	0.00000	L 77 & 78
TR1	R1					AP											01609163	0.00000	0.00000	LOT 72 & POR RD
TR1	R1					AP											01609164	0.00000	0.00000	LOT 73 & POR RD
TR1	R1					AP											01610102	0.00000	0.00000	POR L 90
TR1	R1					AP											01610103	0.00000	0.00000	POR 95 96 & 97
TR1	R1					AP											01610104	0.00000	0.00000	L 19
TR1	R1					AP											01610106	0.00000	0.00000	L 15 & 16
TR1	R1					AP											01610110	0.00000	0.00000	L 8
TR1	R1					AP											01610113	0.00000	0.00000	L 3 & POR L 2
TR1	R1					AP											01610114	0.00000	0.00000	POR L 1 & 2
TR1	R1					AP											01610126	11.00000	0.00000	L 105 & POR L 90
TR1	R1					AP											01610131	0.00000	0.00000	L 100 & POR L 95
TR1	R1					AP											01610132	0.00000	0.00000	L 99 & POR L 96

TR1	R1					AP											01610133	0.00000	0.00000	L 98 & POR L 97
TR1	R1					AP											01610149	0.00000	0.00000	L 18
TR1	R1					AP											01610150	0.00000	0.00000	L 17
TR1	R1					AP											01610151	0.00000	0.00000	POR L 97
TR1	R1					AP											01610152	0.00000	0.00000	POR L 1
TR1	R1					AP											01610153	11.00000	0.00000	POR L 91
TR1	R1					AP											01610154	11.00000	0.00000	POR L 92
TR1	R1					AP											01610155	0.00000	0.00000	POR L 93
TR1	R1					AP											01610156	11.00000	0.00000	L 102 POR 93
TR1	R1					AP											01610157	0.00000	0.00000	L 103 POR 92
TR1	R1					AP											01610158	11.00000	0.00000	L 104 POR 91
TR1	R1					AP											01610159	0.00000	0.00000	POR L 94
TR1	R1					AP											01610160	11.00000	0.00000	L 101 POR L 94
TR1	R1					AP											01610161	0.00000	0.00000	POR L 88 RS17-53
TR1	R1					AP											01610162	11.00000	0.00000	POR L 89
TR1	R1					AP											01610163	0.00000	0.00000	L 106 POR L 89
TR1	R1					AP											01610164	11.00000	0.00000	L 107 POR L 88
TR1	R1					AP											01610165	0.00000	0.00000	POR L 80
TR1	R1					AP											01610166	0.00000	0.00000	POR L 81
TR1	R1					AP											01610167	0.00000	0.00000	POR L 82
TR1	R1					AP											01610168	0.00000	0.00000	POR L 83
TR1	R1					AP											01610169	0.00000	0.00000	POR L 84
TR1	R1					AP											01610170	0.00000	0.00000	POR L 85
TR1	R1					AP											01610171	11.00000	0.00000	L 110 POR L 85
TR1	R1					AP											01610172	0.00000	0.00000	L 111 POR L 84
TR1	R1					AP											01610173	0.00000	0.00000	L 112 POR L 83
TR1	R1					AP											01610176	11.00000	0.00000	L 115 POR L 80
TR1	R1					AP											01610177	0.00000	0.14000	RS 32/36/1
TR1	R1					AP											01610178	0.00000	0.00000	POR L 79
TR1	R1					AP											01610179	11.00000	0.00000	L 109 POR L 86
TR1	R1					AP											01610180	0.00000	0.00000	POR L 86
TR1	R1					AP											01610181	0.00000	0.00000	POR L 87
TR1	R1					AP											01610182	11.00000	0.00000	L 108 POR L 87
TR1	R1					AP											01610183	0.00000	0.00000	L 14
TR1	R1					AP											01610184	0.00000	0.00000	L 13
TR1	R1					AP											01610185	0.00000	0.00000	L 12
TR1	R1					AP											01610186	0.00000	0.00000	L 11
TR1	R1					AP											01610188	0.00000	0.00000	L 4 M B V SUB S
TR1	R1					AP											01610190	0.00000	0.00000	L 5
TR1	R1					AP											01610191	0.00000	0.00000	L 6
TR1	R1					AP											01610192	0.00000	0.00000	L 7
TR1	R1					AP											01610193	0.00000	0.00000	L 113&114 P81&82
TR1	R1					AP											01610194	0.00000	0.00000	R/S 17/53
TA	FR-160					AP											01611001	11.00000	0.00000	SEC 32 14 17
TA	FR-160					AP											01611002	11.00000	0.00000	SEC 32 14 17
TA	FR-160					AP											01612108	11.00000	0.00000	POR SEC 32 14 17

TA	FR-160					AP											01612111	11.00000	3.79000	SEC 32 14 17
TA	FR-160					AP											01612112	11.00000	0.00000	SEC 32 14 17
TR1	R1					AP											01613101	0.00000	4.84000	RS 28/133/1
TR1	R1					AP											01613104	0.00000	3.26000	SEC 33 14 17
TR1	R1					AP											01613105	0.00000	3.23600	RS 30/43/1
TR1	R1					AP											01613106	0.00000	1.49000	RS 27/74/2
TR1	R1					AP											01613107	0.00000	1.62000	RS 27/74/1
TR1	R1					AP											01614105	0.00000	0.00000	POR L 2&3 BLK E
TR1	R1					AP											01614106	0.00000	0.00000	POR L 3 BLK E
TR1	R1					AP											01614107	0.00000	0.00000	L 1 & POR 2 B E
TR1	R1					AP											01614201	0.00000	0.00000	L 10 B A
TR1	R1					AP											01614205	0.00000	0.00000	L 5 B A
TR1	R1					AP											01614206	0.00000	0.00000	L 4 B A
TR1	R1					AP											01614207	0.00000	0.00000	L 3 B A
TR1	R1					AP											01614208	0.00000	0.00000	L 2 B A
TR1	R1					AP											01614209	0.00000	0.00000	L 1 B A
TR1	R1					AP											01614210	0.00000	0.00000	L 11 B A
TR1	R1					AP											01614211	2.00000	0.00000	COMMON AREA
TR1	R1					AP											01614213	0.00000	0.00000	POR L 7 BLK A
TR1	R1					AP											01614216	0.00000	0.00000	POR L 7 BLK A
TR1	R1					AP											01614219	0.00000	0.00000	POR L 7 BLK A
TR1	R1					AP											01614220	0.00000	0.00000	POR L 7 BLK A
TR1	R1					AP											01614221	0.00000	0.00000	POR L 7 BLK A
TR1	R1					AP											01614222	0.00000	0.21000	RS 20/96/2
TR1	R1					AP											01614223	0.00000	0.32000	RS 20/96/1
TR1	R1					AP											01614224	1.00000	0.00000	POR L 7 B A
TR1	R1					AP											01614225	0.00000	0.00000	POR L 6 BLK A
TR1	R1					AP											01614226	0.00000	0.00000	POR L 6 BLK A
TR1	R1					AP											01614227	0.00000	0.00000	L 8 B A
TR1	R1					AP											01614228	0.00000	0.00000	L 9 B A
TR1	R1					AP											01614229	0.00000	0.00000	POR L 7 BLK A
TR1	R1					AP											01614230	11.00000	0.00000	P L7 BA RUB PROP
TR1	R1					AP											01614307	0.00000	0.00000	POR L 6 BLK B
TR1	R1					AP											01614309	0.00000	0.00000	POR L 2 BLK B
TR1	R1					AP											01614310	0.00000	0.00000	POR L 2 BLK B
TR1	R1					AP											01614311	0.00000	0.38300	POR L 5 BLK B
TR1	R1					AP											01614312	0.00000	0.00000	POR L 5 BLK B
TR1	R1					AP											01614314	0.00000	0.00000	POR L 6 BLK B
TR1	R1					AP											01614316	0.00000	0.00000	POR L 4&6 BLK B
TR1	R1					AP											01614317	0.00000	0.00000	POR L 4 BLK B
TR1	R1					AP											01614318	0.00000	0.00000	POR L 4 BLK B
TR1	R1					AP											01614319	11.00000	0.00000	POR L 1 BLK B
TR1	R1					AP											01614320	11.00000	0.00000	POR L 1 BLK B
TR1	R1					AP											01615107	0.00000	0.00000	L 7 B D
TR1	R1					AP											01615117	0.00000	0.39000	RS 26/37/1
TR1	R1					AP											01615119	0.00000	0.00000	POR L 4&5 BLK D

TR1	R1					AP											01615120	11.00000	0.00000	POR L 5&6 BLK D
TR1	R1					AP											01615121	0.00000	0.00000	POR L 3&4 BLK D
TR1	R1					AP											01615122	0.00000	0.00000	POR L 2&3 BLK D
TR1	R1					AP											01615123	0.00000	0.00000	RS26-12 BLK D
TR1	R1					AP											01615124	11.00000	0.00000	POR L 1 BLK D
TR1	R1					AP											01615125	0.00000	0.00000	POR L 1&2 BLK D
TR1	R1					AP											01615126	2.00000	0.00000	POR L 1 BLK D
TR1	R1					AP											01615127	0.00000	0.00000	RS 24/17
TR1	R1					AP											01615128	0.00000	0.00000	POR L 9&10 BLK D
TR1	R1					AP											01615129	0.00000	0.00000	POR L 8&9 BLK D
TR1	R1					AP											01615130	0.00000	0.00000	POR L 8 BLK D
TR1	R1					AP											01615131	0.00000	1.29000	L 15 RS 19-125
TR1	R1					AP											01615132	0.00000	0.00000	POR BL D
TR1	R1					AP											01615133	0.00000	0.70000	L 11 RS 19-125
TR1	R1					AP											01615134	11.00000	0.00000	POR L 14 BLK D
TR1	R1					AP											01615135	0.00000	0.00000	POR L 14 BLK D
TR1	R1					AP											01615136	11.00000	0.00000	POR L 16 BLK D
TR1	R1					AP											01615137	11.00000	0.00000	POR L 16 BLK D
TR1	R1					AP											01615138	11.00000	0.00000	POR L 12 BLK D
TR1	R1					AP											01615139	0.00000	0.00000	POR L 12 BLK D
TR1	R1					AP											01615140	0.00000	0.00000	POR L 13 BLK D
TR1	R1					AP											01615141	11.00000	0.00000	POR L 13 BLK D
TR1	R1					AP											01616108	0.00000	0.00000	POR L 6 BLK C
TR1	R1					AP											01616112	0.00000	0.00000	RS 31/69/1
TR1	R1					AP											01616113	11.00000	0.00000	POR L 2&4 BLK C
TR1	R1					AP											01616115	0.00000	0.00000	POR L 3 BLK C
TR1	R1					AP											01616116	0.00000	0.00000	POR L 4 BLK C
TR1	R1					AP											01616117	0.00000	0.00000	POR L 2&4 BLK C
TR1	R1					AP											01616118	0.00000	0.00000	POR L 5 BLK C
TR1	R1					AP											01616119	0.00000	0.00000	POR L 5 BLK C
TR1	R1					AP											01616120	0.00000	0.00000	POR L 5 BLK C
TR1	R1					AP											01616121	0.00000	0.00000	POR L 5 BLK C
TR1	R1					AP											01616122	0.00000	0.00000	POR L 2 BLK C
TR1	R1					AP											01616123	0.00000	0.00000	POR L 2 BLK C
TR1	R1					AP											01616125	11.00000	0.00000	POR L 6 BLK C
TR1	R1					AP											01616126	0.00000	0.00000	POR L 4&6 BLK C
TR1	R1					AP											01616127	0.00000	0.00000	POR L 4&6 BLK C
TR1	R1					AP											01616128	0.00000	0.00000	POR L 4 BLK C
TR1	R1					AP											01616129	11.00000	0.00000	POR L 6 BLK C
TR1	R1					AP											01616130	0.00000	0.00000	POR L 3 BLK C
TR1	R1					AP											01616131	0.00000	0.00000	POR L 3 BLK C
TR1	R1					AP											01616132	11.00000	0.66100	R/S 21-85
TR1	R1					AP											01616134	11.00000	0.00000	POR LOT 1 BLK C
TR1	R1					AP											01616135	0.00000	0.00000	RS 23-36
TR1	R1					AP											01616137	11.00000	0.00000	POR L 1 BLK C
TR1	R1					AP											01616138	0.00000	0.00000	POR L 1 BLK C

TR1	R1					AP											01616139	0.00000	0.00000	RS 23-36
TR1	R1					AP											01617103	11.00000	0.00000	LOT 9 BLK C
TR1	R1					AP											01617104	11.00000	0.00000	LOT 10 BLK C
TR1	R1					AP											01617105	0.00000	0.00000	POR L 7 BLK C
TR1	R1					AP											01617106	0.00000	0.30000	POR L 7 BLK C
TR1	R1					AP											01617107	0.00000	0.37000	RS 31/4/1
TR1	R1					AP											01617108	11.00000	0.00000	POR L 8 BLK C
TR1	R1					AP											01617109	0.00000	0.00000	POR L 8 BLK C
TR1	R1					AP											01618101	11.00000	0.00000	L 18 BLK D
TR1	R1					AP											01618102	11.00000	0.00000	L 20 BLK D
TR1	R1					AP											01618103	11.00000	0.00000	L 22 BLK D
TR1	R1					AP											01618104	11.00000	0.00000	L 24 BLK D
TR1	R1					AP											01618105	11.00000	0.00000	L 26 BLK D
TR1	R1					AP											01618106	0.00000	0.00000	L 27 B D
TR1	R1					AP											01618112	11.00000	0.00000	POR L 17 BLK D
TR1	R1					AP											01618113	0.00000	0.00000	POR BL D
TR1	R1					AP											01618114	11.00000	0.00000	POR L 25 BLK D
TR1	R1					AP											01618115	0.00000	0.00000	POR L 25 BLK D
TR1	R1					AP											01618116	0.00000	0.48000	RS 20/126/1
TR1	R1					AP											01618117	11.00000	0.00000	POR L 21 BLK D
TR1	R1					AP											01618118	11.00000	0.00000	POR L 19 BLK D
TR1	R1					AP											01618119	0.00000	0.00000	POR L 19 BLK D
TR1	R1					AP											01618120	0.00000	0.00000	POR L 23 BLK D
TR1	R1					AP											01618121	0.00000	0.00000	POR L 23 BLK D
TR1	R1					AP											01619109	0.00000	0.00000	L 9 B F
TR1	R1					AP											01619110	0.00000	0.00000	L 10 B F
TR1	R1					AP											01619111	0.00000	0.00000	L 11 B F
TR1	R1					AP											01619112	0.00000	0.00000	L 12 B F
TR1	R1					AP											01619113	0.00000	0.00000	L 13 B F
TR1	R1					AP											01619114	0.00000	0.00000	L 14 B F
TR1	R1					AP											01619118	0.00000	0.00000	POR L 8 BLK F
TR1	R1					AP											01619120	0.00000	0.00000	POR L 1 & 2 BL F
TR1	R1					AP											01619121	0.00000	0.00000	POR L 2 BLK F
TR1	R1					AP											01619122	0.00000	0.00000	POR L 2&4 BLK F
TR1	R1					AP											01619123	0.00000	0.00000	POR L 4&6 BLK F
TR1	R1					AP											01619124	0.00000	0.00000	POR L 6&8 BLK F
TR1	R1					AP											01619125	0.00000	0.00000	POR L 15 BLK F
TR1	R1					AP											01619126	0.00000	0.00000	POR L 15 BLK F
TR1	R1					AP											01619127	0.00000	0.00000	POR L 16 BLK F
TR1	R1					AP											01619128	0.00000	0.00000	POR L 16 BLK F
TR1	R1					AP											01619130	0.00000	0.00000	POR L 1 BLK F
TR1	R1					AP											01619131	0.00000	0.00000	POR L 1&3 BLK F
TR1	R1					AP											01619132	0.00000	0.00000	POR L 3&5 BLK F
TR1	R1					AP											01619133	0.00000	0.00000	POR L 5&7 BLK F
TR1	R1					AP											01619134	0.00000	0.00000	POR L 7 BLK F
TR1	R1					AP											01620102	0.00000	0.00000	POR L 1 BLK J

TR1	R1					AP											01620103	0.00000	0.00000	POR L 1 BLK J
TR1	R1					AP											01620201	0.00000	0.00000	L 13 B H
TR1	R1					AP											01620202	0.00000	0.00000	L 11 B H
TR1	R1					AP											01620203	0.00000	0.00000	L 10 B H
TR1	R1					AP											01620204	0.00000	0.00000	L 9 B H
TR1	R1					AP											01620205	0.00000	0.00000	L 7 B H
TR1	R1					AP											01620206	0.00000	0.58000	RS 33/1/1
TR1	R1					AP											01620207	0.00000	0.00000	L 14 B H
TR1	R1					AP											01620208	0.00000	0.00000	L 12 B H
TR1	R1					AP											01620213	0.00000	0.00000	L 2 B H
TR1	R1					AP											01620216	0.00000	0.00000	POR L 6 BLK H
TR1	R1					AP											01620217	0.00000	0.00000	POR L 1 BLK H
TR1	R1					AP											01620218	0.00000	0.00000	POR L 1 BLK H
TR1	R1					AP											01620219	0.00000	0.00000	POR L 6 BLK H
TR1	R1					AP											01620220	0.00000	0.00000	L 8 & POR 6 B H
TR1	R1					AP											01620221	0.00000	0.00000	POR L 3 BLK H
TR1	R1					AP											01620222	0.00000	0.00000	POR L 3 BLK H
TR1	R1					AP											01620223	0.00000	0.54000	PM 44/9/1
TR1	R1					AP											01620224	0.00000	0.26200	PM 44/9/2
TR1	R1					AP											01620302	0.00000	0.00000	POR L 1 BLK G
TR1	R1					AP											01620303	0.00000	0.00000	POR L 1 BLK G
TR1	R1					AP											01621106	0.00000	0.00000	RS 25/75/1
TR1	R1					AP											01621108	0.00000	0.00000	POR L 5 & 6 B G
TR1	R1					AP											01621109	0.00000	0.00000	POR L 2 BLK G
TR1	R1					AP											01621111	0.00000	0.00000	POR L 5 BLK G
TR1	R1					AP											01621112	0.00000	0.00000	POR L 4 & 5 B G
TR1	R1					AP											01621113	0.00000	0.41300	POR L 3 & 4 B G
TR1	R1					AP											01621114	0.00000	0.00000	POR L 3 BLK G
TR1	R1					AP											01621115	0.00000	0.21000	RS 22/62/1
TR1	R1					AP											01622102	0.00000	0.00000	L 7 B G
TR1	R1					AP											01622103	0.00000	0.00000	RS 29/62/1
TR1	R1					AP											01622104	0.00000	0.00000	L 9 B G
TR1	R1					AP											01622105	0.00000	0.00000	RS 30/89 L10 B G
TR1	R1					AP											01622106	2.00000	0.00000	COMMON AREA
TR1	R1					AP											01622107	0.00000	0.00000	L 12 B G
TR1	R1					AP											01622114	0.00000	0.00000	L 14 POR 13 BG
TR1	R1					AP											01622115	0.00000	0.00000	POR L 13 BLK G
TR1	R1					AP											01623107	0.00000	0.00000	POR L 4 & 5 BG
TR1	R1					AP											01623109	0.00000	0.00000	PORS L 3 & 4 B J
TR1	R1					AP											01623110	0.00000	0.00000	POR L 4 BLK J
TR1	R1					AP											01623111	0.00000	0.00000	POR L 5 BLK J
TR1	R1					AP											01623112	0.00000	0.00000	POR L 3 BLK J
TR1	R1					AP											01623113	0.00000	0.00000	POR L 2 & 3 B J
TR1	R1					AP											01623114	0.00000	0.00000	POR L 2 BLK J
TR1	R1					AP											01623201	0.00000	0.00000	L 17 B H
TR1	R1					AP											01623202	0.00000	0.00000	L 15 B H

TR1	R1					AP											01623203	0.00000	0.00000	L 24 B H
TR1	R1					AP											01623204	0.00000	0.00000	L 22 B H
TR1	R1					AP											01623205	0.00000	0.00000	L 20 B H
TR1	R1					AP											01623206	0.00000	0.00000	L 18 B H
TR1	R1					AP											01623207	0.00000	0.00000	L 16 B H
TR1	R1					AP											01623208	0.00000	0.00000	L 19 B H
TR1	R1					AP											01623209	0.00000	0.00000	L 21 B H
TR1	R1					AP											01623210	0.00000	0.00000	L 23 B H
TR1	R1					AP											01624101	0.00000	0.00000	L 11 B J
TR1	R1					AP											01624102	0.00000	0.00000	L 10 B J
TR1	R1					AP											01624103	0.00000	0.00000	L 9 B J
TR1	R1					AP											01624104	0.00000	0.00000	L 8 B J
TR1	R1					AP											01624105	0.00000	0.00000	L 7 B J
TR1	R1					AP											01624107	0.00000	0.00000	RS 26/148/1
TR1	R1					AP											01624108	11.00000	0.24500	TR 1 RS 22-33
TR1	R1					AP											01624202	0.00000	0.32000	RS 24/36
TR1	R1					AP											01624205	0.00000	0.00000	POR L 27 BLK H
TR1	R1					AP											01624206	0.00000	0.00000	L 26 B H
TR1	R1					AP											01624207	0.00000	0.00000	L 25 B H
TR1	R1					AP											01624208	0.00000	0.35000	RS 29/90
TR1	R1					AP											01624209	0.00000	0.00000	POR L 30 BLK H
TR1	R1					AP											01624210	0.00000	0.00000	POR L 30 BLK H
TR1	R1					AP											01624212	0.00000	0.00000	POR L 29 BLK H
TR1	R1					AP											01624213	0.00000	0.00000	POR L 28 BLK H
TR1	R1					AP											01624214	0.00000	0.00000	POR L 29 BLK H
TR1	R1					AP											01624215	0.00000	0.00000	POR BL H
TR1	R1					AP											01625101	0.00000	0.00000	L 24 B G
TR1	R1					AP											01625102	0.00000	0.00000	L 21 22 23 B G
TR1	R1					AP											01625104	0.00000	0.00000	L 18 B G
TR1	R1					AP											01625105	0.00000	0.74000	L 17 B G
TR1	R1					AP											01625106	0.00000	0.00000	L 16 B G
TR1	R1					AP											01625107	0.00000	0.00000	L 15 B G
TR1	R1					AP											01625108	0.00000	0.00000	L 25 B G
TR1	R1					AP											01625112	0.00000	0.79600	PM 49/147/1
TR1	R1					AP											01625113	0.00000	0.96500	PM 49/147/2
CT	CC					AP											01626101	0.00000	0.23000	SEC 29 14 17
CT	CC					AP											01626102	0.00000	0.35000	SEC 29 14 17
CT	CC					AP											01626106	0.00000	0.94000	SEC 29 14 17
CT	CC					AP											01626107	11.00000	0.25000	SEC 29 14 17
CT	CC					AP											01626111	0.00000	0.40000	RS 20/86/1
CT	CC					AP											01626112	0.00000	0.42000	RS 20/86/2
CT	CC					AP											01626113	0.00000	0.41000	RS 20/86/3
CT	CC					AP											01626114	11.00000	4.64000	TR 4 RS 20-86
TR1	R1					AP											01628102	0.00000	0.00000	L 2 B B
TR1	R1					AP											01628103	0.00000	0.00000	L 3 B B
TR1	R1					AP											01628104	11.00000	0.00000	L 4 BLK B

TR1	R1					AP											01628105	11.00000	0.00000	L 5 BLK B
TR1	R1					AP											01628106	11.00000	0.00000	L 6 BLK B
TR1	R1					AP											01628107	0.00000	0.00000	L 7 B B
TR1	R1					AP											01628108	0.00000	0.00000	L 8 B B
TR1	R1					AP											01628109	0.00000	0.00000	L 9 B B
TR1	R1					AP											01628110	0.00000	0.00000	L 1
TR1	R1					AP											01628201	0.00000	0.00000	L 1 B A
TR1	R1					AP											01628202	0.00000	0.00000	L 2 B A
TR1	R1					AP											01628203	11.00000	0.00000	L 3 BLK A
TR1	R1					AP											01628204	0.00000	0.00000	L 4 B A
TR1	R1					AP											01628205	0.00000	0.00000	L 5 B A
TR1	R1					AP											01628206	11.00000	0.00000	L 6 BLK A
TR1	R1					AP											01628207	11.00000	0.00000	L 7 BLK A
TR1	R1					AP											01628208	11.00000	0.00000	L 8 BLK A
TR1	R1					AP											01628209	11.00000	0.00000	L 9 BLK A
TR1	R1					AP											01628301	0.00000	0.00000	L 1 B D
TR1	R1					AP											01628302	0.00000	0.00000	L 2 B D
TR1	R1					AP											01628305	11.00000	0.00000	POR LOT 3
TR1	R1					AP											01628307	0.00000	0.00000	L4&POR L3 B D
TR1	R1					AP											01628401	0.00000	0.00000	L 3 B F
TR1	R1					AP											01628402	0.00000	0.00000	L 4 B F
TR1	R1					AP											01628403	0.00000	0.00000	L 5 B F
TR1	R1					AP											01628404	0.00000	0.00000	L 6 B F
TR1	R1					AP											01629101	0.00000	0.00000	L 1 B C
TR1	R1					AP											01629102	11.00000	0.00000	L 2 BLK C
TR1	R1					AP											01629201	0.00000	0.00000	L 5 B D
TR1	R1					AP											01629202	11.00000	0.00000	L 6 BLK D
TR1	R1					AP											01629204	11.00000	0.00000	L 8 BLK D
TR1	R1					AP											01629205	11.00000	0.00000	L 9 BLK D
TR1	R1					AP											01629206	11.00000	0.00000	L 10 BLK D
TR1	R1					AP											01629207	11.00000	0.00000	L 11 BLK D
TR1	R1					AP											01629208	11.00000	0.00000	LOT 12 BLK D
TR1	R1					AP											01629209	11.00000	0.00000	LOT 13 BLK D
TR1	R1					AP											01629210	11.00000	0.00000	LOT 14 BLK D
TR1	R1					AP											01629211	11.00000	0.00000	LOT 15 BLK D
TR1	R1					AP											01629219	11.00000	0.00000	LOT 23 BLK D
TR1	R1					AP											01629220	11.00000	0.00000	LOT 24 BLK D
TR1	R1					AP											01629221	11.00000	0.00000	LOT 25 BLK D
TR1	R1					AP											01629222	11.00000	0.00000	LOT 26 BLK D
TR1	R1					AP											01629223	11.00000	0.00000	LOT 27 BLK D
TR1	R1					AP											01629224	11.00000	0.00000	LOT 28 BLK D
TR1	R1					AP											01629225	11.00000	0.00000	LOT 29 BLK D
TR1	R1					AP											01629226	11.00000	0.00000	LOT 30 BLK D
TR1	R1					AP											01629227	11.00000	0.00000	LOT 31 BLK D
TR1	R1					AP											01629228	11.00000	0.00000	LOT 32 BLK D
TR1	R1					AP											01629229	11.00000	0.00000	LOT 33 BLK D

TR1	R1					AP											01629230	11.00000	0.00000	LOT 34 BLK D
TR1	R1					AP											01629231	0.00000	0.00000	L 35 B D
TR1	R1					AP											01629232	0.00000	0.00000	L 36 B D
TR1	R1					AP											01629233	0.00000	0.00000	POR BL D
TR1	R1					AP											01629234	0.00000	0.00000	POR BL D
TR1	R1					AP											01629301	0.00000	0.00000	L 1 B E
TR1	R1					AP											01629302	0.00000	0.00000	L 2 B E
TR1	R1					AP											01629305	0.00000	0.00000	L 3 POR L 4 B E
TR1	R1					AP											01629402	0.00000	0.42000	L 2 B F
TR1	R1					AP											01630003	0.00000	0.53000	SEC 20 14 17
TR1	R1					AP											01630007	0.00000	0.04000	SEC 20 14 17
TR1	R1					AP											01630009	0.00000	0.56000	SEC 20 14 17
TR1	R1					AP											01630010	0.00000	0.42000	SEC 20 14 17
TR1	R1					AP											01630021	0.00000	1.81000	SEC 20 14 17
TR1	R1					AP											01630023	0.00000	0.69000	RS 30/123/1
TR1	R1					AP											01630024	0.00000	0.22000	SEC 20 14 17
TR1	R1					AP											01630026	0.00000	0.23000	SEC 20 14 17
TR1	R1					AP											01630027	0.00000	0.32000	SEC 20 14 17
TR1	R1					AP											01630037	0.00000	1.52000	SEC 20 14 17
TR1	R1					AP											01630038	0.00000	4.75000	SEC 20 14 17
TR1	R1					AP											01630040	11.00000	0.01400	SEC 20&21 14 17
TR1	R1					AP											01630045	0.00000	0.35000	SEC 20 14 17
TR1	R1					AP											01630046	0.00000	0.40000	SEC 20 14 17
TR1	R1					AP											01630047	11.00000	0.00000	SEC 20 14 17
TR1	R1					AP											01630053	0.00000	0.23000	RS 18/122/2
TR1	R1					AP											01630059	0.00000	5.79300	PRS 18/122/1
TR1	R1					AP											01630060	0.00000	2.27200	RS 32/68/1
TR1	R1					AP											01631104	0.00000	0.00000	POR L 1 BLK C
TR1	R1					AP											01631105	0.00000	0.00000	POR L 1 BLK C
TR1	R1					AP											01631106	0.00000	0.23000	POR L 2 BLK C
TR1	R1					AP											01631107	0.00000	0.00000	POR L 2 BLK C
TR1	R1					AP											01631108	0.00000	0.00000	POR L 3 BLK C
TR1	R1					AP											01631110	0.00000	0.00000	POR BL C
TR1	R1					AP											01631201	0.00000	0.00000	L 2 B A
TR1	R1					AP											01631203	0.00000	0.00000	POR L 1 BLK A
TR1	R1					AP											01631204	0.00000	0.00000	POR L 1 BLK A
TR1	R1					AP											01631301	0.00000	0.00000	L A
TR1	R1					AP											01631303	0.00000	0.00000	L 2 B B
TR1	R1					AP											01631308	0.00000	0.23000	RS 26/114/1
TR1	R1					AP											01631310	0.00000	0.00000	POR L 3 BLK D
TR1	R1					AP											01631311	0.00000	0.00000	POR L 3 BLK D
TR1	R1					AP											01631312	0.00000	0.00000	POR L 2 BLK D
TR1	R1					AP											01631313	0.00000	0.00000	POR L 2 BLK D
TR1	R1					AP											01631314	0.00000	0.28600	RS 27/75/1
TR1	R1					AP											01631315	0.00000	0.00000	POR L 1 BLK B
TR1	R1					AP											01631316	0.00000	0.35000	PM 42/50/1

TR1	R1					AP											01632101	0.00000	0.00000	L 1
TR1	R1					AP											01632103	11.00000	0.00000	L 3
TR1	R1					AP											01632106	0.00000	0.00000	L 6
TR1	R1					AP											01632109	11.00000	0.00000	L 9
TR1	R1					AP											01632111	11.00000	0.00000	POR LOT 2
TR1	R1					AP											01632112	11.00000	0.00000	POR L 2
TR1	R1					AP											01632113	11.00000	0.00000	POR L 4
TR1	R1					AP											01632114	11.00000	0.00000	POR L 4
TR1	R1					AP											01632115	0.00000	0.00000	POR L 5
TR1	R1					AP											01632116	11.00000	0.00000	POR L 5
TR1	R1					AP											01632117	11.00000	0.00000	POR LOT 10
TR1	R1					AP											01632118	11.00000	0.00000	POR L 10
TR1	R1					AP											01632208	11.00000	0.00000	L 97
TR1	R1					AP											01632211	0.00000	44.00000	POR L 98
TR1	R1					AP											01632212	0.00000	0.00000	POR L 98
TR1	R1					AP											01632213	11.00000	0.00000	POR L 91
TR1	R1					AP											01632214	11.00000	0.00000	POR L 91
TR1	R1					AP											01632215	11.00000	0.00000	POR L 99
TR1	R1					AP											01632216	11.00000	0.00000	POR L 99
TR1	R1					AP											01632217	0.00000	0.00000	POR L 99
TR1	R1					AP											01632302	0.00000	0.00000	L 16
TR1	R1					AP											01632305	0.00000	0.24600	RS 21/145/1
TR1	R1					AP											01632306	0.00000	0.00000	POR L 14
TR1	R1					AP											01632307	0.00000	0.00000	POR L 17
TR1	R1					AP											01632308	0.00000	0.00000	POR L 17
TR1	R1					AP											01632311	0.00000	0.00000	POR LOT 15
TR1	R1					AP											01632401	0.00000	0.00000	L 11
TR1	R1					AP											01632404	0.00000	0.00000	POR L 13
TR1	R1					AP											01632405	0.00000	0.00000	POR L 12
TR1	R1					AP											01632406	0.00000	0.00000	RS 30/78/1
TR1	R1					AP											01633111	11.00000	0.00000	POR L 26
TR1	R1					AP											01633112	11.00000	0.00000	POR L 26
TR1	R1					AP											01633210	0.00000	0.00000	L 56
TR1	R1					AP											01633211	0.00000	0.00000	L 57
TR1	R1					AP											01633222	11.00000	0.00000	POR L 58
TR1	R1					AP											01633224	0.00000	0.00000	POR L 63
TR1	R1					AP											01633225	11.00000	0.00000	POR L 60
TR1	R1					AP											01633226	0.00000	0.00000	POR L 60
TR1	R1					AP											01633229	11.00000	0.00000	POR L 61
TR1	R1					AP											01633230	0.00000	0.00000	POR L 61 & 62
TR1	R1					AP											01633232	11.00000	0.00000	POR L 59
TR1	R1					AP											01633234	11.00000	0.00000	POR L 65
TR1	R1					AP											01633235	0.00000	0.00000	POR L 65
TR1	R1					AP											01633236	0.00000	0.00000	POR L 62
TR1	R1					AP											01633238	11.00000	0.00000	POR L 59
TR1	R1					AP											01633239	0.00000	0.00000	POR L 58 & 59

TR1	R1					AP											01633305	11.00000	0.00000	RS 23-126
TR1	R1					AP											01633306	0.00000	0.00000	POR L 18
TR1	R1					AP											01633307	0.00000	0.00000	POR L 19
TR1	R1					AP											01633308	0.00000	0.00000	POR L 19
TR1	R1					AP											01636102	0.00000	0.00000	L 2
TR1	R1					AP											01636103	0.00000	0.00000	L 3
TR1	R1					AP											01636104	11.00000	0.00000	L 4
TR1	R1					AP											01636105	0.00000	0.00000	L 5
TR1	R1					AP											01636109	11.00000	0.00000	RS 23-125
TR1	R1					AP											01636110	0.00000	0.00000	L 39
TR1	R1					AP											01636111	0.00000	0.00000	L 40
TR1	R1					AP											01636112	0.00000	0.00000	L 41
TR1	R1					AP											01636113	0.00000	0.00000	L 42
TR1	R1					AP											01636114	0.00000	0.00000	L 43
TR1	R1					AP											01636115	0.00000	0.00000	L 44
TR1	R1					AP											01636116	11.00000	0.00000	L 45
TR1	R1					AP											01636118	11.00000	0.00000	L 47
TR1	R1					AP											01636119	11.00000	0.00000	L 48
TR1	R1					AP											01636120	0.00000	0.00000	L 49
TR1	R1					AP											01636121	0.00000	0.00000	L 50
TR1	R1					AP											01636122	0.00000	0.00000	L 51
TR1	R1					AP											01636123	0.00000	0.00000	L 52
TR1	R1					AP											01636124	0.00000	0.00000	L 53
TR1	R1					AP											01636126	11.00000	0.00000	L 35 POR L 36
TR1	R1					AP											01636127	11.00000	0.00000	L 37 POR 36
TR1	R1					AP											01636129	0.00000	0.38000	L 46
TR1	R1					AP											01636130	0.00000	0.00000	POR LOT 1
TR1	R1					AP											01636202	0.00000	0.00000	L 55
TR1	R1					AP											01636203	0.00000	0.00000	L 56
TR1	R1					AP											01636205	0.00000	0.00000	L 58
TR1	R1					AP											01636206	0.00000	0.00000	L 59
TR1	R1					AP											01636207	0.00000	0.00000	L 60
TR1	R1					AP											01636208	0.00000	0.00000	L 57
TR1	R1					AP											01636209	0.00000	0.48300	RS 22/13/1
TR1	R1					AP											01636301	0.00000	0.00000	L 6
TR1	R1					AP											01636302	0.00000	0.00000	L 7
TR1	R1					AP											01636303	11.00000	0.00000	L 8
TR1	R1					AP											01636304	0.00000	0.00000	L 9
TR1	R1					AP											01637101	0.00000	0.00000	L 10
TR1	R1					AP											01637102	0.00000	0.00000	L 11
TR1	R1					AP											01637104	0.00000	0.00000	L 13
TR1	R1					AP											01637105	11.00000	0.00000	L 14
TR1	R1					AP											01637106	0.00000	0.00000	L 15
TR1	R1					AP											01637107	11.00000	0.00000	L 16
TR1	R1					AP											01637108	11.00000	0.00000	L 17
TR1	R1					AP											01637109	0.00000	0.00000	L 18

TR1	R1					AP											01637110	0.00000	0.00000	L 19
TR1	R1					AP											01637111	0.00000	0.00000	L 20
TR1	R1					AP											01637112	11.00000	0.00000	POR L 12
TR1	R1					AP											01637113	11.00000	0.00000	POR L 12
TR1	R1					AP											01637201	0.00000	0.00000	L 21
TR1	R1					AP											01637202	0.00000	0.00000	L 22
TR1	R1					AP											01637203	0.00000	0.00000	L 23
TR1	R1					AP											01637204	0.00000	0.00000	L 24
TR1	R1					AP											01637205	0.00000	0.00000	L 25
TR1	R1					AP											01637206	0.00000	0.00000	L 26
TR1	R1					AP											01637301	0.00000	0.00000	L 27
TR1	R1					AP											01637302	0.00000	0.00000	L 28
TR1	R1					AP											01637303	0.00000	0.00000	L 29
TR1	R1					AP											01637304	0.00000	0.00000	L 30
TR1	R1					AP											01637305	0.00000	0.00000	L 31
TR1	R1					AP											01637306	11.00000	0.00000	L 32
TR1	R1					AP											01637307	11.00000	0.00000	L 33
TR1	R1					AP											01637308	0.00000	0.00000	L 34
TR1	R1					AP											01638102	0.00000	0.00000	L 1
TR1	R1					AP											01638103	0.00000	0.00000	L 2
TR1	R1					AP											01638104	0.00000	0.00000	L 3
TR1	R1					AP											01638105	0.00000	0.00000	L 4
TR1	R1					AP											01638106	0.00000	0.00000	L 5
TR1	R1					AP											01638107	0.00000	0.00000	L 6
TR1	R1					AP											01638108	0.00000	0.00000	L 7
TR1	R1					AP											01638109	0.00000	0.24200	L 8
TR1	R1					AP											01638110	0.00000	0.00000	L 9
TR1	R1					AP											01638111	0.00000	0.00000	L 10
TR1	R1					AP											01638112	0.00000	0.00000	L 11
TR1	R1					AP											01638113	11.00000	0.00000	L 12
TR1	R1					AP											01638114	11.00000	0.00000	L 13
TR1	R1					AP											01638115	0.00000	0.00000	L 14
TR1	R1					AP											01638116	0.00000	0.00000	L 15
TR1	R1					AP											01638117	11.00000	0.00000	L 16
TR1	R1					AP											01638118	0.00000	0.00000	L 17
TR1	R1					AP											01638119	11.00000	0.00000	L 18
TR1	R1					AP											01638120	11.00000	0.00000	L 19
TR1	R1					AP											01638121	11.00000	0.00000	LOT 20
TR1	R1					AP											01638122	11.00000	0.00000	L 21
TR1	R1					AP											01638124	11.00000	0.00000	L 22
TR1	R1					AP											01638201	0.00000	0.00000	L 23
TR1	R1					AP											01638202	11.00000	0.00000	L 24
TR1	R1					AP											01638203	11.00000	0.00000	L 25
TR1	R1					AP											01638204	0.00000	0.00000	L 26
TR1	R1					AP											01638205	11.00000	0.00000	L 27
TR1	R1					AP											01638206	0.00000	0.00000	L 28

TR1	R1					AP											01638207	0.00000	0.23000	L 29
TR1	R1					AP											01638208	0.00000	0.00000	L 30
TR1	R1					AP											01638209	0.00000	0.00000	L 31
TR1	R1					AP											01638210	0.00000	0.00000	L 32
TR1	R1					AP											01638211	0.00000	0.00000	L 33
TR1	R1					AP											01638212	0.00000	0.00000	L 34
TR1	R1					AP											01638213	0.00000	0.00000	L 35
TR1	R1					AP											01638214	0.00000	0.00000	L 36
TR1	R1					AP											01638215	0.00000	0.00000	L 37
TR1	R1					AP											01638216	0.00000	0.00000	L 38
TR1	R1					AP											01638217	0.00000	0.00000	L 39
TR1	R1					AP											01638218	0.00000	0.00000	L 40
TR1	R1					AP											01638219	11.00000	0.00000	PARCEL D
TR1	R1					AP											01638220	0.00000	0.00000	L 41
TR1	R1					AP											01639002	0.00000	0.52000	SEC 32 14 17
TR1	R1					AP											01639005	0.00000	0.35000	SEC 32 14 17
TR1	R1					AP											01639007	0.00000	0.23000	SEC 32 14 17
TR1	R1					AP											01639008	0.00000	0.23000	SEC 32 14 17
TR1	R1					AP											01640104	0.00000	0.00000	L 4
TR1	R1					AP											01640105	11.00000	0.00000	L 5
TR1	R1					AP											01640106	0.00000	0.00000	L 6
TR1	R1					AP											01640107	0.00000	0.00000	L 7
TR1	R1					AP											01640110	11.00000	0.00000	L 10
TR1	R1					AP											01640111	11.00000	0.00000	L 11
TR1	R1					AP											01640112	0.00000	0.00000	L 12
TR1	R1					AP											01640114	0.00000	0.00000	POR L 3
TR1	R1					AP											01640117	2.00000	0.00000	COMMON AREA
TR1	R1					AP											01640118	0.00000	0.27800	RS 29/71
TR1	R1					AP											01640120	0.00000	0.00000	POR L 9
TR1	R1					AP											01640121	0.00000	0.00000	L 8 POR L 9
CT	CC					AP											01641001	0.00000	0.70000	SEC 29 14 17
CT	CC					AP											01641003	0.00000	1.19000	SEC 29 14 17
TR1	R1					AP											01641005	0.00000	0.46000	SEC 29 14 17
CT	CC					AP											01641007	11.00000	16.50000	SEC 29 14 17
TR1	CC					AP											01641007	11.00000	16.50000	SEC 29 14 17
CT	CC					AP											01641009	0.00000	0.35000	SEC 29 14 17
CT	CC					AP											01641010	0.00000	16.63000	RS 13/99/2
TR1	CC					AP											01641010	0.00000	16.63000	RS 13/99/2
CT	CC					AP											01641011	11.00000	0.02000	SEC 29 14 17
TR1	R1					AP											01642101	0.00000	0.00000	L 42 RUBICON PRO
TR1	R1					AP											01642102	0.00000	0.00000	L 43
TR1	R1					AP											01642103	0.00000	0.00000	L 44 RUB PROP UN
TR1	R1					AP											01642104	0.00000	0.00000	L 45
TR1	R1					AP											01642105	11.00000	0.00000	L 46 RUBICON PRO
TR1	R1					AP											01642106	0.00000	0.00000	L 47 RUBICON PRO
TR1	R1					AP											01642108	11.00000	0.00000	L 48 RUB PROP #2

TR1	R1					AP											01642201	11.00000	0.00000	L 49 RUBICON PRO
TR1	R1					AP											01642202	11.00000	0.00000	L 50 RUBICON PRO
TR1	R1					AP											01642203	11.00000	0.00000	L 51 RUBICON PRO
TR1	R1					AP											01642204	11.00000	0.00000	L 52 RUBICON PRO
TR1	R1					AP											01642205	0.00000	0.00000	L 53 RUBICON PRO
TR1	R1					AP											01642206	11.00000	0.00000	L 54 RUBICON PRO
TR1	R1					AP											01642207	0.00000	0.00000	L 55
TR1	R1					AP											01642208	11.00000	0.00000	L 56
TR1	R1					AP											01642209	0.00000	0.00000	L 57
TR1	R1					AP											01642210	0.00000	0.00000	L 58
TR1	R1					AP											01642211	0.00000	0.00000	L 59
TR1	R1					AP											01642212	0.00000	0.00000	L 60
TR1	R1					AP											01642213	0.00000	0.00000	L 61
TR1	R1					AP											01642214	0.00000	0.00000	L 62
TR1	R1					AP											01642301	11.00000	0.00000	L 109
TR1	R1					AP											01642302	11.00000	0.00000	L 110
TR1	R1					AP											01642303	0.00000	0.00000	L 111
TR1	R1					AP											01642401	11.00000	0.00000	L 105
TR1	R1					AP											01642402	0.00000	0.00000	L 106
TR1	R1					AP											01642403	11.00000	0.00000	L 107
TR1	R1					AP											01642404	11.00000	0.00000	L 108
TR1	R1					AP											01642501	11.00000	0.00000	L 83
TR1	R1					AP											01642502	0.00000	0.00000	L 84
TR1	R1					AP											01643101	0.00000	0.00000	L 104
TR1	R1					AP											01643201	11.00000	0.00000	L 75
TR1	R1					AP											01643202	0.00000	0.00000	L 76
TR1	R1					AP											01643203	0.00000	0.00000	L 77
TR1	R1					AP											01643204	11.00000	0.00000	L 78
TR1	R1					AP											01643205	11.00000	0.00000	L 79
TR1	R1					AP											01643206	0.00000	0.00000	L 80
TR1	R1					AP											01643207	0.00000	0.00000	L 81
TR1	R1					AP											01643208	11.00000	0.00000	L 82
TR1	R1					AP											01643209	0.00000	0.00000	L 85
TR1	R1					AP											01643210	0.00000	0.00000	L 86
TR1	R1					AP											01643211	11.00000	0.00000	L 87
TR1	R1					AP											01643212	0.00000	0.00000	L 88
TR1	R1					AP											01643213	0.00000	0.00000	L 89
TR1	R1					AP											01643214	0.00000	0.00000	L 90
TR1	R1					AP											01643215	0.00000	0.00000	L 91
TR1	R1					AP											01643216	0.00000	0.00000	L 92
TR1	R1					AP											01643217	0.00000	0.00000	L 93
TR1	R1					AP											01643301	0.00000	0.00000	L 63
TR1	R1					AP											01643302	0.00000	0.00000	L 64
TR1	R1					AP											01643401	0.00000	0.00000	L 94
TR1	R1					AP											01643402	0.00000	0.00000	RS 29/6/1
TR1	R1					AP											01643403	11.00000	0.00000	L 96

TR1	R1					AP											01643404	11.00000	0.00000	L 97
TR1	R1					AP											01643405	11.00000	0.00000	L 98
TR1	R1					AP											01643406	0.00000	0.00000	L 99
TR1	R1					AP											01643407	11.00000	0.00000	L 100
TR1	R1					AP											01643408	0.00000	0.00000	L 101
TR1	R1					AP											01643409	0.00000	0.00000	L 102
TR1	R1					AP											01643410	0.00000	0.00000	L 103
TR1	R1					AP											01643501	0.00000	0.00000	L 65
TR1	R1					AP											01643502	0.00000	0.00000	L 66
TR1	R1					AP											01643503	0.00000	0.00000	L 67
TR1	R1					AP											01643504	0.00000	0.00000	L 68
TR1	R1					AP											01643505	0.00000	0.00000	L 69
TR1	R1					AP											01643506	0.00000	0.00000	L 70
TR1	R1					AP											01643507	0.00000	0.00000	L 71
TR1	R1					AP											01643508	0.00000	0.00000	L 72
TR1	R1					AP											01643509	0.00000	0.00000	L 73
TR1	R1					AP											01643510	0.00000	0.00000	L 74
TR1	R1					AP											01644101	11.00000	0.00000	L 115
TR1	R1					AP											01644201	0.00000	0.00000	L 112
TR1	R1					AP											01644202	0.00000	0.00000	L 113
TR1	R1					AP											01644203	11.00000	0.00000	L 114
TR1	R1					AP											01644204	11.00000	0.00000	L 116
TR1	R1					AP											01644206	11.00000	0.00000	L 118
TR1	R1					AP											01644207	11.00000	0.00000	L 119
TR1	R1					AP											01644208	11.00000	0.00000	L 120
TR1	R1					AP											01644209	11.00000	0.00000	L 121
TR1	R1					AP											01644210	11.00000	0.00000	L 122
TR1	R1					AP											01644211	0.00000	0.00000	L 123
TR1	R1					AP											01644212	11.00000	0.00000	L 124
TR1	R1					AP											01644213	11.00000	0.00000	L 125
TR1	R1					AP											01644214	11.00000	0.00000	POR L 117
TR1	R1					AP											01644215	11.00000	0.00000	POR L 117
TR1	R1					AP											01644216	11.00000	0.00000	POR L 117
TR1	R1					AP											01644301	11.00000	0.00000	L 126
TR1	R1					AP											01644302	0.00000	0.00000	L 127
TR1	R1					AP											01644303	0.00000	0.00000	L 128
TR1	R1					AP											01644304	11.00000	0.00000	L 129
TR1	R1					AP											01644305	11.00000	0.00000	L 130
TR1	R1					AP											01644306	0.00000	0.00000	L 131
TR1	R1					AP											01644307	0.00000	0.00000	L 132
TR1	R1					AP											01644308	0.00000	0.00000	L 133
TR1	R1					AP											01644401	11.00000	0.00000	L 150
TR1	R1					AP											01644402	11.00000	0.00000	L 151
TR1	R1					AP											01645101	0.00000	0.00000	RS 23/134 L 140
TR1	R1					AP											01645102	0.00000	0.00000	RS 23/134 L 141
TR1	R1					AP											01645103	11.00000	0.31000	RS 23/134 L 142

TR1	R1					AP											01645104	11.00000	0.32000	RS 23/134 L 143
TR1	R1					AP											01645105	11.00000	0.00000	RS 23/134 L 144
TR1	R1					AP											01645106	0.00000	0.00000	RS 23/134 L 145
TR1	R1					AP											01645107	0.00000	0.00000	RS 23/134 L 146
TR1	R1					AP											01645108	0.00000	0.00000	RS 23/134 L 147
TR1	R1					AP											01645109	0.00000	0.00000	RS 23/134 L 148
TR1	R1					AP											01645110	0.00000	0.00000	RS 23/134 L 149
TR1	R1					AP											01645201	0.00000	0.00000	L 134
TR1	R1					AP											01645202	11.00000	0.00000	L 135
TR1	R1					AP											01645203	11.00000	0.00000	L 136
TR1	R1					AP											01645204	11.00000	0.00000	L 137
TR1	R1					AP											01645205	11.00000	0.00000	L 138
TR1	R1					AP											01645206	0.00000	0.00000	L 139
TR1	R1					AP											01646101	0.00000	0.00000	L A
TR1	R1					AP											01646103	0.00000	0.00000	L 2
TR1	R1					AP											01646104	0.00000	0.00000	L 3
TR1	R1					AP											01646105	11.00000	0.00000	L 4
TR1	R1					AP											01646106	11.00000	0.00000	L 5
TR1	R1					AP											01646107	0.00000	0.00000	L 6
TR1	R1					AP											01646108	0.00000	0.00000	L 7
TR1	R1					AP											01646109	0.00000	0.00000	L 8
TR1	R1					AP											01646110	0.00000	0.00000	L 9
TR1	R1					AP											01646111	0.00000	0.00000	L 10
TR1	R1					AP											01646112	0.00000	0.00000	L 11
TR1	R1					AP											01646113	0.00000	0.00000	L 1
TR1	R1					AP											01646201	11.00000	0.00000	L 28
TR1	R1					AP											01646202	11.00000	0.00000	L 29
TR1	R1					AP											01646203	0.00000	0.00000	L 35
TR1	R1					AP											01646204	11.00000	0.00000	L 30
TR1	R1					AP											01646205	11.00000	0.00000	L 31
TR1	R1					AP											01646206	0.00000	0.00000	L 32
TR1	R1					AP											01646207	0.00000	0.00000	L 33
TR1	R1					AP											01646208	0.00000	0.00000	L 34
TR1	R1					AP											01646209	0.00000	0.00000	POR SEC 32 14 17
TR1	R1					AP											01647101	0.00000	0.00000	L 21
TR1	R1					AP											01647102	11.00000	0.00000	L 22
TR1	R1					AP											01647103	0.00000	0.00000	L 23
TR1	R1					AP											01647104	0.00000	0.00000	L 24
TR1	R1					AP											01647105	11.00000	0.00000	L 25
TR1	R1					AP											01647106	11.00000	0.00000	L 26
TR1	R1					AP											01647107	11.00000	0.00000	L 27
TR1	R1					AP											01647201	11.00000	0.00000	L 12
TR1	R1					AP											01647202	11.00000	0.00000	L 13
TR1	R1					AP											01647203	11.00000	0.00000	L 14
TR1	R1					AP											01647204	11.00000	0.00000	L 15
TR1	R1					AP											01647205	11.00000	0.00000	L 16

TR1	R1					AP											01647206	11.00000	0.00000	L 17
TR1	R1					AP											01647207	11.00000	0.00000	L 18
TR1	R1					AP											01647208	11.00000	0.00000	L 19
TR1	R1					AP											01647209	0.00000	0.00000	L 20
TR1	R1					AP											01648101	0.00000	0.00000	L 188
TR1	R1					AP											01648102	0.00000	0.00000	L 189
TR1	R1					AP											01648103	0.00000	0.00000	L 190
TR1	R1					AP											01648107	11.00000	0.00000	L 194
TR1	R1					AP											01648108	0.00000	0.00000	L 195
TR1	R1					AP											01648109	11.00000	0.00000	L 196
TR1	R1					AP											01648110	11.00000	0.00000	L 197
TR1	R1					AP											01648111	11.00000	0.00000	L 198
TR1	R1					AP											01648112	11.00000	0.00000	L 199
TR1	R1					AP											01648113	11.00000	0.00000	L 200
TR1	R1					AP											01648114	11.00000	0.00000	L 201
TR1	R1					AP											01648115	0.00000	0.00000	L 202
TR1	R1					AP											01648116	11.00000	0.00000	L 203
TR1	R1					AP											01648117	0.00000	0.00000	PM 27/68/A
TR1	R1					AP											01648201	11.00000	0.00000	L 170
TR1	R1					AP											01648202	11.00000	0.00000	L 171
TR1	R1					AP											01648203	11.00000	0.00000	L 172
TR1	R1					AP											01648204	11.00000	0.00000	L 173
TR1	R1					AP											01648205	11.00000	0.00000	L 174
TR1	R1					AP											01648206	11.00000	0.00000	L 175
TR1	R1					AP											01648207	11.00000	0.00000	L 176
TR1	R1					AP											01648208	11.00000	0.00000	L 177
TR1	R1					AP											01648209	11.00000	0.00000	L 178
TR1	R1					AP											01648210	0.00000	0.00000	L 179
TR1	R1					AP											01648211	11.00000	0.00000	L 180
TR1	R1					AP											01648212	11.00000	0.00000	L 181
TR1	R1					AP											01648213	11.00000	0.00000	L 182
TR1	R1					AP											01648214	11.00000	0.00000	L 183
TR1	R1					AP											01648215	0.00000	0.00000	L 184
TR1	R1					AP											01648216	11.00000	0.00000	L 185
TR1	R1					AP											01648217	11.00000	0.00000	L 186
TR1	R1					AP											01648218	11.00000	0.00000	L 187
TR1	R1					AP											01648301	11.00000	0.00000	L 152
TR1	R1					AP											01648302	0.00000	0.00000	L 153
TR1	R1					AP											01648303	11.00000	0.00000	L 154
TR1	R1					AP											01648304	0.00000	0.00000	L 155
TR1	R1					AP											01648305	0.00000	0.00000	L 156
TR1	R1					AP											01648306	0.00000	0.00000	L 157
TR1	R1					AP											01648307	0.00000	0.00000	L 158
TR1	R1					AP											01648308	11.00000	0.00000	L 159
TR1	R1					AP											01648309	11.00000	0.29000	RS 23/134 L 160
TR1	R1					AP											01648310	11.00000	0.31000	RS 23/134 L 161

TR1	R1					AP											01648311	0.00000	0.00000	L 162
TR1	R1					AP											01648312	0.00000	0.00000	L 163
TR1	R1					AP											01648401	11.00000	0.00000	L 164
TR1	R1					AP											01648402	11.00000	0.00000	L 165
TR1	R1					AP											01648403	11.00000	0.00000	L 166
TR1	R1					AP											01648404	11.00000	0.00000	L 167
TR1	R1					AP											01648405	11.00000	0.00000	L 168
TR1	R1					AP											01648406	11.00000	0.00000	L 169
TR1	R1					AP											01649101	11.00000	0.00000	LOT 11
TR1	R1					AP											01649102	11.00000	0.00000	LOT 12
TR1	R1					AP											01649103	11.00000	0.00000	POR S 29 14 17
TR1	R1					AP											01649201	11.00000	0.00000	LOT 10
TR1	R1					AP											01649302	0.00000	0.00000	L 2
TR1	R1					AP											01649304	0.00000	0.00000	L 4
TR1	R1					AP											01649305	11.00000	0.00000	LOT 5
TR1	R1					AP											01649306	11.00000	0.00000	L 6
TR1	R1					AP											01649308	11.00000	0.00000	L 8
TR1	R1					AP											01649309	0.00000	0.00000	L 9
TR1	R1					AP											01649310	0.00000	0.00000	POR L 1
TR1	R1					AP											01649311	11.00000	0.00000	POR L 7
TR1	R1					AP											01649312	11.00000	0.00000	POR L 3
TR1	R1					AP											01650101	11.00000	0.00000	L 53
TR1	R1					AP											01650102	11.00000	0.00000	L 54
TR1	R1					AP											01650103	11.00000	0.00000	L 55
TR1	R1					AP											01650104	11.00000	0.00000	L 56
TR1	R1					AP											01650105	11.00000	0.00000	L 57
TR1	R1					AP											01650106	11.00000	0.00000	L 58
TR1	R1					AP											01650107	11.00000	0.00000	L 59
TR1	R1					AP											01650108	11.00000	0.00000	L 60
TR1	R1					AP											01650109	0.00000	0.00000	L 61
TR1	R1					AP											01650110	0.00000	0.00000	L 62
TR1	R1					AP											01650111	11.00000	0.00000	L 63
TR1	R1					AP											01650112	11.00000	0.00000	L 64
TR1	R1					AP											01650113	0.00000	0.00000	L 65
TR1	R1					AP											01650201	0.00000	0.00000	L 1
TR1	R1					AP											01650202	0.00000	0.00000	L 2
TR1	R1					AP											01650203	0.00000	0.00000	L 3
TR1	R1					AP											01650204	11.00000	0.00000	L 4
TR1	R1					AP											01650205	11.00000	0.00000	L 5
TR1	R1					AP											01650206	11.00000	0.00000	L 6
TR1	R1					AP											01650207	11.00000	0.00000	L 7
TR1	R1					AP											01650208	11.00000	0.00000	L 8
TR1	R1					AP											01650209	11.00000	0.00000	L 9
TR1	R1					AP											01650210	11.00000	0.00000	L 10
TR1	R1					AP											01651101	0.00000	0.00000	L 72
TR1	R1					AP											01651102	0.00000	0.00000	L 74

TR1	R1					AP											01651103	11.00000	0.32000	R/S 23-124
TR1	R1					AP											01651104	0.00000	0.00000	L 75
TR1	R1					AP											01651105	11.00000	0.00000	L 76
TR1	R1					AP											01651201	11.00000	0.00000	L 66
TR1	R1					AP											01651202	0.00000	0.00000	L 67
TR1	R1					AP											01651204	0.00000	0.00000	L 69
TR1	R1					AP											01651205	0.00000	0.00000	L 70
TR1	R1					AP											01651206	0.00000	0.00000	L 71
TR1	R1					AP											01651208	11.00000	0.45000	POR LOT 68
TR1	R1					AP											01651301	0.00000	0.00000	L 38
TR1	R1					AP											01651302	11.00000	0.00000	L 40
TR1	R1					AP											01651303	11.00000	0.00000	L 41
TR1	R1					AP											01651304	11.00000	0.00000	L 42
TR1	R1					AP											01651305	11.00000	0.00000	L 43
TR1	R1					AP											01651306	0.00000	0.00000	L 44
TR1	R1					AP											01651307	11.00000	0.00000	L 45
TR1	R1					AP											01651308	11.00000	0.00000	L 46
TR1	R1					AP											01651309	11.00000	0.00000	L 47
TR1	R1					AP											01651310	11.00000	0.00000	L 48
TR1	R1					AP											01651311	11.00000	0.00000	L 49
TR1	R1					AP											01651312	0.00000	0.00000	L 50
TR1	R1					AP											01651313	11.00000	0.00000	L 51
TR1	R1					AP											01651314	0.00000	0.00000	L 52
TR1	R1					AP											01651401	11.00000	0.00000	L 11
TR1	R1					AP											01651402	11.00000	0.00000	L 12
TR1	R1					AP											01651403	11.00000	0.00000	L 13
TR1	R1					AP											01651404	11.00000	0.00000	L 14
TR1	R1					AP											01651405	11.00000	0.00000	L 15
TR1	R1					AP											01651406	11.00000	0.00000	L 16
TR1	R1					AP											01651407	11.00000	0.00000	L 17
TR1	R1					AP											01652101	11.00000	0.00000	L 95
TR1	R1					AP											01652102	11.00000	0.00000	L 96
TR1	R1					AP											01652103	11.00000	0.00000	L 97
TR1	R1					AP											01652104	11.00000	0.00000	L 98
TR1	R1					AP											01652105	0.00000	0.00000	L 99
TR1	R1					AP											01652106	11.00000	0.00000	L 100
TR1	R1					AP											01652107	0.00000	0.00000	L 101
TR1	R1					AP											01652201	0.00000	0.37400	RS 27/46
TR1	R1					AP											01652202	0.00000	0.00000	L 78
TR1	R1					AP											01652203	11.00000	0.00000	L 79
TR1	R1					AP											01652204	11.00000	0.00000	L 80
TR1	R1					AP											01652205	0.00000	0.00000	L 81
TR1	R1					AP											01652206	0.00000	0.00000	L 82
TR1	R1					AP											01652207	11.00000	0.00000	L 83
TR1	R1					AP											01652208	0.00000	0.00000	L 84
TR1	R1					AP											01652209	11.00000	0.00000	L 85

TR1	R1					AP											01652210	11.00000	0.00000	L 86
TR1	R1					AP											01652211	11.00000	0.00000	L 87
TR1	R1					AP											01652212	11.00000	0.00000	L 88
TR1	R1					AP											01652213	0.00000	0.00000	L 89
TR1	R1					AP											01652214	11.00000	0.00000	L 90
TR1	R1					AP											01652215	11.00000	0.00000	L 91
TR1	R1					AP											01652216	11.00000	0.00000	L 92
TR1	R1					AP											01652217	0.00000	0.00000	L 93
TR1	R1					AP											01652218	11.00000	0.00000	L 94
TR1	R1					AP											01652301	11.00000	0.00000	L 32
TR1	R1					AP											01652302	11.00000	0.00000	L 33
TR1	R1					AP											01652303	11.00000	0.00000	L 34
TR1	R1					AP											01652304	11.00000	0.00000	L 35
TR1	R1					AP											01652305	11.00000	0.00000	L 36
TR1	R1					AP											01652306	11.00000	0.00000	L 37
TR1	R1					AP											01652307	11.00000	0.00000	L 39
TR1	R1					AP											01652401	11.00000	0.00000	L 28
TR1	R1					AP											01652403	0.00000	0.43600	L 30
TR1	R1					AP											01652404	0.00000	0.00000	L 31
TR1	R1					AP											01652407	0.00000	0.00000	L 29
TR1	R1					AP											01652501	11.00000	0.00000	L 18
TR1	R1					AP											01652502	11.00000	0.00000	L 19
TR1	R1					AP											01652503	11.00000	0.00000	L 20
TR1	R1					AP											01652504	11.00000	0.00000	L 21
TR1	R1					AP											01652505	11.00000	0.00000	L 22
TR1	R1					AP											01652506	11.00000	0.00000	L 23
TR1	R1					AP											01652507	11.00000	0.00000	L 24
TR1	R1					AP											01652508	11.00000	0.00000	L 25
TR1	R1					AP											01652509	11.00000	0.00000	L 26
TR1	R1					AP											01652510	11.00000	0.00000	L 27
TR1	R1					AP											01653101	11.00000	0.00000	LOT 10
TR1	R1					AP											01653102	0.00000	0.00000	L 9
TR1	R1					AP											01653103	11.00000	0.00000	LOT 8
TR1	R1					AP											01653104	0.00000	0.00000	L 7
TR1	R1					AP											01653107	0.00000	0.00000	L 4
TR1	R1					AP											01653111	11.00000	0.00000	LOT 1
TR1	R1					AP											01653112	0.00000	0.00000	POR L 1 & 2
TR1	R1					AP											01653113	0.00000	0.00000	RS 31/42 P L 2&3
TR1	R1					AP											01653114	0.00000	0.00000	POR L 3
TR1	R1					AP											01653115	0.00000	0.24000	SEC 20 14 17
TR1	R1					AP											01653116	0.00000	0.23000	SEC 20 14 17
TR1	R1					AP											01653117	0.00000	0.00000	L 6
TR1	R1					AP											01653118	0.00000	0.00000	L 5
TR1	R1					AP											01653203	0.00000	0.00000	L 13
TR1	R1					AP											01653204	0.00000	0.00000	L 14
TR1	R1					AP											01653205	0.00000	0.00000	L 15

TR1	R1					AP											01653206	11.00000	0.00000	LOT 16
TR1	R1					AP											01653207	0.00000	0.00000	L 17
TR1	R1					AP											01653208	11.00000	0.00000	LOT 18
TR1	R1					AP											01653209	0.00000	0.00000	L 19
TR1	R1					AP											01653210	11.00000	0.00000	LOT 20
TR1	R1					AP											01653211	11.00000	0.00000	LOT 21
TR1	R1					AP											01653212	11.00000	0.00000	L 22
TR1	R1					AP											01653213	11.00000	0.00000	LOT 23
TR1	R1					AP											01653214	0.00000	0.00000	L 24
TR1	R1					AP											01653215	11.00000	0.00000	LOT 25
TR1	R1					AP											01653216	0.00000	0.00000	L 26
TR1	R1					AP											01653217	0.00000	0.00000	L 27
TR1	R1					AP											01653218	11.00000	0.00000	LOT 28
TR1	R1					AP											01653219	11.00000	0.00000	POR L 11
TR1	R1					AP											01653220	11.00000	0.00000	POR L 11
TR1	R1					AP											01653221	0.00000	0.00000	POR L 12
TR1	R1					AP											01653222	11.00000	0.00000	POR L 12
TR1	R1					AP											01653223	11.00000	0.28000	SEC 20 14 17
TR1	R1					AP											01653224	11.00000	0.28000	SEC 20 14 17
TR1	R1					AP											01653225	11.00000	0.28000	SEC 20 14 17
TR1	R1					AP											01653226	11.00000	0.24000	SEC 20 14 17
TR1	R1					AP											01653227	11.00000	0.25000	SEC 20 14 17
TR1	R1					AP											01653228	11.00000	0.25000	SEC 20 14 17
TR1	R1					AP											01653301	0.00000	0.00000	L A
TR1	R1					AP											01653401	0.00000	0.00000	L B
TR1	R1					AP											01653501	11.00000	0.00000	LOT 29
TR1	R1					AP											01653502	11.00000	0.00000	LOT 30
TR1	R1					AP											01653503	11.00000	0.00000	LOT 31
TR1	R1					AP											01653504	11.00000	0.00000	LOT 32
TR1	R1					AP											01653505	0.00000	0.00000	L 33
TR1	R1					AP											01653506	0.00000	0.00000	L 34
TR1	R1					AP											01653507	11.00000	0.00000	LOT 35
TR1	R1					AP											01653508	11.00000	0.00000	LOT 36
TR1	R1					AP											01653509	11.00000	0.00000	LOT 37
TR1	R1					AP											01653510	0.00000	0.00000	L 38
TR1	R1					AP											01653511	11.00000	0.00000	LOT 39
TR1	R1					AP											01654101	0.00000	0.00000	L 314
TR1	R1					AP											01654102	11.00000	0.00000	L 315
TR1	R1					AP											01654103	11.00000	0.00000	L 316
TR1	R1					AP											01654104	11.00000	0.00000	L 317
TR1	R1					AP											01654107	11.00000	0.00000	L 320
TR1	R1					AP											01654108	11.00000	0.00000	L 321
TR1	R1					AP											01654109	11.00000	0.75000	PAR A P/M 31-89
TR1	R1					AP											01654201	11.00000	0.00000	L 307
TR1	R1					AP											01654202	11.00000	0.00000	L 308
TR1	R1					AP											01654203	11.00000	0.00000	L 309

TR1	R1					AP											01654204	11.00000	0.00000	L 310
TR1	R1					AP											01654205	11.00000	0.00000	L 311
TR1	R1					AP											01654206	11.00000	0.00000	L 312
TR1	R1					AP											01654207	11.00000	0.00000	L 313
TR1	R1					AP											01654208	11.00000	0.00000	L 302
TR1	R1					AP											01654209	0.00000	0.00000	L 301
TR1	R1					AP											01654210	11.00000	0.00000	L 300
TR1	R1					AP											01654211	0.00000	0.00000	L 299
TR1	R1					AP											01654212	11.00000	0.00000	L 298
TR1	R1					AP											01654213	11.00000	0.00000	L 297
TR1	R1					AP											01654214	11.00000	0.00000	L 296
TR1	R1					AP											01654301	11.00000	0.00000	L 294
TR1	R1					AP											01654302	0.00000	0.00000	L 295
TR1	R1					AP											01654303	11.00000	0.00000	L 293
TR1	R1					AP											01654304	11.00000	0.00000	L 292
TR1	R1					AP											01654305	11.00000	0.00000	L 291
TR1	R1					AP											01654306	11.00000	0.00000	L 290
TR1	R1					AP											01654307	11.00000	0.00000	L 289
TR1	R1					AP											01654308	11.00000	0.00000	L 288
TR1	R1					AP											01654401	11.00000	0.00000	L 275
TR1	R1					AP											01654405	0.00000	0.00000	L 279
TR1	R1					AP											01654406	11.00000	0.00000	L 280
TR1	R1					AP											01654407	0.00000	0.00000	L 281
TR1	R1					AP											01654408	0.00000	0.00000	L 282
TR1	R1					AP											01654409	11.00000	0.00000	L 283
TR1	R1					AP											01654410	0.00000	0.00000	L 284
TR1	R1					AP											01654411	0.00000	0.00000	L 285
TR1	R1					AP											01654412	0.00000	0.00000	L 286
TR1	R1					AP											01654413	11.00000	0.00000	L 287
TR1	R1					AP											01654416	0.00000	0.87000	PM 44/101/1
TR1	R1					AP											01654417	0.00000	0.00000	LOTS 276 277 278
TR1	R1					AP											01655101	11.00000	0.00000	L 306
TR1	R1					AP											01655102	11.00000	0.00000	L 305
TR1	R1					AP											01655103	11.00000	0.00000	L 304
TR1	R1					AP											01655104	0.00000	0.00000	L 303
TR1	R1					AP											01655201	11.00000	0.00000	L 249
TR1	R1					AP											01655202	11.00000	0.00000	L 250
TR1	R1					AP											01655203	11.00000	0.00000	L 251
TR1	R1					AP											01655204	11.00000	0.00000	L 252
TR1	R1					AP											01655205	11.00000	0.00000	L 253
TR1	R1					AP											01655208	0.00000	0.00000	L 256
TR1	R1					AP											01655209	0.00000	0.00000	L 257
TR1	R1					AP											01655210	11.00000	0.00000	L 258
TR1	R1					AP											01655211	11.00000	0.00000	L 259
TR1	R1					AP											01655212	11.00000	0.00000	L 260
TR1	R1					AP											01655213	0.00000	0.00000	POR L 254 & 255

TR1	R1					AP											01655214	0.00000	0.00000	POR L 254 & 255
TR1	R1					AP											01655301	11.00000	0.00000	L 247
TR1	R1					AP											01655302	11.00000	0.00000	L 248
TR1	R1					AP											01655303	11.00000	0.00000	L 207
TR1	R1					AP											01655304	11.00000	0.00000	L 208
TR1	R1					AP											01655305	11.00000	0.00000	L 272
TR1	R1					AP											01655306	11.00000	0.00000	L 273
TR1	R1					AP											01655307	11.00000	0.00000	L 274
TR1	R1					AP											01655308	11.00000	0.00000	LOT 206
TR1	R1					AP											01655309	11.00000	0.00000	LOT 261
TR1	R1					AP											01655310	0.00000	0.00000	L 262
TR1	R1					AP											01655311	0.00000	0.00000	L 263
TR1	R1					AP											01655401	0.00000	0.00000	L 200
TR1	R1					AP											01655402	0.00000	0.00000	L 201
TR1	R1					AP											01655404	11.00000	0.00000	L 203
TR1	R1					AP											01655405	11.00000	0.00000	L 226
TR1	R1					AP											01655406	0.00000	0.00000	L 230
TR1	R1					AP											01655409	11.00000	0.00000	L 227
TR1	R1					AP											01655410	0.00000	0.67000	PM 31/103/A
TR1	R1					AP											01655411	0.00000	1.17000	PM 43/23/1
TR1	R1					AP											01656101	11.00000	0.00000	L 242
TR1	R1					AP											01656102	11.00000	0.00000	L 243
TR1	R1					AP											01656103	11.00000	0.00000	L 244
TR1	R1					AP											01656104	0.00000	0.00000	L 245
TR1	R1					AP											01656105	0.00000	0.00000	L 246
TR1	R1					AP											01656106	11.00000	0.00000	L 231
TR1	R1					AP											01656107	11.00000	0.00000	L 232
TR1	R1					AP											01656108	0.00000	0.00000	L 233
TR1	R1					AP											01656109	0.00000	0.00000	L 234
TR1	R1					AP											01656110	11.00000	0.00000	L 235
TR1	R1					AP											01656111	11.00000	0.00000	L 236
TR1	R1					AP											01656112	11.00000	0.00000	L 237
TR1	R1					AP											01656113	11.00000	0.00000	L 238
TR1	R1					AP											01656114	11.00000	0.00000	L 239
TR1	R1					AP											01656115	11.00000	0.00000	L 240
TR1	R1					AP											01656116	11.00000	0.00000	L 241
TR1	R1					AP											01656201	11.00000	0.00000	L 213
TR1	R1					AP											01656202	11.00000	0.00000	L 214
TR1	R1					AP											01656203	11.00000	0.00000	L 215
TR1	R1					AP											01656204	11.00000	0.00000	L 216
TR1	R1					AP											01656205	11.00000	0.00000	L 217
TR1	R1					AP											01656206	11.00000	0.00000	L 218
TR1	R1					AP											01656207	11.00000	0.00000	L 210
TR1	R1					AP											01656208	11.00000	0.00000	L 211
TR1	R1					AP											01656209	11.00000	0.00000	L 212
TR1	R1					AP											01656301	11.00000	0.00000	LOT 219

TR1	R1					AP											01656302	11.00000	0.00000	L 220
TR1	R1					AP											01656303	0.00000	0.00000	L 221
TR1	R1					AP											01656304	11.00000	0.00000	L 222
TR1	R1					AP											01656305	11.00000	0.00000	L 223
TR1	R1					AP											01656306	11.00000	0.00000	L 224
TR1	R1					AP											01656307	0.00000	0.00000	L 225
TR1	R1					AP											01656308	11.00000	0.00000	LOT 209
TR1	R1					AP											01656309	0.00000	0.00000	L 205
TR1	R1					AP											01656310	0.00000	0.00000	L 204
TR1	R1					AP											01657102	11.00000	0.00000	L 265
TR1	R1					AP											01657103	11.00000	0.00000	L 266
TR1	R1					AP											01657104	11.00000	0.00000	LOT 264
TR1	R1					AP											01657201	11.00000	0.00000	L 267
TR1	R1					AP											01657202	11.00000	0.00000	LOT 268
TR1	R1					AP											01657203	11.00000	0.00000	LOT 269
TR1	R1					AP											01657204	11.00000	0.00000	LOT 270
TR1	R1					AP											01657205	11.00000	0.00000	LOT 271
TR1	R1					AP											01658101	0.00000	0.00000	L 79
TR1	R1					AP											01658102	11.00000	0.00000	L 78
TR1	R1					AP											01658103	11.00000	0.00000	L 77
TR1	R1					AP											01658201	0.00000	0.00000	L 67
TR1	R1					AP											01658202	11.00000	0.00000	L 68
TR1	R1					AP											01658203	0.00000	0.00000	L 69
TR1	R1					AP											01658204	11.00000	0.00000	L 70
TR1	R1					AP											01658205	0.00000	0.00000	L 71
TR1	R1					AP											01658206	0.00000	0.00000	L 72
TR1	R1					AP											01658207	0.00000	0.00000	L 73
TR1	R1					AP											01658208	11.00000	0.00000	L 74
TR1	R1					AP											01658209	0.00000	0.00000	L 75
TR1	R1					AP											01658210	0.00000	0.00000	L 76
TR1	R1					AP											01658302	0.00000	0.00000	L 47
TR1	R1					AP											01658303	0.00000	0.00000	L 48
TR1	R1					AP											01658304	0.00000	0.00000	L 49
TR1	R1					AP											01658305	0.00000	0.00000	L 50
TR1	R1					AP											01658308	0.00000	0.00000	L 53
TR1	R1					AP											01658309	0.00000	0.00000	L 54
TR1	R1					AP											01658310	0.00000	0.00000	L 55
TR1	R1					AP											01658311	0.00000	0.00000	L 56
TR1	R1					AP											01658312	0.00000	0.00000	L 57
TR1	R1					AP											01658313	11.00000	0.00000	L 58
TR1	R1					AP											01658314	0.00000	0.00000	L 59
TR1	R1					AP											01658315	0.00000	0.00000	L 60
TR1	R1					AP											01658316	0.00000	0.00000	L 61
TR1	R1					AP											01658317	0.00000	0.00000	L 62
TR1	R1					AP											01658318	0.00000	0.00000	L 63
TR1	R1					AP											01658319	0.00000	0.00000	L 64

TR1	R1					AP											01658320	11.00000	0.00000	L 65
TR1	R1					AP											01658321	0.00000	0.00000	L 66
TR1	R1					AP											01658322	0.00000	0.00000	L 51
TR1	R1					AP											01658323	11.00000	0.00000	L 52 R/S 22-145
TR1	R1					AP											01658324	11.00000	0.29000	SEC 20 14 17
TR1	R1					AP											01658325	11.00000	0.24000	SEC 20 14 17
TR1	R1					AP											01658327	11.00000	0.25000	SEC 20 14 17
TR1	R1					AP											01658328	11.00000	0.26000	SEC 20 14 17
TR1	R1					AP											01658329	11.00000	0.26000	SEC 20 14 17
TR1	R1					AP											01658330	0.00000	0.26700	RS 30/68
TR1	R1					AP											01659001	11.00000	0.23000	SEC 20 14 17
TR1	R1					AP											01659002	0.00000	0.23000	SEC 20 14 17
TR1	R1					AP											01659003	11.00000	0.23000	SEC 20 14 17
TR1	R1					AP											01659004	11.00000	0.23000	SEC 20 14 17
TR1	R1					AP											01659005	0.00000	0.46000	SEC 20 14 17
TR1	R1					AP											01659006	11.00000	0.31000	SEC 20 14 17
TR1	R1					AP											01659007	11.00000	0.34000	SEC 20 14 17
TR1	R1					AP											01659008	0.00000	0.34000	SEC 20 14 17
TR1	R1					AP											01659009	0.00000	0.43000	SEC 20 14 17
TR1	R1					AP											01659010	0.00000	0.34000	SEC 20 14 17
TR1	R1					AP											01659011	11.00000	0.32000	SEC 20 14 17
TR1	FR-160					AP											01660001	11.00000	10.00000	SEC 5 13 17
TR1	FR-160					AP											01660004	11.00000	9.74000	SEC 5 13 17
TR1	FR-160					AP											01660006	11.00000	18.41000	SEC 5 13 17
TR1	R1					AP											01660007	0.00000	9.47000	SEC 5 13 17
TR1	R1					AP											01660008	0.00000	7.86000	SEC 5 13 17
TR1	R1					AP											01660009	11.00000	3.26000	SEC 5 13 17
TR1	R1					AP											01660010	0.00000	2.14000	RS 31/57/1
TR1	R1					AP											01660013	0.00000	2.40000	SEC 5 13 17
TR1	R1					AP											01660019	0.00000	2.55000	SEC 5 13 17
TR1	R1					AP											01660020	0.00000	2.20000	RS 30/134/1
TR1	R1					AP											01660021	0.00000	9.70000	SEC 5 13 17
TR1	R1					AP											01701101	0.00000	80.00000	SEC 5 13 17
TR1	R1					AP											01702101	0.00000	7.42000	SEC 4 13 17
TR1	R1					AP											01702106	0.00000	7.34600	RS 28/14/1
TR1	R1					AP											01702108	0.00000	7.35000	SEC 4 13 17
TR1	R1					AP											01702109	0.00000	12.90000	POR SEC 4 13 17
TR1	R1					AP											01702110	0.00000	0.00000	POR SEC 4 13 17
TR1	R1					AP											01702111	0.00000	0.00000	POR SEC 4 13 17
TR1	R1					AP											01702114	0.00000	1.83000	SEC 4 13 17
TR1	R1					AP											01702115	0.00000	5.50000	SEC 4 13 17
TR1	R1					AP											01702116	0.00000	1.70000	SEC 4 13 17
TR1	R1					AP											01702117	0.00000	1.56000	RS 16/79 S41317
TR1	R1					AP											01702118	0.00000	1.70000	SEC 4 13 17
TR1	R1					AP											01702119	0.00000	1.70000	SEC 4 13 17
TR1	R1					AP											01702120	0.00000	1.70000	SEC 4 13 17

TR1	R1					AP											01702121	0.00000	1.70000	SEC 4 13 17
TR1	R1					AP											01702122	0.00000	2.05700	PM 47/143/1
TR1	R1					AP											01702123	0.00000	2.75100	PM 47/143/2
TR1	R1					AP											01702128	0.00000	8.54000	RS 26/57/1
TR1	R1					AP											01702129	0.00000	16.78000	RS 26/57/2
TR1	R1					AP											01702130	0.00000	2.69000	RS 26/57/3
TR1	R1					AP											01703101	0.00000	80.00000	SEC 5 13 17
TR1	R1					AP											01704109	0.00000	0.00000	POR L6 S 4 13 17
TR1	R1					AP											01704110	0.00000	78.50000	SEC 4 13 17
TR1	R1					AP											01704111	11.00000	0.00000	SEC 4 13 17
TR1	R1					AP											01704112	11.00000	0.00000	SEC 4 13 17
TR1	R1					AP											01704113	11.00000	0.00000	SEC 4 13 17
TR1	R1					AP											01704114	11.00000	0.00000	S 4 POR L B 1317
TR1	R1					AP											01704117	0.00000	22.08000	SEC 4 13 17
TR1	R1					AP											01704118	0.00000	23.33000	POR S 4&9 13 17
TR1	R1					AP											01704119	0.00000	0.00000	POR SEC 4 13 17
TR1	R1					AP											01704120	0.00000	0.00000	POR SEC 4 13 17
TR1	R1					AP											01704121	0.00000	0.00000	POR SEC 4 13 17
TR1	R1					AP											01704123	0.00000	5.62000	SEC 4 13 17
TR1	R1					AP											01704125	0.00000	0.00000	RS 32/96/1
TR1	R1					AP											01704127	0.00000	0.00000	POR SEC 4 13 17
TA	FR-160					AP											01704128	11.00000	0.00000	POR SEC 4 13 17
TR1	R1					AP											01704129	0.00000	8.57000	SEC 4 13 17
TR1	R1					AP											01704131	0.00000	8.95000	RS 26/22/1
TA	FR-160					AP											01705101	11.00000	0.00000	L 1&2 SEC3 13 17
TR1	R1					AP											01706103	0.00000	6.20000	SEC 9 13 17
TR1	FR-160					AP											01706104	11.00000	6.20000	SEC 9 13 17
TR1	R1					AP											01706105	0.00000	1.82000	SEC 9 13 17
TR1	R1					AP											01706106	0.00000	5.62000	SEC 4 & 9 13 17
TR1	R1					AP											01706107	0.00000	5.62000	SEC 9 13 17
TA	FR-160					AP											01706108	11.00000	0.00000	POR SEC 9 13 17
TA	FR-160					AP											01706109	11.00000	0.00000	POR SEC 9 13 17
TA	FR-160					AP											01706110	11.00000	0.00000	POR SEC 9 13 17
TA	FR-160					AP											01707101	11.00000	0.00000	SEC 10 13 17
TA	FR-160					AP											01708101	11.00000	0.00000	SEC 9 13 17
TA	FR-160					AP											01708101	11.00000	0.00000	SEC 9 13 17
TA	FR-160					AP											01709101	11.00000	0.00000	SEC 10 13 17
TA	FR-160					AP											01710101	11.00000	0.00000	SEC 16 13 17
TA	FR-160					AP											01710101	11.00000	0.00000	SEC 16 13 17
TA	FR-160					AP											01711101	11.00000	0.00000	SEC 15 13 17
TA	FR-160					AP											01712101	11.00000	0.00000	SEC 16 13 17
TA	FR-160					AP											01713101	11.00000	0.00000	SEC 15 13 17
TA	FR-160					AP											01713101	11.00000	0.00000	SEC 15 13 17
TA	FR-160					AP											01801101	11.00000	20.00000	SEC 21 13 17
TA	FR-160					AP											01801102	11.00000	17.66000	SEC 21 13 17
TA	FR-160					AP											01801103	11.00000	2.34000	SEC 21 13 17

TA	FR-160					AP											01801103	11.00000	2.34000	SEC 21 13 17
TA	FR-160					AP											01801104	11.00000	0.00000	SEC 21 13 17
TA	FR-160					AP											01802001	11.00000	0.00000	LOT 26
TA	FR-160					AP											01802002	11.00000	0.00000	
TA	FR-160					AP											01802003	11.00000	0.00000	LOT 24
TA	FR-160					AP											01802004	11.00000	0.00000	LOT 23
TA	FR-160					AP											01802005	11.00000	0.00000	LOT 22
TA	FR-160					AP											01802006	11.00000	0.00000	LOT 21
TA	FR-160					AP											01802007	11.00000	0.00000	LOT 20
TA	FR-160					AP											01802008	11.00000	0.00000	LOT 19
TA	FR-160					AP											01802009	11.00000	0.00000	LOT 18
TA	FR-160					AP											01802010	11.00000	0.00000	LOT 17
TA	FR-160					AP											01802011	11.00000	0.00000	LOT 16
TA	FR-160					AP											01803001	11.00000	0.00000	LOT 9
TA	FR-160					AP											01803002	11.00000	0.00000	LOT 8
TA	FR-160					AP											01803003	11.00000	0.00000	LOT 7
TA	FR-160					AP											01803004	11.00000	0.00000	LOT 6
TA	FR-160					AP											01803005	11.00000	0.00000	L 11
TA	FR-160					AP											01803006	11.00000	0.00000	LOT 12
TA	FR-160					AP											01803007	11.00000	0.00000	LOT 13
TA	FR-160					AP											01803008	11.00000	0.00000	LOT 14
TA	FR-160					AP											01803009	11.00000	0.00000	LOT 15
TA	FR-160					AP											01803010	11.00000	0.00000	LOT 5
TA	FR-160					AP											01803011	11.00000	0.00000	LOT 4
TA	FR-160					AP											01803012	11.00000	0.00000	LOT 3
TA	FR-160					AP											01803013	11.00000	0.00000	LOT 2
TA	FR-160					AP											01803014	11.00000	0.00000	LOT 1
TA	FR-160					AP											01804101	11.00000	48.00000	SEC 22 13 17
TA	FR-160					AP											01804101	11.00000	48.00000	SEC 22 13 17
TA	FR-160					AP											01804102	11.00000	13.67000	SEC 22 13 17
TA	FR-160					AP											01804104	11.00000	34.53000	SEC 22 13 17
TA	FR-160					AP											01805101	11.00000	36.00000	SEC 21 13 17
TA	FR-160					AP											01805101	11.00000	36.00000	SEC 21 13 17
TA	FR-160					AP											01805102	11.00000	66.00000	SEC 21 13 17
TA	FR-160					AP											01805103	11.00000	2.00000	SEC 21 13 17
TA	FR-160					AP											01806003	11.00000	0.00000	POR SEC 22 23 26
TA	FR-160					AP											01806004	11.00000	22.60000	S 22 23 27 13 17
TA	FR-160					AP											01806005	11.00000	212.94000	SEC 22&23 13 17
TA	FR-160					AP											01807101	11.00000	51.00000	SEC 28 13 17
TA	FR-160					AP											01807102	11.00000	27.61000	L 13 S 28 13 17
TA	FR-160					AP											01807103	11.00000	0.00000	POR SEC 28 13 17
TA	FR-160					AP											01808001	11.00000	0.00000	L 2
TA	FR-160					AP											01808002	11.00000	0.00000	L 3
TA	FR-160					AP											01808003	11.00000	0.00000	L 5
TA	FR-160					AP											01808004	11.00000	0.00000	L 6
TA	FR-160					AP											01808005	11.00000	0.00000	POR SEC 28 13 17

TA	FR-160					AP											01808006	11.00000	0.00000	POR SEC 28 13 17
TA	FR-160					AP											01808007	11.00000	0.00000	POR SEC 28 13 17
TA	FR-160					AP											01809003	11.00000	28.04000	S 26&27 13 17
TR1	R1					AP											01809013	0.00000	7.02000	SEC 26 13 17
TR1	FR-160					AP											01809021	11.00000	13.20000	SEC 26 13 17
TA	FR-160					AP											01809023	0.00000	0.87200	RS 22/18/6
TR1	R1					AP											01809026	0.00000	5.72000	SEC 26 13 17
TR1	R1					AP											01809027	0.00000	5.10000	RS 18/17 S261317
TA	FR-160					AP											01809030	0.00000	10.00000	RS 22/18/4
TA	FR-160					AP											01809031	0.00000	9.77000	RS 22/18/5
TA	FR-160					AP											01809039	11.00000	3.78000	SEC 26 13 17
TR1	R1					AP											01809048	0.00000	0.74000	SEC 26 13 17
TA	FR-160					AP											01809050	0.00000	2.04200	RS 22/18/2
TR1	R1					AP											01809055	0.00000	0.00000	SEC 27 13 17
TR1	R1					AP											01809056	0.00000	0.00000	SEC 27 13 17
TR1	R1					AP											01809057	0.00000	19.34000	S 26&27 13 17
TR1	R1					AP											01809063	0.00000	1.10000	PM 32/86/A
TA	FR-160					AP											01809069	11.00000	15.15000	SEC 26 13 17
TR1	R1					AP											01809071	0.00000	0.30000	PM 46/32/1
TR1	R1					AP											01809072	0.00000	1.22000	PM 46/32/2
TA	FR-160					AP											01809073	0.00000	11.20000	RS 24/98/1
TR1	FR-160					AP											01809073	0.00000	11.20000	RS 24/98/1
TA	FR-160					AP											01809079	0.00000	11.16000	RS 22/18/3
TA	FR-160					AP											01809082	0.00000	11.38000	RS 22/18/1
TA	FR-160					AP											01810001	11.00000	0.00000	POR SEC 28 13 17
TA	FR-160					AP											01811009	11.00000	40.00000	SEC 28 13 17
TA	FR-160					AP											01811011	0.00000	32.00000	SEC 27 13 17
TA	FR-160					AP											01811012	11.00000	68.80000	S 22 & 27 13 17
TA	FR-160					AP											01811013	11.00000	6.26000	SEC 27 13 17
TA	FR-160					AP											01812001	11.00000	0.00000	POR SEC 33 13 17
TA	FR-160					AP											01813020	11.00000	40.00000	SEC 27 13 17
TR1	FR-160					AP											01813022	11.00000	40.00000	SEC 34 13 17
TA	FR-160					AP											01813024	11.00000	125.81000	SEC 27&34 13 17
TA	FR-160					AP											01813025	11.00000	3.00000	SEC 34 13 17
TA	FR-160					AP											01813027	0.00000	2.44000	SEC 34 13 17
TA	FR-160					AP											01813028	11.00000	1.28000	SEC 34 13 17
TA	FR-160					AP											01813029	11.00000	1.28000	SEC 34 13 17
TA	FR-160					AP											01813030	0.00000	14.70000	SEC 34 13 17
TA	FR-160					AP											01814001	11.00000	0.00000	POR SEC 33 13 17
TR1	FR-160					AP											01815104	11.00000	0.00000	POR SEC 34 13 17
TA	FR-160					AP											01815106	11.00000	0.00000	POR SEC 34 13 17
TA	FR-160					AP											01816001	11.00000	1.84000	SEC 21 13 17
TA	FR-160					AP											01816002	11.00000	0.00000	RDWYS
TA	FR-160					AP											01816101	11.00000	0.00000	L 1-14 BL-C
TA	FR-160					AP											01816101	11.00000	0.00000	L 1-14 BL-C
TA	FR-160					AP											01816201	11.00000	0.00000	L 1 & 2 BL B

TA	FR-160					AP											01816301	11.00000	0.00000	L 15-18 BL A
TA	FR-160					AP											01816302	11.00000	0.00000	L 19 BL A
TA	FR-160					AP											01816303	11.00000	0.00000	L 20-24 BL A
TA	FR-160					AP											01816304	11.00000	0.00000	L 25 BL A
TA	FR-160					AP											01817001	11.00000	0.00000	RDWYS
TA	FR-160					AP											01817101	11.00000	0.00000	L 15-22 BL C
TA	FR-160					AP											01817201	11.00000	0.00000	L 1-14 BL A
TA	FR-160					AP											01818003	11.00000	105.50000	SEC 28&33 13 17
TA	FR-160					AP											01818004	0.00000	105.80000	SEC 27 13 17
TR1	R1					AP											01819109	0.00000	0.00000	L 9
TR1	R1					AP											01819110	0.00000	0.00000	L 10
TR1	R1					AP											01819114	0.00000	0.33000	POR L 12
TR1	R1					AP											01819115	0.00000	0.00000	L 1 & 2
TR1	R1					AP											01819116	0.00000	0.00000	POR L 11 & 12
TR1	R1					AP											01819117	0.00000	0.00000	POR L 11
TR1	R1					AP											01819120	0.00000	0.00000	POR L 12
TR1	R1					AP											01819121	0.00000	0.65000	POR L 12
TR1	R1					AP											01819122	11.00000	0.00000	POR L 3
TR1	R1					AP											01819123	0.00000	0.00000	POR L 3
TR1	R1					AP											01819124	0.00000	0.00000	L 4
TR1	R1					AP											01819125	0.00000	0.00000	LOT 5 6 7 & 8
TR1	R1					AP											01820001	11.00000	0.00000	LOT 1
TR1	R1					AP											01820002	11.00000	0.00000	LOT 2
TR1	R1					AP											01820003	11.00000	0.00000	LOT 3
TR1	R1					AP											01820004	11.00000	0.00000	LOT 4
TR1	R1					AP											01820005	11.00000	0.00000	LOT 5
TR1	R1					AP											01820006	11.00000	0.00000	LOT 6
TR1	R1					AP											01820007	11.00000	0.00000	LOT 7
TR1	R1					AP											01820008	11.00000	0.00000	LOT 8
TR1	R1					AP											01820009	11.00000	0.00000	LOT 9
TR1	R1					AP											01820010	11.00000	0.00000	L 10
TR1	R1					AP											01820011	11.00000	0.00000	LOT 11
TR1	R1					AP											01820012	11.00000	0.00000	LOT 12
TR1	R1					AP											01820013	11.00000	0.00000	LOT 26
TR1	R1					AP											01820014	11.00000	0.00000	LOT 25
TR1	R1					AP											01820015	11.00000	0.00000	LOT 24
TR1	R1					AP											01821001	11.00000	0.00000	LOT 27
TR1	R1					AP											01821002	11.00000	0.00000	LOT 34
TR1	R1					AP											01821003	11.00000	0.00000	LOT 28
TR1	R1					AP											01821004	11.00000	0.00000	LOT 33
TR1	R1					AP											01821005	11.00000	0.00000	LOT 29
TR1	R1					AP											01821006	11.00000	0.00000	LOT 32
TR1	R1					AP											01821007	11.00000	0.00000	LOT 30
TR1	R1					AP											01821008	11.00000	0.00000	LOT 31
TR1	R1					AP											01821009	11.00000	0.00000	LOT 35
TR1	R1					AP											01821010	11.00000	0.00000	LOT 36

TR1	R1					AP											01821011	11.00000	0.00000	LOT 40
TR1	R1					AP											01821012	11.00000	0.00000	LOT 37
TR1	R1					AP											01821013	11.00000	0.00000	LOT 39
TR1	R1					AP											01821014	11.00000	0.00000	LOT 38
TR1	R1					AP											01821015	11.00000	0.00000	LOT 41
TR1	R1					AP											01822001	11.00000	0.00000	LOT 13
TR1	R1					AP											01822002	11.00000	0.00000	LOT 14
TR1	R1					AP											01822003	11.00000	0.00000	LOT 15
TR1	R1					AP											01822004	11.00000	0.00000	LOT 16
TR1	R1					AP											01822005	11.00000	0.00000	LOT 17
TR1	R1					AP											01822006	11.00000	0.00000	LOT 18
TR1	R1					AP											01822007	11.00000	0.00000	LOT 19
TR1	R1					AP											01822008	11.00000	0.00000	LOT 20
TR1	R1					AP											01823001	11.00000	0.36000	LOT 21
TR1	R1					AP											01823002	11.00000	0.00000	LOT 47
TR1	R1					AP											01823003	11.00000	0.00000	LOT 46
TR1	R1					AP											01823004	11.00000	0.00000	LOT 42
TR1	R1					AP											01823005	11.00000	0.00000	LOT 43
TR1	R1					AP											01823006	11.00000	0.00000	LOT 44
TR1	R1					AP											01823007	11.00000	0.00000	LOT 45
TR1	R1					AP											01823008	11.00000	0.00000	LOT 48
TR1	R1					AP											01823009	11.00000	0.00000	LOT 49
TR1	R1					AP											01823010	11.00000	0.00000	LOT 50
TR1	R1					AP											01823011	11.00000	0.00000	LOT 51
TR1	R1					AP											01823012	11.00000	0.00000	LOT 52
TR1	R1					AP											01823013	11.00000	0.00000	LOT 53
TR1	R1					AP											01823014	11.00000	0.00000	LOT 54
TR1	R1					AP											01823015	11.00000	0.00000	LOT 80
TR1	R1					AP											01823016	11.00000	0.00000	LOT 81
TR1	R1					AP											01823017	11.00000	0.00000	LOT 82
TR1	R1					AP											01823018	11.00000	0.41000	LOT 83
TR1	R1					AP											01823019	11.00000	0.00000	LOT 84
TR1	R1					AP											01823020	11.00000	0.00000	LOT 85
TR1	R1					AP											01823021	11.00000	0.00000	LOT 86
TR1	R1					AP											01823022	11.00000	0.00000	LOT 87
TR1	R1					AP											01823023	11.00000	0.00000	LOT 141
TR1	R1					AP											01823024	11.00000	0.00000	LOT 78
TR1	R1					AP											01823025	11.00000	0.00000	LOT 79
TR1	R1					AP											01823026	11.00000	0.00000	LOT 74
TR1	R1					AP											01823027	11.00000	0.00000	LOT 75
TR1	R1					AP											01823028	11.00000	0.00000	LOT 76
TR1	R1					AP											01823029	11.00000	0.00000	LOT 77
TR1	R1					AP											01823030	11.00000	0.00000	LOT 142
TR1	R1					AP											01823031	11.00000	0.00000	LOT 88
TR1	R1					AP											01823032	11.00000	0.00000	LOT 89
TR1	R1					AP											01823033	11.00000	0.00000	LOT 90

TR1	R1					AP											01824001	11.00000	0.00000	LOT 55
TR1	R1					AP											01824002	11.00000	0.00000	LOT 56
TR1	R1					AP											01824003	11.00000	0.00000	LOT 57
TR1	R1					AP											01824004	11.00000	0.00000	LOT 58
TR1	R1					AP											01824005	11.00000	0.00000	LOT 65
TR1	R1					AP											01824006	11.00000	0.00000	LOT 64
TR1	R1					AP											01824007	11.00000	0.00000	LOT 63
TR1	R1					AP											01824008	11.00000	0.00000	LOT 62
TR1	R1					AP											01824009	11.00000	0.00000	LOT 61
TR1	R1					AP											01824010	11.00000	0.00000	LOT 60
TR1	R1					AP											01824011	11.00000	0.00000	LOT 59
TR1	R1					AP											01824012	11.00000	0.00000	LOT 71
TR1	R1					AP											01824013	11.00000	0.00000	LOT 72
TR1	R1					AP											01824014	11.00000	0.24000	
TR1	R1					AP											01824015	11.00000	0.00000	LOT 67
TR1	R1					AP											01824016	11.00000	0.00000	LOT 68
TR1	R1					AP											01824023	11.00000	0.48000	LOT 70
TR1	R1					AP											01824024	11.00000	0.42000	LOT 69
TR1	R1					AP											01825001	11.00000	0.00000	LOT 91
TR1	R1					AP											01825002	11.00000	0.00000	LOT 92
TR1	R1					AP											01825003	11.00000	0.00000	LOT 93
TR1	R1					AP											01825004	11.00000	0.00000	LOT 94
TR1	R1					AP											01825005	11.00000	0.00000	LOT 95
TR1	R1					AP											01825006	11.00000	0.00000	LOT 137
TR1	R1					AP											01825007	11.00000	0.00000	LOT 136
TR1	R1					AP											01825008	11.00000	0.00000	LOT 134
TR1	R1					AP											01825009	11.00000	0.00000	LOT 100
TR1	R1					AP											01825010	11.00000	0.00000	LOT 99
TR1	R1					AP											01825011	11.00000	0.00000	LOT 98
TR1	R1					AP											01825012	11.00000	0.00000	LOT 97
TR1	R1					AP											01825013	11.00000	0.00000	LOT 96
TR1	R1					AP											01825014	11.00000	0.00000	LOT 124
TR1	R1					AP											01825015	11.00000	0.00000	LOT 123
TR1	R1					AP											01825016	11.00000	0.00000	LOT 122
TR1	R1					AP											01826001	11.00000	0.00000	LOT 125
TR1	R1					AP											01826002	11.00000	0.00000	LOT 101
TR1	R1					AP											01826003	11.00000	0.00000	LOT 113
TR1	R1					AP											01826004	11.00000	0.00000	LOT 102
TR1	R1					AP											01826005	11.00000	0.00000	LOT 112
TR1	R1					AP											01826006	11.00000	0.00000	LOT 103
TR1	R1					AP											01826007	11.00000	0.00000	LOT 23
TR1	R1					AP											01826008	11.00000	0.00000	LOT 111
TR1	R1					AP											01826009	11.00000	0.00000	LOT 104
TR1	R1					AP											01826010	11.00000	0.00000	LOT 105
TR1	R1					AP											01826011	11.00000	0.00000	LOT 106
TR1	R1					AP											01826012	11.00000	0.00000	LOT 121

TR1	R1					AP											01826013	11.00000	0.00000	LOT 120
TR1	R1					AP											01826014	11.00000	0.00000	LOT 118
TR1	R1					AP											01826015	11.00000	0.00000	LOT 119
TR1	R1					AP											01826016	11.00000	0.00000	LOT 117
TR1	R1					AP											01826017	11.00000	0.00000	LOT 107
TR1	R1					AP											01826018	11.00000	0.00000	LOT 108
TR1	R1					AP											01826019	11.00000	0.00000	LOT 109
TR1	R1					AP											01826020	11.00000	0.00000	LOT 110
TR1	R1					AP											01826021	11.00000	0.00000	LOT 133
TR1	R1					AP											01826022	11.00000	0.00000	LOT 138
TR1	R1					AP											01827001	11.00000	0.00000	LOT 126
TR1	R1					AP											01827002	11.00000	0.00000	LOT 127
TR1	R1					AP											01827003	11.00000	0.00000	LOT 128
TR1	R1					AP											01827004	11.00000	0.00000	LOT 129
TR1	R1					AP											01827005	11.00000	0.00000	LOT 130
TR1	R1					AP											01827006	11.00000	0.00000	LOT 131
TR1	R1					AP											01827007	11.00000	0.00000	LOT 132
TR1	R1					AP											01827008	11.00000	0.00000	LOT 147
TR1	R1					AP											01827009	11.00000	0.00000	LOT 148
TR1	R1					AP											01827010	11.00000	0.00000	LOT 149
TR1	R1					AP											01827011	11.00000	0.00000	LOT 150
TR1	R1					AP											01827012	11.00000	0.00000	LOT 151
TR1	R1					AP											01827013	11.00000	0.27000	
TR1	R1					AP											01827014	11.00000	0.25000	L 153
TR1	R1					AP											01828001	0.00000	0.41300	SEC 27 13 17
TR1	R1					AP											01828103	11.00000	0.94100	L 15
TR1	R1					AP											01828104	0.00000	0.74000	L 14
TR1	R1					AP											01828105	0.00000	0.65500	L 13
TR1	R1					AP											01828106	0.00000	0.56200	L 12
TR1	R1					AP											01828107	11.00000	0.64600	L 11
TR1	R1					AP											01828109	0.00000	1.03000	PM 6/123/1
TR1	R1					AP											01828110	0.00000	1.00000	PM 6/123/2
TR1	R1					AP											01828111	0.00000	1.02400	PM 6/123/3
TR1	R1					AP											01828112	0.00000	1.02600	PM 6/123/4
TR1	R1					AP											01828201	0.00000	0.46500	L 18
TR1	R1					AP											01828202	0.00000	0.42800	L 21
TR1	R1					AP											01828203	0.00000	0.42800	L 19
TR1	R1					AP											01828204	0.00000	0.33500	L 20
TR1	R1					AP											01828205	0.00000	0.45000	L 22
TR1	R1					AP											01828206	11.00000	0.52200	L 23
TR1	R1					AP											01828207	11.00000	0.31900	L 24
TR1	R1					AP											01828208	0.00000	0.31200	L 27
TR1	R1					AP											01828210	0.00000	0.30000	L 26
TR1	R1					AP											01829101	0.00000	0.00000	L 1
TR1	R1					AP											01829102	0.00000	0.00000	L 2
TR1	R1					AP											01829103	0.00000	0.36000	L 3

TR1	R1					AP											01829104	0.00000	0.00000	L 4
TR1	R1					AP											01829105	0.00000	0.38600	L 5
TR1	R1					AP											01829107	0.00000	0.49400	L 7
TR1	R1					AP											01829108	0.00000	0.00000	L 8
TR1	R1					AP											01829109	0.00000	0.00000	L 9
TR1	R1					AP											01829110	0.00000	0.58300	L 10
TR1	R1					AP											01829114	0.00000	1.01000	SEC 26 13 17
TR1	R1					AP											01829116	2.00000	0.03000	SEC 26 13 7
TR1	R1					AP											01829118	0.00000	0.92000	PM 34/97/A
TR1	R1					AP											01829201	0.00000	0.38500	L 28
TR1	R1					AP											01829202	0.00000	0.33500	L 29
TR1	R1					AP											01829203	0.00000	0.32500	L 30
TR1	R1					AP											01829204	0.00000	0.74500	L 31
TR1	R1					AP											01829205	0.00000	0.55000	L 32
TR1	R1					AP											01829206	0.00000	0.53500	L 33
TR1	R1					AP											01829207	0.00000	0.00000	L 34
TR1	R1					AP											01830004	0.00000	1.22000	SEC 34 13 17
TR1	R1					AP											01830006	0.00000	6.77000	SEC 34 13 17
TR1	R1					AP											01830007	0.00000	0.72000	SEC 34 13 17
TR1	R1					AP											01830009	0.00000	0.23000	SEC 34 13 17
TR1	R1					AP											01830010	11.00000	0.44000	SEC 34 13 17
TR1	R1					AP											01830011	2.00000	0.64000	SEC 34 13 17
TR1	R1					AP											01830012	11.00000	1.64000	SEC 34 13 17
TR1	R1					AP											01830013	0.00000	5.46000	SEC 34 13 17
TR1	R1					AP											01830013	0.00000	5.46000	SEC 34 13 17
TR1	R1					AP											01830014	11.00000	0.46000	SEC 34 13 17
TR1	R1					AP											01830015	11.00000	0.20000	SEC 34 13 17
TR1	R1					AP											01830016	11.00000	0.74000	SEC 34 13 17
TR1	R1					AP											01830021	0.00000	1.16000	SEC 34 13 17
TR1	R1					AP											01831001	11.00000	0.00000	LOT 1A R/S 1-92
TR1	R1					AP											01831002	11.00000	0.00000	LOT 2A R/S 1-92
TR1	R1					AP											01831003	11.00000	0.00000	LOT 3A R/S 1-92
TR1	R1					AP											01831004	11.00000	0.00000	LOT 4A R/S 1-92
TR1	R1					AP											01831005	11.00000	0.00000	LOT 5A R/S 1-92
TR1	FR-160					AP											01832007	11.00000	8.66000	POR L 1-5RS1-92
TR1	R1					AP											01832010	0.00000	3.30000	PM 49/145/1
TR1	R1					AP											01832011	0.00000	10.43000	PM 49/145/2
TA	FR-160					AP											01833004	0.00000	203.81600	SEC 27 13 17
TR1	R1					AP											01834001	0.00000	4.01000	PM 48/143/1
TR1	R1					AP											01834002	0.00000	1.04000	PM 48/143/2
TR1	R1					AP											01834003	0.00000	0.85800	PPM 48/143/3 ADM
TR1	R1					AP											01834004	0.00000	0.31200	PPM 48/143/3 ADM
TR1	R1					AP											01834005	2.00000	0.14000	PPM48/143/3ADMA
TA	FR-160					AP											01902005	11.00000	163.72000	SEC 26 13 17
TA	FR-160					AP											01902006	0.00000	20.28000	RS 22/42/2
TA	FR-160					AP											01903005	11.00000	92.47000	SEC 25 13 17

TA	FR-160					AP											01904103	11.00000	320.00000	SEC 35 13 17
TR1	FR-160					AP											01904103	11.00000	320.00000	SEC 35 13 17
TRT	RF-L					AP											01905005	11.00000	0.00000	20 FOOT EASEMENT
TA	FR-160					AP											01905010	11.00000	17.85000	SEC 36 13 17
TRT	RF-L					AP											01905010	11.00000	17.85000	SEC 36 13 17
TRT	RF-L					AP											01905014	11.00000	0.00000	CAMP RICHARDSON
TA	FR-160					AP											01905015	11.00000	245.66000	SEC 36 13 17
TRT	FR-160					AP											01905015	11.00000	245.66000	SEC 36 13 17
TA	FR-160					AP											01906102	11.00000	0.00000	POR SEC 35 13 17
TA	FR-160					AP											01907102	11.00000	30.34000	SEC 36 13 17
TA	FR-160					AP											01907103	11.00000	0.00000	20 FOOT EASEMENT
TA	FR-160					AP											01907104	11.00000	289.66000	SEC 36 13 17
TA	FR-160					AP											01907104	11.00000	289.66000	SEC 36 13 17
TRT	RF-L					AP											01908104	11.00000	9.27000	SEC 25&36 13 17
TRT	RF-L					AP											01908107	11.00000	0.01000	SEC 36 13 17
TRT	RF-L					AP											01908109	11.00000	37.38000	SEC 25&36 13 17
TRT	RF-L					AP											01908110	11.00000	0.13000	SEC 36 13 17
TRT	RF-L					AP											01908111	11.00000	22.43000	SEC 25&36 13 17
TA	FR-160					AP											01910001	11.00000	0.00000	LOT 6
TA	FR-160					AP											01911001	11.00000	0.00000	LOT 11
TA	FR-160					AP											02001001	11.00000	0.00000	POR SEC 35 12 17
TA	FR-160					AP											02001002	11.00000	0.00000	POR SEC 35 12 17
TA	FR-160					AP											02002001	11.00000	0.00000	POR SEC 35 12 17
TA	FR-160					AP											02002002	11.00000	0.00000	POR SEC 35 12 17
TA	FR-160					AP											02002002	11.00000	0.00000	POR SEC 35 12 17
TA	FR-160					AP											02002002	11.00000	0.00000	POR SEC 35 12 17
TA	FR-160					AP											02003101	11.00000	160.00000	SEC 36 12 17
TA	FR-160					AP											02003102	11.00000	0.00000	POR SEC 36 12 17
TR1	R1					AP											02004104	0.00000	0.64000	SEC 36 12 17
TR1	R1					AP											02004105	0.00000	1.22000	SEC 36 12 17
TR1	R1					AP											02004108	0.00000	4.72000	SEC 36 12 17
TR1	R1					AP											02004109	0.00000	0.22000	SEC 36 12 17
TR1	R1					AP											02004112	0.00000	0.23000	SEC 36 12 17
TR1	R1					AP											02004113	0.00000	0.17000	SEC 36 12 17
TR1	R1					AP											02004119	0.00000	1.40000	SEC 36 12 17
TR1	R1					AP											02004121	0.00000	1.21000	SEC 36 12 17
TR1	R1					AP											02004122	0.00000	1.31000	SEC 36 12 17
TR1	R1					AP											02004123	0.00000	0.59000	SEC 36 12 17
TR1	R1					AP											02004124	0.00000	10.13000	SEC 36 12 17
TA	FR-160					AP											02004125	11.00000	0.00000	POR SEC 36 12 17
TA	FR-160					AP											02004126	11.00000	0.00000	POR SEC 36 12 17
TA	FR-160					AP											02006001	11.00000	0.00000	LOT 1
TA	FR-160					AP											02007001	11.00000	0.00000	LOT 3
TA	FR-160					AP											02007002	11.00000	0.00000	LOT 4
TA	FR-160					AP											02007003	11.00000	0.00000	LOT 5
TA	FR-160					AP											02007004	11.00000	0.00000	LOT 6

TA	FR-160					AP											02007005	11.00000	0.00000	LOT 19
TA	FR-160					AP											02007007	11.00000	0.00000	LOT 8
TA	FR-160					AP											02007008	11.00000	0.00000	L 7
TA	FR-160					AP											02008001	11.00000	0.00000	LOT 9
TA	FR-160					AP											02008002	11.00000	0.00000	LOT 15
TA	FR-160					AP											02008003	11.00000	0.00000	LOT 16
TA	FR-160					AP											02008004	11.00000	0.00000	LOT 10
TA	FR-160					AP											02009001	11.00000	0.00000	LOT 11
TA	FR-160					AP											02009002	11.00000	0.00000	LOT 12
TA	FR-160					AP											02009003	11.00000	0.00000	LOT 13
TA	FR-160					AP											02009004	11.00000	0.00000	LOT 14
TA	FR-160					AP											02009005	11.00000	0.00000	LOT 20
TA	FR-160					AP											02010001	11.00000	0.00000	LOT 15
TA	FR-160					AP											02010002	11.00000	0.00000	LOT 3
TA	FR-160					AP											02010003	11.00000	0.00000	LOT 2
TA	FR-160					AP											02010004	11.00000	0.00000	LOT 1
TA	FR-160					AP											02010005	11.00000	0.00000	LOT 4
TA	FR-160					AP											02011001	11.00000	0.00000	LOT 1
TA	FR-160					AP											02011002	11.00000	0.00000	LOT 2
TA	FR-160					AP											02011003	11.00000	0.00000	LOT 3
TA	FR-160					AP											02011004	11.00000	0.00000	LOT 4
TA	FR-160					AP											02011005	11.00000	0.00000	LOT 5
TA	FR-160					AP											02011006	11.00000	0.00000	LOT 6
TA	FR-160					AP											02011007	11.00000	0.00000	LOT 7
TA	FR-160					AP											02011008	11.00000	0.00000	LOT 8
TA	FR-160					AP											02011009	11.00000	0.00000	LOT 15
TA	FR-160					AP											02011010	11.00000	0.00000	LOT 14
TA	FR-160					AP											02011011	11.00000	0.00000	LOT 13
TA	FR-160					AP											02011012	11.00000	0.00000	LOT 12
TA	FR-160					AP											02011013	11.00000	0.00000	LOT 10
TA	FR-160					AP											02011014	11.00000	0.00000	LOT 9
TA	FR-160					AP											02011015	11.00000	0.00000	LOT 16
TA	FR-160					AP											02011016	11.00000	0.00000	LOT 17
TA	FR-160					AP											02011017	11.00000	0.00000	LOT 22
TA	FR-160					AP											02011018	11.00000	0.00000	LOT 18
TA	FR-160					AP											02011019	11.00000	0.00000	LOT 19
TA	FR-160					AP											02011020	11.00000	0.00000	LOT 20
TA	FR-160					AP											02011021	11.00000	0.00000	LOT 21
TA	FR-160					AP											02011022	11.00000	0.00000	LOT 23
TA	FR-160					AP											02012002	11.00000	0.00000	LOT 4
TA	FR-160					AP											02012003	11.00000	0.00000	LOT 5
TA	FR-160					AP											02012004	11.00000	0.00000	LOT 3
TA	FR-160					AP											02012005	11.00000	0.34000	L 8
TA	FR-160					AP											02013001	11.00000	0.00000	LOT 9
TA	FR-160					AP											02013002	11.00000	0.00000	LOT 10
TA	FR-160					AP											02013003	11.00000	0.00000	LOT 11

TA	FR-160					AP											02013004	11.00000	0.00000	LOT 12
TA	FR-160					AP											02013005	11.00000	0.00000	LOT 13
TA	FR-160					AP											02013006	11.00000	0.00000	LOT 14
TA	FR-160					AP											02013007	11.00000	0.00000	LOT 18
TA	FR-160					AP											02013008	11.00000	0.00000	LOT 17
TA	FR-160					AP											02013009	11.00000	0.00000	LOT 16
TA	FR-160					AP											02013010	11.00000	0.00000	LOT 2
TA	FR-160					AP											02013011	11.00000	0.00000	LOT 1
TA	FR-160					AP											02013012	11.00000	0.00000	LOT 15
TA	FR-160					AP											02013013	11.00000	1.15000	L 7
TA	FR-160					AP											02013014	11.00000	0.00000	LOT 6
TA	FR-160					AP											02014001	11.00000	0.00000	LOT 14
TA	FR-160					AP											02014002	11.00000	0.00000	LOT 13
TA	FR-160					AP											02014003	11.00000	0.00000	LOT 12
TA	FR-160					AP											02014004	11.00000	0.00000	LOT 11
TA	FR-160					AP											02014005	11.00000	0.00000	LOT 10
TA	FR-160					AP											02014006	11.00000	0.27000	L 9
TA	FR-160					AP											02015001	11.00000	0.00000	LOT 1
TA	FR-160					AP											02015002	11.00000	0.00000	LOT 2
TA	FR-160					AP											02015003	11.00000	0.00000	LOT 4
TA	FR-160					AP											02015004	11.00000	0.00000	LOT 5
TA	FR-160					AP											02015005	11.00000	0.00000	LOT 6
TA	FR-160					AP											02015006	11.00000	0.00000	LOT 7
TA	FR-160					AP											02015007	11.00000	0.00000	LOT 8
TA	FR-160					AP											02016003	11.00000	0.00000	LOT 18
TA	FR-160					AP											02016004	11.00000	0.00000	LOT 19
TA	FR-160					AP											02016005	11.00000	0.00000	LOT 20
TA	FR-160					AP											02016006	11.00000	0.00000	LOT 21
TA	FR-160					AP											02016010	11.00000	0.00000	LOT 42
TA	FR-160					AP											02016011	11.00000	0.00000	L 39
TA	FR-160					AP											02016012	11.00000	0.00000	LOT 38
TA	FR-160					AP											02016013	11.00000	0.00000	LOT 37
TA	FR-160					AP											02016014	11.00000	0.00000	LOT 25
TA	FR-160					AP											02016015	11.00000	0.00000	LOT 40
TA	FR-160					AP											02016016	11.00000	0.00000	LOT 41
TA	FR-160					AP											02017001	11.00000	0.00000	LOT 26
TA	FR-160					AP											02017002	11.00000	0.00000	LOT 27
TA	FR-160					AP											02017003	11.00000	0.00000	LOT 28
TA	FR-160					AP											02017004	11.00000	0.00000	LOT 29
TA	FR-160					AP											02017005	11.00000	0.00000	LOT 30
TA	FR-160					AP											02018001	11.00000	0.00000	LOT 43 LOWER ECH
TA	FR-160					AP											02018002	11.00000	0.00000	LOT 42
TA	FR-160					AP											02018003	11.00000	0.00000	LOT 41
TA	FR-160					AP											02018004	11.00000	0.00000	LOT 32
TA	FR-160					AP											02018005	11.00000	0.00000	LOT 31
TA	FR-160					AP											02018006	11.00000	0.00000	LOT 30

TA	FR-160					AP											02018007	11.00000	0.00000	LOT 29
TA	FR-160					AP											02018008	11.00000	0.00000	LOT 25
TA	FR-160					AP											02018009	11.00000	0.00000	LOT 26
TA	FR-160					AP											02018010	11.00000	0.00000	LOT 27
TA	FR-160					AP											02018011	11.00000	0.00000	LOT 28
TA	FR-160					AP											02019001	11.00000	0.22000	
TA	FR-160					AP											02019002	11.00000	0.00000	LOT 18
TA	FR-160					AP											02019003	11.00000	0.00000	LOT 17
TA	FR-160					AP											02019004	11.00000	0.00000	LOT 16
TA	FR-160					AP											02019005	11.00000	0.00000	LOT 15
TA	FR-160					AP											02019008	11.00000	0.00000	LOT 12
TA	FR-160					AP											02019009	11.00000	0.00000	LOT 11
TA	FR-160					AP											02019010	11.00000	0.00000	LOT 10
TA	FR-160					AP											02019011	11.00000	0.00000	LOT 9
TA	FR-160					AP											02019012	11.00000	0.00000	LOT 8
TA	FR-160					AP											02019013	11.00000	0.00000	LOT 7
TA	FR-160					AP											02019014	11.00000	0.00000	LOT 6
TA	FR-160					AP											02019015	11.00000	0.00000	LOT 20
TA	FR-160					AP											02019016	11.00000	0.00000	LOT 5
TA	FR-160					AP											02019017	11.00000	0.00000	LOT 21
TA	FR-160					AP											02019018	11.00000	0.00000	LOT 22
TA	FR-160					AP											02019019	11.00000	0.00000	LOT 23
TA	FR-160					AP											02019020	11.00000	0.00000	LOT 24
TA	FR-160					AP											02020001	11.00000	0.00000	LOT 4
TA	FR-160					AP											02020002	11.00000	0.00000	LOT 3
TA	FR-160					AP											02020003	11.00000	0.00000	LOT 39
TA	FR-160					AP											02020004	11.00000	0.00000	LOT 38
TA	FR-160					AP											02020005	11.00000	0.00000	LOT 37
TA	FR-160					AP											02020006	11.00000	0.00000	LOT 36
TA	FR-160					AP											02020007	11.00000	0.00000	LOT 35
TA	FR-160					AP											02020008	11.00000	0.00000	LOT 2
TA	FR-160					AP											02020009	11.00000	0.00000	LOT 1
TA	FR-160					AP											02020010	11.00000	0.00000	LOT 33
TA	FR-160					AP											02020011	11.00000	0.00000	LOT 34
TA	FR-160					AP											02020012	0.00000	0.24000	SEC 36 12 17
TA	FR-160					AP											02020013	11.00000	0.00000	LOT 45
TA	FR-160					AP											02020014	11.00000	0.00000	LOT 46
TA	FR-160					AP											02020015	11.00000	0.00000	LOT 47
TA	FR-160					AP											02101102	11.00000	147.00000	SEC 2 12 17
TA	FR-160					AP											02101104	11.00000	0.00000	POR SEC 2 12 17
TA	FR-160					AP											02102102	11.00000	180.28000	SEC 2 12 17
TA	FR-160					AP											02102104	11.00000	0.00000	POR SEC 2 12 17
TA	FR-160					AP											02102105	11.00000	0.00000	POR SEC 2 12 17
TR1	R1					AP											02103105	0.00000	0.00000	POR L1 S11 12 17
TR1	R1					AP											02103106	0.00000	0.00000	POR L1 S11 12 17
TR1	R1					AP											02103108	0.00000	0.62000	SEC 11 12 17

TR1	R1					AP											02103111	0.00000	0.00000	POR SEC 11 12 17
TR1	R1					AP											02103112	0.00000	0.00000	POR SEC 11 12 17
TR1	R1					AP											02103113	0.00000	0.51000	RS 20/77/1
TR1	R1					AP											02103115	0.00000	0.55000	SEC 11 12 17
TR1	R1					AP											02103116	0.00000	0.55000	SEC 11 12 17
TA	FR-160					AP											02103120	11.00000	40.00000	SEC 11 12 17
TA	FR-160					AP											02103122	11.00000	0.00000	LOT 1 S 11 12 17
TR1	R1					AP											02103124	0.00000	0.50000	SEC 11 12 17
TR1	R1					AP											02103126	0.00000	0.56000	SEC 11 12 17
TA	FR-160					AP											02103129	11.00000	0.00000	POR SEC 11 12 17
TA	FR-160					AP											02103130	11.00000	0.00000	POR SEC 11 12 17
TR1	R1					AP											02105001	11.00000	0.00000	LOT 57
TR1	R1					AP											02105002	11.00000	0.00000	LOT 58
TR1	R1					AP											02105003	11.00000	0.00000	LOT 59
TR1	R1					AP											02105004	11.00000	0.00000	LOT 44
TR1	R1					AP											02105005	11.00000	0.00000	LOT 11
TR1	R1					AP											02105006	11.00000	0.00000	LOT 51
TR1	R1					AP											02105007	11.00000	0.00000	LOT 52
TR1	R1					AP											02105008	11.00000	0.00000	LOT 53
TR1	R1					AP											02105009	11.00000	0.00000	LOT 54
TR1	R1					AP											02105010	11.00000	0.00000	LOT 55
TR1	R1					AP											02105011	11.00000	0.00000	LOT 56
TR1	R1					AP											02105012	11.00000	0.00000	LOT 9
TR1	R1					AP											02105013	11.00000	0.00000	LOT 8
TR1	R1					AP											02105014	11.00000	0.00000	LOT 7
TR1	R1					AP											02105015	11.00000	0.00000	LOT 6
TR1	R1					AP											02106001	11.00000	0.00000	LOT 45
TR1	R1					AP											02106002	11.00000	0.00000	LOT 46
TR1	R1					AP											02106003	11.00000	0.00000	LOT 47
TR1	R1					AP											02106004	11.00000	0.00000	LOT 48
TR1	R1					AP											02106005	11.00000	0.00000	LOT 49
TR1	R1					AP											02106006	11.00000	0.00000	LOT 50
TR1	R1					AP											02106007	11.00000	0.00000	LOT 43
TR1	R1					AP											02106008	11.00000	0.00000	LOT 42
TR1	R1					AP											02106009	11.00000	0.00000	LOT 41
TR1	R1					AP											02106010	11.00000	0.00000	LOT 40
TR1	R1					AP											02106011	11.00000	0.00000	LOT 14
TR1	R1					AP											02106012	11.00000	0.00000	LOT 12
TR1	R1					AP											02106013	11.00000	0.00000	LOT 13
TR1	R1					AP											02106013	11.00000	0.00000	LOT 13
TR1	R1					AP											02106013	11.00000	0.00000	LOT 13
TR1	R1					AP											02106014	11.00000	0.00000	LOT 39
TR1	R1					AP											02106014	11.00000	0.00000	LOT 39
TR1	R1					AP											02106014	11.00000	0.00000	LOT 39
TR1	R1					AP											02106015	11.00000	0.00000	LOT 38
TR1	R1					AP											02106016	11.00000	0.00000	LOT 15

TR1	R1					AP											02106017	11.00000	0.00000	LOT 36
TR1	R1					AP											02106018	11.00000	0.00000	LOT 16
TR1	R1					AP											02106019	11.00000	0.00000	LOT 17
TR1	R1					AP											02106020	11.00000	0.00000	LOT 18
TR1	FR-160					AP											02107001	11.00000	0.00000	LOT 4 & 7
TR1	R1					AP											02107002	11.00000	0.00000	POR LOT 5 & 6
TR1	R1					AP											02109001	11.00000	0.00000	LOT 63
TR1	R1					AP											02109002	11.00000	0.00000	LOT 62
TR1	R1					AP											02109003	11.00000	0.00000	LOT 19 A
TR1	R1					AP											02110001	11.00000	0.00000	LOT 20
TR1	R1					AP											02110002	11.00000	0.00000	LOT 21
TR1	R1					AP											02110003	11.00000	0.00000	LOT 22
TR1	R1					AP											02110004	11.00000	0.00000	LOT 23
TR1	R1					AP											02110005	11.00000	0.00000	LOT 35
TR1	R1					AP											02110006	11.00000	0.00000	LOT 34
TR1	R1					AP											02110007	11.00000	0.00000	LOT 33
TR1	FR-160					AP											02111001	11.00000	0.00000	POR SEC 14 12 17
TR1	R1					AP											02113001	11.00000	0.00000	LOT 3
TR1	R1					AP											02113002	11.00000	0.00000	LOT 2
TR1	R1					AP											02113003	11.00000	0.00000	LOT 1
TR1	R1					AP											02113004	11.00000	0.00000	LOT 24
TR1	R1					AP											02114001	11.00000	0.00000	LOT 32
TR1	R1					AP											02114002	11.00000	0.00000	LOT 31
TR1	R1					AP											02114003	11.00000	0.00000	
TR1	R1					AP											02114004	11.00000	0.00000	
TR1	R1					AP											02114005	11.00000	0.00000	LOT 26
TR1	R1					AP											02114006	11.00000	0.00000	LOT 60
TR1	R1					AP											02115001	11.00000	0.00000	LOT 9
TR1	R1					AP											02115003	0.00000	17.20000	SEC 14 12 17
TA	FR-160					AP											02115004	11.00000	0.00000	POR LOT 10
TR1	R1					AP											02117006	11.00000	0.00000	LOT 1
TR1	R1					AP											02117007	11.00000	0.00000	LOT 2
TR1	R1					AP											02117008	11.00000	0.00000	LOT 3
TR1	R1					AP											02117009	11.00000	0.00000	LOT 4
TR1	R1					AP											02117010	11.00000	0.00000	LOT 5
TR1	R1					AP											02117011	11.00000	0.00000	LOT 6
TR1	R1					AP											02117012	11.00000	0.62000	LOT 7
TR1	R1					AP											02117013	11.00000	0.00000	LOT 8
TR1	R1					AP											02117014	11.00000	0.00000	LOT 9
TR1	R1					AP											02117015	11.00000	0.00000	LOT 10
TR1	R1					AP											02117016	11.00000	0.00000	LOT 11
TR1	FR-160					AP											02117017	11.00000	4.58000	
TR1	R1					AP											02118001	11.00000	0.00000	LOT 26
TR1	R1					AP											02118002	11.00000	0.00000	LOT 29
TR1	R1					AP											02118003	11.00000	0.00000	LOT 28
TR1	R1					AP											02118004	11.00000	0.00000	LOT 27

TR1	R1					AP											02118005	11.00000	0.00000	LOT 20
TR1	R1					AP											02118006	11.00000	0.00000	LOT 18
TR1	R1					AP											02118007	11.00000	0.00000	LOT 17
TR1	R1					AP											02118008	11.00000	0.00000	LOT 16
TR1	R1					AP											02118009	11.00000	0.00000	LOT 15
TR1	R1					AP											02118010	11.00000	0.00000	LOT 14
TR1	R1					AP											02118011	11.00000	0.00000	LOT 25
TR1	R1					AP											02118012	11.00000	0.00000	LOT 23
TR1	R1					AP											02118013	11.00000	0.00000	LOT 22
TR1	R1					AP											02118014	11.00000	0.00000	LOT 21
TR1	R1					AP											02118015	11.00000	0.00000	LOT 7
TR1	R1					AP											02118016	11.00000	0.00000	LOT 13
TR1	R1					AP											02118018	11.00000	0.00000	LOT 5
TR1	R1					AP											02118020	11.00000	0.00000	LOTS 1 2
TR1	R1					AP											02118023	11.00000	0.00000	LOT 19
TR1	R1					AP											02118024	11.00000	0.00000	LOT 30
TR1	R1					AP											02118025	11.00000	0.00000	LOT 31
TR1	R1					AP											02118026	11.00000	0.00000	LOT 32
TR1	R1					AP											02118027	11.00000	0.00000	LOT 6
TR1	R1					AP											02118028	11.00000	0.00000	LOT 3
TR1	FR-160					AP											02118030	11.00000	0.00000	POR SEC 14 12 17
TR1	FR-160					AP											02118030	11.00000	0.00000	POR SEC 14 12 17
TR1	R1					AP											02119003	0.00000	0.92000	SEC 14 12 17
TR1	R1					AP											02119004	0.00000	1.07000	SEC 14 12 17
TR1	R1					AP											02119006	0.00000	1.49000	SEC 14 12 17
TR1	R1					AP											02119007	0.00000	3.05000	SEC 14 12 17
TR1	R1					AP											02119013	0.00000	1.82000	SEC 14 12 17
TR1	R1					AP											02120103	0.00000	1.26700	SEC 14 12 17
TR1	R1					AP											02120104	0.00000	0.96800	SEC 14 12 17
TR1	R1					AP											02120107	0.00000	0.00000	S 14&23 12 17
TR1	R1					AP											02120108	0.00000	0.57000	S 14&23 12 17
TR1	R1					AP											02120111	0.00000	1.45600	SEC 14 12 17
TR1	R1					AP											02120112	0.00000	3.06900	SEC 14 12 17
TR1	R1					AP											02120113	0.00000	1.14200	SEC 14 12 17
TR1	R1					AP											02120114	0.00000	0.00000	SEC 14 12 17
TR1	R1					AP											02121001	0.00000	0.58000	S 14&23 12 17
TR1	R1					AP											02121002	0.00000	0.50000	SEC 23 12 17
TR1	R1					AP											02121003	0.00000	0.38000	SEC 23 12 17
TR1	R1					AP											02121005	0.00000	0.51000	SEC 23 12 17
TR1	R1					AP											02121007	0.00000	0.46000	SEC 23 12 17
TR1	R1					AP											02121008	0.00000	0.50000	S 14 & 23 12 17
TR1	R1					AP											02121009	0.00000	0.18000	SEC 23 12 17
TR1	R1					AP											02121010	2.00000	0.00000	POR S14&23 12 17
TR1	R1					AP											02121012	0.00000	1.12500	PM 47/85/1
TR1	R1					AP											02121013	0.00000	0.76500	PM 47/85/2
TA	FR-160					AP											02122005	11.00000	0.00000	POR SEC 1 12 17

TA	FR-160					AP											02122103	11.00000	149.30000	SEC 1 12 17
TA	FR-160					AP											02123101	11.00000	10.12000	SEC 1 12 17
TA	FR-160					AP											02123105	11.00000	0.00000	POR SEC 1 12 17
TA	FR-160					AP											02124101	0.00000	73.00000	RS 14/36 S121217
TA	FR-160					AP											02124103	11.00000	90.07000	S12 12 17RS14-36
TA	FR-160					AP											02125104	11.00000	80.00000	S12 12 17RS14-36
TA	FR-160					AP											02125111	11.00000	0.00000	S12 12 17RS14-36
TR1	R1					AP											02125113	0.00000	2.60000	POR L4 S12 12 17
TR1	R1					AP											02125114	0.00000	6.71900	POR L4 S12 12 17
TR1	R1					AP											02125116	0.00000	1.86000	PM 13/144/1
TR1	R1					AP											02125117	0.00000	1.75000	PM 13/144/2
TR1	R1					AP											02125118	0.00000	1.00000	PM 13/144/3
TR1	R1					AP											02125120	0.00000	2.74000	SEC 12 12 17
TR1	R1					AP											02125121	0.00000	2.74000	SEC 12 12 17
TR1	R1					AP											02126101	0.00000	1.00000	SEC 12 12 17
TR1	R1					AP											02126102	0.00000	1.32000	RS 16/36/1
TR1	R1					AP											02126106	0.00000	0.06000	SEC 12 12 17
TR1	R1					AP											02126110	0.00000	0.78000	RS 33/20/1
TR1	R1					AP											02126112	0.00000	0.69000	SEC 12 12 17
TR1	R1					AP											02126115	0.00000	0.57000	RS 24/119/1
TR1	R1					AP											02126116	0.00000	0.80000	SEC 12 12 17
TR1	R1					AP											02126117	0.00000	0.00000	POR L6 S12 12 17
TR1	R1					AP											02126118	0.00000	0.21000	RS 22/144/1
TR1	R1					AP											02126119	0.00000	0.12000	SEC 12 12 17
TR1	R1					AP											02126120	0.00000	0.54600	RS 26/40/1
TR1	R1					AP											02126122	0.00000	0.58000	RS 24/119/2
TR1	R1					AP											02126123	0.00000	0.51000	SEC 12 12 17
TR1	R1					AP											02126127	0.00000	0.00000	POR L6 S12 12 17
TR1	R1					AP											02126128	0.00000	0.00000	POR L6 S12 12 17
TR1	R1					AP											02126129	0.00000	0.51000	SEC 12 12 17
TR1	R1					AP											02126130	0.00000	1.61000	SEC 12 12 17
TR1	R1					AP											02126132	0.00000	1.26000	SEC 12 12 17
TR1	R1					AP											02126133	0.00000	0.14300	POR L6 S12 12 17
TR1	R1					AP											02126134	0.00000	0.23000	POR L6 S12 12 17
TR1	R1					AP											02126135	0.00000	0.30000	SEC 12 12 17
TR1	R1					AP											02126136	0.00000	0.34000	SEC 12 12 17
TA	FR-160					AP											02127001	11.00000	0.00000	LOT 1
TA	FR-160					AP											02127002	11.00000	0.00000	LOT 2
TA	FR-160					AP											02127003	11.00000	0.00000	LOT 3
TA	FR-160					AP											02127004	11.00000	0.00000	LOT 4
TA	FR-160					AP											02127005	11.00000	0.00000	LOT 6
TA	FR-160					AP											02127006	11.00000	0.00000	LOT 7
TA	FR-160					AP											02127007	11.00000	0.00000	LOT 8
TA	FR-160					AP											02127008	11.00000	0.00000	LOT 9
TR1	R1					AP											02128103	0.00000	1.38000	RS 22/144/2
TR1	R1					AP											02128104	0.00000	1.20000	RS 22/144/3

TR1	R1					AP											02128110	0.00000	0.53500	RS 33/21/1
TR1	R1					AP											02128111	0.00000	0.71000	SEC 12 12 17
TR1	R1					AP											02128116	0.00000	1.53000	SEC 12 12 17
TR1	R1					AP											02128117	0.00000	0.60000	SEC 12 12 17
TR1	R1					AP											02128118	0.00000	0.44000	SEC 12 12 17
TR1	R1					AP											02128119	0.00000	0.56000	SEC 12 12 17
TR1	R1					AP											02128120	0.00000	0.82000	SEC 12 12 17
TA	FR-160					AP											02129001	11.00000	0.00000	POR SEC 13 12 17
TR1	R1					AP											02130101	0.00000	0.06000	SEC 13 12 17
TR1	R1					AP											02130105	0.00000	0.74000	SEC 13 12 17
TR1	R1					AP											02130106	0.00000	0.61000	SEC 13 12 17
TR1	R1					AP											02130109	0.00000	0.06000	SEC 13 12 17
TR1	R1					AP											02130110	0.00000	1.60000	S 12&13 12 17
TR1	R1					AP											02130111	0.00000	1.20000	SEC 13 12 17
TR1	R1					AP											02130112	0.00000	0.58000	SEC 13 12 17
TR1	R1					AP											02130113	0.00000	0.62000	SEC 13 12 17
TR1	R1					AP											02130114	0.00000	0.64000	SEC 13 12 17
TR1	R1					AP											02130115	0.00000	0.56000	SEC 13 12 17
TR1	R1					AP											02130116	0.00000	0.50000	SEC 13 12 17
TR1	R1					AP											02130119	0.00000	0.54000	SEC 13 12 17
TR1	R1					AP											02130120	0.00000	0.40000	SEC 13 12 17
TR1	R1					AP											02130121	0.00000	1.06000	RS 16/103
TR1	R1					AP											02130122	0.00000	0.30000	SEC 13 12 17
TR1	R1					AP											02130123	0.00000	0.30000	SEC 13 12 17
TR1	R1					AP											02131101	0.00000	0.56000	SEC 13 12 17
TR1	R1					AP											02131102	0.00000	0.49000	SEC 13 12 17
TR1	R1					AP											02131103	0.00000	1.06000	SEC 13 12 17
TR1	R1					AP											02131106	0.00000	0.63000	SEC 13 12 17
TR1	R1					AP											02131110	11.00000	1.30000	SEC 13 12 17
TR1	R1					AP											02131112	0.00000	0.00000	POR L1 S13 12 17
TR1	R1					AP											02131114	0.00000	0.00000	POR L1 S13 12 17
TR1	R1					AP											02131115	0.00000	0.69000	SEC 13 12 17
TR1	R1					AP											02131116	0.00000	0.00000	POR L1 S13 12 17
TR1	R1					AP											02131117	0.00000	0.00000	POR L1 S13 12 17
TR1	R1					AP											02131119	0.00000	0.22000	SEC 13 12 17
TR1	R1					AP											02131120	0.00000	0.41000	SEC 13 12 17
TR1	R1					AP											02131122	0.00000	0.67000	SEC 13 12 17
TR1	R1					AP											02131123	0.00000	0.72000	SEC 13 12 17
TR1	R1					AP											02131126	11.00000	0.69000	SEC 13 12 17
TR1	R1					AP											02131130	0.00000	0.91000	SEC 13 12 17
TR1	R1					AP											02131131	0.00000	1.02000	SEC 13 12 17
TR1	R1					AP											02131133	0.00000	0.99000	PM 36/64/A
TR1	R1					AP											02131134	11.00000	0.49000	PAR B P/M 36-64
TR1	R1					AP											02132102	0.00000	0.86000	SEC 13 12 17
TR1	R1					AP											02132103	0.00000	0.83000	SEC 13 12 17
TR1	R1					AP											02132106	0.00000	0.06000	POR L2 S13 12 17

TR1	R1					AP											02132109	0.00000	0.37000	SEC 13 12 17
TR1	R1					AP											02132112	0.00000	1.90000	RS 25/59/1
TR1	R1					AP											02132113	0.00000	0.58000	SEC 13 12 17
TR1	R1					AP											02132115	11.00000	1.07000	SEC 13 12 17
TR1	R1					AP											02132117	11.00000	2.40000	SEC 13 12 17
TR1	R1					AP											02132119	11.00000	2.93000	SEC 13 12 17
TR1	R1					AP											02132123	0.00000	1.02000	SEC 13 12 17
TR1	R1					AP											02132126	0.00000	0.94000	PM 46/93/1
TR1	R1					AP											02132127	0.00000	0.95000	PM 46/93/2
TR1	R1					AP											02132129	0.00000	0.72000	PM 46/131/A
TR1	R1					AP											02132130	0.00000	0.42600	PM 46/131/B
TR1	R1					AP											02133101	0.00000	1.18000	SEC 13 12 17
TR1	R1					AP											02133103	0.00000	1.46000	SEC 13 12 17
TR1	R1					AP											02133104	0.00000	0.58000	RS 29/93/1
TR1	R1					AP											02133106	0.00000	1.26000	SEC 13 12 17
TR1	R1					AP											02133110	0.00000	2.12000	SEC 13 12 17
TR1	R1					AP											02133111	0.00000	0.28000	SEC 13 12 17
TR1	R1					AP											02133115	0.00000	0.85000	SEC 13 12 17
TR1	R1					AP											02133117	0.00000	0.41000	RS 28/89/1
TR1	R1					AP											02133123	0.00000	12.90000	RS 29/91/1
TR1	R1					AP											02133124	0.00000	0.23000	RS 29/91/2
TA	FR-160					AP											02134001	11.00000	0.00000	POR SEC 13 12 17
TA	FR-160					AP											02134002	11.00000	0.00000	POR SEC 13 12 17
TA	FR-160					AP											02135001	11.00000	0.00000	LOT 1
TA	FR-160					AP											02135002	11.00000	0.00000	LOT 2
TA	FR-160					AP											02135003	11.00000	0.00000	LOT 3
TA	FR-160					AP											02135004	11.00000	0.00000	LOT 4
TA	FR-160					AP											02136003	11.00000	0.00000	LOT 1 2 & 3
TR1	R1					AP											02137101	0.00000	0.69000	SEC 14 12 17
TR1	R1					AP											02137102	0.00000	0.58000	RS 31/123/B
TR1	R1					AP											02137103	0.00000	0.75000	RS 31/123/A
TR1	R1					AP											02137104	0.00000	0.60000	SEC 14 12 17
TR1	R1					AP											02137105	0.00000	0.87000	SEC 14 12 17
TR1	R1					AP											02138101	0.00000	0.73000	SEC 14 12 17
TR1	R1					AP											02138103	0.00000	1.63000	RS 19/97/1
TR1	R1					AP											02138105	0.00000	0.84000	POR L2 S14 12 17
TR1	R1					AP											02138106	0.00000	0.00000	POR L2 S14 12 17
TR1	R1					AP											02138109	0.00000	0.48000	RS 29/64/2
TR1	R1					AP											02139103	0.00000	2.20000	SEC 14 12 17
TR1	R1					AP											02139104	0.00000	0.56000	SEC 14 12 17
TR1	R1					AP											02139105	0.00000	4.05100	RS 26/42/1
TR1	R1					AP											02139106	0.00000	0.64000	SEC 14 12 17
TR1	R1					AP											02139107	0.00000	0.63000	SEC 14 12 17
TR1	R1					AP											02139108	0.00000	0.25900	RS 26/43/1
TR1	R1					AP											02139109	0.00000	0.26200	SEC 14 12 17
TR1	R1					AP											02139112	0.00000	2.61000	RS 29/64/1

TR1	R1					AP											02140101	0.00000	0.56000	SEC 14 12 17
TR1	R1					AP											02140102	0.00000	0.59000	SEC 14 12 17
TR1	R1					AP											02140103	0.00000	0.60000	SEC 14 12 17
TR1	R1					AP											02140104	0.00000	0.60000	SEC 14 12 17
TR1	R1					AP											02140105	0.00000	0.60000	SEC 14 12 17
TR1	FR-160					AP											02140109	11.00000	13.00000	SEC 14 12 17
TR1	R1					AP											02140117	11.00000	2.10000	TR 3 RS 20-68
TR1	R1					AP											02140119	0.00000	0.60000	RS 20/68/2
TA	FR-160					AP											02141009	11.00000	0.00000	POR S 22&23 1217
TR1	FR-160					AP											02141009	11.00000	0.00000	POR S 22&23 1217
TA	FR-160					AP											02141015	11.00000	2.39000	23&14 R/S 16-3
RF	RF-L			PD		AP											02142001	0.00000	0.00000	L 1
RF	RF-L			PD		AP											02142002	0.00000	0.00000	L 2
RF	RF-L			PD		AP											02142003	0.00000	0.00000	L 3
RF	RF-L			PD		AP											02142004	0.00000	0.00000	L 4
RF	RF-L			PD		AP											02142005	0.00000	0.00000	L 5
RF	RF-L			PD		AP											02142006	0.00000	0.00000	L 6
RF	RF-L			PD		AP											02142007	0.00000	0.00000	L 7
RF	RF-L			PD		AP											02142008	0.00000	0.00000	L 8
RF	RF-L			PD		AP											02142009	0.00000	0.00000	L 9
RF	RF-L			PD		AP											02142010	0.00000	0.00000	L 10
RF	RF-L			PD		AP											02142011	0.00000	0.00000	L 11
RF	RF-L			PD		AP											02142012	0.00000	0.00000	L 12
RF	RF-L			PD		AP											02142013	0.00000	0.00000	L 13
RF	RF-L			PD		AP											02142014	0.00000	0.00000	L 14
RF	RF-L			PD		AP											02142015	0.00000	0.00000	L 15
RF	RF-L			PD		AP											02142016	0.00000	0.00000	L 16
RF	RF-L			PD		AP											02142017	0.00000	0.00000	L 17
RF	RF-L			PD		AP											02142023	0.00000	0.00000	L 23
RF	RF-L			PD		AP											02142024	0.00000	0.00000	L 24
RF	RF-L			PD		AP											02142025	0.00000	0.00000	L 25
RF	RF-L			PD		AP											02142026	0.00000	0.00000	L 26
RF	RF-L			PD		AP											02142028	0.00000	0.00000	L 28
RF	RF-L			PD		AP											02142029	0.00000	0.00000	L 29
RF	RF-L			PD		AP											02142030	0.00000	0.00000	L 30
RF	RF-L			PD		AP											02142031	0.00000	0.00000	L 31
RF	RF-L			PD		AP											02142032	0.00000	0.00000	L 32
RF	RF-L			PD		AP											02142033	0.00000	0.00000	L 33
RF	RF-L			PD		AP											02142034	0.00000	0.00000	L 34
RF	RF-L			PD		AP											02142035	0.00000	0.00000	L 35
RF	RF-L			PD		AP											02142036	0.00000	0.00000	L 36
RF	RF-L			PD		AP											02142037	0.00000	0.00000	L 37
RF	RF-L			PD		AP											02142038	0.00000	0.00000	L 38
TR1	R1					AP											02142041	1.00000	0.00000	REM
RF	RF-L			PD		AP											02142042	11.00000	0.19000	TR 1 R/S 24-20
RF	RF-L			PD		AP											02142051	0.00000	0.08000	PM 46/123/1

RF	RF-L			PD		AP											02142052	0.00000	0.09000	PM 46/123/2
RF	RF-L			PD		AP											02142053	0.00000	0.07000	PM 46/123/3
RF	RF-L			PD		AP											02142055	2.00000	0.00000	LTS18 22 27 39AW
TA	FR-160					AP											02308108	0.00000	76.21000	PM 44/45/2
TA	FR-160					AP											02505130	11.00000	0.00000	POR SEC 2 12 18
TA	FR-160					AP											02506112	11.00000	4.16000	SEC 3 12 18
TA	FR-160					AP											02506118	11.00000	1.00000	SEC 3 12 18
CP	R1					AP											02506122	11.00000	16.32000	POR RS 15/101
TR1	FR-160					AP											02506122	11.00000	16.32000	POR RS 15/101
TR1	R1					AP											02506124	11.00000	2.06000	SEC 3 12 18
TR1	R1					AP											02506125	11.00000	0.00000	POR SEC 3 12 18
TA	FR-160					AP											02506126	0.00000	24.72000	SEC 3 12 18
TA	FR-160					AP											02506126	0.00000	24.72000	SEC 3 12 18
TA	FR-160					AP											02506127	0.00000	14.55000	SEC 3 12 18
TA	FR-160					AP											02507123	11.00000	0.00000	POR SEC 2 12 18
TA	FR-160					AP											02508113	0.00000	57.07000	SEC 3 12 18
TR1	FR-160					AP											02508115	11.00000	149.77000	POR RS 15/101
TR1	R1					AP											02509111	1.00000	0.44000	SEC 2 12 18
TR1	R1					AP											02509112	0.00000	22.27000	SEC 2 12 18
TA	FR-160					AP											02509115	11.00000	41.72000	SEC 2 12 18
TA	FR-160					AP											02509116	11.00000	164.38000	S 2 12 18
TA	FR-160					AP											02516101	11.00000	40.00000	SEC 15 12 18
TA	FR-160					AP											02516102	11.00000	0.00000	POR SEC 15 12 18
TA	FR-160					AP											02517101	11.00000	80.00000	SEC 14 12 18
TA	FR-160					AP											02517102	11.00000	120.00000	SEC 14 12 18
TA	FR-160					AP											02517103	11.00000	40.00000	SEC 14 12 18
TA	FR-160					AP											02517104	11.00000	80.00000	SEC 14 12 18
TA	FR-160					AP											02517105	11.00000	40.00000	SEC 14 12 18
TA	FR-160					AP											02517106	11.00000	0.00000	POR SEC 14 12 18
TA	FR-160					AP											02517107	11.00000	0.00000	POR SEC 14 12 18
TR1	R1					AP											02527103	0.00000	0.00000	L 3 B A
TR1	R1					AP											02527106	0.00000	0.69300	L 6 B A
TR1	R1					AP											02527107	0.00000	0.00000	L 7 B A
TR1	R1					AP											02527108	0.00000	0.66900	L 8 B A
TR1	R1					AP											02527109	0.00000	0.69000	L 9 B A
TR1	R1					AP											02527110	11.00000	0.00000	L 11 BLK A
TR1	R1					AP											02527111	0.00000	0.31000	L 12 B A
TR1	R1					AP											02527112	0.00000	0.40700	L 13 B A
TR1	R1					AP											02527113	0.00000	0.00000	L 14 B A
TR1	R1					AP											02527114	0.00000	0.00000	L 15 B A
TR1	R1					AP											02527120	0.00000	0.66900	L 21 B A
TR1	R1					AP											02527121	0.00000	0.00000	L 22 B A
TR1	R1					AP											02527122	0.00000	0.55400	L 23 B A
TR1	R1					AP											02527123	0.00000	0.00000	L 24 B A
TR1	R1					AP											02527124	0.00000	0.00000	L 25 B A
TR1	R1					AP											02527125	0.00000	0.00000	L 26 B A

TR1	R1					AP											02527127	11.00000	0.00000	L 28 BLK A
TR1	R1					AP											02527128	0.00000	0.00000	L 29 B A
TR1	R1					AP											02527129	0.00000	0.00000	L 30 B A
TR1	R1					AP											02527130	0.00000	0.28800	L 31 B A
TR1	R1					AP											02527133	0.00000	0.00000	POR L 19 BLK A
TR1	R1					AP											02527134	0.00000	0.00000	POR L 19 BLK A
TR1	R1					AP											02527137	11.00000	0.00000	POR L 18 BLK A
TR1	R1					AP											02527144	0.00000	0.00000	SEC 2 & 3 12 18
TR1	R1					AP											02527145	0.00000	0.00000	POR L 20 BLK A
TR1	R1					AP											02527146	0.00000	0.00000	POR L 20 BLK A
TR1	R1					AP											02527148	0.00000	0.00000	PM 4/113/4
TR1	R1					AP											02527149	11.00000	0.00000	SEC 3 12 18
TR1	R1					AP											02527150	0.00000	0.00000	L 2 B A
TR1	R1					AP											02527151	11.00000	0.00000	PM 4/113/1+
TR1	R1					AP											02527152	0.00000	0.00000	PM 4/113/2+
TR1	R1					AP											02527153	0.00000	0.00000	PM 4/113/3+
TR1	R1					AP											02527156	0.00000	0.51500	RS 23/61/1
TR1	R1					AP											02527157	0.00000	0.35000	RS 23/61/2
TR1	R1					AP											02527159	0.00000	0.47200	RS 33/12/1
TR1	R1					AP											02527160	0.00000	0.85100	RS 33/12/2
TR1	R1					AP											02527202	0.00000	0.28700	L 2 B B
TR1	R1					AP											02527203	0.00000	0.00000	L 3 B B
TR1	R1					AP											02527204	0.00000	0.00000	L 4 B B
TR1	R1					AP											02527205	0.00000	0.00000	L 5 B B
TR1	R1					AP											02527206	0.00000	0.28700	L 6 B B
TR1	R1					AP											02527207	0.00000	0.00000	L 7 B B
TR1	R1					AP											02527208	0.00000	0.00000	L 8 B B
TR1	R1					AP											02527209	0.00000	0.28700	L 9 B B
TR1	R1					AP											02527210	0.00000	0.28700	L 10 B B
TR1	R1					AP											02527211	0.00000	0.00000	L 11 B B
TR1	R1					AP											02527212	0.00000	0.00000	L 12 B B
TR1	R1					AP											02527213	0.00000	0.00000	L 13 B B
TR1	R1					AP											02527214	0.00000	0.00000	L 14 B B
TR1	R1					AP											02527215	0.00000	0.00000	L 15 B B
TR1	R1					AP											02527218	0.00000	0.00000	POR
TR1	R1					AP											02527220	0.00000	0.28700	L 1
TR1	R1					AP											02527221	0.00000	0.28700	L 16
TR1	R1					AP											02530101	0.00000	0.00000	L 8
TR1	R1					AP											02530102	0.00000	0.00000	L 9
TR1	R1					AP											02530103	0.00000	0.00000	L 10
TR1	R1					AP											02530105	0.00000	0.22700	L 12
TR1	R1					AP											02530106	0.00000	0.00000	L 13
TR1	R1					AP											02530107	0.00000	0.00000	L 14
TR1	R1					AP											02530108	0.00000	0.00000	L 15
TR1	R1					AP											02530109	0.00000	0.00000	L 16
TR1	R1					AP											02530110	0.00000	0.00000	L 17

TR1	R1					AP											02530111	0.00000	0.00000	L 18
TR1	R1					AP											02530112	0.00000	0.22900	L 19
TR1	R1					AP											02530115	0.00000	0.00000	L 22
TR1	R1					AP											02530117	0.00000	0.00000	LOT A POR 11
TR1	R1					AP											02530118	11.00000	0.00000	POR LOT 11
TR1	R1					AP											02530120	0.00000	0.26200	PM 44/85/1
TR1	R1					AP											02530121	0.00000	0.17600	PM 44/85/2
TR1	R1					AP											02530122	0.00000	0.23900	PM 44/85/3
TR1	R1					AP											02530201	0.00000	0.00000	L 23
TR1	R1					AP											02530202	0.00000	0.00000	L 24
TR1	R1					AP											02530203	0.00000	0.23000	L 25
TR1	R1					AP											02530204	0.00000	0.00000	L 26
TR1	R1					AP											02530206	0.00000	0.00000	L 28
TR1	R1					AP											02530207	0.00000	0.00000	L 29
TR1	R1					AP											02530208	0.00000	0.00000	L 30
TR1	R1					AP											02530209	0.00000	0.23000	L 31
TR1	R1					AP											02530210	0.00000	0.00000	L 32
TR1	R1					AP											02530211	0.00000	0.23000	L 33
TR1	R1					AP											02530212	0.00000	0.00000	L 34
TR1	R1					AP											02530213	0.00000	0.00000	POR L 27
TR1	R1					AP											02530214	0.00000	0.11500	RS 29/67
TR1	R1					AP											02530301	0.00000	0.23000	L 47
TR1	R1					AP											02530302	0.00000	0.00000	L 48
TR1	R1					AP											02530303	0.00000	0.00000	L 49
TR1	R1					AP											02530304	0.00000	0.00000	L 50
TR1	R1					AP											02530305	0.00000	0.00000	L 51
TR1	R1					AP											02530306	0.00000	0.00000	L 52
TR1	R1					AP											02530307	0.00000	0.23000	L 53
TR1	R1					AP											02530308	0.00000	0.00000	L 54
TR1	R1					AP											02530309	0.00000	0.00000	L 55
TR1	R1					AP											02530310	0.00000	0.23000	L 56
TR1	R1					AP											02530311	0.00000	0.23000	L 57
TR1	R1					AP											02531102	0.00000	0.00000	L 36
TR1	R1					AP											02531103	0.00000	0.00000	L 37
TR1	R1					AP											02531104	0.00000	0.23000	L 38
TR1	R1					AP											02531105	0.00000	0.00000	L 39
TR1	R1					AP											02531107	0.00000	0.00000	POR L 40
TR1	R1					AP											02531108	0.00000	0.00000	POR L 40
TR1	R1					AP											02531109	0.00000	0.00000	POR L 35
TR1	R1					AP											02531110	0.00000	0.24600	POR L 35
TR1	R1					AP											02531202	0.00000	0.00000	L 42
TR1	R1					AP											02531203	0.00000	0.00000	L 43
TR1	R1					AP											02531206	0.00000	0.00000	L 46
TR1	R1					AP											02531207	0.00000	0.00000	L 58
TR1	R1					AP											02531208	0.00000	0.23000	L 59
TR1	R1					AP											02531209	0.00000	0.23000	L 60

TR1	R1					AP											02531210	0.00000	0.23000	L 61
TR1	R1					AP											02531211	0.00000	0.23000	L 62
TR1	R1					AP											02531212	0.00000	0.00000	L 63
TR1	R1					AP											02531213	0.00000	0.00000	L 64
TR1	R1					AP											02531214	0.00000	0.00000	POR L 41
TR1	R1					AP											02531215	0.00000	0.17200	POR L 41
TR1	R1					AP											02531217	0.00000	0.00000	POR L 44
TR1	R1					AP											02531221	0.00000	0.14900	RS 29/50/2
TR1	R1					AP											02531222	0.00000	0.17200	RS 29/50/1
TR1	R1					AP											02531301	0.00000	0.00000	L 1
TR1	R1					AP											02531302	0.00000	0.00000	L 2
TR1	R1					AP											02531303	0.00000	0.23200	L 3
TR1	R1					AP											02531304	0.00000	0.23200	L 4
TR1	R1					AP											02531305	0.00000	0.23200	L 5
TR1	R1					AP											02531306	0.00000	0.00000	L 6
TR1	R1					AP											02531307	0.00000	0.00000	L 7
TR1	R1					AP											02533101	0.00000	0.00000	L 1
TR1	R1					AP											02533102	0.00000	0.00000	L 2
TR1	R1					AP											02533103	0.00000	0.00000	L 3
TR1	R1					AP											02533105	0.00000	0.00000	L 5
TR1	R1					AP											02533106	0.00000	0.43400	L 6
TR1	R1					AP											02533107	0.00000	0.38900	L 7
TR1	R1					AP											02533108	0.00000	0.00000	L 8
TR1	R1					AP											02533109	0.00000	0.00000	L 9
TR1	R1					AP											02533110	0.00000	0.40300	L 10
TR1	R1					AP											02533112	0.00000	0.00000	L 12
TR1	R1					AP											02533113	0.00000	0.00000	L 13
TR1	R1					AP											02533114	0.00000	0.00000	L 14
TR1	R1					AP											02533115	0.00000	0.19600	POR L 4
TR1	R1					AP											02533116	0.00000	0.00000	POR L 4
TR1	R1					AP											02533117	0.00000	0.20900	POR L 11
TR1	R1					AP											02533118	0.00000	0.20900	POR L 11
TR1	R1					AP											02534101	0.00000	0.14900	L 111
TR1	R1					AP											02534102	0.00000	0.00000	L 110
TR1	R1					AP											02534103	0.00000	0.17200	L 109
TR1	R1					AP											02534104	0.00000	0.00000	L 108
TR1	R1					AP											02534105	0.00000	0.00000	L 107
TR1	R1					AP											02534106	0.00000	0.00000	L 106
TR1	R1					AP											02534107	0.00000	0.00000	L 105
TR1	R1					AP											02534108	0.00000	0.00000	L 104
TR1	R1					AP											02534109	0.00000	0.00000	L 103
TR1	R1					AP											02534110	0.00000	0.15200	L 102
TR1	R1					AP											02534111	0.00000	0.00000	L 101
TR1	R1					AP											02534112	0.00000	0.17000	L 100
TR1	R1					AP											02534113	0.00000	0.00000	L 115
TR1	R1					AP											02534114	0.00000	0.00000	L 114

TR1	R1					AP											02534115	0.00000	0.00000	L 113
TR1	R1					AP											02534116	0.00000	0.00000	L 112
TR1	R1					AP											02534201	0.00000	0.00000	L 1
TR1	R1					AP											02534205	0.00000	0.17300	L 5
TR1	R1					AP											02534206	11.00000	0.00000	L 6
TR1	R1					AP											02534207	11.00000	0.00000	L 7
TR1	R1					AP											02534208	11.00000	0.00000	L 8
TR1	R1					AP											02534209	0.00000	0.00000	L 9
TR1	R1					AP											02534210	0.00000	0.00000	L 10
TR1	R1					AP											02534211	0.00000	0.00000	L 11
TR1	R1					AP											02534212	0.00000	0.00000	L 12
TR1	R1					AP											02534213	11.00000	0.00000	L 13
TR1	R1					AP											02534214	0.00000	0.15200	L 14
TR1	R1					AP											02534217	0.00000	0.00000	L 17
TR1	R1					AP											02534218	0.00000	0.00000	L 18
TR1	R1					AP											02534219	0.00000	0.00000	L 19
TR1	R1					AP											02534221	0.00000	0.00000	L 4 & POR 3
TR1	R1					AP											02534222	11.00000	0.00000	L 2 & POR L 3
TR1	R1					AP											02534223	0.00000	0.00000	LOT 15 & 16
TR1	R1					AP											02534301	0.00000	0.00000	L 99
TR1	R1					AP											02534302	0.00000	0.00000	L 98
TR1	R1					AP											02534303	0.00000	0.00000	L 97
TR1	R1					AP											02534304	0.00000	0.00000	L 96
TR1	R1					AP											02534305	0.00000	0.17200	L 95
TR1	R1					AP											02534306	0.00000	0.17200	L 94
TR1	R1					AP											02534307	0.00000	0.17000	L 93
TR1	R1					AP											02534308	0.00000	0.00000	L 92
TR1	R1					AP											02534309	0.00000	0.15700	L 91
TR1	R1					AP											02534312	0.00000	0.00000	PORS L 89 & 90
TR1	R1					AP											02534313	0.00000	0.15500	PORS L 89 & 90
TR1	R1					AP											02535101	0.00000	0.18600	L 88
TR1	R1					AP											02535102	0.00000	0.18700	L 87
TR1	R1					AP											02535103	0.00000	0.00000	L 86
TR1	R1					AP											02535104	0.00000	0.00000	L 85
TR1	R1					AP											02535105	0.00000	0.00000	L 84
TR1	R1					AP											02535106	0.00000	0.17200	L 83
TR1	R1					AP											02535107	0.00000	0.00000	L 82
TR1	R1					AP											02535108	0.00000	0.00000	L 81
TR1	R1					AP											02535109	0.00000	0.00000	L 80
TR1	R1					AP											02535110	0.00000	0.00000	L 79
TR1	R1					AP											02535111	0.00000	0.17500	L 78
TR1	R1					AP											02535115	0.00000	0.17000	PM 45/13/1
TR1	R1					AP											02535116	0.00000	0.17000	PM 45/13/2
TR1	R1					AP											02535201	0.00000	0.18200	L 75
TR1	R1					AP											02535202	0.00000	0.00000	L 74
TR1	R1					AP											02535203	0.00000	0.17900	L 73

TR1	R1					AP											02535204	0.00000	0.17800	L 72
TR1	R1					AP											02535205	0.00000	0.00000	L 71
TR1	R1					AP											02535206	0.00000	0.00000	L 70
TR1	R1					AP											02535207	0.00000	0.00000	L 69
TR1	R1					AP											02535208	0.00000	0.00000	L 68
TR1	R1					AP											02535209	0.00000	0.00000	L 67
TR1	R1					AP											02535210	0.00000	0.17200	L 66
TR1	R1					AP											02535211	0.00000	0.00000	L 65
TR1	R1					AP											02535212	0.00000	0.00000	L 64
TR1	R1					AP											02535213	0.00000	0.19200	L 63
TR1	R1					AP											02535214	0.00000	0.00000	L 62
TR1	R1					AP											02535215	0.00000	0.00000	L 61
TR1	R1					AP											02535216	0.00000	0.00000	L 60
TR1	R1					AP											02535217	0.00000	0.00000	L 59
TR1	R1					AP											02535218	0.00000	0.17600	L 58
TR1	R1					AP											02535219	0.00000	0.17700	L 57
TR1	R1					AP											02535220	0.00000	0.00000	L 56
TR1	R1					AP											02535221	0.00000	0.17700	L 55
TR1	R1					AP											02535222	0.00000	0.00000	L 54
TR1	R1					AP											02535223	0.00000	0.00000	L 53
TR1	R1					AP											02535224	0.00000	0.17000	SEC 3 12 18
TR1	R1					AP											02535301	0.00000	0.20300	L 52
TR1	R1					AP											02535302	0.00000	0.00000	L 51
TR1	R1					AP											02535303	0.00000	0.00000	L 50
TR1	R1					AP											02535304	0.00000	0.00000	L 49
TR1	R1					AP											02535305	0.00000	0.00000	L 48
TR1	R1					AP											02535307	0.00000	0.00000	L 46
TR1	R1					AP											02535308	0.00000	0.00000	L 45
TR1	R1					AP											02535309	0.00000	0.00000	L 44
TR1	R1					AP											02535310	0.00000	0.17100	L 43
TR1	R1					AP											02535311	0.00000	0.00000	L 42
TR1	R1					AP											02535312	11.00000	0.00000	L 41
TR1	R1					AP											02535315	0.00000	0.00000	L 38
TR1	R1					AP											02535316	0.00000	0.33000	LOTS 39 & 40
TR1	R1					AP											02535401	11.00000	0.00000	L 20
TR1	R1					AP											02535402	11.00000	0.00000	L 21
TR1	R1					AP											02535403	11.00000	0.00000	L 22
TR1	R1					AP											02535404	11.00000	0.00000	L 23
TR1	R1					AP											02535405	0.00000	0.17200	L 24
TR1	R1					AP											02535406	0.00000	0.00000	L 25
TR1	R1					AP											02535407	0.00000	0.00000	L 26
TR1	R1					AP											02535408	0.00000	0.00000	L 27
TR1	R1					AP											02535409	11.00000	0.00000	L 28
TR1	R1					AP											02535410	0.00000	0.17200	L 29
TR1	R1					AP											02535411	0.00000	0.00000	L 30
TR1	R1					AP											02535412	11.00000	0.00000	L 31

TR1	R1					AP											02535413	0.00000	0.00000	L 32
TR1	R1					AP											02535414	0.00000	0.00000	L 33
TR1	R1					AP											02535415	0.00000	0.00000	L 34
TR1	R1					AP											02535416	0.00000	0.00000	L 35
TR1	R1					AP											02535417	0.00000	0.00000	L 36
TR1	R1					AP											02535418	0.00000	0.00000	L 37
TR1	R1					AP											02542101	0.00000	0.00000	L 1
TR1	R1					AP											02542102	0.00000	0.00000	L 2
TR1	R1					AP											02542103	0.00000	0.00000	L 3
TR1	R1					AP											02542104	0.00000	0.00000	L 4
TR1	R1					AP											02542105	0.00000	0.00000	L 5
TR1	R1					AP											02542106	0.00000	0.00000	L 6
TR1	R1					AP											02542108	0.00000	0.00000	L 8
TR1	R1					AP											02542109	11.00000	0.00000	L 9
TR1	R1					AP											02542110	0.00000	0.23800	L 10
TR1	R1					AP											02542111	0.00000	0.00000	L 11
TR1	R1					AP											02542112	0.00000	0.00000	L 12
TR1	R1					AP											02542114	0.00000	0.00000	POR L 7
TR1	R1					AP											02542115	0.00000	0.00000	POR L 7
TR1	R1					AP											02542116	0.00000	0.00000	POR L 7
TR1	R1					AP											02542117	0.00000	0.00000	POR L 7
TR1	R1					AP											02543101	11.00000	0.27400	L 1
TR1	R1					AP											02543102	0.00000	0.26600	L 2
TR1	R1					AP											02543103	0.00000	0.28900	L 3
TR1	R1					AP											02543104	0.00000	0.00000	L 4
TR1	R1					AP											02543105	0.00000	0.00000	L 5
TR1	R1					AP											02543106	0.00000	0.00000	L 6
TR1	R1					AP											02543107	11.00000	0.00000	L 7
TR1	R1					AP											02543108	0.00000	0.00000	L 8
TR1	R1					AP											02543109	0.00000	0.31500	L 9
TR1	R1					AP											02543110	0.00000	0.00000	L 10
TR1	R1					AP											02543201	0.00000	0.00000	L 11
TR1	R1					AP											02543202	0.00000	0.00000	L 12
TR1	R1					AP											02543203	0.00000	0.00000	L 13
TR1	R1					AP											02543204	0.00000	0.49000	L 14
TR1	R1					AP											02543205	0.00000	0.00000	L 15
TR1	R1					AP											02543206	0.00000	0.00000	L 16
TR1	R1					AP											02543207	0.00000	0.00000	L 17
TR1	R1					AP											02543208	0.00000	0.28200	L 18
TR1	R1					AP											02543209	0.00000	0.00000	L 19
TR1	R1					AP											02543210	0.00000	0.00000	L 20
TR1	R1					AP											02543211	11.00000	0.00000	L 21
TR1	R1					AP											02543212	0.00000	0.00000	L 22
TR1	R1					AP											02543213	0.00000	0.00000	L 23
TR1	R1					AP											02543214	0.00000	0.00000	L 24
TR1	R1					AP											02543215	0.00000	0.21200	L 25

TR1	R1					AP											02543216	11.00000	0.00000	L 26
TR1	R1					AP											02543217	0.00000	0.00000	L 27
TR1	R1					AP											02543218	11.00000	0.00000	L 28
TR1	R1					AP											02543219	0.00000	0.00000	L 29
TR1	R1					AP											02543220	0.00000	0.00000	L 30
TR1	R1					AP											02543221	11.00000	0.00000	L 31
TR1	R1					AP											02543222	0.00000	0.23700	L 32
TR1	R1					AP											02543223	11.00000	0.00000	L 33
TR1	R1					AP											02543224	0.00000	0.00000	L 34
TR1	R1					AP											02543225	0.00000	0.00000	L 35
TR1	R1					AP											02543226	11.00000	0.00000	L 36
TR1	R1					AP											02543227	0.00000	0.47000	L 37
TR1	R1					AP											02543228	0.00000	0.00000	L 38
TR1	R1					AP											02543229	0.00000	0.00000	L 39
TR1	R1					AP											02543301	0.00000	0.00000	L 73
TR1	R1					AP											02543302	0.00000	0.00000	L 74
TR1	R1					AP											02543303	0.00000	0.22000	L 75
TR1	R1					AP											02543304	0.00000	0.00000	L 76
TR1	R1					AP											02543305	0.00000	0.00000	L 77
TR1	R1					AP											02543306	0.00000	0.00000	L 78
TR1	R1					AP											02543307	0.00000	0.00000	L 79
TR1	R1					AP											02543308	11.00000	0.00000	L 80
TR1	R1					AP											02543309	0.00000	0.25800	L 81
TR1	R1					AP											02543310	0.00000	0.00000	L 82
TR1	R1					AP											02543311	0.00000	0.00000	L 83
TR1	R1					AP											02543312	11.00000	0.00000	L 84
TR1	R1					AP											02543313	0.00000	0.22700	L 85
TR1	R1					AP											02543314	11.00000	0.00000	L 86
TR1	R1					AP											02543315	0.00000	0.00000	L 87
TR1	R1					AP											02543316	0.00000	0.00000	L 88
TR1	R1					AP											02543317	0.00000	0.00000	L 89
TR1	R1					AP											02544101	0.00000	0.00000	L 56
TR1	R1					AP											02544102	0.00000	0.00000	L 57
TR1	R1					AP											02544103	0.00000	0.00000	L 58
TR1	R1					AP											02544104	0.00000	0.00000	L 59
TR1	R1					AP											02544105	0.00000	0.00000	L 60
TR1	R1					AP											02544106	0.00000	0.00000	L 61
TR1	R1					AP											02544107	0.00000	0.00000	L 62
TR1	R1					AP											02544108	0.00000	0.27700	L 63
TR1	R1					AP											02544109	0.00000	0.26400	L 64
TR1	R1					AP											02544110	0.00000	0.00000	L 65
TR1	R1					AP											02544111	0.00000	0.00000	L 66
TR1	R1					AP											02544114	0.00000	0.00000	L 69
TR1	R1					AP											02544115	0.00000	0.24200	L 70
TR1	R1					AP											02544116	0.00000	0.00000	L 71
TR1	R1					AP											02544117	0.00000	0.00000	L 72

TR1	R1					AP											02544118	0.00000	0.00000	L 67 & 68
TR1	R1					AP											02544201	0.00000	0.00000	L 40
TR1	R1					AP											02544202	11.00000	0.00000	L 41
TR1	R1					AP											02544203	0.00000	0.00000	L 42
TR1	R1					AP											02544204	11.00000	0.00000	L 43
TR1	R1					AP											02544205	0.00000	0.00000	L 44
TR1	R1					AP											02544206	11.00000	0.00000	L 45
TR1	R1					AP											02544207	0.00000	0.00000	L 46
TR1	R1					AP											02544208	0.00000	0.00000	L 47
TR1	R1					AP											02544209	11.00000	0.00000	L 48
TR1	R1					AP											02544210	11.00000	0.00000	L 49
TR1	R1					AP											02544211	0.00000	0.00000	L 50
TR1	R1					AP											02544217	11.00000	0.00000	POR L 51
TR1	R1					AP											02544221	11.00000	0.00000	POR SEC 2 12 18
TR1	R1					AP											02544228	0.00000	0.52100	L 115
TR1	R1					AP											02544304	0.00000	0.00000	L 118
TR1	R1					AP											02544306	11.00000	0.00000	LOT 117
TR1	R1					AP											02544309	11.00000	0.00000	POR LOT 54
TR1	R1					AP											02544312	0.00000	0.30900	PM 38/131/1
TR1	R1					AP											02544313	0.00000	0.25000	PM 38/131/2
TR1	R1					AP											02544314	11.00000	0.23000	POR LOT 52 & 53
TR1	R1					AP											02544315	11.00000	0.24000	POR LOT 52 & 53
TR1	R1					AP											02545101	11.00000	0.00000	L 97
TR1	R1					AP											02545102	0.00000	0.00000	L 98
TR1	R1					AP											02545103	0.00000	0.00000	L 99
TR1	R1					AP											02545104	0.00000	0.00000	L 100
TR1	R1					AP											02545109	0.00000	0.00000	L 105
TR1	R1					AP											02545110	0.00000	0.00000	L 106
TR1	R1					AP											02545112	0.00000	0.00000	L 108
TR1	R1					AP											02545113	11.00000	0.00000	L 109
TR1	R1					AP											02545115	0.00000	0.31600	L 111
TR1	R1					AP											02545116	0.00000	0.51700	L 112
TR1	R1					AP											02545117	0.00000	0.00000	L 113
TR1	R1					AP											02545118	0.00000	0.00000	L 114
TR1	R1					AP											02545121	0.00000	0.00000	POR L 107
TR1	R1					AP											02545122	11.00000	0.07000	SEC 2 12 18
TR1	R1					AP											02545123	11.00000	0.00000	L101 L102 L103
TR1	R1					AP											02545201	0.00000	0.35500	RS 29/31 L 90
TR1	R1					AP											02545202	11.00000	0.00000	L 91
TR1	R1					AP											02545203	0.00000	0.00000	L 92
TR1	R1					AP											02545204	0.00000	0.00000	L 93
TR1	R1					AP											02545205	11.00000	0.00000	L 94
TR1	R1					AP											02545206	11.00000	0.00000	L 95
TR1	R1					AP											02546103	11.00000	0.00000	L 3 B 1
TR1	R1					AP											02546104	11.00000	0.00000	L 4 B 1
TR1	R1					AP											02546105	11.00000	0.00000	L 5 B 1

TR1	R1					AP											02546108	11.00000	0.00000	L 8 B 1
TR1	R1					AP											02546109	11.00000	0.00000	L 9 B 1
TR1	R1					AP											02546110	11.00000	0.00000	L 10 B 1
TR1	R1					AP											02546111	11.00000	0.00000	L 11 B 1
TR1	R1					AP											02546112	11.00000	0.00000	L 12 B 1
TR1	R1					AP											02546113	11.00000	0.00000	L 13 B 1
TR1	R1					AP											02546114	11.00000	0.00000	L 14 B 1
TR1	R1					AP											02546115	11.00000	0.00000	L 15 B 1
TR1	R1					AP											02546116	11.00000	0.00000	L 16 B 1
TR1	R1					AP											02546117	11.00000	0.00000	L 17 B 1
TR1	R1					AP											02546118	11.00000	0.00000	POR L 2 B 1
TR1	R1					AP											02546119	11.00000	0.00000	POR L 1 B 1
TR1	R1					AP											02546120	11.00000	0.00000	POR L 6 B 1
TR1	R1					AP											02546121	11.00000	0.00000	POR L 7 B 1
TR1	R1					AP											02546206	11.00000	0.00000	L 6 B 4
TR1	R1					AP											02546207	11.00000	0.00000	L 7 B 4
TR1	R1					AP											02546208	11.00000	0.00000	L 8 B 4
TR1	R1					AP											02546209	11.00000	0.00000	L 9 B 4
TR1	R1					AP											02546210	11.00000	0.00000	L 10 B 4
TR1	R1					AP											02546211	11.00000	0.00000	L 11 B 4
TR1	R1					AP											02546212	11.00000	0.00000	L 12 B 4
TR1	R1					AP											02546213	11.00000	0.00000	L 13 B 4
TR1	R1					AP											02546214	11.00000	0.00000	L 14 B 4
TR1	R1					AP											02546215	11.00000	0.00000	L 15 B 4
TR1	R1					AP											02546216	11.00000	0.00000	L 16 B 4
TR1	R1					AP											02546218	11.00000	0.00000	POR L 17 B 4
TR1	R1					AP											02546219	11.00000	0.00000	POR L 5 B 4
TR1	R1					AP											02546220	11.00000	0.00000	POR L 4 B 4
TR1	R1					AP											02546221	11.00000	0.00000	POR L 3 B 4
TR1	R1					AP											02546222	11.00000	0.00000	POR L 2 B 4
TR1	R1					AP											02546223	11.00000	0.00000	POR L 1 B 4
TR1	R1					AP											02547101	11.00000	0.00000	L 1 B 2
TR1	R1					AP											02547102	11.00000	0.00000	L 2 B 2
TR1	R1					AP											02547103	11.00000	0.00000	L 3 B 2
TR1	R1					AP											02547104	11.00000	0.00000	L 4 B 2
TR1	R1					AP											02547105	11.00000	0.00000	L 5 B 2
TR1	R1					AP											02547106	11.00000	0.00000	L 6 B 2
TR1	R1					AP											02547107	11.00000	0.00000	L 7 B 2
TR1	R1					AP											02547108	11.00000	0.00000	L 8 B 2
TR1	R1					AP											02547109	11.00000	0.00000	L 9 B 2
TR1	R1					AP											02547110	11.00000	0.00000	L 10 B 2
TR1	R1					AP											02547111	11.00000	0.00000	L 11 B 2
TR1	R1					AP											02547202	11.00000	0.00000	L 2 B 3
TR1	R1					AP											02547203	11.00000	0.00000	L 3 B 3
TR1	R1					AP											02547204	11.00000	0.00000	L 4 B 3
TR1	R1					AP											02547205	11.00000	0.00000	L 5 B 3

TR1	R1					AP											02547206	11.00000	0.00000	L 6 B 3
TR1	R1					AP											02547207	11.00000	0.00000	L 7 B 3
TR1	R1					AP											02547208	11.00000	0.00000	L 8 B 3
TR1	R1					AP											02547209	11.00000	0.00000	L 9 B 3
TR1	R1					AP											02547210	11.00000	0.00000	L 10 B 3
TR1	R1					AP											02547211	11.00000	0.00000	L 11 B 3
TR1	R1					AP											02547212	11.00000	0.00000	POR L 1 B 3
TR1	R1					AP											02552002	11.00000	4.71000	SEC 2 12 18
TR1	R1					AP											02552014	11.00000	0.21000	SEC 2 12 18
TR1	R1					AP											02552015	11.00000	0.22000	SEC 2 12 18
TR1	R1					AP											02552016	11.00000	0.29000	SEC 2 12 18
TR1	R1					AP											02552017	0.00000	0.86000	SEC 2 12 18
TR1	R1					AP											02552018	11.00000	0.48000	PAR A P/M 1-172
TR1	R1					AP											02552019	0.00000	0.25000	PM 1/172/B
TR1	R1					AP											02552021	0.00000	1.92000	SEC 2 12 18
TR1	R1					AP											02552022	0.00000	1.40000	SEC 2 12 18
TR1	R1					AP											02559101	0.00000	0.00000	L 139
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TR1	R1					AP											02559103	0.00000	0.00000	L 141
TR1	R1					AP											02559104	0.00000	0.00000	L 142
TR1	R1					AP											02559105	0.00000	0.00000	L 143
TR1	R1					AP											02559106	0.00000	0.00000	L 144
TR1	R1					AP											02559107	0.00000	0.00000	L 145
TR1	R1					AP											02559108	0.00000	0.00000	L 146
TR1	R1					AP											02559109	0.00000	0.00000	L 147
TR1	R1					AP											02559201	11.00000	0.00000	L 84
TR1	R1					AP											02559202	11.00000	0.00000	L 85
TR1	R1					AP											02559203	11.00000	0.00000	L 86
TR1	R1					AP											02559204	0.00000	0.00000	L 87
TR1	R1					AP											02559205	0.00000	0.32200	L 88
TR1	R1					AP											02559206	0.00000	0.00000	L 89
TR1	R1					AP											02559207	0.00000	0.00000	L 90
TR1	R1					AP											02559208	0.00000	0.00000	L 133
TR1	R1					AP											02559209	0.00000	0.00000	L 132
TR1	R1					AP											02559210	0.00000	0.00000	L 134
TR1	R1					AP											02559211	0.00000	0.00000	L 135
TR1	R1					AP											02559212	0.00000	0.00000	L 136
TR1	R1					AP											02559213	0.00000	0.00000	L 137
TR1	R1					AP											02559214	0.00000	0.00000	L 138
TR1	R1					AP											02559301	11.00000	0.00000	L 79
TR1	R1					AP											02559303	0.00000	0.00000	L 81
TR1	R1					AP											02559304	0.00000	0.00000	L 82
TR1	R1					AP											02559305	0.00000	0.00000	L 83
TR1	R1					AP											02559306	0.00000	0.00000	POR L 80
TR1	R1					AP											02559307	0.00000	0.00000	POR L 80
TR1	R1					AP											02559401	11.00000	0.00000	L 221

TR1	R1					AP											02559402	0.00000	0.00000	L 222
TR1	R1					AP											02559403	0.00000	0.00000	L 223
TR1	R1					AP											02559404	0.00000	0.00000	L 224
TR1	R1					AP											02559405	11.00000	0.00000	L 225
TR1	R1					AP											02559406	0.00000	0.00000	L 226
TR1	R1					AP											02559407	0.00000	0.00000	L 227
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TR1	R1					AP											02559502	0.00000	0.00000	L 92
TR1	R1					AP											02559503	0.00000	0.00000	L 93
TR1	R1					AP											02559504	11.00000	0.00000	L 94
TR1	R1					AP											02559505	11.00000	0.00000	L 95
TR1	R1					AP											02559506	11.00000	0.00000	L 96
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TR1	R1					AP											02559508	11.00000	0.00000	L 126
TR1	R1					AP											02559509	11.00000	0.00000	L 127
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TR1	R1					AP											02559511	11.00000	0.00000	L 129
TR1	R1					AP											02559512	0.00000	0.00000	L 130
TR1	R1					AP											02559513	11.00000	0.00000	L 131
TR1	R1					AP											02559601	11.00000	0.00000	L 72
TR1	R1					AP											02559602	11.00000	0.00000	L 73
TR1	R1					AP											02559603	0.00000	0.00000	L 74
TR1	R1					AP											02559604	11.00000	0.00000	L 75
TR1	R1					AP											02559701	0.00000	0.27200	L 28
TR1	R1					AP											02559702	0.00000	0.00000	L 29
TR1	R1					AP											02559703	11.00000	0.00000	L 30
TR1	R1					AP											02560101	0.00000	0.00000	L 67
TR1	R1					AP											02560102	11.00000	0.00000	L 68
TR1	R1					AP											02560103	0.00000	0.00000	L 69
TR1	R1					AP											02560104	11.00000	0.00000	L 70
TR1	R1					AP											02560105	0.00000	0.00000	L 71
TR1	R1					AP											02560106	11.00000	0.00000	L 76
TR1	R1					AP											02560107	0.00000	0.00000	L 77
TR1	R1					AP											02560108	0.00000	0.00000	L 78
TR1	R1					AP											02560201	0.00000	0.00000	L 97
TR1	R1					AP											02560202	11.00000	0.00000	L 124
TR1	R1					AP											02560203	11.00000	0.00000	L 98
TR1	R1					AP											02560205	0.00000	0.70200	L 100
TR1	R1					AP											02560206	11.00000	0.00000	L 101
TR1	R1					AP											02560207	0.00000	0.00000	L 123
TR1	R1					AP											02560208	0.00000	0.00000	L 122
TR1	R1					AP											02560209	0.00000	0.00000	L 102
TR1	R1					AP											02560210	0.00000	0.00000	POR L 99
TR1	R1					AP											02560211	0.00000	0.00000	POR L 99
TR1	R1					AP											02560301	11.00000	0.00000	L 31
TR1	R1					AP											02560302	0.00000	0.00000	L 32

TR1	R1					AP											02560303	11.00000	0.00000	L 33
TR1	R1					AP											02560304	0.00000	0.00000	L 34
TR1	R1					AP											02560305	11.00000	0.00000	L 35
TR1	R1					AP											02560306	0.00000	0.00000	L 36
TR1	R1					AP											02560307	0.00000	0.00000	L 37
TR1	R1					AP											02560308	0.00000	0.00000	L 38
TR1	R1					AP											02560309	0.00000	0.00000	L 39
TR1	R1					AP											02560310	0.00000	0.00000	L 40
TR1	R1					AP											02560311	0.00000	0.28500	L 41
TR1	R1					AP											02560312	0.00000	0.00000	L 42
TR1	R1					AP											02560313	0.00000	0.00000	L 43
TR1	R1					AP											02561101	0.00000	0.00000	L 62
TR1	R1					AP											02561102	0.00000	0.00000	L 63
TR1	R1					AP											02561103	0.00000	0.00000	L 64
TR1	R1					AP											02561107	0.00000	0.00000	L 65
TR1	R1					AP											02561108	11.00000	0.00000	L 66
TR1	R1					AP											02561201	0.00000	0.00000	L 103
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TR1	R1					AP											02561204	0.00000	0.00000	L 106
TR1	R1					AP											02561205	11.00000	0.00000	L 107
TR1	R1					AP											02561206	0.00000	0.00000	L 116
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TR1	R1					AP											02561210	0.00000	0.00000	L 120
TR1	R1					AP											02561211	0.00000	0.43200	L 121
TR1	R1					AP											02561301	0.00000	0.00000	L 44
TR1	R1					AP											02561302	0.00000	0.00000	L 45
TR1	R1					AP											02561303	0.00000	0.00000	L 46
TR1	R1					AP											02561304	0.00000	0.00000	L 47
TR1	R1					AP											02561305	11.00000	0.00000	L 48
TR1	R1					AP											02561306	0.00000	0.00000	L 49
TR1	R1					AP											02561307	0.00000	0.00000	L 50
TR1	R1					AP											02561308	0.00000	0.00000	L 51
TR1	R1					AP											02561309	0.00000	0.26700	L 52
TR1	R1					AP											02561310	0.00000	0.00000	L 53
TR1	R1					AP											02561311	0.00000	0.00000	L 54
TR1	R1					AP											02562101	0.00000	0.00000	L 61
TR1	R1					AP											02562102	0.00000	0.00000	L 60
TR1	R1					AP											02562103	11.00000	0.00000	L 59
TR1	R1					AP											02562104	0.00000	0.00000	L 58
TR1	R1					AP											02562105	0.00000	1.30000	L 57
TR1	R1					AP											02562106	0.00000	0.00000	L 56
TR1	R1					AP											02562107	0.00000	0.00000	L 55
TR1	R1					AP											02562201	0.00000	0.00000	L 108

TR1	R1					AP											02562202	0.00000	0.00000	L 109
TR1	R1					AP											02562203	0.00000	0.00000	L 110
TR1	R1					AP											02562204	0.00000	0.00000	L 111
TR1	R1					AP											02562205	0.00000	0.00000	L 112
TR1	R1					AP											02562206	0.00000	0.00000	L 113
TR1	R1					AP											02562207	0.00000	0.00000	L 114
TR1	R1					AP											02562208	0.00000	0.00000	L 115
TR1	R1					AP											02564101	0.00000	0.00000	L 13
TR1	R1					AP											02564102	0.00000	0.00000	L 14
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TR1	R1					AP											02564104	0.00000	0.00000	L 16
TR1	R1					AP											02564105	0.00000	0.00000	L 17
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TR1	R1					AP											02564201	0.00000	0.00000	L 205
TR1	R1					AP											02564202	0.00000	0.00000	L 206
TR1	R1					AP											02564203	0.00000	0.00000	L 207
TR1	R1					AP											02564204	0.00000	0.00000	L 208
TR1	R1					AP											02564205	0.00000	0.23000	L 209
TR1	R1					AP											02564206	11.00000	0.00000	L 210
TR1	R1					AP											02564207	0.00000	0.00000	L 211
TR1	R1					AP											02564208	11.00000	0.00000	L 212
TR1	R1					AP											02564209	0.00000	0.00000	L 213
TR1	R1					AP											02564210	0.00000	0.00000	L 214
TR1	R1					AP											02564211	0.00000	0.00000	L 215
TR1	R1					AP											02564212	0.00000	0.00000	L 216
TR1	R1					AP											02564213	0.00000	0.23200	L 217
TR1	R1					AP											02564301	0.00000	0.00000	L 171
TR1	R1					AP											02564302	0.00000	0.23500	L 172
TR1	R1					AP											02564303	0.00000	0.00000	L 173
TR1	R1					AP											02564304	0.00000	0.00000	L 174
TR1	R1					AP											02564305	11.00000	0.00000	L 175
TR1	R1					AP											02564306	0.00000	0.00000	L 176
TR1	R1					AP											02564307	0.00000	0.00000	L 177
TR1	R1					AP											02564308	0.00000	0.00000	L 178
TR1	R1					AP											02564309	0.00000	0.00000	L 179
TR1	R1					AP											02564310	0.00000	0.00000	L 164
TR1	R1					AP											02564311	0.00000	0.00000	L 165
TR1	R1					AP											02564401	0.00000	0.00000	L 180
TR1	R1					AP											02564402	0.00000	0.00000	L 181
TR1	R1					AP											02564403	0.00000	0.00000	L 182
TR1	R1					AP											02564404	11.00000	0.00000	L 183
TR1	R1					AP											02564405	11.00000	0.00000	L 190
TR1	R1					AP											02564406	0.00000	0.00000	L 191
TR1	R1					AP											02564407	0.00000	0.00000	L 192
TR1	R1					AP											02564408	0.00000	0.00000	L 193
TR1	R1					AP											02564409	0.00000	0.00000	L 194

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TR1	R1					AP											02564411	0.00000	0.29100	L 196
TR1	R1					AP											02564412	0.00000	0.28200	L 197
TR1	R1					AP											02564413	0.00000	0.00000	L 198
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TR1	R1					AP											02564416	0.00000	0.00000	L 201
TR1	R1					AP											02564501	11.00000	0.00000	L 159
TR1	R1					AP											02564502	0.00000	0.00000	L 160
TR1	R1					AP											02564503	0.00000	0.00000	L 161
TR1	R1					AP											02564504	0.00000	0.00000	L 162
TR1	R1					AP											02564505	0.00000	0.00000	L 163
TR1	R1					AP											02564601	0.00000	0.00000	L 1
TR1	R1					AP											02564701	0.00000	0.00000	L 19
TR1	R1					AP											02564702	0.00000	0.00000	L 20
TR1	R1					AP											02565101	0.00000	0.00000	L 21
TR1	R1					AP											02565102	0.00000	0.23000	L 22
TR1	R1					AP											02565103	0.00000	0.23000	L 23
TR1	R1					AP											02565104	0.00000	0.00000	L 24
TR1	R1					AP											02565105	0.00000	0.00000	L 25
TR1	R1					AP											02565106	0.00000	0.00000	L 26
TR1	R1					AP											02565107	0.00000	0.23000	L 27
TR1	R1					AP											02565201	0.00000	0.23200	L 218
TR1	R1					AP											02565202	0.00000	0.00000	L 219
TR1	R1					AP											02565203	0.00000	0.00000	L 220
TR1	R1					AP											02565204	11.00000	0.00000	L 202
TR1	R1					AP											02565205	0.00000	0.00000	L 203
TR1	R1					AP											02565206	0.00000	0.23000	L 204
TR1	R1					AP											02565301	0.00000	0.00000	L 184
TR1	R1					AP											02565302	0.00000	0.00000	L 185
TR1	R1					AP											02565303	0.00000	0.00000	L 186
TR1	R1					AP											02565304	0.00000	0.00000	L 187
TR1	R1					AP											02565305	0.00000	0.00000	L 188
TR1	R1					AP											02565306	0.00000	0.00000	L 189
TR1	R1					AP											02565401	0.00000	0.00000	L 148
TR1	R1					AP											02565402	0.00000	0.00000	L 149
TR1	R1					AP											02565403	0.00000	0.00000	L 150
TR1	R1					AP											02565404	0.00000	0.00000	L 151
TR1	R1					AP											02565405	0.00000	0.24000	L 152
TR1	R1					AP											02565406	0.00000	0.00000	L 153
TR1	R1					AP											02565407	0.00000	0.00000	L 154
TR1	R1					AP											02565408	0.00000	0.26600	L 155
TR1	R1					AP											02565409	0.00000	0.00000	L 156
TR1	R1					AP											02565410	0.00000	0.00000	L 157
TR1	R1					AP											02565411	0.00000	0.00000	L 158
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TR1	R1					AP											02569103	0.00000	0.00000	L 9
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TR1	R1					AP											02569106	0.00000	0.00000	L 12
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TR1	R1					AP											02569202	11.00000	0.00000	L 3
TR1	R1					AP											02569203	11.00000	0.00000	L 2
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TR1	R1					AP											02569303	11.00000	0.00000	L 169
TR1	R1					AP											02569304	11.00000	0.00000	L 170
TR1	R1					AP											02569305	0.00000	0.70400	L 166 & 167
TR1	R1					AP											02572101	0.00000	0.00000	L 1
TR1	R1					AP											02572102	0.00000	0.00000	L 2
TR1	R1					AP											02572103	0.00000	0.00000	L 3
TR1	R1					AP											02572104	0.00000	0.00000	L 4
TR1	R1					AP											02572105	0.00000	0.00000	L 5
TR1	R1					AP											02572106	0.00000	0.00000	L 6
TR1	R1					AP											02572107	11.00000	0.00000	L 7
TR1	R1					AP											02572108	11.00000	0.00000	L 8
TR1	R1					AP											02572109	0.00000	0.00000	L 9
TR1	R1					AP											02572110	11.00000	0.00000	L 10
TR1	R1					AP											02572111	11.00000	0.00000	L 11
TR1	R1					AP											02572112	0.00000	0.31600	L 12
TR1	R1					AP											02572113	11.00000	0.00000	L 13
TR1	R1					AP											02572114	11.00000	0.00000	L 14
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TR1	R1					AP											02572116	11.00000	0.00000	L 16
TR1	R1					AP											02572117	0.00000	0.00000	L 17
TR1	R1					AP											02572118	0.00000	0.00000	L 18
TR1	R1					AP											02572201	0.00000	0.00000	L 205
TR1	R1					AP											02572301	11.00000	0.00000	L 203
TR1	R1					AP											02572302	11.00000	0.00000	L 204
TR1	R1					AP											02572401	11.00000	0.00000	L 198
TR1	R1					AP											02572402	0.00000	0.00000	L 199
TR1	R1					AP											02572403	0.00000	0.00000	L 200
TR1	R1					AP											02572404	0.00000	0.00000	L 201
TR1	R1					AP											02572405	0.00000	0.00000	L 202
TR1	R1					AP											02572501	11.00000	0.00000	L 195
TR1	R1					AP											02572502	0.00000	0.00000	L 196
TR1	R1					AP											02572503	0.00000	0.00000	L 197
TR1	R1					AP											02572601	0.00000	0.00000	L 156
TR1	R1					AP											02572602	0.00000	0.00000	L 157
TR1	R1					AP											02572603	11.00000	0.00000	L 158
TR1	R1					AP											02572604	0.00000	0.00000	L 159
TR1	R1					AP											02572605	11.00000	0.00000	L 160

TR1	R1					AP											02572606	0.00000	0.42400	L 177
TR1	R1					AP											02572607	11.00000	0.00000	L 178
TR1	R1					AP											02572608	0.00000	0.00000	L 179
TR1	R1					AP											02572609	0.00000	0.00000	L 180
TR1	R1					AP											02572610	11.00000	0.00000	L 181
TR1	R1					AP											02572611	11.00000	0.00000	L 182
TR1	R1					AP											02572612	0.00000	0.00000	L 183
TR1	R1					AP											02572613	0.00000	0.00000	L 184
TR1	R1					AP											02573101	0.00000	0.00000	L 247
TR1	R1					AP											02573102	0.00000	0.00000	L 248
TR1	R1					AP											02573103	0.00000	0.00000	L 249
TR1	R1					AP											02573104	0.00000	0.00000	L 250
TR1	R1					AP											02573105	0.00000	0.00000	L 251
TR1	R1					AP											02573106	0.00000	0.00000	L 252
TR1	R1					AP											02573107	11.00000	0.00000	L 253
TR1	R1					AP											02573201	0.00000	0.00000	L 194
TR1	R1					AP											02573205	0.00000	0.00000	L 190
TR1	R1					AP											02573206	11.00000	0.00000	L 189
TR1	R1					AP											02573207	11.00000	0.00000	L 188
TR1	R1					AP											02573208	0.00000	0.00000	L 187
TR1	R1					AP											02573209	0.00000	0.00000	L 186
TR1	R1					AP											02573210	0.00000	0.00000	L 185
TR1	R1					AP											02573211	0.00000	0.00000	L 262
TR1	R1					AP											02573212	0.00000	0.00000	L 261
TR1	R1					AP											02573213	0.00000	0.00000	L 260
TR1	R1					AP											02573214	11.00000	0.00000	L 259
TR1	R1					AP											02573215	11.00000	0.00000	L 258
TR1	R1					AP											02573218	0.00000	0.24000	L 255
TR1	R1					AP											02573219	0.00000	0.00000	L 254
TR1	R1					AP											02573220	0.00000	0.00000	11 12 18 & L257
TR1	R1					AP											02573221	0.00000	0.00000	11 12 18 & L 256
TR1	R1					AP											02573301	11.00000	0.00000	L 161
TR1	R1					AP											02573302	11.00000	0.00000	L 162
TR1	R1					AP											02573303	11.00000	0.00000	L 163
TR1	R1					AP											02573304	0.00000	0.00000	L 164
TR1	R1					AP											02573305	11.00000	0.00000	L 165
TR1	R1					AP											02573306	0.00000	0.00000	L 166
TR1	R1					AP											02573307	0.00000	0.00000	L 167
TR1	R1					AP											02573308	0.00000	0.17400	L 168
TR1	R1					AP											02573309	11.00000	0.00000	L 169
TR1	R1					AP											02573310	11.00000	0.00000	L 170
TR1	R1					AP											02573311	11.00000	0.00000	L 171
TR1	R1					AP											02573312	0.00000	0.00000	L 172
TR1	R1					AP											02573313	11.00000	0.00000	L 173
TR1	R1					AP											02573314	0.00000	0.00000	L 174
TR1	R1					AP											02573315	0.00000	0.00000	L 175

TR1	R1					AP											02573316	11.00000	0.00000	L 176
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TR1	R1					AP											02573402	11.00000	0.00000	L 116
TR1	R1					AP											02573403	11.00000	0.00000	L 117
TR1	R1					AP											02573404	11.00000	0.00000	L 118
TR1	R1					AP											02573405	11.00000	0.00000	L 119
TR1	R1					AP											02573406	11.00000	0.00000	L 120
TR1	R1					AP											02573407	0.00000	0.00000	L 121
TR1	R1					AP											02573408	0.00000	0.23400	L 122
TR1	R1					AP											02573409	0.00000	0.19300	L 123
TR1	R1					AP											02573410	0.00000	0.00000	L 145
TR1	R1					AP											02573411	0.00000	0.00000	L 146
TR1	R1					AP											02573412	0.00000	0.00000	L 147
TR1	R1					AP											02573413	0.00000	0.00000	L 148
TR1	R1					AP											02573414	0.00000	0.00000	L 149
TR1	R1					AP											02573415	0.00000	0.00000	L 150
TR1	R1					AP											02573416	0.00000	0.00000	L 151
TR1	R1					AP											02573420	0.00000	0.00000	L 155
TR1	R1					AP											02573423	0.00000	0.31000	RS 18/143/2
TR1	R1					AP											02573424	0.00000	0.32000	RS 18/143/1
TR1	R1					AP											02573501	11.00000	0.00000	L 19
TR1	R1					AP											02573502	11.00000	0.00000	L 20
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TR1	R1					AP											02574104	0.00000	0.00000	L 242
TR1	R1					AP											02574105	0.00000	0.00000	L 243
TR1	R1					AP											02574106	0.00000	0.00000	L 244
TR1	R1					AP											02574107	0.00000	0.00000	L 245
TR1	R1					AP											02574108	0.00000	0.00000	L 246
TR1	R1					AP											02574201	0.00000	0.00000	L 65
TR1	R1					AP											02574202	0.00000	0.00000	L 66
TR1	R1					AP											02574203	0.00000	0.00000	L 67
TR1	R1					AP											02574204	0.00000	0.00000	L 68
TR1	R1					AP											02574205	0.00000	0.19000	L 69
TR1	R1					AP											02574206	0.00000	0.00000	L 70
TR1	R1					AP											02574207	0.00000	0.00000	L 71
TR1	R1					AP											02574208	0.00000	0.18400	L 72
TR1	R1					AP											02574209	0.00000	0.18400	L 73

TR1	R1					AP											02574210	11.00000	0.00000	L 74
TR1	R1					AP											02574211	0.00000	0.18200	L 206
TR1	R1					AP											02574212	0.00000	0.18400	L 207
TR1	R1					AP											02574213	0.00000	0.00000	L 208
TR1	R1					AP											02574214	0.00000	0.18400	L 209
TR1	R1					AP											02574215	0.00000	0.18400	L 210
TR1	R1					AP											02574216	0.00000	0.00000	L 211
TR1	R1					AP											02574217	0.00000	0.00000	L 212
TR1	R1					AP											02574218	0.00000	0.00000	L 213
TR1	R1					AP											02574219	0.00000	0.00000	L 214
TR1	R1					AP											02574220	0.00000	0.18400	L 215
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TR1	R1					AP											02574302	0.00000	0.19500	L 76
TR1	R1					AP											02574303	0.00000	0.00000	L 77
TR1	R1					AP											02574304	0.00000	0.00000	L 78
TR1	R1					AP											02574305	0.00000	0.00000	L 79
TR1	R1					AP											02574306	0.00000	0.00000	L 80
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TR1	R1					AP											02574308	0.00000	0.00000	L 82
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TR1	R1					AP											02574314	0.00000	0.00000	L 105
TR1	R1					AP											02574315	0.00000	0.00000	L 106
TR1	R1					AP											02574316	0.00000	0.00000	L 107
TR1	R1					AP											02574317	0.00000	0.18500	L 108
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TR1	R1					AP											02574319	0.00000	0.00000	L 110
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TR1	R1					AP											02574401	11.00000	0.00000	L 124
TR1	R1					AP											02574402	11.00000	0.00000	L 125
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TR1	R1					AP											02574404	11.00000	0.00000	L 127
TR1	R1					AP											02574405	0.00000	0.00000	L 128
TR1	R1					AP											02574406	0.00000	0.00000	L 129
TR1	R1					AP											02574407	11.00000	0.00000	L 130
TR1	R1					AP											02574408	11.00000	0.00000	L 131
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TR1	R1					AP											02574411	0.00000	0.00000	L 134
TR1	R1					AP											02574412	0.00000	0.00000	L 135

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TR1	R1					AP											02574415	0.00000	0.17600	L 138
TR1	R1					AP											02574416	0.00000	0.00000	L 139
TR1	R1					AP											02574417	0.00000	0.00000	L 140
TR1	R1					AP											02574418	0.00000	0.00000	L 141
TR1	R1					AP											02574419	0.00000	0.00000	L 142
TR1	R1					AP											02574420	0.00000	0.00000	L 143
TR1	R1					AP											02574421	0.00000	0.00000	L 144
TR1	R1					AP											02574501	11.00000	0.00000	L 28
TR1	R1					AP											02574502	11.00000	0.00000	L 29
TR1	R1					AP											02574503	0.00000	0.00000	L 30
TR1	R1					AP											02574504	11.00000	0.00000	L 31
TR1	R1					AP											02574505	11.00000	0.00000	L 32
TR1	R1					AP											02574506	11.00000	0.00000	L 33
TR1	R1					AP											02574507	0.00000	0.00000	L 34
TR1	R1					AP											02574508	11.00000	0.00000	L 35
TR1	R1					AP											02574509	0.00000	0.00000	L 36
TR1	R1					AP											02574510	11.00000	0.00000	L 37
TR1	R1					AP											02575101	0.00000	0.00000	L 235
TR1	R1					AP											02575102	0.00000	0.00000	L 236
TR1	R1					AP											02575103	11.00000	0.00000	L 237
TR1	R1					AP											02575104	0.00000	0.00000	L 238
TR1	R1					AP											02575201	0.00000	0.00000	L 232
TR1	R1					AP											02575202	0.00000	0.18400	L 233
TR1	R1					AP											02575203	0.00000	0.00000	L 234
TR1	R1					AP											02575301	0.00000	0.00000	L 229
TR1	R1					AP											02575302	0.00000	0.00000	L 230
TR1	R1					AP											02575303	0.00000	0.00000	L 231
TR1	R1					AP											02575401	0.00000	0.00000	L 50
TR1	R1					AP											02575402	0.00000	0.00000	L 51
TR1	R1					AP											02575403	0.00000	0.00000	L 52
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TR1	R1					AP											02575405	0.00000	0.00000	L 226
TR1	R1					AP											02575406	0.00000	0.00000	L 227
TR1	R1					AP											02575407	0.00000	0.00000	L 228
TR1	R1					AP											02575502	0.00000	0.00000	L 55
TR1	R1					AP											02575503	0.00000	0.00000	L 56
TR1	R1					AP											02575504	0.00000	0.00000	L 57
TR1	R1					AP											02575505	0.00000	0.18900	L 58
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TR1	R1					AP											02575510	0.00000	0.00000	L 63
TR1	R1					AP											02575511	0.00000	0.00000	L 64

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TR1	R1					AP											02575513	0.00000	0.18400	L 217
TR1	R1					AP											02575514	0.00000	0.00000	L 218
TR1	R1					AP											02575515	0.00000	0.00000	L 219
TR1	R1					AP											02575516	0.00000	0.00000	L 220
TR1	R1					AP											02575517	0.00000	0.00000	L 221
TR1	R1					AP											02575518	0.00000	0.00000	L 222
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TR1	R1					AP											02575522	0.00000	0.42000	PM 43/146/1
TR1	R1					AP											02575601	0.00000	0.00000	L 88
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TR1	R1					AP											02575603	0.00000	0.00000	L 90
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TR1	R1					AP											02575605	11.00000	0.00000	L 92
TR1	R1					AP											02575606	0.00000	0.25300	L 93
TR1	R1					AP											02575607	0.00000	0.00000	L 94
TR1	R1					AP											02575608	0.00000	0.17500	L 95
TR1	R1					AP											02575609	0.00000	0.00000	L 96
TR1	R1					AP											02575610	0.00000	0.00000	L 97
TR1	R1					AP											02575611	0.00000	0.00000	L 98
TR1	R1					AP											02575612	0.00000	0.00000	L 99
TR1	R1					AP											02575613	0.00000	0.00000	L 100
TR1	R1					AP											02575614	0.00000	0.00000	L 101
TR1	R1					AP											02575615	0.00000	0.00000	L 102
TR1	R1					AP											02575616	0.00000	0.00000	L 103
TR1	R1					AP											02575617	0.00000	0.18400	L 104
TR1	R1					AP											02575701	0.00000	0.00000	L 38
TR1	R1					AP											02575702	0.00000	0.00000	L 39
TR1	R1					AP											02575703	0.00000	0.00000	L 40
TR1	R1					AP											02575704	0.00000	0.18400	L 41
TR1	R1					AP											02575705	0.00000	0.00000	L 42
TR1	R1					AP											02575706	0.00000	0.00000	L 43
TR1	R1					AP											02575707	0.00000	0.00000	L 44
TR1	R1					AP											02575708	0.00000	0.00000	L 45
TR1	R1					AP											02575709	0.00000	0.00000	L 46
TR1	R1					AP											02575710	0.00000	0.00000	L 47
TR1	R1					AP											02575711	0.00000	0.00000	L 48
TR1	R1					AP											02575712	0.00000	0.00000	L 49
TR1	FR-160					AP											02578101	11.00000	0.00000	LOT A
TR1	R1					AP											02579101	0.00000	0.00000	L 332
TR1	R1					AP											02579102	0.00000	0.00000	L 331
TR1	R1					AP											02579103	0.00000	0.00000	L 330
TR1	R1					AP											02579104	0.00000	0.00000	L 329
TR1	R1					AP											02579105	0.00000	0.22800	L 328
TR1	R1					AP											02579106	0.00000	0.19900	L 327

TR1	R1					AP											02579107	0.00000	0.00000	L 326
TR1	R1					AP											02579108	0.00000	0.00000	L 325
TR1	R1					AP											02579109	0.00000	0.00000	L 324
TR2	RM					AP											02579201	11.00000	0.00000	L 38
TR2	RM					AP											02579202	11.00000	0.00000	L 39
TR2	RM					AP											02579203	11.00000	0.00000	L 40
TR2	RM					AP											02579204	11.00000	0.00000	L 41
TR2	RM					AP											02579205	11.00000	0.00000	L 42
TR2	RM					AP											02579206	11.00000	0.00000	L 43
TR2	RM					AP											02579207	0.00000	0.00000	L 44
TR2	RM					AP											02579208	0.00000	0.00000	L 45
TR2	RM					AP											02579209	0.00000	0.00000	L 46
TR2	RM					AP											02579210	0.00000	0.00000	L 47
TR2	RM					AP											02579211	11.00000	0.00000	L 48
TR2	RM					AP											02579212	11.00000	0.00000	L 49
TR2	RM					AP											02579213	0.00000	0.00000	L 50
TR2	RM					AP											02579214	0.00000	0.00000	L 51
TR2	RM					AP											02579215	0.00000	0.00000	L 52
TR2	RM					AP											02579216	0.00000	0.00000	L 53
TR2	RM					AP											02579217	0.00000	0.00000	L 54
TR2	RM					AP											02579218	11.00000	0.00000	L 55
TR2	RM					AP											02579219	11.00000	0.00000	L 56
TR2	RM					AP											02579220	11.00000	0.00000	L 57
TR2	RM					AP											02579221	11.00000	0.00000	L 58
TR2	RM					AP											02579222	11.00000	0.00000	L 59
TR2	RM					AP											02579223	0.00000	0.00000	L 60
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TR1	R1					AP											02579226	11.00000	0.00000	L 104
TR1	R1					AP											02579228	11.00000	0.00000	L 72
TR1	R1					AP											02579229	0.00000	0.00000	L 71
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TR1	R1					AP											02579231	0.00000	0.22900	L 69
TR1	R1					AP											02579232	11.00000	0.00000	L 68
TR1	R1					AP											02579233	11.00000	0.00000	L 67
TR1	R1					AP											02579234	0.00000	0.00000	L 66
TR1	R1					AP											02579235	0.00000	0.00000	L 65
TR1	R1					AP											02579236	0.00000	0.00000	L 64
TR1	R1					AP											02579237	0.00000	0.17200	L 63
TR1	R1					AP											02579238	0.00000	0.00000	L 62
TR1	R1					AP											02579239	0.00000	0.00000	L 61
TR1	R1					AP											02579301	0.00000	0.00000	L 122
TR1	R1					AP											02579302	11.00000	0.00000	L 121
TR1	R1					AP											02579303	0.00000	0.00000	L 120
TR1	R1					AP											02579304	0.00000	0.00000	L 119
TR1	R1					AP											02579305	0.00000	0.00000	L 118

TR1	R1					AP											02579306	11.00000	0.00000	L 117
TR1	R1					AP											02579307	0.00000	0.00000	L 116
TR1	R1					AP											02579308	11.00000	0.00000	L 115
TR1	R1					AP											02579309	11.00000	0.00000	L 114
TR1	R1					AP											02579310	0.00000	0.00000	L 113
TR1	R1					AP											02579311	11.00000	0.00000	L 112
TR1	R1					AP											02579312	11.00000	0.00000	L 111
TR1	R1					AP											02579313	0.00000	0.00000	L 110
TR1	R1					AP											02579314	0.00000	0.00000	L 109
TR1	R1					AP											02579315	11.00000	0.00000	L 108
TR1	R1					AP											02579316	0.00000	0.00000	L 107
TR1	R1					AP											02580101	11.00000	0.00000	L 323
TR1	R1					AP											02580102	0.00000	0.17700	L 322
TR1	R1					AP											02580103	0.00000	0.21800	L 321
TR1	R1					AP											02580104	11.00000	0.00000	L 320
TR1	R1					AP											02580105	0.00000	0.00000	L 319
TR1	R1					AP											02580106	11.00000	0.00000	L 318
TR1	R1					AP											02580107	0.00000	0.00000	L 317
TR1	R1					AP											02580108	11.00000	0.00000	L 316
TR1	R1					AP											02580201	11.00000	0.00000	L 241
TR1	R1					AP											02580202	11.00000	0.00000	L 242
TR1	R1					AP											02580203	0.00000	0.00000	L 243
TR1	R1					AP											02580204	11.00000	0.00000	L 244
TR1	R1					AP											02580205	11.00000	0.00000	L 245
TR1	R1					AP											02580206	11.00000	0.00000	L 246
TR1	R1					AP											02580207	0.00000	0.00000	L 247
TR1	R1					AP											02580208	0.00000	0.00000	L 248
TR1	R1					AP											02580209	11.00000	0.00000	L 249
TR1	R1					AP											02580301	0.00000	0.00000	L 93
TR1	R1					AP											02580302	0.00000	0.22900	L 94
TR1	R1					AP											02580303	0.00000	0.00000	L 95
TR1	R1					AP											02580304	0.00000	0.00000	L 96
TR1	R1					AP											02580305	11.00000	0.00000	L 97
TR1	R1					AP											02580306	11.00000	0.00000	L 98
TR1	R1					AP											02580307	0.00000	0.00000	L 99
TR1	R1					AP											02580308	0.00000	0.00000	L 100
TR1	R1					AP											02580309	0.00000	0.28100	L 101
TR1	R1					AP											02580310	0.00000	0.00000	L 102
TR1	R1					AP											02580311	0.00000	0.00000	L 103
TR1	R1					AP											02580313	0.00000	0.33300	L 75
TR1	R1					AP											02580314	0.00000	0.00000	L 76
TR1	R1					AP											02580315	0.00000	0.00000	L 77
TR1	R1					AP											02580316	0.00000	0.23000	L 78
TR1	R1					AP											02580317	0.00000	0.00000	L 79
TR1	R1					AP											02580318	11.00000	0.00000	L 80
TR1	R1					AP											02580319	11.00000	0.62000	PAR A P/M 31-105

TR1	R1					AP											02580401	0.00000	0.23000	L 130
TR1	R1					AP											02580402	0.00000	0.00000	L 129
TR1	R1					AP											02580403	0.00000	0.00000	L 128
TR1	R1					AP											02580404	11.00000	0.00000	L 127
TR1	R1					AP											02580405	11.00000	0.00000	L 126
TR1	R1					AP											02580406	0.00000	0.39600	L 125
TR1	R1					AP											02580407	0.00000	0.48400	L 124
TR1	R1					AP											02580408	0.00000	0.00000	L 123
TR1	R1					AP											02580409	0.00000	0.00000	L 160
TR1	R1					AP											02580410	0.00000	0.00000	L 159
TR1	R1					AP											02580411	0.00000	0.00000	L 158
TR1	R1					AP											02580412	0.00000	0.00000	L 157
TR1	R1					AP											02580501	11.00000	0.00000	L 161
TR1	R1					AP											02580502	0.00000	0.28800	L 162
TR1	R1					AP											02580503	11.00000	0.00000	L 163
TR1	R1					AP											02580504	0.00000	0.00000	L 164
TR1	R1					AP											02581101	11.00000	0.00000	L 315
TR1	R1					AP											02581102	11.00000	0.00000	L 314
TR1	R1					AP											02581103	0.00000	0.00000	L 313
TR1	R1					AP											02581104	0.00000	0.00000	L 312
TR1	R1					AP											02581105	11.00000	0.00000	L 311
TR1	R1					AP											02581106	0.00000	0.00000	L 310
TR1	R1					AP											02581107	11.00000	0.00000	L 309
TR1	R1					AP											02581108	11.00000	0.00000	L 308
TR1	R1					AP											02581109	11.00000	0.00000	L 307
TR1	R1					AP											02581110	0.00000	0.18300	L 306
TR1	R1					AP											02581111	0.00000	0.00000	L 305
TR1	R1					AP											02581112	0.00000	0.00000	L 304
TR1	R1					AP											02581113	0.00000	0.00000	L 303
TR1	R1					AP											02581114	0.00000	0.00000	L 302
TR1	R1					AP											02581115	0.00000	0.00000	L 301
TR1	R1					AP											02581201	11.00000	0.00000	L 300
TR1	R1					AP											02581202	11.00000	0.00000	L 299
TR1	R1					AP											02581203	11.00000	0.00000	L 298
TR1	R1					AP											02581204	0.00000	0.25300	L 297
TR1	R1					AP											02581205	0.00000	0.23000	L 296
TR1	R1					AP											02581206	11.00000	0.00000	L 295
TR1	R1					AP											02581207	0.00000	0.00000	L 294
TR1	R1					AP											02581208	11.00000	0.00000	L 293
TR1	R1					AP											02581209	11.00000	0.00000	L 292
TR1	R1					AP											02581210	11.00000	0.00000	L 291
TR1	R1					AP											02581211	0.00000	0.21000	L 290
TR1	R1					AP											02581212	0.00000	0.18400	L 289
TR1	R1					AP											02581213	0.00000	0.00000	L 288
TR1	R1					AP											02581214	0.00000	0.18400	L 287
TR1	R1					AP											02581215	0.00000	0.00000	L 286

TR1	R1					AP											02581216	11.00000	0.00000	L 285
TR1	R1					AP											02581217	0.00000	0.00000	L 284
TR1	R1					AP											02581218	11.00000	0.00000	L 283
TR1	R1					AP											02581219	0.00000	0.27500	L 282
TR1	R1					AP											02581220	11.00000	0.00000	L 281
TR1	R1					AP											02581221	11.00000	0.00000	L 280
TR1	R1					AP											02581222	0.00000	0.38100	L 279
TR1	R1					AP											02581223	0.00000	0.27500	L 278
TR1	R1					AP											02581224	0.00000	0.00000	L 277
TR1	R1					AP											02581225	0.00000	0.00000	L 276
TR1	R1					AP											02581226	0.00000	0.00000	L 275
TR1	R1					AP											02581227	0.00000	0.00000	L 274
TR1	R1					AP											02581301	0.00000	0.00000	L 240
TR1	R1					AP											02581304	0.00000	0.00000	L 237
TR1	R1					AP											02581305	0.00000	0.00000	L 236
TR1	R1					AP											02581306	0.00000	0.18400	L 235
TR1	R1					AP											02581307	11.00000	0.00000	L 234
TR1	R1					AP											02581308	0.00000	0.20700	L 233
TR1	R1					AP											02581309	11.00000	0.00000	L 232
TR1	R1					AP											02581310	11.00000	0.00000	L 231
TR1	R1					AP											02581311	11.00000	0.00000	L 258
TR1	R1					AP											02581312	0.00000	0.00000	L 257
TR1	R1					AP											02581313	0.00000	0.00000	L 256
TR1	R1					AP											02581314	0.00000	0.00000	L 255
TR1	R1					AP											02581315	0.00000	0.00000	L 254
TR1	R1					AP											02581316	0.00000	0.00000	L 253
TR1	R1					AP											02581319	0.00000	0.18400	L 250
TR1	R1					AP											02581321	0.00000	0.18400	PM 50/38/1 L 251
TR1	R1					AP											02581322	0.00000	0.18400	PM 50/38/2 L 252
TR1	R1					AP											02581323	0.00000	0.36700	L 238 & 239
TR1	R1					AP											02581403	0.00000	0.00000	L 90
TR1	R1					AP											02581404	0.00000	0.00000	L 89
TR1	R1					AP											02581405	11.00000	0.00000	L 88
TR1	R1					AP											02581406	0.00000	0.00000	L 87
TR1	R1					AP											02581407	0.00000	0.00000	L 86
TR1	R1					AP											02581408	0.00000	0.00000	L 85
TR1	R1					AP											02581409	0.00000	0.00000	L 84
TR1	R1					AP											02581410	0.00000	0.00000	L 83
TR1	R1					AP											02581411	11.00000	0.00000	L 82
TR1	R1					AP											02581412	0.00000	0.23000	L 81
TR1	R1					AP											02581413	0.00000	0.37000	PM 31/49/A
TR1	R1					AP											02581503	0.00000	0.00000	L 218
TR1	R1					AP											02581504	0.00000	0.00000	L 219
TR1	R1					AP											02581505	0.00000	0.00000	L 220
TR1	R1					AP											02581506	0.00000	0.00000	L 221
TR1	R1					AP											02581507	11.00000	0.00000	L 222

TR1	R1					AP											02581508	11.00000	0.00000	L 223
TR1	R1					AP											02581509	11.00000	0.00000	L 224
TR1	R1					AP											02581510	0.00000	0.00000	L 225
TR1	R1					AP											02581511	0.00000	0.00000	L 226
TR1	R1					AP											02581512	11.00000	0.00000	L 227
TR1	R1					AP											02581513	11.00000	0.00000	L 228
TR1	R1					AP											02581514	11.00000	0.00000	L 229
TR1	R1					AP											02581515	0.00000	0.00000	L 230
TR1	R1					AP											02581516	0.00000	0.45000	PM 29/110/A
TR1	R1					AP											02582101	0.00000	0.00000	L 131
TR1	R1					AP											02582102	0.00000	0.18400	L 132
TR1	R1					AP											02582103	11.00000	0.00000	L 133
TR1	R1					AP											02582104	11.00000	0.00000	L 134
TR1	R1					AP											02582105	0.00000	0.00000	L 135
TR1	R1					AP											02582106	0.00000	0.00000	L 136
TR1	R1					AP											02582107	0.00000	0.00000	L 137
TR1	R1					AP											02582108	0.00000	0.17300	L 138
TR1	R1					AP											02582109	0.00000	0.00000	L 139
TR1	R1					AP											02582110	0.00000	0.20200	L 140
TR1	R1					AP											02582111	0.00000	0.00000	L 141
TR1	R1					AP											02582112	0.00000	0.00000	L 142
TR1	R1					AP											02582113	0.00000	0.00000	L 143
TR1	R1					AP											02582114	0.00000	0.00000	L 144
TR1	R1					AP											02582115	0.00000	0.00000	L 145
TR1	R1					AP											02582116	0.00000	0.17200	L 146
TR1	R1					AP											02582117	0.00000	0.00000	L 147
TR1	R1					AP											02582118	0.00000	0.00000	L 148
TR1	R1					AP											02582119	0.00000	0.00000	L 149
TR1	R1					AP											02582120	0.00000	0.00000	L 150
TR1	R1					AP											02582121	11.00000	0.00000	L 151
TR1	R1					AP											02582122	0.00000	0.00000	L 152
TR1	R1					AP											02582123	11.00000	0.00000	L 153
TR1	R1					AP											02582124	0.00000	0.18400	L 154
TR1	R1					AP											02582125	0.00000	0.00000	L 155
TR1	R1					AP											02582126	0.00000	0.25300	L 156
TR1	R1					AP											02582201	0.00000	0.00000	L 165
TR1	R1					AP											02582202	0.00000	0.00000	L 166
TR1	R1					AP											02582203	0.00000	0.00000	L 167
TR1	R1					AP											02582204	0.00000	0.00000	L 168
TR1	R1					AP											02583101	0.00000	0.43800	L 169
TR1	R1					AP											02583102	11.00000	0.00000	L 170
TR1	R1					AP											02583103	11.00000	0.00000	L 171
TR1	R1					AP											02583104	0.00000	0.00000	L 172
TR1	R1					AP											02583105	0.00000	0.00000	L 173
TR1	R1					AP											02583106	0.00000	0.00000	L 174
TR1	R1					AP											02583107	0.00000	0.24600	L 175

TR1	R1					AP											02583108	0.00000	0.00000	L 176
TR1	R1					AP											02583109	0.00000	0.00000	L 177
TR1	R1					AP											02583112	11.00000	0.00000	L 180
TR1	R1					AP											02583113	0.00000	0.23000	L 181
TR1	R1					AP											02583114	0.00000	0.25300	L 182
TR1	R1					AP											02583115	0.00000	0.00000	L 183
TR1	R1					AP											02583116	0.00000	0.00000	L 184
TR1	R1					AP											02583117	11.00000	0.00000	L 185
TR1	R1					AP											02583118	11.00000	0.00000	L 186
TR1	R1					AP											02583119	0.00000	0.00000	L 187
TR1	R1					AP											02583120	0.00000	0.00000	L 188
TR1	R1					AP											02583121	0.00000	0.00000	L 189
TR1	R1					AP											02583122	0.00000	0.00000	L 190
TR1	R1					AP											02583123	11.00000	0.00000	L 191
TR1	R1					AP											02583124	0.00000	0.00000	L 192
TR1	R1					AP											02583125	0.00000	0.00000	L 193
TR1	R1					AP											02583128	0.00000	0.31400	L 196
TR1	R1					AP											02583129	0.00000	0.00000	L 197
TR1	R1					AP											02583130	0.00000	0.00000	L 198
TR1	R1					AP											02583131	0.00000	0.00000	L 199
TR1	R1					AP											02583132	0.00000	0.00000	L 200
TR1	R1					AP											02583133	0.00000	0.34900	L 201
TR1	R1					AP											02583134	0.00000	0.00000	L 202
TR1	R1					AP											02583135	0.00000	0.00000	L 203
TR1	R1					AP											02583136	0.00000	0.37000	PM 42/122/1
TR1	R1					AP											02583137	0.00000	0.41000	PM 42/120/1
TR1	R1					AP											02583201	11.00000	0.00000	L 204
TR1	R1					AP											02583202	0.00000	0.00000	L 205
TR1	R1					AP											02583203	0.00000	0.18400	L 206
TR1	R1					AP											02583204	0.00000	0.00000	L 207
TR1	R1					AP											02583205	0.00000	0.00000	L 208
TR1	R1					AP											02583206	0.00000	0.00000	L 209
TR1	R1					AP											02583207	0.00000	0.00000	L 210
TR1	R1					AP											02583208	0.00000	0.00000	L 211
TR1	R1					AP											02583209	0.00000	0.00000	L 212
TR1	R1					AP											02583210	11.00000	0.00000	L 213
TR1	R1					AP											02583211	0.00000	0.17200	L 214
TR1	R1					AP											02583212	0.00000	0.00000	L 215
TR1	R1					AP											02583301	0.00000	0.00000	L 273
TR1	R1					AP											02583302	11.00000	0.00000	L 272
TR1	R1					AP											02583303	0.00000	0.00000	L 271
TR1	R1					AP											02583304	0.00000	0.18300	L 270
TR1	R1					AP											02583305	0.00000	0.00000	L 269
TR1	R1					AP											02583306	0.00000	0.18400	L 268
TR1	R1					AP											02583307	0.00000	0.00000	L 267
TR1	R1					AP											02583308	0.00000	0.00000	L 266

TR1	R1					AP											02583309	0.00000	0.18400	L 265
TR1	R1					AP											02583310	0.00000	0.00000	L 264
TR1	R1					AP											02583311	11.00000	0.00000	L 263
TR1	R1					AP											02583312	0.00000	0.00000	L 262
TR1	R1					AP											02583313	0.00000	0.00000	L 261
TR1	R1					AP											02583314	0.00000	0.00000	L 260
TR1	R1					AP											02583315	0.00000	0.18400	L 259
TA	FR-160					AP											02802102	11.00000	71.00000	SEC 35 13 18
TA	FR-160					AP											02802103	11.00000	37.00000	SEC 35 13 18
TA	FR-160					AP									HSR		02803001	11.00000	0.00000	SEC 35&36 13 18
TA	FR-160					AP											02924007	11.00000	31.32000	SEC 34 13 18
TA	FR-160					AP											02924012	0.00000	4.20000	SEC 34 13 18
TA	FR-160					AP											02926019	11.00000	0.23000	SEC 34 13 18
TA	FR-160					AP											02926025	11.00000	5.00000	SEC 27&34 13 18
TA	FR-160					AP											02926027	11.00000	0.91000	SEC 34 13 18
TA	FR-160					AP											02926029	11.00000	1.28000	27&341318RS12-67
TA	FR-160					AP											02932001	0.00000	0.36000	SEC 34 13 18
TA	FR-160					AP											02932002	0.00000	2.23000	SEC 34 13 18
TA	FR-160					AP											02932003	0.00000	1.04000	SEC 34 13 18
TA	FR-160					AP											02932004	0.00000	0.90000	SEC 34 13 18
TA	FR-160					AP											02932005	0.00000	1.78000	SEC 34 13 18
TA	FR-160					AP											02932009	11.00000	0.76000	SEC 34 13 18
TA	FR-160					AP											02932010	11.00000	0.29000	SEC 34 13 18
TA	FR-160					AP											02932011	11.00000	0.48000	SEC 34 13 18
TA	FR-160					AP									HSR		03002001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03003001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03004001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03005001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03006001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03007001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03008001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03009001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03010001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03011001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP									HSR		03012001	11.00000	0.00000	POR SEC 1 12 18
TA	FR-160					AP											03013103	11.00000	240.00000	S12 12 18RS15-69
AE	FR-160					AP											03014102	11.00000	0.00000	S12 12 18RS15-69
AE	FR-160					AP											03014104	11.00000	40.00000	S 8 12 18 ADM
AE	FR-160					AP											03015102	11.00000	0.00000	S12 12 18RS15-69
AE	FR-160					AP											03015103	11.00000	108.33000	S 8 12 18 ADM
AE	FR-160					AP											03018105	11.00000	28.32000	S 12 12 18 ADM
AE	FR-160					AP											03019001	11.00000	0.00000	POR SEC 13 12 18
TA	FR-160					AP											03020103	11.00000	80.00000	SEC 13 12 18
AE	FR-160					AP											03022001	11.00000	0.00000	POR SEC 13 12 18
TA	FR-160					AP											03023102	11.00000	0.00000	POR SEC 13 12 18
TA	FR-160					AP											03025001	11.00000	0.00000	POR SEC 24 12 18

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TA	FR-160					AP											03026001	11.00000	0.00000	POR SEC 24 12 18
TA	FR-160					AP											03027001	11.00000	0.00000	POR SEC 24 12 18
TA	FR-160					AP											03028001	11.00000	0.00000	POR SEC 24 12 18
TA	FR-160					AP											03029001	11.00000	0.00000	POR SEC 24 12 18
TA	FR-160					AP											03030001	11.00000	0.00000	POR SEC 24 12 18
TA	FR-160					AP											03031103	11.00000	0.00000	SEC 23 12 18
TA	FR-160					AP											03031104	11.00000	0.00000	S 25 & 26 12 18
TA	FR-160					AP											03031105	11.00000	0.00000	S 35 & 36 12 18
TA	FR-160					AP											03032103	0.00000	161.98000	RS 22/27/1
TA	FR-160					AP											03032104	11.00000	0.00000	POR S25&36 12 18
TA	FR-160					AP									HSR		03033102	11.00000	0.00000	POR SEC 7 12 19
TA	FR-160					AP											03033103	11.00000	0.00000	SEC7 17-20 12 19
AE	FR-160					AP											03033104	11.00000	119.22000	S 18 12 19 ADM
TA	FR-160					AP											03034102	11.00000	0.00000	1920 29-32 12 19
SLT	FR-160					AP									HSR		03037004	0.00000	59.73000	RS 20/25 S11218
TA	FR-160					AP									HSR		03037004	0.00000	59.73000	RS 20/25 S11218
TA	FR-160					AP									HSR		03037006	0.00000	7.31000	RS 20/25 S11218
TA	FR-160					AP									HSR		03037017	11.00000	80.00000	LOT 30 S 1 12 18
AE	FR-160					AP											03059002	11.00000	1560.23000	S12&13 12 18 S19
AE	AG-160					AP											03059004	0.00000	0.00000	SEC 12 12 18
AE	AG-160					AP											03059005	0.00000	0.00000	SEC 12&13 12 18
AE	AG-160					AP											03059006	0.00000	0.00000	SEC 12&13 12 18
AE	AG-160					AP											03102023	0.00000	62.58000	SEC 4 12 18 ADM
TR1	FR-160					AP											03102033	11.00000	8.27000	SEC 4 12 18
TR1	R1					AP											03102034	11.00000	0.11000	SEC 4 12 18
AE	RL-160					AP											03102038	11.00000	6.28000	SEC 4 12 18
TR1	FR-160					AP											03102045	11.00000	40.00000	POR SEC 3 12 18
AE	AG-160					AP											03102046	0.00000	32.70000	SEC 3 & 4 12 18
AE	AG-160					AP											03102048	0.00000	105.20000	SEC 3 & 4 12 18
SLT	AG-160					AP											03102048	0.00000	105.20000	SEC 3 & 4 12 18
TR1	R1					AP											03126127	11.00000	0.04000	SEC 3 12 18
TR1	R1					AP											03126134	0.00000	0.13800	SEC 3 12 18
TR1	R1					AP											03126135	0.00000	0.14000	SEC 3 12 18
TR1	R1					AP											03126137	0.00000	0.02000	SEC 4 12 18
TR1	R1					AP											03126142	0.00000	0.35000	SEC 3 12 18
TR1	R1					AP											03126147	0.00000	0.14000	SEC 3 12 18
TR1	R1					AP											03126153	11.00000	0.00000	POR SEC 3 12 18
TR1	R1					AP											03126154	11.00000	0.00000	POR SEC 3 12 18
TR1	R1					AP											03126155	0.00000	0.00000	POR SEC 3 12 18
TR1	R1					AP											03126155	0.00000	0.00000	POR SEC 3 12 18
TR1	R1					AP											03126156	0.00000	0.00000	POR SEC 3 12 18
AE	RL-160					AP											03130002	0.00000	0.53400	SEC 4 12 18
AE	RL-160					AP											03130005	0.00000	0.46000	SEC 4 12 18
AE	RL-160					AP											03130006	0.00000	0.42000	SEC 4 12 18
AE	RL-160					AP											03130007	0.00000	0.50000	SEC 4 12 18
TA	FR-160					AP											03201001	11.00000	223.34000	SEC 6 12 18

TA	FR-160					AP											03201001	11.00000	223.34000	SEC 6 12 18
TA	FR-160					AP											03202001	11.00000	320.00000	SEC 6 12 18
TA	FR-160					AP											03202001	11.00000	320.00000	SEC 6 12 18
TA	FR-160					AP											03203001	11.00000	281.80000	SEC 6 12 18
TA	FR-160					AP											03203001	11.00000	281.80000	SEC 6 12 18
TA	FR-160					AP											03203003	11.00000	41.80000	LOT9 SEC 6 12 18
TA	FR-160					AP											03204001	11.00000	200.00000	SEC 6 12 18
TA	FR-160					AP											03204005	11.00000	123.60000	LOT10 SEC6 12 18
TA	FR-160					AP											03205006	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205008	11.00000	2.12000	SEC 7 12 18
TA	FR-160					AP											03205009	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205011	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205013	0.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205014	0.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205016	11.00000	1.00000	SEC 7 12 18
TA	FR-160					AP											03205017	0.00000	6.26000	SEC 7 12 18
TA	FR-160					AP											03205019	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205020	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205022	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205026	0.00000	1.00000	SEC 7 12 18
TA	FR-160					AP											03205040	0.00000	1.51700	SEC 7 12 18
TR1	FR-160					AP											03205047	11.00000	30.32000	R/S 4-63
TR1	R1					AP											03205048	11.00000	0.15000	SEC 7 12 18
TA	FR-160					AP											03205052	11.00000	0.50000	SEC 7 12 18
TA	FR-160					AP											03205053	11.00000	0.50000	SEC 7 12 18
TA	FR-160					AP											03205054	11.00000	1.00000	SEC 7 12 18
TA	FR-160					AP											03205055	0.00000	1.13000	SEC 7 12 18
TA	FR-160					AP											03205056	0.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205057	0.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205058	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205059	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205060	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205062	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205063	11.00000	3.13000	SEC 7 12 18
TA	FR-160					AP											03205069	11.00000	1.13000	SEC 7 12 18
TA	FR-160					AP											03205071	0.00000	0.50000	PM 1/186/A
TA	FR-160					AP											03205072	0.00000	0.50000	PM 1/186/B
TA	FR-160					AP											03205073	0.00000	0.60000	PM 1/186/C
TR1	R1					AP											03205074	0.00000	0.47000	PM 1/186/D
TA	FR-160					AP											03205075	0.00000	7.48000	RS 23/99/1
TA	FR-160					AP											03205076	11.00000	1.00000	SEC 7 12 18
TA	FR-160					AP											03205077	11.00000	1.00000	SEC 7 12 18
TA	FR-160					AP											03205078	0.00000	15.65000	SEC 7 12 18
TA	FR-160					AP											03205079	11.00000	160.00000	POR SEC 7 12 18
TR1	FR-160					AP											03206008	11.00000	40.00000	SEC 7 12 18
TR1	R1					AP											03206010	11.00000	0.27800	POR RS 29/102

TR1	R1					AP											03206011	11.00000	0.03000	SEC 7 12 18
TR1	R1					AP											03206013	11.00000	0.23600	RS 29/102/1
TR1	R1					AP											03206014	0.00000	11.05000	PM 4/137/1
TR1	FR-160					AP											03206015	11.00000	11.01000	PAR 2 P/M 4-137
TR1	FR-160					AP											03206016	11.00000	5.99000	PAR 3 P/M 4-137
TR1	FR-160					AP											03206017	11.00000	26.36000	PAR 4 P/M 4-137
TA	FR-160					AP											03206018	11.00000	160.00000	POR SEC 7 12 18
SLT	FR-160					AP											03207001	11.00000	0.00000	POR SEC 8 12 18
TA	FR-160					AP											03207001	11.00000	0.00000	POR SEC 8 12 18
SLT	FR-160					AP											03208001	11.00000	0.00000	POR SEC 8 12 18
TA	FR-160					AP											03208001	11.00000	0.00000	POR SEC 8 12 18
AE	RL-160					AP											03209005	11.00000	54.95000	RS 31/63/1
TTC	TC					AP											03209011	11.00000	18.08000	SEC 9 12 18
TA	AG-160					AP											03209012	0.00000	1.05000	SEC 9 12 18 ADM
TA	FR-160					AP											03209013	11.00000	3.93000	SEC 9 12 18
AE	AG-160					AP											03209014	0.00000	11.10000	SEC 9 12 18 ADM
AE	RL-160					AP											03210006	11.00000	70.15000	RS 31/63/2
TR1	FR-160					AP											03210013	11.00000	0.00000	POR SEC 9 12 18
RF	RF-H					AP											03211001	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211002	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211003	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211004	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211006	0.00000	0.33900	JAMESON BEACH TR
TR1	R1					AP											03211007	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211008	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211009	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211010	0.00000	0.20300	RS 21/61/1
TR1	R1					AP											03211011	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211013	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211014	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211016	0.00000	0.11000	R/S 21/149
TR1	R1					AP											03211017	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211018	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211019	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211020	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211021	0.00000	0.18000	RS 28/79
TR1	R1					AP											03211022	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03211023	0.00000	0.34000	JAMESON BEACH TR
TR1	R1					AP											03211024	0.00000	0.34000	JAMESON BEACH TR
RF	RF-H					AP											03211025	0.00000	0.00000	SEC 6 12 18
RF	RF-H					AP											03211026	0.00000	0.19300	SEC 6 12 18
TR1	R1					AP											03211031	0.00000	0.40500	PM 50/77/A
TR1	R1					AP											03211032	0.00000	0.25800	PM 50/77/B
TR1	R1					AP											03212002	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03212003	0.00000	0.20500	RS 31/52
TR1	R1					AP											03212004	0.00000	0.14000	RS 32/64/2

TR1	R1					AP											03212005	0.00000	0.36500	RS 32/64/1
TR1	R1					AP											03212008	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03212009	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03212012	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03212013	11.00000	0.00000	LOT JAMESON BCH
TR1	R1					AP											03212014	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03212015	0.00000	0.09000	R/S 21/149
TR1	R1					AP											03212016	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03212017	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03212018	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03212019	0.00000	0.00000	JAMESON BEACH TR
TR1	R1					AP											03212024	0.00000	0.83000	PM 43/149/1
TR1	R1					AP											03212025	0.00000	0.33300	PM 43/149/2
TRT	RF-L					AP											03213007	11.00000	0.00000	SEC 6 12 18
TCP	CC					AP											03213008	11.00000	0.00000	POR SEC 6 12 18
TCP	CC					AP											03213008	11.00000	0.00000	POR SEC 6 12 18
TCP	CC					AP											03213008	11.00000	0.00000	POR SEC 6 12 18
TRT	RF-L					AP											03213008	11.00000	0.00000	POR SEC 6 12 18
TRT	RF-L					AP											03213008	11.00000	0.00000	POR SEC 6 12 18
TRT	RF-L					AP											03213008	11.00000	0.00000	POR SEC 6 12 18
TCP	CC					AP											03213009	11.00000	0.00000	POR SEC 6 12 18
RF	R1					AP											03213010	2.00000	2.30000	RS 33/11/1 AW
TCP	R1					AP											03213010	2.00000	2.30000	RS 33/11/1 AW
TR1	R1					AP											03213010	2.00000	2.30000	RS 33/11/1 AW
TRT	R1					AP											03213010	2.00000	2.30000	RS 33/11/1 AW
TR1	R1					AP											03232101	11.00000	0.00000	L 1
TR1	R1					AP											03232102	11.00000	0.00000	L 2
TR1	R1					AP											03232103	0.00000	0.39000	L 3
TR1	R1					AP											03232106	11.00000	0.00000	L 6
TR1	R1					AP											03232107	0.00000	0.00000	L 7
TR1	R1					AP											03232108	0.00000	0.00000	L 8
TR1	R1					AP											03232109	0.00000	0.00000	L 9
TR1	R1					AP											03232110	0.00000	0.00000	L 10
TR1	R1					AP											03232111	11.00000	0.00000	L 11
TR1	R1					AP											03232112	11.00000	0.00000	L 12
TR1	R1					AP											03232113	11.00000	0.00000	L 13
TR1	R1					AP											03232114	0.00000	0.32800	L 14
TR1	R1					AP											03232118	0.00000	0.54000	PM 42/88/1
TR1	R1					AP											03232121	0.00000	0.44600	RS 31/78/1
TR1	R1					AP											03232122	0.00000	0.34400	RS 31/78/2
TR1	R1					AP											03232201	11.00000	0.00000	L 59
TR1	R1					AP											03232202	0.00000	0.00000	L 60
TR1	R1					AP											03232203	11.00000	0.00000	L 61
TR1	R1					AP											03232204	0.00000	0.00000	L 62
TR1	R1					AP											03232209	0.00000	0.00000	L 67
TR1	R1					AP											03232211	11.00000	0.26000	TR A RS 17-150

TR1	R1					AP											03232213	0.00000	0.27000	RS 17/150/B
TR1	R1					AP											03232214	0.00000	0.30800	PM 50/123/1 L 63
TR1	R1					AP											03232215	0.00000	0.31400	PM 50/123/2 L 64
TR1	R1					AP											03232301	0.00000	0.00000	L 38
TR1	R1					AP											03232302	0.00000	0.27600	L 39
TR1	R1					AP											03232303	0.00000	0.00000	L 40
TR1	R1					AP											03232304	0.00000	0.28600	L 41
TR1	R1					AP											03232305	0.00000	0.00000	L 42
TR1	R1					AP											03232308	11.00000	0.00000	L 45
TR1	R1					AP											03232309	11.00000	0.00000	L 46
TR1	R1					AP											03232310	0.00000	0.00000	L 51
TR1	R1					AP											03232311	0.00000	0.27500	L 52
TR1	R1					AP											03232312	0.00000	0.00000	L 53
TR1	R1					AP											03232313	11.00000	0.00000	L 54
TR1	R1					AP											03232314	11.00000	0.00000	L 55
TR1	R1					AP											03232315	11.00000	0.00000	L 56
TR1	R1					AP											03232316	0.00000	0.00000	L 57
TR1	R1					AP											03232317	0.00000	0.00000	L 58
TR1	R1					AP											03232318	0.00000	0.52100	LOT 43 & LOT 44
TR1	R1					AP											03232401	0.00000	0.00000	L 29
TR1	R1					AP											03232402	0.00000	0.00000	L 30
TR1	R1					AP											03232403	0.00000	0.26500	L 31
TR1	R1					AP											03232404	0.00000	0.00000	L 32
TR1	R1					AP											03232405	0.00000	0.00000	L 33
TR1	R1					AP											03232406	0.00000	0.00000	L 34
TR1	R1					AP											03232407	0.00000	0.00000	L 35
TR1	R1					AP											03232408	11.00000	0.00000	L 36
TR1	R1					AP											03232409	11.00000	0.00000	L 37
TR1	R1					AP											03233101	0.00000	0.00000	L 18
TR1	R1					AP											03233102	0.00000	0.00000	L 19
TR1	R1					AP											03233103	11.00000	0.00000	L 20
TR1	R1					AP											03233104	0.00000	0.00000	L 21
TR1	R1					AP											03233105	0.00000	0.58500	L 22
TR1	R1					AP											03233201	11.00000	0.00000	L 47
TR1	R1					AP											03233202	0.00000	0.00000	L 48
TR1	R1					AP											03233203	0.00000	0.00000	L 49
TR1	R1					AP											03233204	0.00000	0.00000	L 50
TR1	R1					AP											03233301	11.00000	0.00000	L 23
TR1	R1					AP											03233302	11.00000	0.00000	L 24
TR1	R1					AP											03233303	11.00000	0.00000	L 25
TR1	R1					AP											03233304	11.00000	0.00000	L 26
TR1	R1					AP											03233305	11.00000	0.00000	L 27
TR1	R1					AP											03233306	11.00000	0.00000	L 28
TR1	R1					AP											03234101	11.00000	0.00000	L 79
TR1	R1					AP											03234102	0.00000	0.38400	L 80
TR1	R1					AP											03234103	11.00000	0.00000	L 81

TR1	R1					AP											03234104	11.00000	0.00000	L 82
TR1	R1					AP											03234105	11.00000	0.00000	L 83
TR1	R1					AP											03234106	11.00000	0.00000	L 84
TR1	R1					AP											03234107	11.00000	0.00000	L 85
TR1	R1					AP											03234108	11.00000	0.00000	L 86
TR1	R1					AP											03234109	0.00000	0.00000	L 87
TR1	R1					AP											03234110	0.00000	0.00000	L 88
TR1	R1					AP											03234111	0.00000	0.00000	L 89
TR1	R1					AP											03234201	11.00000	0.00000	L 130
TR1	R1					AP											03234202	0.00000	0.30600	L 131
TR1	R1					AP											03234203	0.00000	0.00000	L 132
TR1	R1					AP											03234204	0.00000	0.00000	L 133
TR1	R1					AP											03234205	0.00000	0.00000	L 134
TR1	R1					AP											03234206	0.00000	0.00000	L 135
TR1	R1					AP											03234207	0.00000	0.00000	L 136
TR1	R1					AP											03234208	0.00000	0.00000	L 137
TR1	R1					AP											03234209	11.00000	0.00000	L 138
TR1	R1					AP											03234210	0.00000	0.00000	L 139
TR1	R1					AP											03234211	11.00000	0.00000	L 140
TR1	R1					AP											03234212	11.00000	0.00000	L 141
TR1	R1					AP											03234213	0.00000	0.30000	L 142
TR1	R1					AP											03234301	0.00000	0.34000	L 90
TR1	R1					AP											03234302	0.00000	0.00000	L 91
TR1	R1					AP											03234303	0.00000	0.00000	L 92
TR1	R1					AP											03234304	11.00000	0.00000	L 93
TR1	R1					AP											03234305	0.00000	0.00000	L 94
TR1	R1					AP											03234306	11.00000	0.00000	L 95
TR1	R1					AP											03234307	0.00000	0.00000	L 96
TR1	R1					AP											03234401	0.00000	0.00000	L 97
TR1	R1					AP											03234402	0.00000	0.00000	L 98
TR1	R1					AP											03234403	0.00000	0.00000	L 99
TR1	R1					AP											03234404	11.00000	0.00000	L 100
TR1	R1					AP											03235101	0.00000	0.00000	L 75
TR1	R1					AP											03235102	0.00000	0.00000	L 76
TR1	R1					AP											03235103	11.00000	0.00000	L 77
TR1	R1					AP											03235104	0.00000	0.00000	L 78
TR1	R1					AP											03235201	0.00000	0.00000	L 126
TR1	R1					AP											03235202	11.00000	0.00000	L 127
TR1	R1					AP											03235203	11.00000	0.00000	L 128
TR1	R1					AP											03235204	11.00000	0.00000	L 129
TR1	R1					AP											03235205	0.00000	0.31600	L 143
TR1	R1					AP											03235206	0.00000	0.00000	L 144
TR1	R1					AP											03235207	0.00000	0.00000	L 145
TR1	R1					AP											03235208	0.00000	0.00000	L 146
TR1	R1					AP											03235209	0.00000	0.00000	L 147
TR1	R1					AP											03235210	0.00000	0.00000	L 148

TR1	R1					AP											03235301	0.00000	0.00000	L 154
TR1	R1					AP											03235302	0.00000	0.00000	L 155
TR1	R1					AP											03235307	11.00000	0.00000	L 160
TR1	R1					AP											03235308	0.00000	0.24600	L 161
TR1	R1					AP											03235309	0.00000	0.00000	L 162
TR1	R1					AP											03235310	0.00000	0.00000	L 163
TR1	R1					AP											03235311	0.00000	0.00000	L 164
TR1	R1					AP											03235312	0.00000	0.00000	L 165
TR1	R1					AP											03235313	0.00000	0.00000	L 166
TR1	R1					AP											03235314	11.00000	0.00000	L 167
TR1	R1					AP											03235315	11.00000	0.00000	L 168
TR1	R1					AP											03235316	11.00000	0.00000	L 169
TR1	R1					AP											03235317	0.00000	0.22900	L 170
TR1	R1					AP											03235318	0.00000	0.55000	PM 43/11/1
TR1	R1					AP											03235319	0.00000	0.00000	LOT 158 & 159
TR1	R1					AP											03235401	0.00000	0.00000	L 101
TR1	R1					AP											03235406	11.00000	0.00000	L 106
TR1	R1					AP											03235407	0.00000	0.00000	L 107
TR1	R1					AP											03235408	0.00000	0.00000	L 108
TR1	R1					AP											03235409	0.00000	0.00000	L 109
TR1	R1					AP											03235410	0.00000	0.00000	L 110
TR1	R1					AP											03235411	0.00000	0.00000	L 111
TR1	R1					AP											03235412	0.00000	0.37000	RS 16/136/2
TR1	R1					AP											03235414	0.00000	0.30000	RS 16/136/1
TR1	R1					AP											03235415	0.00000	0.63900	L 104 & 105
TR1	R1					AP											03236101	0.00000	0.00000	L 68
TR1	R1					AP											03236102	11.00000	0.00000	L 69
TR1	R1					AP											03236103	0.00000	0.00000	L 70
TR1	R1					AP											03236104	0.00000	0.00000	L 71
TR1	R1					AP											03236105	11.00000	0.00000	L 72
TR1	R1					AP											03236106	11.00000	0.00000	L 73
TR1	R1					AP											03236107	11.00000	0.00000	L 74
TR1	R1					AP											03236201	0.00000	0.53300	L 125
TR1	R1					AP											03236202	0.00000	0.00000	L 124
TR1	R1					AP											03236203	0.00000	0.00000	L 123
TR1	R1					AP											03236204	0.00000	0.49100	L 122
TR1	R1					AP											03236205	0.00000	0.00000	L 121
TR1	R1					AP											03236207	0.00000	0.00000	L 152
TR1	R1					AP											03236208	0.00000	0.00000	L 151
TR1	R1					AP											03236209	0.00000	0.00000	L 150
TR1	R1					AP											03236210	0.00000	0.00000	L 149
TR1	R1					AP											03236211	0.00000	0.00000	PM 4/20/A
TR1	R1					AP											03236212	0.00000	0.00000	PM 4/20/B
TR1	R1					AP											03236301	0.00000	0.00000	L 120
TR1	R1					AP											03236302	0.00000	0.00000	L 119
TR1	R1					AP											03236401	11.00000	0.00000	L 117

TR1	R1					AP											03236402	0.00000	0.00000	L 118
TR1	R1					AP											03236403	0.00000	0.00000	L 116
TR1	R1					AP											03236404	0.00000	0.00000	L 115
TR1	R1					AP											03236405	0.00000	0.00000	L 114
TR1	R1					AP											03236406	11.00000	0.00000	L A B 4
TR1	R1					AP											03236501	11.00000	0.00000	L 112
TR1	R1					AP											03236502	11.00000	0.00000	L 113
TR1	FR-160					AP											03301003	11.00000	27.03000	SEC 18 12 18
TR1	FR-160					AP											03301010	11.00000	10.35000	SEC 18 12 18
TR1	FR-160					AP											03301010	11.00000	10.35000	SEC 18 12 18
TR1	FR-160					AP											03301018	11.00000	122.84000	SEC 17 12 18
TR1	FR-160					AP											03301018	11.00000	122.84000	SEC 17 12 18
TR1	FR-160					AP											03301018	11.00000	122.84000	SEC 17 12 18
TR1	FR-160					AP											03301018	11.00000	122.84000	SEC 17 12 18
TR1	FR-160					AP											03301018	11.00000	122.84000	SEC 17 12 18
TR1	FR-160					AP											03301018	11.00000	122.84000	SEC 17 12 18
TR1	FR-160					AP											03301018	11.00000	122.84000	SEC 17 12 18
TR1	FR-160					AP											03301018	11.00000	122.84000	SEC 17 12 18
TR1	FR-160					AP											03301019	11.00000	48.44000	SEC 18 12 18
TR1	R1					AP											03301020	11.00000	4.14000	SEC 18 12 18
TR1	FR-160					AP											03301021	11.00000	41.75000	POR SEC 18 12 18
TR1	R1					AP											03301022	11.00000	0.00000	SEC 18 1218 RDWY
TR1	FR-160					AP											03302003	11.00000	111.44000	S18 12 18 RS13-5
TR1	R1					AP											03302012	0.00000	30.50000	SEC 18 12 18
TR1	R1					AP											03302012	0.00000	30.50000	SEC 18 12 18
TA	FR-160					AP											03303006	11.00000	160.52000	SEC 17 12 18
TA	FR-160					AP											03303007	11.00000	480.00000	POR SEC 17 12 18
TA	FR-160					AP											03305001	0.00000	33.20000	SEC 16 12 18
TRT	FR-160					AP											03305001	0.00000	33.20000	SEC 16 12 18
TA	FR-160					AP											03305014	11.00000	58.02000	SEC 16 12 18
CT	CC					AP											03305015	11.00000	25.52000	SEC 16 12 18
TRT	CC					AP											03305015	11.00000	25.52000	SEC 16 12 18
TA	FR-160					AP											03305019	11.00000	9.58000	SEC 16 12 18
TR1	FR-160					AP											03308002	11.00000	166.74000	S19 12 18 RS13-5
TR1	FR-160					AP											03308007	11.00000	164.99000	S19 12 18 RS13-5
TA	FR-160					AP											03309001	11.00000	114.00000	SEC 20 12 18
TR1	R1					AP											03309007	0.00000	2.00000	SEC 20 12 18
TR1	FR-160					AP											03309010	11.00000	18.63000	SEC 20 12 18
TR1	R1					AP											03309012	0.00000	20.04000	SEC 20 12 18
TR1	R1					AP											03309013	0.00000	14.94000	SEC 20 12 18
TR1	FR-160					AP											03309014	11.00000	15.54000	SEC 20 12 18
TR1	FR-160					AP											03309015	11.00000	10.91000	S20 12 18 RS13-5
TR1	R1					AP											03309016	0.00000	3.23000	SEC 20 12 18
TR1	R1					AP											03309017	0.00000	2.58000	SEC 20 12 18
TA	FR-160					AP											03309018	11.00000	13.86000	SEC 20 12 18
TR1	FR-160					AP											03310009	11.00000	39.40000	S20 12 18 RS13-5

TR1	FR-160					AP											03310015	11.00000	40.06000	SEC 20 12 18
TRT	RF-L					AP											03310019	11.00000	0.08000	S20 12 18 RS13-5
TR1	R1					AP											03310021	11.00000	2.61000	S20 12 18 RS13-5
TA	FR-160					AP											03310022	11.00000	161.76000	S20 12 18 RS13-5
TRT	FR-160					AP											03310022	11.00000	161.76000	S20 12 18 RS13-5
TR1	R1					AP											03310023	11.00000	2.48000	SEC 20 12 18
TR1	R1					AP											03310024	11.00000	2.86000	SEC 20 12 18
TR1	R1					AP											03310025	11.00000	3.63000	SEC 20 12 18
TR1	R1					AP											03310026	11.00000	0.00000	POR SEC 20 12 18
TR1	FR-160					AP											03311005	11.00000	16.65000	SEC 16&21 12 18
TR1	R1					AP											03311007	11.00000	0.03000	SEC 21 12 18
RF	RF-H					AP											03311009	0.00000	15.96000	16 12 18RS18-111
TA	FR-160					AP											03311011	11.00000	172.85000	RS 18/111 S16&21
TA	I					AP											03313102	11.00000	0.00000	L 1 & 2 B 1
TA	I					AP											03313103	11.00000	0.00000	L 4 B 1
TA	I					AP											03313104	0.00000	0.00000	L 3 B 1
TR1	R1					AP											03316003	0.00000	1.44000	SEC 20 12 18
TR1	R1					AP											03316004	0.00000	1.00000	SEC 20 12 18
TR1	R1					AP											03316005	0.00000	1.30000	SEC 20 12 18
TRT	RF-L					AP											03316006	0.00000	1.00000	SEC 20 12 18
TRT	RF-L					AP											03316007	0.00000	1.56000	SEC 20 12 18
TRT	RF-L					AP											03316008	0.00000	1.56000	SEC 20 12 18
TRT	RF-L					AP											03316009	0.00000	0.20000	SEC 20 12 18
TR1	R1					AP											03316010	0.00000	0.89000	SEC 20 12 18
TR1	R1					AP											03316013	0.00000	0.62000	SEC 20 12 18
TR1	R1					AP											03316014	0.00000	0.44000	SEC 20 12 18
TR1	R1					AP											03316015	0.00000	0.55300	SEC 20 12 18
TR1	R1					AP											03318001	11.00000	0.90000	SEC 20 12 18
TR1	R1					AP											03318003	11.00000	4.00000	SEC 20 12 18
TRT	RF-L					AP											03318004	0.00000	1.87000	SEC 20 12 18
TRT	RF-L					AP											03318006	11.00000	1.50000	SEC 20 12 18
TR1	R1					AP											03318009	0.00000	2.02000	SEC 20 12 18
TRT	RF-L					AP											03318013	11.00000	4.64000	SEC 20 12 18
TRT	RF-L					AP											03318015	11.00000	0.84000	S20 12 18 RS13-5
TRT	RF-L					AP											03318016	11.00000	9.48000	SEC 20 12 18
TRT	RF-L					AP											03318021	11.00000	0.70000	SEC 20 12 18
TRT	RF-L					AP											03318023	11.00000	0.63000	S20 12 18 RS13-5
TR1	R1					AP											03318030	0.00000	0.72000	SEC 20 12 18
TR1	R1					AP											03318031	0.00000	0.74000	SEC 20 12 18
TR1	R1					AP											03318032	11.00000	0.00000	.77 A SEC 20 12
TRT	RF-L					AP											03318033	0.00000	1.05000	SEC 20 12 18
TRT	RF-L					AP											03318034	0.00000	0.15000	SEC 20 12 18
TRT	RF-L					AP											03318035	0.00000	0.32000	SEC 20 12 18
TRT	RF-L					AP											03318036	0.00000	0.77700	SEC 20 12 18
TRT	RF-L					AP											03319104	11.00000	1.55000	SEC 20 12 18
TRT	RF-L					AP											03319105	11.00000	0.00000	L 4 & POR L 6

TRT	RF-L					AP											03319106	11.00000	0.00000	POR L 6
TRT	RF-L					AP											03319107	0.00000	0.00000	POR LOT 5
TRT	RF-L					AP											03319108	11.00000	0.11000	POR LOT 5
CT	CC					AP											03319201	11.00000	0.00000	L 1
TRT	RF-L					AP											03319202	11.00000	0.00000	L 2
TRT	RF-L					AP											03319204	11.00000	0.00000	POR L 3
TRT	RF-L					AP											03319205	11.00000	0.72000	POR LOT 3
TR1	R1					AP											03320101	11.00000	0.00000	L 7
TR1	R1					AP											03320104	11.00000	0.00000	L 20
TR1	R1					AP											03320105	11.00000	0.00000	L 21
TR1	R1					AP											03320106	11.00000	0.00000	L 22
TR1	R1					AP											03320107	11.00000	0.00000	L 23
TR1	R1					AP											03320108	11.00000	0.00000	L 24
TR1	R1					AP											03320109	11.00000	0.00000	L 25
TR1	R1					AP											03320110	0.00000	0.24100	L 26
TR1	R1					AP											03320111	11.00000	0.00000	L 27
TR1	R1					AP											03320112	0.00000	0.00000	L 28
TR1	R1					AP											03320113	0.00000	0.00000	L 29
TR1	R1					AP											03320114	11.00000	0.00000	L 30
TR1	R1					AP											03320115	11.00000	0.00000	L 31
TR1	R1					AP											03320117	11.00000	0.00000	L 33
TR1	R1					AP											03320118	11.00000	0.00000	L 34
TR1	R1					AP											03320119	11.00000	0.00000	L 35
TR1	R1					AP											03320120	11.00000	0.00000	L 36
TR1	R1					AP											03320121	11.00000	0.00000	L 37
TR1	R1					AP											03320122	11.00000	0.00000	L 38
TR1	R1					AP											03320123	0.00000	0.00000	L 39
TR1	R1					AP											03320124	0.00000	0.00000	L 40
TR1	R1					AP											03320125	0.00000	0.00000	L 82
TR1	R1					AP											03320126	0.00000	0.00000	L 83
TR1	R1					AP											03320127	0.00000	0.00000	L 84
TR1	R1					AP											03320128	0.00000	0.00000	L 85
TR1	R1					AP											03320129	0.00000	0.00000	L 86
TR1	R1					AP											03320130	11.00000	0.06600	TR 2 RS 20-137
TR1	R1					AP											03320131	11.00000	0.00000	PORS L 8 9
TR1	R1					AP											03320132	11.00000	0.00000	POR L 9 & 10
TR1	R1					AP											03320133	11.00000	0.20000	TR 1 RS 20-137
TR1	R1					AP											03320201	11.00000	0.00000	L 50
TR1	R1					AP											03320202	11.00000	0.00000	L 51
TR1	R1					AP											03320203	11.00000	0.00000	L 52
TR1	R1					AP											03320204	11.00000	0.00000	L 53
TR1	R1					AP											03320205	11.00000	0.00000	L 54
TR1	R1					AP											03320206	11.00000	0.00000	L 55
TR1	R1					AP											03320207	11.00000	0.00000	L 56
TR1	R1					AP											03320208	11.00000	0.00000	L 57
TR1	R1					AP											03320209	11.00000	0.00000	L 58

TR1	R1					AP											03320210	11.00000	0.00000	L 59
TR1	R1					AP											03320211	11.00000	0.00000	L 60
TR1	R1					AP											03321101	11.00000	0.00000	L 10
TR1	R1					AP											03321102	11.00000	0.00000	L 11
TR1	R1					AP											03321103	11.00000	0.00000	L 12
TR1	R1					AP											03321104	11.00000	0.00000	L 14
TR1	R1					AP											03321105	11.00000	0.00000	L 15
TR1	R1					AP											03321106	11.00000	0.00000	L 16
TR1	R1					AP											03321107	11.00000	0.00000	L 17
TR1	R1					AP											03321108	11.00000	0.00000	L 18
TR1	R1					AP											03321109	11.00000	0.00000	LOT 19
TR1	R1					AP											03321201	11.00000	0.00000	L 61
TR1	R1					AP											03321202	11.00000	0.00000	L 62
TTC	TC					AP											03321203	11.00000	0.00000	L 63
TR1	R1					AP											03321205	0.00000	0.00000	L 47
TR1	R1					AP											03321206	11.00000	0.00000	L 48
TR1	R1					AP											03321207	0.00000	0.00000	L 49
TR1	R1					AP											03321208	0.00000	0.00000	POR L 46
TR1	R1					AP											03321209	11.00000	0.00000	POR LOT 46
TR1	R1					AP											03321301	0.00000	0.00000	L 41
TR1	R1					AP											03321302	0.00000	0.00000	L 42
TR1	R1					AP											03321303	0.00000	0.00000	L 43
TR1	R1					AP											03321304	0.00000	0.00000	L 44
TR1	R1					AP											03321305	11.00000	0.00000	L 45
TR1	R1					AP											03321306	0.00000	0.00000	L 76
TR1	R1					AP											03321307	0.00000	0.23000	L 77
TR1	R1					AP											03321308	0.00000	0.00000	L 78
TR1	R1					AP											03321311	11.00000	0.00000	L 81
TR1	R1					AP											03321312	0.00000	0.48000	PM 44/22/1
TR1	R1					AP											03321401	0.00000	0.00000	L 87
TR1	R1					AP											03321402	0.00000	0.00000	L 88
TR1	R1					AP											03321403	0.00000	0.00000	L 89
TR1	R1					AP											03321404	0.00000	0.00000	L 90
TR1	R1					AP											03321405	0.00000	0.00000	L 91
TR1	R1					AP											03321406	0.00000	0.00000	L 92
TR1	R1					AP											03321407	0.00000	0.00000	L 93
TR1	R1					AP											03321408	0.00000	0.00000	L 94
TR1	R1					AP											03321501	11.00000	0.00000	L 64
TR1	R1					AP											03321502	11.00000	0.00000	L 65
TR1	R1					AP											03321503	11.00000	0.00000	L 66
TR1	R1					AP											03321504	11.00000	0.00000	L 67
TR1	R1					AP											03321505	11.00000	0.00000	L 68
TR1	R1					AP											03321506	11.00000	0.00000	L 69
TR1	R1					AP											03321507	11.00000	0.00000	L 70
TR1	R1					AP											03321508	0.00000	0.00000	L 71
TR1	R1					AP											03321601	11.00000	0.00000	L 72

TR1	R1					AP											03321602	11.00000	0.00000	L 73
TR1	R1					AP											03321603	11.00000	0.00000	L 74
TR1	R1					AP											03321604	0.00000	0.00000	L 75
TR1	R1					AP											03321701	11.00000	0.00000	L 95
TR1	R1					AP											03322101	11.00000	0.00000	L 120
TR1	R1					AP											03322102	0.00000	0.00000	L 121
CT	CC					AP											03322103	11.00000	0.00000	L 122
TR1	R1					AP											03322201	11.00000	0.00000	L 146
TR1	R1					AP											03322202	0.00000	0.00000	L 147
TR1	R1					AP											03322203	11.00000	0.00000	L 148
TR1	R1					AP											03322204	0.00000	0.28400	L 149
TR1	R1					AP											03322205	0.00000	0.00000	L 150
TR1	R1					AP											03322206	0.00000	0.00000	L 151
TR1	R1					AP											03322207	0.00000	0.00000	L 152
TR1	R1					AP											03322208	0.00000	0.00000	L 156
TR1	R1					AP											03322209	11.00000	0.00000	L 157
TR1	R1					AP											03322211	11.00000	0.00000	L 159
TR2	RM					AP											03322214	0.00000	0.83000	POR L 161
TR2	RM					AP											03322216	0.00000	0.00000	POR L 161
TR2	RM					AP											03322217	11.00000	0.00000	POR L 161
TR2	RM					AP											03322218	11.00000	0.00000	POR L 160
TR2	RM					AP											03322219	11.00000	0.00000	POR L 160
TR1	R1					AP											03322220	11.00000	0.00000	POR L 158
TR1	R1					AP											03322221	11.00000	0.00000	POR L 158
TCP	CC					AP											03322304	11.00000	4.82000	TR 1 R/S 23-76
TTC	TC					AP											03322305	11.00000	0.00000	POR L 162
TCP	CC					AP											03322306	0.00000	0.00000	POR L 162
TTC	TC					AP											03322307	11.00000	0.00000	POR L 162
TTC	TC					AP											03322403	11.00000	0.00000	POR L 96
TCP	CC					AP											03322404	11.00000	0.00000	POR L 96
TTC	TC					AP											03322405	11.00000	0.00000	POR LOT 96
TTC	TC					AP											03322406	11.00000	0.00000	POR LOT 96
TR1	R1					AP											03323101	0.00000	0.00000	L 115
TR1	R1					AP											03323102	0.00000	0.00000	L 116
TR1	R1					AP											03323103	0.00000	0.00000	L 117
TR1	R1					AP											03323104	0.00000	0.00000	L 118
TR1	R1					AP											03323105	0.00000	0.00000	L 119
TR1	R1					AP											03323201	0.00000	0.00000	L 97
TR1	R1					AP											03323202	11.00000	0.00000	L 98
TR1	R1					AP											03323203	0.00000	0.00000	L 99
TR1	R1					AP											03323204	0.00000	0.00000	L 100
TR1	R1					AP											03323205	0.00000	0.00000	L 101
TR1	R1					AP											03323206	11.00000	0.00000	L 102
TR1	R1					AP											03323207	0.00000	0.00000	L 103
TR1	R1					AP											03323208	0.00000	0.00000	L 104
TR1	R1					AP											03323209	11.00000	0.00000	L 105

TR1	R1					AP											03323210	0.00000	0.23500	L 106
TR1	R1					AP											03323211	0.00000	0.00000	L 107
TR1	R1					AP											03323212	11.00000	0.00000	L 108
TR1	R1					AP											03323213	11.00000	0.00000	L 109
TR1	R1					AP											03323214	11.00000	0.00000	L 110
TR1	R1					AP											03323215	0.00000	0.00000	L 111
TR1	R1					AP											03323216	0.00000	0.00000	L 112
TR1	R1					AP											03323218	0.00000	0.00000	L 114
TR1	R1					AP											03323219	11.00000	0.00000	LOT 113
TR1	R1					AP											03323301	0.00000	0.00000	L 123
TR1	R1					AP											03323302	0.00000	0.00000	L 124
TR1	R1					AP											03323303	0.00000	0.00000	L 125
TR1	R1					AP											03323304	11.00000	0.00000	L 126
TR1	R1					AP											03323305	11.00000	0.00000	L 127
TR1	R1					AP											03323306	11.00000	0.00000	L 128
TR1	R1					AP											03323307	0.00000	0.00000	L 129
TR1	R1					AP											03323308	11.00000	0.00000	L 130
TR1	R1					AP											03323309	11.00000	0.00000	L 131
TR1	R1					AP											03323310	0.00000	0.00000	L 132
TR1	R1					AP											03323311	11.00000	0.00000	L 133
TR1	R1					AP											03323312	0.00000	0.00000	L 134
TR1	R1					AP											03323313	0.00000	0.00000	L 135
TR1	R1					AP											03323314	11.00000	0.00000	L 136
TR1	R1					AP											03323315	11.00000	0.00000	L 137
TR1	R1					AP											03323316	0.00000	0.00000	L 138
TR1	R1					AP											03323317	0.00000	0.00000	L 139
TR1	R1					AP											03323318	0.00000	0.00000	L 140
TR1	R1					AP											03323319	0.00000	0.00000	L 141
TR1	R1					AP											03323320	0.00000	0.00000	L 142
TR1	R1					AP											03323321	0.00000	0.00000	L 143
TR1	R1					AP											03323322	0.00000	0.00000	L 144
TR1	R1					AP											03323323	0.00000	0.00000	L 145
TR1	R1					AP											03323401	0.00000	0.00000	L 153
TR1	R1					AP											03323402	0.00000	0.00000	L 154
TR1	R1					AP											03323403	0.00000	0.00000	L 155
TR1	R1					AP											03324101	0.00000	0.00000	L 765
TR1	R1					AP											03324102	0.00000	0.00000	L 766
TR1	R1					AP											03324103	0.00000	0.00000	L 767
TR1	R1					AP											03324104	0.00000	0.00000	L 768
TR1	R1					AP											03324201	0.00000	0.00000	L 769
TR1	R1					AP											03324202	0.00000	0.28000	L 770
TR1	R1					AP											03324205	0.00000	0.00000	L 773
TR1	R1					AP											03324206	0.00000	0.00000	L 774
TR1	R1					AP											03324207	0.00000	0.00000	L 775
TR1	R1					AP											03324208	0.00000	0.00000	L 776
TR1	R1					AP											03324209	0.00000	0.00000	L 777

TR1	R1					AP											03324210	0.00000	0.00000	L 778
TR1	R1					AP											03324211	11.00000	0.00000	L 779
TR1	R1					AP											03324212	11.00000	0.00000	L 780
TR1	R1					AP											03324213	11.00000	0.00000	L 781
TR1	R1					AP											03324214	0.00000	0.00000	LOTS 771&772
TR1	R1					AP											03324301	0.00000	0.26100	L 782
TR1	R1					AP											03324302	0.00000	0.00000	L 783
TR1	R1					AP											03324303	0.00000	0.00000	L 784
TR1	R1					AP											03324304	0.00000	0.00000	L 785
TR1	R1					AP											03324305	0.00000	0.00000	L 786
TR1	R1					AP											03324306	0.00000	0.00000	L 787
TR1	R1					AP											03324307	0.00000	0.00000	L 788
TR1	R1					AP											03324308	0.00000	0.00000	L 789
TR1	R1					AP											03324309	0.00000	0.00000	L 790
TR1	R1					AP											03324401	0.00000	0.00000	L 705
TR1	R1					AP											03324402	11.00000	0.00000	L 706
TR1	R1					AP											03324403	0.00000	0.31100	L 707
TR1	R1					AP											03324404	11.00000	0.00000	L 708
TR1	R1					AP											03324405	0.00000	0.00000	L 709
TR1	R1					AP											03324406	0.00000	0.00000	L 730
TR1	R1					AP											03324407	11.00000	0.00000	L 731
TR1	R1					AP											03324408	11.00000	0.00000	L 732
TR1	R1					AP											03324409	11.00000	0.00000	L 733
TR1	R1					AP											03324410	0.00000	0.00000	L 734
TR1	R1					AP											03324411	0.00000	0.00000	L 735
TR1	R1					AP											03324412	0.00000	0.00000	L 736
TR1	R1					AP											03324501	11.00000	0.00000	L 737
TR1	R1					AP											03324502	0.00000	0.00000	L 738
TR1	R1					AP											03324503	0.00000	0.00000	L 739
TR1	R1					AP											03324504	11.00000	0.00000	L 740
TR1	R1					AP											03324505	0.00000	0.00000	L 741
TR1	R1					AP											03324506	11.00000	0.00000	L 752
TR1	R1					AP											03324507	11.00000	0.00000	L 753
TR1	R1					AP											03324508	0.00000	0.00000	L 754
TR1	R1					AP											03324509	0.00000	0.00000	L 755
TR1	R1					AP											03324510	0.00000	0.00000	L 756
TR1	R1					AP											03324511	0.00000	0.00000	L 751
TR1	R1					AP											03324601	11.00000	0.00000	L 757
TR1	R1					AP											03324602	0.00000	0.24400	L 758
TR1	R1					AP											03324603	0.00000	0.27600	L 759
TR1	R1					AP											03324604	0.00000	0.00000	L 760
TR1	R1					AP											03324605	0.00000	0.22700	L 761
TR1	R1					AP											03324606	0.00000	0.00000	L 762
TR1	R1					AP											03324607	0.00000	0.00000	L 764
TR1	R1					AP											03324608	0.00000	0.00000	L 763
TR1	R1					AP											03324701	11.00000	0.00000	L 693

TR1	R1					AP											03324702	11.00000	0.00000	L 694
TR1	R1					AP											03325101	0.00000	0.00000	L 665
TR1	R1					AP											03325106	0.00000	0.00000	L 670
TR1	R1					AP											03325107	11.00000	0.00000	L 671
TR1	R1					AP											03325108	11.00000	0.00000	L 672
TR1	R1					AP											03325109	11.00000	0.00000	L 673
TR1	R1					AP											03325110	11.00000	0.00000	L 674
TR1	R1					AP											03325111	11.00000	0.00000	L 675
TR1	R1					AP											03325112	0.00000	0.00000	L 676
TR1	R1					AP											03325113	11.00000	0.00000	L 677
TR1	R1					AP											03325114	11.00000	0.00000	L 678
TR1	R1					AP											03325115	0.00000	0.00000	L 679
TR1	R1					AP											03325116	11.00000	0.00000	L 680
TR1	R1					AP											03325119	11.00000	0.00000	L 695
TR1	R1					AP											03325120	11.00000	0.00000	L 696
TR1	R1					AP											03325121	11.00000	0.00000	L 697
TR1	R1					AP											03325122	11.00000	0.00000	L 698
TR1	R1					AP											03325123	11.00000	0.00000	L 699
TR1	R1					AP											03325124	11.00000	0.00000	L 700
TR1	R1					AP											03325125	11.00000	0.00000	L 701
TR1	R1					AP											03325126	11.00000	0.00000	L 702
TR1	R1					AP											03325127	11.00000	0.00000	L 703
TR1	R1					AP											03325128	11.00000	0.00000	L 704
TR1	R1					AP											03325129	0.00000	0.72000	PM 43/103/1
TR1	R1					AP											03325130	0.00000	0.47600	PM 44/126/1
TR1	R1					AP											03325201	11.00000	0.00000	L 681
TR1	R1					AP											03325202	11.00000	0.00000	L 682
TR1	R1					AP											03325203	0.00000	0.00000	L 683
TR1	R1					AP											03325206	0.00000	0.00000	L 686
TR1	R1					AP											03325208	0.00000	0.00000	L 688
TR1	R1					AP											03325209	0.00000	0.00000	L 689
TR1	R1					AP											03325211	0.00000	0.00000	L 691
TR1	R1					AP											03325212	0.00000	0.00000	L 692
TR1	R1					AP											03325213	0.00000	0.00000	LOT 687 & 690
TR1	R1					AP											03325214	0.00000	0.00000	LOT 684 & 685
TR1	R1					AP											03325301	11.00000	0.00000	L 718
TR1	R1					AP											03325302	11.00000	0.00000	L 719
TR1	R1					AP											03325303	11.00000	0.00000	L 720
TR1	R1					AP											03325304	11.00000	0.00000	L 721
TR1	R1					AP											03325305	11.00000	0.00000	L 722
TR1	R1					AP											03325401	0.00000	0.26300	L 710
TR1	R1					AP											03325402	0.00000	0.00000	L 711
TR1	R1					AP											03325403	0.00000	0.00000	L 712
TR1	R1					AP											03325404	0.00000	0.00000	L 713
TR1	R1					AP											03325405	11.00000	0.00000	L 714
TR1	R1					AP											03325406	11.00000	0.00000	L 715

TR1	R1					AP											03325407	11.00000	0.00000	L 716
TR1	R1					AP											03325408	11.00000	0.00000	L 717
TR1	R1					AP											03325409	0.00000	0.00000	L 723
TR1	R1					AP											03325410	0.00000	0.00000	L 724
TR1	R1					AP											03325411	0.00000	0.00000	L 725
TR1	R1					AP											03325412	0.00000	0.00000	L 726
TR1	R1					AP											03325413	11.00000	0.00000	L 727
TR1	R1					AP											03325414	11.00000	0.00000	L 728
TR1	R1					AP											03325415	11.00000	0.00000	L 729
TR1	R1					AP											03325501	0.00000	0.00000	L 742
TR1	R1					AP											03325502	0.00000	0.00000	L 743
TR1	R1					AP											03325503	11.00000	0.00000	L 744
TR1	R1					AP											03325504	11.00000	0.00000	L 745
TR1	R1					AP											03325505	0.00000	0.00000	L 746
TR1	R1					AP											03325507	0.00000	0.00000	L 750
TR1	R1					AP											03325601	0.00000	0.24900	L 747
TR1	R1					AP											03325602	0.00000	0.00000	L 748
TR1	R1					AP											03325603	0.00000	0.00000	L 749
TR1	R1					AP											03327201	11.00000	0.00000	L 857
TR1	R1					AP											03327202	0.00000	0.00000	L 858
TR1	R1					AP											03327203	0.00000	0.00000	L 859
TR1	R1					AP											03327204	0.00000	0.00000	L 860
TR1	R1					AP											03327205	0.00000	0.23200	L 861
TR1	R1					AP											03327206	0.00000	0.23200	L 862
TR1	R1					AP											03327207	0.00000	0.00000	L 863
TR1	R1					AP											03327208	0.00000	0.23200	L 864
TR1	R1					AP											03327209	0.00000	0.00000	L 865
TR1	R1					AP											03327210	0.00000	0.23200	L 866
TR1	R1					AP											03327211	0.00000	0.00000	L 867
TR1	R1					AP											03327212	11.00000	0.00000	L 868
TR1	R1					AP											03327213	0.00000	0.00000	L 869
TR1	R1					AP											03327214	0.00000	0.00000	L 874
TR1	R1					AP											03327215	11.00000	0.00000	L 875
TR1	R1					AP											03327216	11.00000	0.00000	L 876
TR1	R1					AP											03327217	11.00000	0.00000	L 877
TR1	R1					AP											03327218	0.00000	0.00000	L 878
TR1	R1					AP											03327219	0.00000	0.00000	L 879
TR1	R1					AP											03327220	0.00000	0.23200	L 880
TR1	R1					AP											03327221	0.00000	0.23200	L 881
TR1	R1					AP											03327222	11.00000	0.00000	L 882
TR1	R1					AP											03327223	11.00000	0.00000	L 883
TR1	R1					AP											03327224	0.00000	0.00000	L 884
TR1	R1					AP											03327225	0.00000	0.00000	L 885
TR1	R1					AP											03327301	0.00000	0.00000	L 820
TR1	R1					AP											03327302	0.00000	0.00000	L 821
TR1	R1					AP											03327303	0.00000	0.00000	L 822

TR1	R1					AP											03327304	0.00000	0.00000	L 823
TR1	R1					AP											03327305	0.00000	0.00000	L 824
TR1	R1					AP											03327306	0.00000	0.00000	L 825
TR1	R1					AP											03327307	0.00000	0.25100	L 826
TR1	R1					AP											03327308	0.00000	0.00000	L 827
TR1	R1					AP											03327309	0.00000	0.00000	L 828
TR1	R1					AP											03327310	0.00000	0.00000	L 829
TR1	R1					AP											03327311	11.00000	0.00000	L 844
TR1	R1					AP											03327312	0.00000	0.23200	L 845
TR1	R1					AP											03327313	0.00000	0.00000	L 846
TR1	R1					AP											03327314	0.00000	0.23200	L 847
TR1	R1					AP											03327315	0.00000	0.00000	L 848
TR1	R1					AP											03327316	0.00000	0.00000	L 849
TR1	R1					AP											03327317	11.00000	0.00000	L 850
TR1	R1					AP											03327318	0.00000	0.00000	L 851
TR1	R1					AP											03327319	0.00000	0.00000	L 852
TR1	R1					AP											03327320	11.00000	0.00000	L 853
TR1	R1					AP											03327321	0.00000	0.00000	L 854
TR1	R1					AP											03327322	0.00000	0.00000	L 855
TR1	R1					AP											03327323	0.00000	0.00000	L 856
TR1	R1					AP											03327401	11.00000	0.00000	L 819
TR1	R1					AP											03327501	0.00000	0.00000	RS 30/76 L 11
TR1	R1					AP											03327502	11.00000	0.00000	LOT 12 SUB L 890
TR1	R1					AP											03327503	11.00000	0.00000	LOT 13 SUB L 890
TR1	R1					AP											03327504	0.00000	0.00000	L 14 SUB L 890
TR1	R1					AP											03327505	0.00000	0.23700	L 15 SUB L 890
TR1	R1					AP											03327506	0.00000	0.00000	L 16 SUB L 890
TR1	R1					AP											03327507	11.00000	0.00000	LOT 17 SUB L 890
TR1	R1					AP											03327508	0.00000	0.00000	L 18 SUB L 890
TR1	R1					AP											03327509	11.00000	0.00000	LOT 19 SUB L 890
TR1	R1					AP											03327510	11.00000	0.00000	LOT 20 SUB L 890
TR1	R1					AP											03327511	11.00000	0.00000	LOT 21 SUB L 890
TR1	R1					AP											03327512	11.00000	0.00000	LOT 22 SUB L 890
TR1	R1					AP											03327513	11.00000	0.00000	LOT 23 SUB L 890
TR1	R1					AP											03327514	11.00000	0.00000	LOT 24 SUB L 890
TR1	R1					AP											03327515	0.00000	0.00000	L 25 SUB L 890
TR1	R1					AP											03327516	11.00000	0.00000	LOT 26 SUB L 890
TR1	R1					AP											03327517	0.00000	0.00000	L 27 SUB L 890
TR1	R1					AP											03327601	11.00000	0.00000	LOT 1 SUB L 890
TR1	R1					AP											03327602	11.00000	0.00000	LOT 2 SUB L 890
TR1	R1					AP											03327603	0.00000	0.30800	L 3 SUB L 890
TR1	R1					AP											03327604	11.00000	0.00000	LOT 4 SUB L 890
TR1	R1					AP											03327605	11.00000	0.00000	LOT 5 SUB L 890
TR1	R1					AP											03327606	0.00000	0.00000	L 6 SUB L 890
TR1	R1					AP											03327607	0.00000	0.00000	L 7 SUB L 890
TR1	R1					AP											03327608	11.00000	0.00000	LOT 8 SUB L 890

TR1	R1					AP											03327609	0.00000	0.00000	L 9 SUB L 890
TR1	R1					AP											03327610	0.00000	0.25900	L 10 SUB L 890
TR1	R1					AP											03328101	0.00000	0.00000	L 886
TR1	R1					AP											03328102	0.00000	0.00000	L 887
TR1	R1					AP											03328103	0.00000	0.00000	L 888
TR1	R1					AP											03328104	11.00000	0.00000	L 889
TR1	R1					AP											03328201	0.00000	0.00000	L 870
TR1	R1					AP											03328202	0.00000	0.00000	L 871
TR1	R1					AP											03328203	0.00000	0.00000	L 872
TR1	R1					AP											03328204	0.00000	0.00000	L 873
TR1	R1					AP											03328301	0.00000	0.23200	L 830
TR1	R1					AP											03328302	0.00000	0.00000	L 831
TR1	R1					AP											03328303	0.00000	0.23200	L 832
TR1	R1					AP											03328304	0.00000	0.00000	L 833
TR1	R1					AP											03328305	0.00000	0.00000	L 834
TR1	R1					AP											03328306	0.00000	0.23200	L 835
TR1	R1					AP											03328307	0.00000	0.00000	L 836
TR1	R1					AP											03328308	0.00000	0.00000	L 837
TR1	R1					AP											03328309	0.00000	0.23200	L 838
TR1	R1					AP											03328310	0.00000	0.23200	L 839
TR1	R1					AP											03328311	0.00000	0.23200	L 840
TR1	R1					AP											03328312	0.00000	0.23200	L 841
TR1	R1					AP											03328313	0.00000	0.00000	L 842
TR1	R1					AP											03328314	0.00000	0.00000	L 843
TR1	R1					AP											03328401	0.00000	0.25700	L 809
TR1	R1					AP											03328402	0.00000	0.00000	L 810
TR1	R1					AP											03328403	0.00000	0.00000	L 811
TR1	R1					AP											03328404	11.00000	0.00000	L 812
TR1	R1					AP											03328405	11.00000	0.00000	L 813
TR1	R1					AP											03328406	0.00000	0.00000	L 814
TR1	R1					AP											03328407	0.00000	0.00000	L 815
TR1	R1					AP											03328408	11.00000	0.00000	L 816
TR1	R1					AP											03328409	0.00000	0.00000	L 817
TR1	R1					AP											03328410	0.00000	0.00000	L 818
TR1	R1					AP											03328501	0.00000	0.00000	L 791
TR1	R1					AP											03328502	0.00000	0.00000	L 792
TR1	R1					AP											03328503	0.00000	0.00000	L 793
TR1	R1					AP											03328504	0.00000	0.00000	L 794
TR1	R1					AP											03328505	0.00000	0.00000	L 795
TR1	R1					AP											03328506	0.00000	0.00000	L 796
TR1	R1					AP											03328507	0.00000	0.00000	L 797
TR1	R1					AP											03328508	0.00000	0.00000	L 798
TR1	R1					AP											03328509	0.00000	0.00000	L 799
TR1	R1					AP											03328510	11.00000	0.00000	L 800
TR1	R1					AP											03328511	0.00000	0.00000	L 801
TR1	R1					AP											03328512	11.00000	0.00000	L 802

TR1	R1					AP											03328513	0.00000	0.00000	L 803
TR1	R1					AP											03328514	11.00000	0.00000	L 804
TR1	R1					AP											03328515	11.00000	0.00000	L 805
TR1	R1					AP											03328516	0.00000	0.00000	L 806
TR1	R1					AP											03328601	0.00000	0.00000	L 807
TR1	R1					AP											03328602	0.00000	0.00000	L 808
TR1	R1					AP											03329104	0.00000	0.00000	L 216
TR1	R1					AP											03329105	11.00000	0.00000	L 217
TR1	R1					AP											03329106	11.00000	0.00000	L 218
TR1	R1					AP											03329107	11.00000	0.00000	L 219
TR1	R1					AP											03329108	11.00000	0.00000	L 220
TR1	R1					AP											03329109	11.00000	0.00000	L 221
TR1	R1					AP											03329110	0.00000	0.00000	L 222
TR1	R1					AP											03329111	0.00000	0.00000	L 223
TR1	R1					AP											03329112	11.00000	0.00000	L 224
TR1	R1					AP											03329113	0.00000	0.00000	L 225
TR1	R1					AP											03329114	0.00000	0.00000	L 226
TR1	R1					AP											03329115	0.00000	0.00000	L 227
TR1	R1					AP											03329116	0.00000	0.23200	L 228
TR1	R1					AP											03329117	0.00000	0.00000	L 229
TR1	R1					AP											03329118	0.00000	0.00000	L 230
TR1	R1					AP											03329119	0.00000	0.00000	L 231
TR1	R1					AP											03329120	0.00000	0.00000	L 276
TR1	R1					AP											03329127	0.00000	0.00000	L 213
TR1	R1					AP											03329128	0.00000	0.00000	L 215
TR1	R1					AP											03329129	0.00000	0.00000	L 214
TR1	R1					AP											03329201	0.00000	0.00000	L 199
TR1	R1					AP											03329202	0.00000	0.00000	L 200
TR1	R1					AP											03329203	0.00000	0.00000	L 201
TR1	R1					AP											03329204	0.00000	0.00000	L 202
TR1	R1					AP											03329205	0.00000	0.00000	L 203
TR1	R1					AP											03329206	0.00000	0.00000	L 204
TR1	R1					AP											03329207	0.00000	0.00000	L 205
TR1	R1					AP											03329208	0.00000	0.00000	L 206
TR1	R1					AP											03329209	0.00000	0.00000	L 207
TR1	R1					AP											03329210	0.00000	0.00000	L 208
TR1	R1					AP											03329211	0.00000	0.00000	L 209
TR1	R1					AP											03329212	0.00000	0.00000	L 210
TR1	R1					AP											03329213	0.00000	0.00000	L 211
TR1	R1					AP											03329214	0.00000	0.00000	L 212
TR1	R1					AP											03330101	11.00000	0.00000	L 196
TR1	R1					AP											03330102	0.00000	0.00000	L 197
TR1	R1					AP											03330103	0.00000	0.00000	L 198
TR1	R1					AP											03330201	0.00000	0.00000	L 232
TR1	R1					AP											03330202	0.00000	0.00000	L 233
TR1	R1					AP											03330203	0.00000	0.00000	L 274

TR1	R1					AP											03330204	0.00000	0.00000	L 275
TR1	R1					AP											03330301	0.00000	0.00000	L 277
TR1	R1					AP											03330401	11.00000	0.00000	L 187
TR1	R1					AP											03330402	0.00000	0.00000	L 188
TR1	R1					AP											03330403	11.00000	0.00000	L 189
TR1	R1					AP											03330404	0.00000	0.00000	L 190
TR1	R1					AP											03330407	0.00000	0.00000	L 193
TR1	R1					AP											03330408	11.00000	0.00000	L 194
TR1	R1					AP											03330409	11.00000	0.00000	L 195
TR1	R1					AP											03330410	0.00000	0.00000	L 192 & L 191
TR1	R1					AP											03330501	11.00000	0.00000	L 234
TR1	R1					AP											03330502	0.00000	0.00000	L 235
TR1	R1					AP											03330503	0.00000	0.00000	L 236
TR1	R1					AP											03330504	0.00000	0.00000	L 237
TR1	R1					AP											03330505	11.00000	0.00000	L 238
TR1	R1					AP											03330506	11.00000	0.00000	L 239
TR1	R1					AP											03330507	11.00000	0.00000	L 240
TR1	R1					AP											03330508	0.00000	0.00000	L 241
TR1	R1					AP											03330509	0.00000	0.00000	L 242
TR1	R1					AP											03330510	11.00000	0.00000	L 264
TR1	R1					AP											03330511	0.00000	0.00000	L 265
TR1	R1					AP											03330512	0.00000	0.00000	L 266
TR1	R1					AP											03330513	11.00000	0.00000	L 267
TR1	R1					AP											03330514	11.00000	0.00000	L 268
TR1	R1					AP											03330515	11.00000	0.00000	L 269
TR1	R1					AP											03330516	0.00000	0.00000	L 270
TR1	R1					AP											03330517	11.00000	0.00000	L 271
TR1	R1					AP											03330518	11.00000	0.00000	L 272
TR1	R1					AP											03330519	0.00000	0.00000	L 273
TR1	R1					AP											03330601	11.00000	0.00000	L 278
TR1	R1					AP											03330602	0.00000	0.00000	L 279
TR1	R1					AP											03330603	0.00000	0.00000	L 280
TR1	R1					AP											03330604	0.00000	0.00000	L 281
TR1	R1					AP											03330605	0.00000	0.00000	L 282
TR1	R1					AP											03330606	0.00000	0.00000	L 283
TR1	R1					AP											03330607	0.00000	0.00000	L 284
TR1	R1					AP											03330608	11.00000	0.00000	L 285
TR1	R1					AP											03330609	0.00000	0.00000	L 286
TR1	R1					AP											03330610	11.00000	0.00000	L 287
TR1	R1					AP											03330611	11.00000	0.00000	L 288
TR1	R1					AP											03331101	0.00000	0.00000	L 176
TR1	R1					AP											03331102	0.00000	0.00000	L 177
TR1	R1					AP											03331103	0.00000	0.00000	L 178
TR1	R1					AP											03331104	0.00000	0.00000	L 179
TR1	R1					AP											03331105	11.00000	0.00000	L 180
TR1	R1					AP											03331106	0.00000	0.00000	L 181

TR1	R1					AP											03331107	11.00000	0.00000	L 182
TR1	R1					AP											03331108	11.00000	0.00000	L 183
TR1	R1					AP											03331109	0.00000	0.00000	L 184
TR1	R1					AP											03331110	0.00000	0.00000	L 185
TR1	R1					AP											03331111	11.00000	0.00000	L 186
TR1	R1					AP											03331201	11.00000	0.00000	L 243
TR1	R1					AP											03331202	11.00000	0.00000	L 244
TR1	R1					AP											03331203	0.00000	0.00000	L 245
TR1	R1					AP											03331204	0.00000	0.00000	L 246
TR1	R1					AP											03331205	0.00000	0.00000	L 247
TR1	R1					AP											03331206	0.00000	0.00000	L 248
TR1	R1					AP											03331207	0.00000	0.00000	L 249
TR1	R1					AP											03331208	11.00000	0.00000	L 250
TR1	R1					AP											03331209	0.00000	0.00000	L 251
TR1	R1					AP											03331210	11.00000	0.00000	L 252
TR1	R1					AP											03331211	11.00000	0.00000	L 253
TR1	R1					AP											03331212	0.00000	0.00000	L 255
TR1	R1					AP											03331213	0.00000	0.24000	L 256
TR1	R1					AP											03331214	0.00000	0.00000	L 257
TR1	R1					AP											03331215	0.00000	0.00000	L 258
TR1	R1					AP											03331216	0.00000	0.00000	L 259
TR1	R1					AP											03331217	0.00000	0.00000	L 260
TR1	R1					AP											03331218	0.00000	0.00000	L 261
TR1	R1					AP											03331219	0.00000	0.00000	L 262
TR1	R1					AP											03331220	0.00000	0.00000	L 263
TR1	R1					AP											03331301	11.00000	0.00000	L 289
TR1	R1					AP											03331302	0.00000	0.00000	L 290
TR1	R1					AP											03331303	11.00000	0.00000	L 291
TR1	R1					AP											03331304	0.00000	0.00000	L 292
TR1	R1					AP											03331305	11.00000	0.00000	L 293
TR1	R1					AP											03331306	11.00000	0.00000	L 294
TR1	R1					AP											03331307	11.00000	0.00000	L 295
TR1	R1					AP											03331308	0.00000	0.00000	L 296
TR1	R1					AP											03331309	0.00000	0.00000	L 297
TR1	R1					AP											03331310	11.00000	0.00000	L 298
TR1	R1					AP											03331311	0.00000	0.00000	L 299
TR1	R1					AP											03331401	11.00000	0.00000	L 300
TR1	R1					AP											03331402	11.00000	0.00000	L 301
TR1	R1					AP											03331403	11.00000	0.00000	L 302
TR1	R1					AP											03332101	0.00000	0.26300	L 163
TR1	R1					AP											03332102	0.00000	0.00000	L 164
TR1	R1					AP											03332201	0.00000	0.00000	L 165
TR1	R1					AP											03332301	0.00000	0.00000	L 173
TR1	R1					AP											03332302	11.00000	0.00000	L 172
TR1	R1					AP											03332303	11.00000	0.00000	L 174
TR1	R1					AP											03332304	11.00000	0.00000	L 175

TR1	R1					AP											03332401	11.00000	0.00000	L 166
TR1	R1					AP											03332402	0.00000	0.00000	L 167
TR1	R1					AP											03332403	0.00000	0.00000	L 168
TR1	R1					AP											03332404	11.00000	0.00000	L 169
TR1	R1					AP											03332405	11.00000	0.00000	L 170
TR1	R1					AP											03332407	11.00000	0.00000	POR L 171
TR1	R1					AP											03332408	0.00000	0.00000	POR L 171
TR1	R1					AP											03332501	0.00000	0.00000	L 254
TR1	R1					AP											03333101	0.00000	0.00000	L 1
TR1	R1					AP											03333205	11.00000	0.00000	L 6
TR1	R1					AP											03333206	0.00000	0.00000	L 7
TR1	R1					AP											03333207	0.00000	0.00000	L 8
TR1	R1					AP											03333208	0.00000	0.00000	L 9
TR1	R1					AP											03333209	0.00000	0.00000	L 10
TR1	R1					AP											03333210	11.00000	0.00000	L 11
TR1	R1					AP											03333211	11.00000	0.00000	L 12
TR1	R1					AP											03333212	0.00000	0.00000	L 13
TR1	R1					AP											03333213	11.00000	0.00000	L 14
TR1	R1					AP											03333214	0.00000	0.38200	L 15
TR1	R1					AP											03333215	0.00000	0.00000	L 16
TR1	R1					AP											03333216	0.00000	0.00000	L 17
TR1	R1					AP											03333217	11.00000	0.00000	L 18
TR1	R1					AP											03333218	0.00000	0.00000	L 19
TR1	R1					AP											03333219	11.00000	0.00000	LOT A
TR1	R1					AP											03333222	11.00000	0.00000	POR L 5
TR1	R1					AP											03333223	0.00000	0.00000	POR L 4 & 5
TR1	R1					AP											03333231	11.00000	0.00000	LOT 3 & POR L 4
TR1	R1					AP											03333232	0.00000	0.00000	L 2
TR1	R1					AP											03333301	0.00000	0.00000	L 20
TR1	R1					AP											03333302	0.00000	0.00000	L 21
TR1	R1					AP											03333303	0.00000	0.00000	L 22
TR1	R1					AP											03333304	0.00000	0.00000	L 23
TR1	R1					AP											03333305	0.00000	0.00000	L 24
TR1	R1					AP											03333306	11.00000	0.00000	L 25
TR1	R1					AP											03333307	11.00000	0.00000	L 26
TR1	R1					AP											03333308	0.00000	0.00000	L 27
TR1	R1					AP											03333309	11.00000	0.00000	L 28
TR1	R1					AP											03333310	11.00000	0.00000	L 29
TR1	R1					AP											03333311	0.00000	0.00000	L 30
TR1	R1					AP											03333312	0.00000	0.00000	L 31
TR1	R1					AP											03334101	0.00000	0.00000	L 21
TR1	R1					AP											03334102	11.00000	0.00000	L 22
TR1	R1					AP											03334201	0.00000	0.48800	L 23
TR1	R1					AP											03334202	11.00000	0.00000	POR L 24
TR1	R1					AP											03334203	0.00000	0.00000	L 25
TR1	R1					AP											03334204	0.00000	0.00000	L 26

TR1	R1					AP											03334205	0.00000	0.23100	L 27
TR1	R1					AP											03334206	0.00000	0.23500	L 28
TR1	R1					AP											03334207	0.00000	0.23800	L 29
TR1	R1					AP											03334208	0.00000	0.24100	L 30
TR1	R1					AP											03334209	0.00000	0.24400	L 31
TR1	R1					AP											03334210	11.00000	0.00000	L 32
TR1	R1					AP											03334211	11.00000	0.00000	L 33
TR1	R1					AP											03334212	0.00000	0.00000	L 34
TR1	R1					AP											03334213	0.00000	0.26300	L 35
TR1	R1					AP											03334214	0.00000	0.00000	L 36
TR1	R1					AP											03334215	11.00000	0.00000	L 37
TR1	R1					AP											03334216	0.00000	0.00000	L 38
TR1	R1					AP											03334217	0.00000	0.00000	POR L 24
TR1	R1					AP											03334301	0.00000	0.00000	L 39
TR1	R1					AP											03334302	0.00000	0.00000	L 40
TR1	R1					AP											03334303	0.00000	0.00000	L 41
TR1	R1					AP											03334304	11.00000	0.00000	L 42
TR1	R1					AP											03334305	11.00000	0.00000	L 43
TR1	R1					AP											03334306	0.00000	0.00000	L 44
TR1	R1					AP											03334307	11.00000	0.00000	L 45
TR1	R1					AP											03334308	11.00000	0.00000	L 46
TR1	R1					AP											03334309	0.00000	0.00000	L 47
TR1	R1					AP											03334310	11.00000	0.00000	L 48
TR1	R1					AP											03334311	11.00000	0.00000	L 49
TR1	R1					AP											03334312	0.00000	0.00000	L 50
TR1	R1					AP											03334313	0.00000	0.00000	L 69
TR1	R1					AP											03334314	0.00000	0.00000	L 70
TR1	R1					AP											03334315	0.00000	0.00000	L 71
TR1	R1					AP											03334316	11.00000	0.00000	L 72
TR1	R1					AP											03334317	11.00000	0.00000	L 73
TR1	R1					AP											03334318	0.00000	0.00000	L 74
TR1	R1					AP											03334319	11.00000	0.00000	L 75
TR1	R1					AP											03334320	0.00000	0.00000	L 76
TR1	R1					AP											03334321	0.00000	0.00000	L 77
TR1	R1					AP											03334322	0.00000	0.00000	L 78
TR1	R1					AP											03334323	11.00000	0.00000	L 79
TR1	R1					AP											03334324	0.00000	0.00000	L 80
TR1	R1					AP											03334401	11.00000	0.00000	L 51
TR1	R1					AP											03334402	0.00000	0.23800	L 52
TR1	R1					AP											03334403	0.00000	0.00000	L 67
TR1	R1					AP											03334404	0.00000	0.00000	L 68
TR1	R1					AP											03335101	0.00000	0.00000	L 3
TR1	R1					AP											03335102	0.00000	0.00000	L 4
TR1	R1					AP											03335103	0.00000	0.00000	L 5
TR1	R1					AP											03335104	0.00000	0.00000	L 6
TR1	R1					AP											03335105	0.00000	0.24100	L 7

TR1	R1					AP											03335106	11.00000	0.00000	L 8
TR1	R1					AP											03335107	0.00000	0.00000	L 9
TR1	R1					AP											03335110	0.00000	0.00000	L 12
TR1	R1					AP											03335111	0.00000	0.00000	L 13
TR1	R1					AP											03335112	0.00000	0.23100	L 14
TR1	R1					AP											03335113	0.00000	0.23100	L 15
TR1	R1					AP											03335114	0.00000	0.23100	L 16
TR1	R1					AP											03335115	0.00000	0.00000	L 17
TR1	R1					AP											03335116	0.00000	0.00000	L 18
TR1	R1					AP											03335117	0.00000	0.00000	L 19
TR1	R1					AP											03335118	0.00000	0.00000	L 20
TR1	R1					AP											03335119	0.00000	0.46300	LOTS 10 & 11
TR1	R1					AP											03335201	0.00000	0.23400	L 53
TR1	R1					AP											03335202	0.00000	0.23100	L 54
TR1	R1					AP											03335203	0.00000	0.00000	L 55
TR1	R1					AP											03335204	11.00000	0.00000	L 56
TR1	R1					AP											03335205	11.00000	0.00000	L 57
TR1	R1					AP											03335206	0.00000	0.00000	L 58
TR1	R1					AP											03335207	11.00000	0.00000	L 59
TR1	R1					AP											03335208	11.00000	0.00000	L 60
TR1	R1					AP											03335209	11.00000	0.00000	L 61
TR1	R1					AP											03335210	0.00000	0.00000	L 62
TR1	R1					AP											03335211	0.00000	0.00000	L 63
TR1	R1					AP											03335212	11.00000	0.00000	L 64
TR1	R1					AP											03335213	11.00000	0.00000	L 65
TR1	R1					AP											03335214	0.00000	0.00000	L 66
TR1	R1					AP											03335301	0.00000	0.00000	L 98
TR1	R1					AP											03335302	11.00000	0.00000	L 99
TR1	R1					AP											03335303	11.00000	0.00000	L 100
TR1	R1					AP											03335304	11.00000	0.00000	L 101
TR1	R1					AP											03335305	0.00000	0.24100	L 102
TR1	R1					AP											03335306	0.00000	0.24000	L 103
TR1	R1					AP											03335307	0.00000	0.00000	L 104
TR1	R1					AP											03335308	0.00000	0.00000	L 105
TR1	R1					AP											03335309	11.00000	0.00000	L 106
TR1	R1					AP											03335310	0.00000	0.00000	L 107
TR1	R1					AP											03335311	0.00000	0.00000	L 108
TR1	R1					AP											03335312	0.00000	0.00000	L 109
TR1	R1					AP											03335313	11.00000	0.00000	L 110
TR1	R1					AP											03335314	0.00000	0.26200	L 111
TR1	R1					AP											03335315	0.00000	0.00000	L 112
TR1	R1					AP											03335316	0.00000	0.00000	L 113
TR1	R1					AP											03335317	0.00000	0.00000	L 114
TR1	R1					AP											03335318	0.00000	0.00000	L 115
TR1	R1					AP											03335319	0.00000	0.00000	L 116
TR1	R1					AP											03335320	0.00000	0.00000	L 117

TR1	R1					AP											03335321	11.00000	0.00000	L 118
TR1	R1					AP											03335322	0.00000	0.00000	L 119
TR1	R1					AP											03335323	0.00000	0.00000	L 120
TR1	R1					AP											03335324	0.00000	0.00000	L 121
TR1	R1					AP											03335325	11.00000	0.00000	L 122
TR1	R1					AP											03335326	0.00000	0.00000	L 123
TR1	R1					AP											03335327	0.00000	0.00000	L 124
TR1	R1					AP											03335330	0.00000	0.47000	PM 37/128/A
TR1	R1					AP											03335401	11.00000	0.00000	L 191
TR1	R1					AP											03335402	0.00000	0.00000	L 192
TR1	R1					AP											03335403	0.00000	0.00000	L 193
TR1	R1					AP											03335404	11.00000	0.00000	L 194
TR1	R1					AP											03335405	0.00000	0.00000	L 195
TR1	R1					AP											03335406	11.00000	0.00000	L 196
TR1	R1					AP											03335407	11.00000	0.00000	L 197
TR1	R1					AP											03335408	11.00000	0.00000	L 198
TR1	R1					AP											03335409	0.00000	0.00000	L 199
TR1	R1					AP											03335410	11.00000	0.00000	L 200
TR1	R1					AP											03335411	0.00000	0.23500	L 201
TR1	R1					AP											03335412	0.00000	0.00000	L 202
TR1	R1					AP											03335413	0.00000	0.00000	L 203
TR1	R1					AP											03335414	11.00000	0.00000	L 204
TR1	R1					AP											03335415	0.00000	0.00000	L 205
TR1	R1					AP											03335416	11.00000	0.00000	L 206
TR1	R1					AP											03335417	11.00000	0.00000	L 207
TR1	R1					AP											03335418	11.00000	0.00000	L 208
TR1	R1					AP											03335419	0.00000	0.24100	L 209
TR1	R1					AP											03335420	0.00000	0.00000	L 210
TR1	R1					AP											03335421	0.00000	0.26200	L 211
TR1	R1					AP											03335424	0.00000	0.00000	L 212 & 213
TR1	R1					AP											03336101	11.00000	0.00000	L 96
TR1	R1					AP											03336102	11.00000	0.00000	L 97
TR1	R1					AP											03336103	11.00000	0.00000	L 127
TR1	R1					AP											03336104	11.00000	0.00000	L 128
TR1	R1					AP											03336201	11.00000	0.00000	L 81
TR1	R1					AP											03336202	0.00000	0.00000	L 82
TR1	R1					AP											03336203	0.00000	0.24900	L 83
TR1	R1					AP											03336204	0.00000	0.00000	L 84
TR1	R1					AP											03336205	0.00000	0.00000	L 85
TR1	R1					AP											03336206	0.00000	0.00000	L 86
TR1	R1					AP											03336207	11.00000	0.00000	L 87
TR1	R1					AP											03336208	0.00000	0.00000	L 88
TR1	R1					AP											03336209	11.00000	0.00000	L 89
TR1	R1					AP											03336210	11.00000	0.00000	L 90
TR1	R1					AP											03336211	11.00000	0.00000	L 91
TR1	R1					AP											03336212	0.00000	0.00000	L 92

TR1	R1					AP											03336213	0.00000	0.00000	L 93
TR1	R1					AP											03336214	11.00000	0.00000	L 94
TR1	R1					AP											03336215	11.00000	0.00000	L 95
TR1	R1					AP											03336216	0.00000	0.00000	L 129
TR1	R1					AP											03336217	11.00000	0.00000	L 130
TR1	R1					AP											03336218	0.00000	0.00000	L 131
TR1	R1					AP											03336219	0.00000	0.00000	L 132
TR1	R1					AP											03336220	11.00000	0.00000	L 133
TR1	R1					AP											03336221	0.00000	0.00000	L 134
TR1	R1					AP											03336222	11.00000	0.00000	L 135
TR1	R1					AP											03336223	11.00000	0.00000	L 136
TR1	R1					AP											03336224	11.00000	0.00000	L 137
TR1	R1					AP											03336225	11.00000	0.00000	L 138
TR1	R1					AP											03336226	11.00000	0.00000	L 139
TR1	R1					AP											03336227	11.00000	0.00000	L 140
TR1	R1					AP											03336228	0.00000	0.00000	L 141
TR1	R1					AP											03336229	0.00000	0.00000	L 142
TR1	R1					AP											03336230	0.00000	0.00000	L 143
TR1	R1					AP											03336231	11.00000	0.00000	L 144
TR1	R1					AP											03336232	11.00000	0.00000	L 145
TR1	R1					AP											03336233	11.00000	0.00000	L 146
TR1	R1					AP											03336234	0.00000	0.00000	L 147
TR1	R1					AP											03336235	0.00000	0.00000	L 148
TR1	R1					AP											03336239	11.00000	0.00000	L 152
TR1	R1					AP											03336243	11.00000	0.00000	L 156
TR1	R1					AP											03336244	11.00000	0.00000	L 157
TR1	R1					AP											03336245	0.00000	0.00000	L 158
TR1	R1					AP											03336246	0.00000	0.00000	L 159
TR1	R1					AP											03336247	0.00000	0.00000	L 160
TR1	R1					AP											03336250	0.00000	0.36000	PM 40/111/2
TR1	R1					AP											03336251	0.00000	0.38000	PM 40/111/1
TR1	R1					AP											03336252	0.00000	0.00000	L153 L154 L155
TR1	R1					AP											03336301	11.00000	0.00000	L 165
TR1	R1					AP											03336302	0.00000	0.24400	L 166
TR1	R1					AP											03336303	11.00000	0.00000	L 167
TR1	R1					AP											03336304	0.00000	0.00000	L 168
TR1	R1					AP											03336305	0.00000	0.00000	L 169
TR1	R1					AP											03336306	11.00000	0.00000	L 170
TR1	R1					AP											03336307	11.00000	0.00000	L 171
TR1	R1					AP											03336308	0.00000	0.00000	L 172
TR1	R1					AP											03336309	0.00000	0.00000	L 173
TR1	R1					AP											03336310	0.00000	0.00000	L 174
TR1	R1					AP											03336311	0.00000	0.00000	L 175
TR1	R1					AP											03336312	11.00000	0.00000	L 176
TR1	R1					AP											03336313	11.00000	0.00000	L 177
TR1	R1					AP											03336314	0.00000	0.00000	L 178

TR1	R1					AP											03336315	11.00000	0.00000	L 179
TR1	R1					AP											03336316	11.00000	0.00000	L 180
TR1	R1					AP											03336317	11.00000	0.00000	L 181
TR1	R1					AP											03336318	11.00000	0.00000	L 182
TR1	R1					AP											03336319	0.00000	0.00000	L 183
TR1	R1					AP											03336320	0.00000	0.23400	L 184
TR1	R1					AP											03336321	0.00000	0.00000	L 185
TR1	R1					AP											03336322	11.00000	0.00000	L 186
TR1	R1					AP											03336323	11.00000	0.00000	L 187
TR1	R1					AP											03336324	0.00000	0.27300	L 188
TR1	R1					AP											03336401	0.00000	0.00000	L 161
TR1	R1					AP											03336402	11.00000	0.00000	L 162
TR1	R1					AP											03336403	0.00000	0.00000	L 163
TR1	R1					AP											03336404	11.00000	0.00000	L 164
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TR1	R1					AP											03337102	11.00000	0.00000	L 399
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TR1	R1					AP											03337104	0.00000	0.00000	L 401
TR1	R1					AP											03337105	11.00000	0.00000	L 402
TR1	R1					AP											03337106	0.00000	0.00000	L 403
TR1	R1					AP											03337107	0.00000	0.00000	L 404
TR1	R1					AP											03337108	11.00000	0.00000	L 405
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TR1	R1					AP											03337118	0.00000	0.00000	L 415
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TR1	R1					AP											03337122	0.00000	0.00000	L 441
TR1	R1					AP											03337123	0.00000	0.00000	L 442
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TR1	R1					AP											03337129	0.00000	0.00000	L 448
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TR1	R1					AP											03337136	0.00000	0.00000	L 470
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TR1	R1					AP											03337207	0.00000	0.00000	L 425
TR1	R1					AP											03337208	0.00000	0.00000	L 426
TR1	R1					AP											03337209	11.00000	0.00000	L 427
TR1	R1					AP											03337210	0.00000	0.00000	L 428
TR1	R1					AP											03337211	0.00000	0.00000	L 429
TR1	R1					AP											03337212	0.00000	0.00000	L 430
TR1	R1					AP											03337213	0.00000	0.00000	L 431
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TR1	R1					AP											03337215	0.00000	0.00000	L 433
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TR1	R1					AP											03338106	0.00000	0.00000	L 498
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TR1	R1					AP											03338114	0.00000	0.00000	L 506
TR1	R1					AP											03338115	0.00000	0.00000	L 507
TR1	R1					AP											03338116	0.00000	0.00000	L 508
TR1	R1					AP											03338117	0.00000	0.23500	L 509
TR1	R1					AP											03338118	0.00000	0.00000	L 510
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TR1	R1					AP											03338203	0.00000	0.00000	L 476
TR1	R1					AP											03338204	0.00000	0.00000	L 477
TR1	R1					AP											03338205	11.00000	0.00000	L 478
TR1	R1					AP											03338206	11.00000	0.00000	L 479
TR1	R1					AP											03338207	11.00000	0.00000	L 480
TR1	R1					AP											03338208	11.00000	0.00000	L 481
TR1	R1					AP											03338209	0.00000	0.00000	L 482
TR1	R1					AP											03338210	0.00000	0.00000	L 483
TR1	R1					AP											03338211	11.00000	0.00000	L 484
TR1	R1					AP											03338212	11.00000	0.00000	L 485
TR1	R1					AP											03338213	0.00000	0.23800	L 486
TR1	R1					AP											03338214	11.00000	0.00000	L 487
TR1	R1					AP											03338215	0.00000	0.00000	L 488
TR1	R1					AP											03338216	0.00000	0.23100	L 489
TR1	R1					AP											03338217	11.00000	0.00000	L 490
TR1	R1					AP											03338218	0.00000	0.00000	L 491
TR1	R1					AP											03338219	0.00000	0.00000	L 492
TR1	R1					AP											03338220	0.00000	0.00000	L 493
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TR1	R1					AP											03338305	0.00000	0.00000	L 455
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TR1	R1					AP											03338307	0.00000	0.24100	L 457
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TR1	R1					AP											03338314	0.00000	0.00000	L 464
TR1	R1					AP											03338315	0.00000	0.24100	L 465
TR1	R1					AP											03339101	0.00000	0.00000	L 654
TR1	R1					AP											03339102	0.00000	0.00000	L 655
TR1	R1					AP											03339103	11.00000	0.00000	L 656
TR1	R1					AP											03339104	11.00000	0.00000	L 657
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TR1	R1					AP											03340102	11.00000	0.00000	L 659
TR1	R1					AP											03340103	11.00000	0.00000	L 660
TR1	R1					AP											03340104	11.00000	0.00000	L 661
TR1	R1					AP											03340105	11.00000	0.00000	L 662
TR1	R1					AP											03340106	11.00000	0.00000	L 663
TR1	R1					AP											03340107	11.00000	0.00000	L 664
TR1	R1					AP											03340108	11.00000	0.00000	L 665
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TR1	R1					AP											03340214	11.00000	0.00000	L 688
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TR1	R1					AP											03341103	0.00000	0.00000	L 712

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TR1	R1					AP											03341105	0.00000	0.00000	L 714
TR1	R1					AP											03341106	0.00000	0.00000	L 715
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TR1	R1					AP											03341202	11.00000	0.00000	L 698
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TR1	R1					AP											03341312	11.00000	0.00000	L 728
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TR1	R1					AP											03341321	0.00000	0.00000	L 737
TR1	R1					AP											03341322	0.00000	0.00000	L 738
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TR1	R1					AP											03341328	0.00000	0.25100	L 744
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TR1	R1					AP											03341402	0.00000	0.24300	L 753
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TR1	R1					AP											03341406	0.00000	0.00000	L 757
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TR1	R1					AP											03341408	0.00000	0.00000	L 759
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TR1	R1					AP											03342110	0.00000	0.00000	L 768
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TR1	R1					AP											03342201	11.00000	0.00000	L 770
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TR1	R1					AP											03342205	0.00000	0.00000	L 774
TR1	R1					AP											03342206	0.00000	0.00000	L 775
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TR1	R1					AP											03342208	0.00000	0.00000	L 777
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TR1	R1					AP											03342213	0.00000	0.00000	L 782
TR1	R1					AP											03342214	0.00000	0.00000	L 783
TR1	R1					AP											03342215	11.00000	0.00000	L 784

TR1	R1					AP											03342216	0.00000	0.00000	L 795
TR1	R1					AP											03342217	0.00000	0.00000	L 796
TR1	R1					AP											03342218	0.00000	0.24800	L 797
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TR1	R1					AP											03344122	11.00000	0.00000	L 455
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TR1	R1					AP											03344206	0.00000	0.00000	L 465
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TR1	R1					AP											03344304	0.00000	0.00000	L 500
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TR1	R1					AP											03345309	11.00000	0.00000	L 407
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TR1	R1					AP											03346107	0.00000	0.00000	POR L 15
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TR1	R1					AP											03346307	0.00000	0.00000	L 48
TR1	R1					AP											03346308	11.00000	0.00000	L 49
TR1	R1					AP											03346309	11.00000	0.00000	L 50
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TR1	R1					AP											03346506	11.00000	0.00000	L 58
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TR1	R1					AP											03346508	11.00000	0.00000	L 72
TR1	R1					AP											03346509	11.00000	0.00000	L 73
TR1	R1					AP											03346510	0.00000	0.00000	L 74
TR1	R1					AP											03346511	0.00000	0.00000	L 75
TR1	R1					AP											03346512	0.00000	0.00000	RS 30/77 L 76
TR1	R1					AP											03346513	0.00000	0.00000	L 77
TR1	R1					AP											03346514	11.00000	0.00000	L 78
TR1	R1					AP											03346515	0.00000	0.31700	L 79
TR1	R1					AP											03346516	0.00000	0.00000	L 80
TR1	R1					AP											03346517	11.00000	0.00000	L 81
TR1	R1					AP											03346601	11.00000	0.00000	L 82
TR1	R1					AP											03346602	11.00000	0.00000	L 83
TR1	R1					AP											03346603	0.00000	0.00000	L 84
TR1	R1					AP											03346604	11.00000	0.00000	L 85
TR1	R1					AP											03346605	11.00000	0.00000	L 86
TR1	R1					AP											03346606	0.00000	0.00000	L 87
TR1	R1					AP											03346607	11.00000	0.00000	L 88
TR1	R1					AP											03346608	0.00000	0.00000	L 89
TR1	R1					AP											03346609	0.00000	0.00000	L 90
TR1	R1					AP											03346610	11.00000	0.00000	L 91
TR1	R1					AP											03346611	0.00000	0.23100	L 92
TR1	R1					AP											03346612	0.00000	0.00000	L 93
TR1	R1					AP											03346613	0.00000	0.23100	L 94
TR1	R1					AP											03346614	0.00000	0.00000	L 95
TR1	R1					AP											03346615	0.00000	0.00000	L 96
TR1	R1					AP											03346616	11.00000	0.00000	L 97
TR1	R1					AP											03346617	11.00000	0.00000	L 98
TR1	R1					AP											03347101	0.00000	0.00000	L 10
TR1	R1					AP											03347102	0.00000	0.00000	L 9
TR1	R1					AP											03347103	0.00000	0.00000	L 8
TR1	R1					AP											03347104	0.00000	0.00000	L 7
TR1	R1					AP											03347105	11.00000	0.00000	L 6
TR1	R1					AP											03347106	0.00000	0.00000	L 5
TR1	R1					AP											03347107	0.00000	0.00000	L 4
TR1	R1					AP											03347108	0.00000	0.00000	L 3
TR1	R1					AP											03347109	0.00000	0.24800	L 2

TR1	R1					AP											03347110	0.00000	0.00000	L 1
TR1	R1					AP											03347111	0.00000	0.00000	RS 30/70 L 118
TR1	R1					AP											03347112	0.00000	0.00000	L 117
TR1	R1					AP											03347113	0.00000	0.00000	L 116
TR1	R1					AP											03347114	0.00000	0.00000	L 115
TR1	R1					AP											03347115	0.00000	0.00000	L 114
TR1	R1					AP											03347116	11.00000	0.00000	L 113
TR1	R1					AP											03347117	0.00000	0.00000	L 112
TR1	R1					AP											03347118	11.00000	0.00000	L 111
TR1	R1					AP											03347119	11.00000	0.00000	L 110
TR1	R1					AP											03347120	0.00000	0.00000	L 109
TR1	R1					AP											03347121	0.00000	0.00000	L 108
TR1	R1					AP											03347122	0.00000	0.00000	L 107
TR1	R1					AP											03347123	0.00000	0.00000	L 106
TR1	R1					AP											03347124	11.00000	0.00000	L 105
TR1	R1					AP											03347125	0.00000	0.00000	L 122
TR1	R1					AP											03347126	0.00000	0.00000	L 121
TR1	R1					AP											03347127	11.00000	0.00000	L 120
TR1	R1					AP											03347128	0.00000	0.00000	L 119
TR1	R1					AP											03347201	0.00000	0.26000	L 29
TR1	R1					AP											03347204	0.00000	0.00000	L 32
TR1	R1					AP											03347205	0.00000	0.00000	L 33
TR1	R1					AP											03347206	11.00000	0.00000	L 34
TR1	R1					AP											03347207	0.00000	0.24100	L 35
TR1	R1					AP											03347208	0.00000	0.00000	L 36
TR1	R1					AP											03347209	0.00000	0.00000	L 37
TR1	R1					AP											03347210	0.00000	0.00000	L 38
TR1	R1					AP											03347211	0.00000	0.00000	L 39
TR1	R1					AP											03347212	0.00000	0.00000	L 40
TR1	R1					AP											03347213	11.00000	0.00000	L 41
TR1	R1					AP											03347214	11.00000	0.00000	L 42
TR1	R1					AP											03347215	0.00000	0.00000	L 43
TR1	R1					AP											03347216	0.00000	0.00000	L 44
TR1	R1					AP											03347217	0.00000	0.00000	PM 32/30/A
TR1	R1					AP											03347301	0.00000	0.00000	L 60
TR1	R1					AP											03347302	0.00000	0.00000	L 61
TR1	R1					AP											03347303	0.00000	0.00000	L 62
TR1	R1					AP											03347304	11.00000	0.00000	L 63
TR1	R1					AP											03347305	11.00000	0.00000	L 64
TR1	R1					AP											03347306	0.00000	0.00000	L 65
TR1	R1					AP											03347307	0.00000	0.00000	L 66
TR1	R1					AP											03347308	11.00000	0.00000	L 67
TR1	R1					AP											03347309	11.00000	0.00000	L 68
TR1	R1					AP											03347310	0.00000	0.24600	L 69
TR1	R1					AP											03347311	0.00000	0.00000	L 70
TR1	R1					AP											03347312	0.00000	0.00000	L 71

TR1	R1					AP											03347401	0.00000	0.00000	L 104
TR1	R1					AP											03347402	11.00000	0.00000	L 103
TR1	R1					AP											03347403	11.00000	0.00000	L 102
TR1	R1					AP											03347404	11.00000	0.00000	L 101
TR1	R1					AP											03347405	11.00000	0.00000	L 100
TR1	R1					AP											03347406	11.00000	0.00000	L 99
TR1	R1					AP											03347407	11.00000	0.00000	L 127
TR1	R1					AP											03347408	11.00000	0.00000	L 126
TR1	R1					AP											03347409	11.00000	0.00000	L 125
TR1	R1					AP											03347410	11.00000	0.00000	L 124
TR1	R1					AP											03347411	11.00000	0.00000	L 123
TR1	R1					AP											03347501	11.00000	0.00000	L 128
TR1	R1					AP											03347502	11.00000	0.00000	L 129
TR1	R1					AP											03347503	11.00000	0.00000	L 130
TR1	R1					AP											03347504	11.00000	0.00000	L 131
TR1	R1					AP											03347505	0.00000	0.00000	L 132
TR1	R1					AP											03347506	0.00000	0.00000	L 133
TR1	R1					AP											03347507	11.00000	0.00000	L 134
TR1	R1					AP											03347508	0.00000	0.00000	L 135
TR1	R1					AP											03347601	11.00000	0.00000	L 136
TR1	R1					AP											03348101	11.00000	0.00000	L 194
TR1	R1					AP											03348103	11.00000	0.00000	L 196
TR1	R1					AP											03348104	11.00000	0.00000	L 197
TR1	R1					AP											03348105	11.00000	0.00000	L 198
TR1	R1					AP											03348106	11.00000	0.00000	L 199
TR1	R1					AP											03348107	11.00000	0.00000	L 200
TR1	R1					AP											03348108	11.00000	0.00000	L 201
TR1	R1					AP											03348109	11.00000	0.00000	L 202
TR1	R1					AP											03348110	11.00000	0.00000	L 203
TR1	R1					AP											03348111	11.00000	0.00000	L 204
TR1	R1					AP											03348112	11.00000	0.00000	L 205
TR1	R1					AP											03348113	0.00000	0.00000	L 206
TR1	R1					AP											03348116	11.00000	0.00000	L 215
TR1	R1					AP											03348119	11.00000	0.00000	L 212
TR1	R1					AP											03348120	11.00000	0.00000	L 211
TR1	R1					AP											03348121	11.00000	0.00000	L 210
TR1	R1					AP											03348122	11.00000	0.00000	L 209
TR1	R1					AP											03348123	11.00000	0.00000	L 221
TR1	R1					AP											03348124	11.00000	0.00000	L 222
TR1	R1					AP											03348125	0.00000	0.00000	L 223
TR1	R1					AP											03348126	11.00000	0.00000	POR L 208
TR1	R1					AP											03348128	11.00000	0.00000	POR L 207
TR1	R1					AP											03348129	0.00000	0.00000	POR L 207 & 208
TR1	R1					AP											03348131	11.00000	0.00000	LOT 195
TR1	R1					AP											03348132	0.00000	0.71000	PM 42/37/1
TR1	R1					AP											03348202	11.00000	0.00000	L 217

TR1	R1					AP											03348203	0.00000	0.00000	L 218
TR1	R1					AP											03348204	11.00000	0.00000	L 219
TR1	R1					AP											03348205	0.00000	0.00000	L 220
TR1	R1					AP											03348206	0.00000	0.00000	L 216
TR1	R1					AP											03348301	0.00000	0.00000	L 224
TR1	R1					AP											03348401	11.00000	0.00000	L 225
TR1	R1					AP											03348402	0.00000	0.00000	L 226
TR1	R1					AP											03348403	11.00000	0.00000	L 227
TR1	R1					AP											03348404	0.00000	0.23000	L 228
TR1	R1					AP											03348405	11.00000	0.00000	L 229
TR1	R1					AP											03348406	11.00000	0.00000	L 230
TR1	R1					AP											03348407	11.00000	0.00000	L 231
TR1	R1					AP											03348408	11.00000	0.00000	L 232
TR1	R1					AP											03348409	11.00000	0.00000	L 233
TR1	R1					AP											03348410	11.00000	0.00000	L 234
TR1	R1					AP											03348411	11.00000	0.00000	L 235
TR1	R1					AP											03348413	0.00000	0.00000	L 237
TR1	R1					AP											03348414	0.00000	0.00000	L 238
TR1	R1					AP											03348415	0.00000	0.00000	L 239
TR1	R1					AP											03348416	11.00000	0.00000	L 240
TR1	R1					AP											03348417	11.00000	0.00000	L 241
TR1	R1					AP											03348418	0.00000	0.23000	L 242
TR1	R1					AP											03348419	11.00000	0.00000	L 243
TR1	R1					AP											03348421	11.00000	0.00000	LOT 236
TR1	R1					AP											03348501	11.00000	0.00000	L 244
TR1	R1					AP											03348502	11.00000	0.00000	L 245
TR1	R1					AP											03348503	11.00000	0.00000	L 246
TR1	R1					AP											03348504	11.00000	0.00000	L 247
TR1	R1					AP											03348505	11.00000	0.00000	L 248
TR1	R1					AP											03348506	11.00000	0.00000	L 249
TR1	R1					AP											03349101	0.00000	0.00000	L 137
TR1	R1					AP											03349102	0.00000	0.00000	L 138
TR1	R1					AP											03349103	0.00000	0.00000	L 139
TR1	R1					AP											03349104	0.00000	0.23500	L 140
TR1	R1					AP											03349105	11.00000	0.00000	L 141
TR1	R1					AP											03349106	0.00000	0.00000	L 142
TR1	R1					AP											03349107	11.00000	0.00000	L 143
TR1	R1					AP											03349108	0.00000	0.00000	L 144
TR1	R1					AP											03349109	0.00000	0.00000	L 145
TR1	R1					AP											03349110	0.00000	0.00000	L 146
TR1	R1					AP											03349111	11.00000	0.00000	L 147
TR1	R1					AP											03349112	11.00000	0.00000	L 148
TR1	R1					AP											03349201	0.00000	0.00000	L 149
TR1	R1					AP											03349202	0.00000	0.00000	L 150
TR1	R1					AP											03349203	0.00000	0.00000	L 151
TR1	R1					AP											03349204	0.00000	0.23300	L 152

TR1	R1					AP											03349205	0.00000	0.00000	L 153
TR1	R1					AP											03349206	0.00000	0.00000	L 154
TR1	R1					AP											03349207	0.00000	0.00000	L 155
TR1	R1					AP											03349208	0.00000	0.00000	L 156
TR1	R1					AP											03349211	11.00000	0.00000	L 159
TR1	R1					AP											03349212	0.00000	0.00000	L 160
TR1	R1					AP											03349213	0.00000	0.00000	L 161
TR1	R1					AP											03349214	0.00000	0.00000	L 162
TR1	R1					AP											03349215	11.00000	0.00000	L 163
TR1	R1					AP											03349216	11.00000	0.00000	L 164
TR1	R1					AP											03349217	0.00000	0.00000	L 165
TR1	R1					AP											03349218	11.00000	0.00000	L 166
TR1	R1					AP											03349219	0.00000	0.00000	L 167
TR1	R1					AP											03349221	0.00000	0.00000	L 157
TR1	R1					AP											03349222	0.00000	0.00000	L 158
TR1	R1					AP											03349301	11.00000	0.00000	L 168
TR1	R1					AP											03349302	11.00000	0.00000	L 169
TR1	R1					AP											03349303	0.00000	0.23500	L 170
TR1	R1					AP											03349304	11.00000	0.00000	L 171
TR1	R1					AP											03349305	11.00000	0.00000	L 172
TR1	R1					AP											03349306	0.00000	0.00000	L 173
TR1	R1					AP											03349307	11.00000	0.00000	L 174
TR1	R1					AP											03349309	0.00000	0.00000	L 176
TR1	R1					AP											03349312	0.00000	0.00000	L 175
TR1	R1					AP											03349401	11.00000	0.00000	L 177
TR1	R1					AP											03349402	0.00000	0.00000	L 178
TR1	R1					AP											03349404	0.00000	0.00000	L 180
TR1	R1					AP											03349405	11.00000	0.00000	L 181
TR1	R1					AP											03349406	0.00000	0.00000	L 182
TR1	R1					AP											03349407	0.00000	0.00000	L 183
TR1	R1					AP											03349408	0.00000	0.00000	L 184
TR1	R1					AP											03349409	0.00000	0.00000	L 185
TR1	R1					AP											03349410	11.00000	0.00000	L 186
TR1	R1					AP											03349411	11.00000	0.00000	L 187
TR1	R1					AP											03349412	11.00000	0.00000	L 188
TR1	R1					AP											03349413	11.00000	0.00000	L 189
TR1	R1					AP											03349414	11.00000	0.00000	L 190
TR1	R1					AP											03349415	0.00000	0.00000	L 191
TR1	R1					AP											03349416	11.00000	0.00000	L 192
TR1	R1					AP											03349417	0.00000	0.00000	L 193
TR1	R1					AP											03349418	0.00000	0.00000	L 179
TR1	R1					AP											03350101	0.00000	0.00000	L 275
TR1	R1					AP											03350102	11.00000	0.00000	LOT 276
TR1	R1					AP											03350103	0.00000	0.00000	L 277
TR1	R1					AP											03350104	11.00000	0.00000	LOT 278
TR1	R1					AP											03350105	0.00000	0.00000	L 279

TR1	R1					AP											03350106	11.00000	0.00000	LOT 280
TR1	R1					AP											03350107	11.00000	0.00000	LOT 281
TR1	R1					AP											03350108	11.00000	0.00000	LOT 282
TR1	R1					AP											03350109	0.00000	0.00000	L 283
TR1	R1					AP											03350110	11.00000	0.00000	LOT 284
TR1	R1					AP											03350111	11.00000	0.00000	LOT 285
TR1	R1					AP											03350112	11.00000	0.00000	LOT 286
TR1	R1					AP											03350113	0.00000	0.00000	L 287
TR1	R1					AP											03350114	0.00000	0.00000	L 288
TR1	R1					AP											03350115	11.00000	0.00000	LOT 289
TR1	R1					AP											03350116	11.00000	0.00000	L 290
TR1	R1					AP											03350117	0.00000	0.00000	L 291
TR1	R1					AP											03350201	11.00000	0.00000	LOT 302
TR1	R1					AP											03350202	0.00000	0.00000	L 303
TR1	R1					AP											03350203	0.00000	0.00000	L 304
TR1	R1					AP											03350204	11.00000	0.00000	LOT 305
TR1	R1					AP											03350205	11.00000	0.00000	LOT 306
TR1	R1					AP											03350206	11.00000	0.00000	LOT 307
TR1	R1					AP											03350207	0.00000	0.00000	L 308
TR1	R1					AP											03350208	0.00000	0.00000	L 309
TR1	R1					AP											03350209	11.00000	0.00000	LOT 310
TR1	R1					AP											03350210	11.00000	0.00000	LOT 311
TR1	R1					AP											03350211	11.00000	0.00000	LOT 312
TR1	R1					AP											03350212	0.00000	0.00000	L 313
TR1	R1					AP											03350213	11.00000	0.00000	LOT 314
TR1	R1					AP											03350214	11.00000	0.00000	LOT 315
TR1	R1					AP											03350215	11.00000	0.00000	LOT 316
TR1	R1					AP											03350216	0.00000	0.00000	L 317
TR1	R1					AP											03350217	11.00000	0.00000	LOT 318
TR1	R1					AP											03350218	0.00000	0.00000	L 319
TR1	R1					AP											03350219	11.00000	0.00000	LOT 320
TR1	R1					AP											03350301	11.00000	0.00000	LOT 334
TR1	R1					AP											03350302	11.00000	0.00000	LOT 335
TR1	R1					AP											03350303	0.00000	0.00000	L 336
TR1	R1					AP											03350306	0.00000	0.00000	L 339
TR1	R1					AP											03350307	0.00000	0.00000	L 340
TR1	R1					AP											03350308	0.00000	0.00000	L 341
TR1	R1					AP											03350309	0.00000	0.00000	L 342
TR1	R1					AP											03350310	0.00000	0.00000	L 344
TR1	R1					AP											03350311	0.00000	0.00000	L 345
TR1	R1					AP											03350312	0.00000	0.00000	L 346
TR1	R1					AP											03350313	0.00000	0.00000	L 347
TR1	R1					AP											03350314	0.00000	0.00000	L 348
TR1	R1					AP											03350315	0.00000	0.00000	L 349
TR1	R1					AP											03350316	11.00000	0.00000	LOT 350
TR1	R1					AP											03350317	0.00000	0.00000	LOTS 337 & 338

TR1	R1					AP											03350401	11.00000	0.00000	RS 29/116 L 365
TR1	R1					AP											03350402	11.00000	0.00000	RS 29/116 L 366
TR1	R1					AP											03350403	0.00000	0.00000	L 367
TR1	R1					AP											03350404	0.00000	0.00000	L 368
TR1	R1					AP											03350405	11.00000	0.00000	LOT 369
TR1	R1					AP											03350406	0.00000	0.00000	L 370
TR1	R1					AP											03350407	11.00000	0.00000	RS 29/116 L 371
TR1	R1					AP											03351101	11.00000	0.00000	LOT 250
TR1	R1					AP											03351102	11.00000	0.00000	LOT 251
TR1	R1					AP											03351103	11.00000	0.00000	LOT 252
TR1	R1					AP											03351104	11.00000	0.00000	LOT 253
TR1	R1					AP											03351105	11.00000	0.00000	LOT 254
TR1	R1					AP											03351106	11.00000	0.00000	LOT 255
TR1	R1					AP											03351107	11.00000	0.00000	LOT 256
TR1	R1					AP											03351108	11.00000	0.00000	LOT 257
TR1	R1					AP											03351109	11.00000	0.00000	LOT 258
TR1	R1					AP											03351110	0.00000	0.00000	L 259
TR1	R1					AP											03351111	11.00000	0.00000	LOT 260
TR1	R1					AP											03351112	0.00000	0.00000	L 261
TR1	R1					AP											03351113	11.00000	0.00000	LOT 262
TR1	R1					AP											03351114	11.00000	0.00000	LOT 263
TR1	R1					AP											03351115	11.00000	0.00000	LOT 264
TR1	R1					AP											03351116	0.00000	0.00000	L 265
TR1	R1					AP											03351117	11.00000	0.00000	LOT 266
TR1	R1					AP											03351118	11.00000	0.00000	LOT 267
TR1	R1					AP											03351119	11.00000	0.00000	LOT 268
TR1	R1					AP											03351120	11.00000	0.00000	LOT 269
TR1	R1					AP											03351121	11.00000	0.00000	LOT 270
TR1	R1					AP											03351201	11.00000	0.00000	LOT 271
TR1	R1					AP											03351202	11.00000	0.00000	LOT 272
TR1	R1					AP											03351203	0.00000	0.00000	L 273
TR1	R1					AP											03351204	0.00000	0.00000	L 274
TR1	R1					AP											03351205	11.00000	0.00000	LOT 292
TR1	R1					AP											03351206	0.00000	0.00000	L 293
TR1	R1					AP											03351207	0.00000	0.00000	L 294
TR1	R1					AP											03351208	0.00000	0.00000	L 295
TR1	R1					AP											03351303	11.00000	0.00000	LOT 299
TR1	R1					AP											03351304	0.00000	0.24400	L 298
TR1	R1					AP											03351305	0.00000	0.00000	L 297
TR1	R1					AP											03351306	0.00000	0.00000	L 296
TR1	R1					AP											03351307	0.00000	0.00000	L 327
TR1	R1					AP											03351308	11.00000	0.00000	LOT 326
TR1	R1					AP											03351309	11.00000	0.00000	LOT 325
TR1	R1					AP											03351310	11.00000	0.00000	LOT 324
TR1	R1					AP											03351311	0.00000	0.00000	L 323
TR1	R1					AP											03351312	11.00000	0.00000	LOT 322

TR1	R1					AP											03351313	11.00000	0.00000	LOT 321
TR1	R1					AP											03351314	0.00000	0.53000	PM 31/38/A
TR1	R1					AP											03351401	0.00000	0.00000	L 333
TR1	R1					AP											03351402	0.00000	0.00000	L 332
TR1	R1					AP											03351403	0.00000	0.00000	L 331
TR1	R1					AP											03351404	0.00000	0.00000	L 330
TR1	R1					AP											03351405	0.00000	0.00000	L 329
TR1	R1					AP											03351406	0.00000	0.00000	L 328
TR1	R1					AP											03351407	0.00000	0.00000	L 356
TR1	R1					AP											03351408	11.00000	0.00000	LOT 355
TR1	R1					AP											03351409	11.00000	0.00000	LOT 354
TR1	R1					AP											03351410	11.00000	0.00000	LOT 353
TR1	R1					AP											03351411	11.00000	0.00000	LOT 352
TR1	R1					AP											03351412	11.00000	0.00000	LOT 351
TR1	R1					AP											03351501	11.00000	0.00000	LOT 359
TR1	R1					AP											03351502	11.00000	0.00000	LOT 360
TR1	R1					AP											03351503	0.00000	0.00000	L 361
TR1	R1					AP											03351504	11.00000	0.00000	LOT 362
TR1	R1					AP											03351505	11.00000	0.00000	LOT 363
TR1	R1					AP											03351506	11.00000	0.00000	RS 29/116 L 364
TR1	R1					AP											03351601	11.00000	0.00000	LOT 357
TR1	R1					AP											03351701	0.00000	0.00000	L 358
TR1	R1					AP											03352101	0.00000	0.00000	L 516
TR1	R1					AP											03352102	0.00000	0.00000	L 517
TR1	R1					AP											03352103	0.00000	0.25900	L 518
TR1	R1					AP											03352104	11.00000	0.00000	LOT 519
TR1	R1					AP											03352105	11.00000	0.00000	LOT 520
TR1	R1					AP											03352106	11.00000	0.00000	LOT 521
TR1	R1					AP											03352107	0.00000	0.00000	L 522
TR1	R1					AP											03352108	11.00000	0.00000	LOT 523
TR1	R1					AP											03352109	0.00000	0.00000	L 524
TR1	R1					AP											03352110	0.00000	0.00000	L 525
TR1	R1					AP											03352201	0.00000	0.00000	L 526
TR1	R1					AP											03352202	0.00000	0.00000	L 527
TR1	R1					AP											03352203	0.00000	0.00000	L 528
TR1	R1					AP											03352204	0.00000	0.00000	L 529
TR1	R1					AP											03352301	0.00000	0.00000	L 531
TR1	R1					AP											03352302	0.00000	0.00000	L 532
TR1	R1					AP											03352303	0.00000	0.00000	L 533
TR1	R1					AP											03352304	0.00000	0.00000	L 534
TR1	R1					AP											03352305	11.00000	0.00000	LOT 535
TR1	R1					AP											03352306	0.00000	0.00000	L 536
TR1	R1					AP											03352307	11.00000	0.00000	LOT 537
TR1	R1					AP											03352308	0.00000	0.00000	L 538
TR1	R1					AP											03352311	0.00000	0.00000	L 541
TR1	R1					AP											03352312	11.00000	0.00000	LOT 542

TR1	R1					AP											03352313	0.00000	0.00000	L 543
TR1	R1					AP											03352314	0.00000	0.00000	L 544
TR1	R1					AP											03352315	11.00000	0.00000	LOT 545
TR1	R1					AP											03352316	0.00000	0.00000	L 546
TR1	R1					AP											03352317	0.00000	0.00000	L 547
TR1	R1					AP											03352318	11.00000	0.00000	LOT 548
TR1	R1					AP											03352319	11.00000	0.00000	LOT 549
TR1	R1					AP											03352320	11.00000	0.00000	LOT 550
TR1	R1					AP											03352321	0.00000	0.00000	L 551
TR1	R1					AP											03352322	0.00000	0.00000	L 552
TR1	R1					AP											03352323	0.00000	0.00000	L 553
TR1	R1					AP											03352324	0.00000	0.00000	L 530
TR1	R1					AP											03352325	0.00000	0.48900	PM 45/108/1
TR1	R1					AP											03352401	0.00000	0.00000	L 554
TR1	R1					AP											03352402	11.00000	0.00000	L 555
TR1	R1					AP											03352403	11.00000	0.00000	LOT 556
TR1	R1					AP											03352404	11.00000	0.00000	LOT 557
TR1	R1					AP											03352405	11.00000	0.00000	LOT 558
TR1	R1					AP											03352406	11.00000	0.00000	LOT 559
TR1	R1					AP											03352407	11.00000	0.00000	LOT 560
TR1	R1					AP											03352408	11.00000	0.00000	LOT 561
TR1	R1					AP											03352409	11.00000	0.00000	LOT 562
TR1	R1					AP											03352410	11.00000	0.00000	LOT 563
TR1	R1					AP											03352411	11.00000	0.00000	LOT 564
TR1	R1					AP											03352412	11.00000	0.00000	LOT 565
TR1	R1					AP											03352413	11.00000	0.00000	LOT 566
TR1	R1					AP											03352414	11.00000	0.00000	LOT 567
TR1	R1					AP											03352415	11.00000	0.00000	LOT 568
TR1	R1					AP											03352416	11.00000	0.00000	LOT 569
TR1	R1					AP											03352417	11.00000	0.00000	LOT 570
TR1	R1					AP											03353101	0.00000	0.00000	L 506
TR1	R1					AP											03353102	11.00000	0.00000	LOT 507
TR1	R1					AP											03353103	11.00000	0.00000	LOT 508
TR1	R1					AP											03353104	11.00000	0.00000	LOT 509
TR1	R1					AP											03353105	11.00000	0.00000	LOT 510
TR1	R1					AP											03353106	11.00000	0.00000	LOT 511
TR1	R1					AP											03353107	11.00000	0.00000	LOT 512
TR1	R1					AP											03353108	11.00000	0.00000	LOT 513
TR1	R1					AP											03353109	11.00000	0.00000	LOT 514
TR1	R1					AP											03353110	11.00000	0.00000	LOT 515
TR1	R1					AP											03353201	11.00000	0.00000	LOT 571
TR1	R1					AP											03353202	11.00000	0.00000	LOT 572
TR1	R1					AP											03353203	11.00000	0.00000	LOT 573
TR1	R1					AP											03353204	11.00000	0.00000	LOT 574
TR1	R1					AP											03353205	11.00000	0.00000	LOT 575
TR1	R1					AP											03353206	11.00000	0.00000	LOT 576

TR1	R1					AP											03353207	11.00000	0.00000	LOT 577
TR1	R1					AP											03353208	11.00000	0.00000	LOT 578
TR1	R1					AP											03353209	11.00000	0.00000	LOT 579
TR1	R1					AP											03353210	11.00000	0.00000	LOT 580
TR1	R1					AP											03353301	11.00000	0.00000	L 581
TR1	R1					AP											03353302	0.00000	0.00000	L 582
TR1	R1					AP											03353303	11.00000	0.00000	LOT 583
TR1	R1					AP											03353304	11.00000	0.00000	LOT 584
TR1	R1					AP											03353305	11.00000	0.00000	LOT 585
TR1	R1					AP											03353306	11.00000	0.00000	LOT 586
TR1	R1					AP											03354101	0.00000	0.00000	L 652
TR1	R1					AP											03354102	0.00000	0.23700	L 653
TR1	R1					AP											03354103	0.00000	0.00000	L 654
TR1	R1					AP											03354104	11.00000	0.00000	LOT 655
TR1	R1					AP											03354105	11.00000	0.00000	LOT 656
TR1	R1					AP											03354106	0.00000	0.00000	L 657
TR1	R1					AP											03354107	11.00000	0.00000	LOT 658
TR1	R1					AP											03354108	11.00000	0.00000	LOT 659
TR1	R1					AP											03354201	11.00000	0.00000	LOT 664
TR1	R1					AP											03354202	11.00000	0.00000	LOT 663
TR1	R1					AP											03354203	0.00000	0.00000	L 662
TR1	R1					AP											03354204	11.00000	0.00000	LOT 661
TR1	R1					AP											03354205	11.00000	0.00000	LOT 660
TR1	R1					AP											03354206	0.00000	0.00000	L 646
TR1	R1					AP											03354207	0.00000	0.00000	L 647
TR1	R1					AP											03354208	11.00000	0.00000	LOT 648
TR1	R1					AP											03354209	11.00000	0.00000	LOT 649
TR1	R1					AP											03354210	11.00000	0.00000	L 650
TR1	R1					AP											03354211	11.00000	0.00000	LOT 651
TR1	R1					AP											03354212	11.00000	0.00000	LOT 645
TR1	R1					AP											03354213	0.00000	0.00000	L 644
TR1	R1					AP											03354214	11.00000	0.00000	LOT 643
TR1	R1					AP											03354215	11.00000	0.00000	LOT 642
TR1	R1					AP											03354216	11.00000	0.00000	LOT 641
TR1	R1					AP											03354217	11.00000	0.00000	LOT 640
TR1	R1					AP											03354301	11.00000	0.00000	LOT 625
TR1	R1					AP											03354302	0.00000	0.00000	L 626
TR1	R1					AP											03354303	11.00000	0.00000	LOT 627
TR1	R1					AP											03354304	0.00000	0.25700	L 628
TR1	R1					AP											03354305	11.00000	0.00000	LOT 629
TR1	R1					AP											03354306	0.00000	0.00000	L 630
TR1	R1					AP											03354307	11.00000	0.00000	L 631
TR1	R1					AP											03354308	11.00000	0.00000	LOT 632
TR1	R1					AP											03354309	0.00000	0.00000	L 633
TR1	R1					AP											03354310	0.00000	0.00000	L 634
TR1	R1					AP											03354311	11.00000	0.00000	LOT 635

TR1	R1					AP											03354312	0.00000	0.00000	L 636
TR1	R1					AP											03354313	11.00000	0.00000	LOT 637
TR1	R1					AP											03354314	11.00000	0.00000	LOT 638
TR1	R1					AP											03354315	11.00000	0.00000	LOT 639
TR1	R1					AP											03354401	0.00000	0.00000	L 614
TR1	R1					AP											03354402	0.00000	0.00000	L 615
TR1	R1					AP											03354405	11.00000	0.00000	LOT 618
TR1	R1					AP											03354406	11.00000	0.00000	LOT 619
TR1	R1					AP											03354407	0.00000	0.00000	L 620
TR1	R1					AP											03354408	0.00000	0.00000	L 621
TR1	R1					AP											03354409	0.00000	0.00000	L 622
TR1	R1					AP											03354410	0.00000	0.00000	L 623
TR1	R1					AP											03354411	0.00000	0.00000	L 624
TR1	R1					AP											03354412	0.00000	0.52000	PM 41/108/1
TR1	R1					AP											03355101	11.00000	0.00000	LOT 581
TR1	R1					AP											03355102	11.00000	0.00000	LOT 582
TR1	R1					AP											03355103	11.00000	0.00000	LOT 583
TR1	R1					AP											03355104	11.00000	0.00000	LOT 584
TR1	R1					AP											03355105	11.00000	0.00000	LOT 585
TR1	R1					AP											03355106	11.00000	0.00000	LOT 586
TR1	R1					AP											03355107	11.00000	0.00000	LOT 587
TR1	R1					AP											03355108	11.00000	0.00000	LOT 588
TR1	R1					AP											03355201	11.00000	0.00000	LOT 597
TR1	R1					AP											03355202	0.00000	0.00000	L 598
TR1	R1					AP											03355203	0.00000	0.00000	L 599
TR1	R1					AP											03355204	11.00000	0.00000	RS 29/116 L 600
TR1	R1					AP											03355205	11.00000	0.00000	RS 29/116 L 601
TR1	R1					AP											03355206	11.00000	0.00000	L 602
TR1	R1					AP											03355207	11.00000	0.00000	RS 29/116 L 603
TR1	R1					AP											03355208	11.00000	0.00000	RS 29/116 L 604
TR1	R1					AP											03355209	0.00000	0.00000	L 605
TR1	R1					AP											03355210	0.00000	0.00000	L 606
TR1	R1					AP											03355211	11.00000	0.00000	LOT 607
TR1	R1					AP											03355212	11.00000	0.00000	LOT 608
TR1	R1					AP											03355213	11.00000	0.00000	LOT 609
TR1	R1					AP											03355214	0.00000	0.00000	L 610
TR1	R1					AP											03355215	0.00000	0.00000	L 611
TR1	R1					AP											03355216	11.00000	0.00000	LOT 612
TR1	R1					AP											03355217	0.00000	0.00000	L 613
TR1	R1					AP											03355301	0.00000	0.00000	L 589
TR1	R1					AP											03355302	11.00000	0.00000	LOT 590
TR1	R1					AP											03355303	11.00000	0.00000	LOT 591
TR1	R1					AP											03355304	11.00000	0.00000	LOT 592
TR1	R1					AP											03355305	11.00000	0.00000	LOT 593
TR1	R1					AP											03355306	11.00000	0.00000	LOT 594
TR1	R1					AP											03355307	11.00000	0.00000	LOT 595

TR1	R1					AP											03355308	11.00000	0.00000	LOT 596
TR1	R1					AP											03356101	0.00000	0.00000	L 1049
TR1	R1					AP											03356102	0.00000	0.00000	L 1050
TR1	R1					AP											03356103	0.00000	0.00000	L 1051
TR1	R1					AP											03356104	0.00000	0.00000	L 1052
TR1	R1					AP											03356105	0.00000	0.00000	L 1053
TR1	R1					AP											03356106	0.00000	0.00000	L 1054
TR1	R1					AP											03356107	0.00000	0.00000	L 1060
TR1	R1					AP											03356108	0.00000	0.00000	L 1061
TR1	R1					AP											03356109	0.00000	0.00000	L 1062
TR1	R1					AP											03356110	0.00000	0.00000	L 1063
TR1	R1					AP											03356111	0.00000	0.00000	L 1064
TR1	R1					AP											03356112	0.00000	0.00000	L 1065
TR1	R1					AP											03356201	0.00000	0.00000	L 1055
TR1	R1					AP											03356202	0.00000	0.00000	L 1056
TR1	R1					AP											03356203	0.00000	0.00000	L 1057
TR1	R1					AP											03356204	0.00000	0.00000	L 1058
TR1	R1					AP											03356205	0.00000	0.00000	L 1059
TR1	R1					AP											03356301	0.00000	0.00000	L 1096
TR1	R1					AP											03356302	0.00000	0.00000	L 1097
TR1	R1					AP											03356303	0.00000	0.00000	L 1098
TR1	R1					AP											03356304	0.00000	0.00000	L 1099
TR1	R1					AP											03356305	0.00000	0.00000	L 1100
TR1	R1					AP											03356306	0.00000	0.00000	L 1101
TR1	R1					AP											03356307	0.00000	0.00000	L 1102
TR1	R1					AP											03356401	0.00000	0.00000	L 1122
TR1	R1					AP											03356402	0.00000	0.00000	L 1123
TR1	R1					AP											03356403	0.00000	0.00000	L 1124
TR1	R1					AP											03356404	11.00000	0.00000	LOT 1125
TR1	R1					AP											03356405	0.00000	0.00000	L 1126
TR1	R1					AP											03356406	0.00000	0.00000	L 1127
TR1	R1					AP											03356407	11.00000	0.29000	RS 32/31 L 1128
TR1	R1					AP											03356409	11.00000	0.00000	LOT 1130
TR1	R1					AP											03356410	11.00000	0.00000	LOT 1131
TR1	R1					AP											03356411	11.00000	0.00000	LOT 1132
TR1	R1					AP											03356412	0.00000	0.00000	L 1133
TR1	R1					AP											03356413	0.00000	0.00000	L 1134
TR1	R1					AP											03356414	0.00000	0.23200	L 1129
TR1	R1					AP											03356501	0.00000	0.26000	L 1095
TR1	R1					AP											03356502	0.00000	0.25000	RS 32/31 L 1135
TR1	R1					AP											03356503	11.00000	0.28000	RS 32/31 L 1136
TR1	R1					AP											03356504	11.00000	0.33000	RS 32/31 L 1137
TR1	R1					AP											03356505	0.00000	0.00000	RS 32/31 L 1138
TR1	R1					AP											03356506	11.00000	0.50000	RS 32/31 L 1139
TR1	R1					AP											03356507	0.00000	0.00000	RS 32/31 L 1140
TR1	R1					AP											03356508	11.00000	0.60000	RS 32/31 L 1141

TR1	R1					AP											03356509	11.00000	0.66000	RS 32/31 L 1142
TR1	R1					AP											03356510	11.00000	0.72000	RS 32/31 L 1143
TR1	R1					AP											03356511	11.00000	0.78000	RS 32/31 L 1144
TR1	R1					AP											03356513	11.00000	0.61000	RS 32/31 PL 1145
TR1	R1					AP											03356514	11.00000	0.27000	RS 32/31 PL 1145
TR1	R1					AP											03357101	11.00000	0.00000	L 1032
TR1	R1					AP											03357102	0.00000	0.23400	L 1033
TR1	R1					AP											03357103	11.00000	0.00000	L 1034
TR1	R1					AP											03357104	0.00000	0.00000	L 1035
TR1	R1					AP											03357105	0.00000	0.00000	L 1036
TR1	R1					AP											03357106	0.00000	0.23300	L 1037
TR1	R1					AP											03357107	11.00000	0.00000	L 1038
TR1	R1					AP											03357108	11.00000	0.00000	L 1039
TR1	R1					AP											03357109	11.00000	0.00000	L 1040
TR1	R1					AP											03357110	11.00000	0.00000	L 1041
TR1	R1					AP											03357201	11.00000	0.00000	L 1028
TR1	R1					AP											03357202	0.00000	0.00000	L 1029
TR1	R1					AP											03357203	11.00000	0.00000	L 1030
TR1	R1					AP											03357204	0.00000	0.00000	L 1031
TR1	R1					AP											03357205	11.00000	0.00000	L 1042
TR1	R1					AP											03357206	0.00000	0.29700	RS 30/98 L 1043
TR1	R1					AP											03357207	11.00000	0.00000	L 1044
TR1	R1					AP											03357208	0.00000	0.00000	L 1045
TR1	R1					AP											03357209	11.00000	0.00000	L 1046
TR1	R1					AP											03357210	11.00000	0.00000	L 1047
TR1	R1					AP											03357211	0.00000	0.00000	L 1048
TR1	R1					AP											03357301	0.00000	0.00000	L 1103
TR1	R1					AP											03357302	11.00000	0.00000	L 1104
TR1	R1					AP											03357303	11.00000	0.00000	L 1105
TR1	R1					AP											03357304	11.00000	0.00000	L 1106
TR1	R1					AP											03357305	11.00000	0.00000	L 1107
TR1	R1					AP											03357306	11.00000	0.00000	L 1108
TR1	R1					AP											03357401	0.00000	0.00000	L 1109
TR1	R1					AP											03357402	0.00000	0.00000	L 1110
TR1	R1					AP											03357403	0.00000	0.00000	L 1111
TR1	R1					AP											03357404	0.00000	0.00000	L 1112
TR1	R1					AP											03357501	0.00000	0.00000	L 1113
TR1	R1					AP											03357502	0.00000	0.00000	L 1114
TR1	R1					AP											03357503	0.00000	0.00000	L 1115
TR1	R1					AP											03357504	0.00000	0.00000	L 1116
TR1	R1					AP											03357505	0.00000	0.00000	L 1117
TR1	R1					AP											03357506	11.00000	0.00000	L 1118
TR1	R1					AP											03357507	11.00000	0.00000	L 1119
TR1	R1					AP											03357508	0.00000	0.23200	L 1120
TR1	R1					AP											03357509	0.00000	0.00000	L 1121
TR1	R1					AP											03358101	0.00000	0.00000	L 46

TR1	R1					AP											03358102	11.00000	0.00000	L 47
TR1	R1					AP											03358103	11.00000	0.00000	L 48
TR1	R1					AP											03358104	0.00000	0.00000	L 49
TR1	R1					AP											03358105	0.00000	0.25800	L 50
TR1	R1					AP											03358106	11.00000	0.00000	L 51
TR1	R1					AP											03358107	0.00000	0.00000	L 52
TR1	R1					AP											03358108	0.00000	0.00000	L 53
TR1	R1					AP											03358109	0.00000	0.00000	L 54
TR1	R1					AP											03358111	11.00000	0.00000	L 56
TR1	R1					AP											03358112	0.00000	0.00000	L 57
TR1	R1					AP											03358114	0.00000	0.00000	L 59
TR1	R1					AP											03358115	0.00000	0.00000	L 60
TR1	R1					AP											03358116	11.00000	0.00000	L 61
TR1	R1					AP											03358117	0.00000	0.00000	L 62
TR1	R1					AP											03358118	0.00000	0.00000	L 63
TR1	R1					AP											03358119	0.00000	0.00000	L 64
TR1	R1					AP											03358120	0.00000	0.29700	L 65
TR1	R1					AP											03358122	11.00000	0.00000	POR L 58
TR1	R1					AP											03358123	0.00000	0.00000	L 55 POR 58
TR1	R1					AP											03358125	11.00000	0.00000	LOT A OF L 66
TR1	R1					AP											03358126	0.00000	0.00000	L B OF L 66
TR1	R1					AP											03358201	0.00000	0.23000	L 10
TR1	R1					AP											03358202	0.00000	0.00000	L 11
TR1	R1					AP											03358203	0.00000	0.00000	L 12
TR1	R1					AP											03358204	11.00000	0.00000	L 13
TR1	R1					AP											03358205	11.00000	0.00000	L 14
TR1	R1					AP											03358206	0.00000	0.22700	L 15
TR1	R1					AP											03358207	0.00000	0.00000	L 16
TR1	R1					AP											03358208	0.00000	0.00000	L 17
TR1	R1					AP											03358209	0.00000	0.00000	L 18
TR1	R1					AP											03358210	0.00000	0.00000	L 19
TR1	R1					AP											03358211	0.00000	0.00000	L 20
TR1	R1					AP											03358212	0.00000	0.00000	L 21
TR1	R1					AP											03358213	0.00000	0.00000	L 22
TR1	R1					AP											03358301	0.00000	0.00000	L 67
TR1	R1					AP											03358302	0.00000	0.00000	L 68
TR1	R1					AP											03359101	11.00000	0.00000	L 23
TR1	R1					AP											03359102	11.00000	0.00000	L 24
TR1	R1					AP											03359103	11.00000	0.00000	L 25
TR1	R1					AP											03359105	11.00000	0.00000	L 27
TR1	R1					AP											03359106	11.00000	0.00000	L 28
TR1	R1					AP											03359107	11.00000	0.00000	L 29
TR1	R1					AP											03359108	0.00000	0.00000	L 30
TR1	R1					AP											03359109	11.00000	0.00000	L 31
TR1	R1					AP											03359110	11.00000	0.00000	POR L 26
TR1	R1					AP											03359111	0.00000	0.00000	POR LOT 26

TR1	R1					AP											03359202	0.00000	0.00000	L 36
TR1	R1					AP											03359203	11.00000	0.00000	POR L 35
TR1	R1					AP											03360101	0.00000	0.00000	L 37
TR1	R1					AP											03360102	0.00000	0.00000	L 38
TR1	R1					AP											03360103	0.00000	0.00000	L 39
TR1	R1					AP											03360104	11.00000	0.00000	L 40
TR1	R1					AP											03360201	11.00000	0.00000	L 32
TR1	R1					AP											03360202	0.00000	0.00000	L 33
TR1	R1					AP											03360203	11.00000	0.00000	L 34
TR1	R1					AP											03360301	11.00000	0.00000	L 42
TR1	R1					AP											03360302	11.00000	0.00000	L 43
TR1	R1					AP											03360303	11.00000	0.00000	L 44
TR1	R1					AP											03360305	0.00000	0.00000	POR L 45
TR1	R1					AP											03360306	11.00000	0.00000	POR L 45
TR1	R1					AP											03360401	0.00000	0.00000	L 7
TR1	R1					AP											03360402	0.00000	0.35900	L 8
TR1	R1					AP											03360403	11.00000	0.00000	L 9
TR1	R1					AP											03361101	11.00000	0.00000	L 41
TR1	R1					AP											03361201	11.00000	0.00000	L 4
TR1	R1					AP											03361202	11.00000	0.00000	L 5
TR1	R1					AP											03361203	0.00000	0.00000	L 6
TR1	R1					AP											03361306	0.00000	0.00000	L 2
TR1	R1					AP											03361307	0.00000	0.00000	L 3
TR1	R1					AP											03362101	11.00000	0.00000	L 32
TR1	R1					AP											03362201	11.00000	0.00000	L 33
TR1	R1					AP											03362202	11.00000	0.00000	L 34
TR1	R1					AP											03362203	11.00000	0.00000	L 35
TR1	R1					AP											03362204	11.00000	0.00000	L 36
TR1	R1					AP											03362205	0.00000	0.00000	L 37
TR1	R1					AP											03362206	11.00000	0.00000	L 38
TR1	R1					AP											03362207	11.00000	0.00000	L 39
TR1	R1					AP											03362208	0.00000	0.00000	L 40
TR1	R1					AP											03362209	11.00000	0.00000	L 41
TR1	R1					AP											03362210	0.00000	0.00000	L 42
TR1	R1					AP											03362211	0.00000	0.00000	L 43
TR1	R1					AP											03362301	0.00000	0.00000	L 44
TR1	R1					AP											03362302	11.00000	0.00000	L 45
TR1	R1					AP											03362303	11.00000	0.00000	L 46
TR1	R1					AP											03362304	11.00000	0.00000	L 47
TR1	R1					AP											03362305	0.00000	0.00000	L 48
TR1	R1					AP											03362306	0.00000	0.00000	L 49
TR1	R1					AP											03362309	11.00000	0.00000	L 52
TR1	R1					AP											03362310	0.00000	0.00000	L 53
TR1	R1					AP											03362311	11.00000	0.00000	L 54
TR1	R1					AP											03362312	0.00000	0.00000	L 55
TR1	R1					AP											03362313	0.00000	0.00000	L 56

TR1	R1					AP											03362314	0.00000	0.00000	L 57
TR1	R1					AP											03362315	0.00000	0.00000	L 58
TR1	R1					AP											03362316	0.00000	0.00000	L 59
TR1	R1					AP											03362319	11.00000	0.00000	L B
TR1	R1					AP											03362320	0.00000	0.00000	LOTS 50 & 51
TR1	R1					AP											03362321	11.00000	0.76000	PAR A P/M 29-145
TR1	R1					AP											03362401	11.00000	0.00000	L 62
TR1	R1					AP											03362402	0.00000	0.00000	L 63
TR1	R1					AP											03362403	0.00000	0.00000	L 64
TR1	R1					AP											03362404	11.00000	0.00000	L 65
TR1	R1					AP											03363101	0.00000	0.48100	L 94
TR1	R1					AP											03363102	0.00000	0.00000	L 95
TR1	R1					AP											03363103	11.00000	0.00000	L 96
TR1	R1					AP											03363104	0.00000	0.00000	L 97
TR1	R1					AP											03363105	0.00000	0.00000	L 98
TR1	R1					AP											03363106	0.00000	0.00000	L 99
TR1	R1					AP											03363107	0.00000	0.00000	L 100
TR1	R1					AP											03363108	11.00000	0.00000	L 101
TR1	R1					AP											03363109	11.00000	0.00000	L 102
TR1	R1					AP											03363110	0.00000	0.00000	L 103
TR1	R1					AP											03363111	11.00000	0.00000	L 104
TR1	R1					AP											03363112	0.00000	0.00000	L 105
TR1	R1					AP											03363113	0.00000	0.00000	L 106
TR1	R1					AP											03363114	0.00000	0.00000	L 107
TR1	R1					AP											03363115	0.00000	0.00000	L 108
TR1	R1					AP											03363116	0.00000	0.00000	L 109
TR1	R1					AP											03363117	0.00000	0.00000	L 110
TR1	R1					AP											03363118	0.00000	0.00000	L 111
TR1	R1					AP											03363119	0.00000	0.00000	L 112
TR1	R1					AP											03363120	0.00000	0.00000	L 113
TR1	R1					AP											03363123	0.00000	0.19300	L 116
TR1	R1					AP											03363124	0.00000	0.00000	L 117
TR1	R1					AP											03363125	0.00000	0.00000	L 118
TR1	R1					AP											03363127	0.00000	0.25200	PM 49/2/A
TR1	R1					AP											03363128	0.00000	0.20100	PM 49/2/B
TR1	R1					AP											03363201	11.00000	0.00000	L 120
TR1	R1					AP											03363202	0.00000	0.00000	L 119
TR1	R1					AP											03363203	0.00000	0.00000	L 121
TR1	R1					AP											03363204	0.00000	0.00000	L 122
TR1	R1					AP											03363205	0.00000	0.00000	L 123
TR1	R1					AP											03363206	0.00000	0.00000	L 124
TR1	R1					AP											03363207	0.00000	0.00000	L 125
TR1	R1					AP											03363208	0.00000	0.00000	L 126
TR1	R1					AP											03363209	0.00000	0.00000	L 127
TR1	R1					AP											03363210	0.00000	0.00000	L 128
TR1	R1					AP											03363211	0.00000	0.00000	L 129

TR1	R1					AP											03363212	0.00000	0.00000	L 130
TR1	R1					AP											03363213	11.00000	0.00000	L 131
TR1	R1					AP											03363214	0.00000	0.00000	L 132
TR1	R1					AP											03364101	0.00000	0.00000	L 86
TR1	R1					AP											03364102	11.00000	0.00000	L 87
TR1	R1					AP											03364103	0.00000	0.20300	L 88
TR1	R1					AP											03364104	0.00000	0.20800	L 89
TR1	R1					AP											03364105	0.00000	0.21400	L 90
TR1	R1					AP											03364106	0.00000	0.00000	L 91
TR1	R1					AP											03364107	0.00000	0.00000	L 92
TR1	R1					AP											03364108	0.00000	0.00000	L 93
TR1	R1					AP											03364203	0.00000	0.16500	L 49
TR1	R1					AP											03364204	0.00000	0.00000	L 50
TR1	R1					AP											03364205	0.00000	0.16500	L 51
TR1	R1					AP											03364206	0.00000	0.16500	L 52
TR1	R1					AP											03364207	0.00000	0.00000	L 53
TR1	R1					AP											03364208	0.00000	0.00000	L 54
TR1	R1					AP											03364209	0.00000	0.00000	L 55
TR1	R1					AP											03364210	0.00000	0.17000	L 56
TR1	R1					AP											03364211	0.00000	0.00000	L 57
TR1	R1					AP											03364212	0.00000	0.00000	POR L 47
TR1	R1					AP											03364213	0.00000	0.00000	POR L 48
TR1	R1					AP											03364301	0.00000	0.00000	L 17
TR1	R1					AP											03364302	0.00000	0.00000	L 18
TR1	R1					AP											03364303	11.00000	0.00000	L 19
TR1	R1					AP											03364304	0.00000	0.00000	L 20
TR1	R1					AP											03364305	0.00000	0.00000	L 21
TR1	R1					AP											03364306	11.00000	0.00000	L 22
TR1	R1					AP											03364307	0.00000	0.00000	L 23
TR1	R1					AP											03364308	11.00000	0.00000	L 24
TR1	R1					AP											03364309	11.00000	0.00000	L 25
TR1	R1					AP											03364310	0.00000	0.00000	L 26
TR1	R1					AP											03364311	0.00000	0.00000	L 27
TR1	R1					AP											03364312	11.00000	0.00000	L 31
TR1	R1					AP											03364313	0.00000	0.16500	L 32
TR1	R1					AP											03364314	0.00000	0.00000	L 33
TR1	R1					AP											03364315	0.00000	0.00000	L 34
TR1	R1					AP											03364316	0.00000	0.00000	L 35
TR1	R1					AP											03364317	0.00000	0.00000	L 36
TR1	R1					AP											03364318	0.00000	0.00000	L 37
TR1	R1					AP											03364319	11.00000	0.00000	L 38
TR1	R1					AP											03364320	11.00000	0.00000	L 39
TR1	R1					AP											03364321	0.00000	0.00000	L 40
TR1	R1					AP											03364322	0.00000	0.00000	L 41
TR1	R1					AP											03364323	0.00000	0.16500	L 42
TR1	R1					AP											03364324	0.00000	0.16500	L 43

TR1	R1					AP											03364325	0.00000	0.00000	L 44
TR1	R1					AP											03364326	0.00000	0.00000	L 45
TR1	R1					AP											03364327	0.00000	0.00000	L 46
TR1	R1					AP											03364401	0.00000	0.00000	L 5
TR1	R1					AP											03364402	0.00000	0.91100	L 6
TR1	R1					AP											03364403	0.00000	0.00000	L 7
TR1	R1					AP											03364404	0.00000	1.30000	L 8
TR1	R1					AP											03364405	0.00000	0.00000	L 9
TR1	R1					AP											03364406	0.00000	0.00000	L 10
TR1	R1					AP											03364407	0.00000	0.00000	L 11
TR1	R1					AP											03364408	0.00000	0.00000	L 12
TR1	R1					AP											03364409	0.00000	0.00000	L 13
TR1	R1					AP											03364410	11.00000	0.46000	POR LOT 14
TR1	R1					AP											03364411	11.00000	0.15000	POR LOT 15
TR1	R1					AP											03364412	11.00000	0.00000	L 16
TR1	R1					AP											03365101	0.00000	0.00000	L 67
TR1	R1					AP											03365102	11.00000	0.00000	L 68
TR1	R1					AP											03365103	11.00000	0.00000	L 69
TR1	R1					AP											03365104	11.00000	0.00000	L 70
TR1	R1					AP											03365105	0.00000	0.00000	L 71
TR1	R1					AP											03365106	0.00000	0.00000	L 72
TR1	R1					AP											03365107	0.00000	0.00000	L 73
TR1	R1					AP											03365108	0.00000	0.18300	L 74
TR1	R1					AP											03365109	0.00000	0.00000	L 75
TR1	R1					AP											03365110	0.00000	0.00000	L 76
TR1	R1					AP											03365111	0.00000	0.19800	L 77
TR1	R1					AP											03365112	0.00000	0.00000	L 78
TR1	R1					AP											03365113	0.00000	0.00000	L 79
TR1	R1					AP											03365114	0.00000	0.00000	L 80
TR1	R1					AP											03365115	0.00000	0.00000	L 81
TR1	R1					AP											03365116	0.00000	0.18200	L 82
TR1	R1					AP											03365117	0.00000	0.00000	L 83
TR1	R1					AP											03365118	0.00000	0.00000	L 84
TR1	R1					AP											03365119	0.00000	0.18700	L 85
TR1	R1					AP											03365201	0.00000	0.00000	L 1
TR1	R1					AP											03365202	0.00000	1.19000	L 2
TR1	R1					AP											03365203	0.00000	0.00000	L 3
TR1	R1					AP											03365204	0.00000	0.00000	L 4
TR1	R1					AP											03365301	0.00000	0.00000	L 58
TR1	R1					AP											03365302	0.00000	0.16500	L 59
TR1	R1					AP											03365303	0.00000	0.00000	L 60
TR1	R1					AP											03365304	0.00000	0.16500	L 61
TR1	R1					AP											03365305	0.00000	0.00000	L 62
TR1	R1					AP											03365306	0.00000	0.00000	L 63
TR1	R1					AP											03365307	0.00000	0.00000	L 64
TR1	R1					AP											03365308	0.00000	0.00000	L 65

TR1	R1					AP											03365309	0.00000	0.00000	L 66
TR1	R1					AP											03365401	0.00000	0.21500	L 28
TR1	R1					AP											03365402	0.00000	0.00000	L 29
TR1	R1					AP											03365403	0.00000	0.00000	L 30
TR1	R1					AP											03366101	0.00000	0.00000	L 161
TR1	R1					AP											03366102	0.00000	0.27500	L 162
TR1	R1					AP											03366107	11.00000	0.00000	L 167
TR1	R1					AP											03366108	0.00000	0.00000	L 168
TR1	R1					AP											03366109	11.00000	0.00000	L 169
TR1	R1					AP											03366110	11.00000	0.00000	L 170
TR1	R1					AP											03366111	11.00000	0.00000	L 171
TR1	R1					AP											03366112	0.00000	0.00000	L 172
TR1	R1					AP											03366113	0.00000	0.00000	L 173
TR1	R1					AP											03366114	0.00000	0.16500	L 174
TR1	R1					AP											03366115	0.00000	0.00000	L 175
TR1	R1					AP											03366116	0.00000	0.00000	L 176
TR1	R1					AP											03366117	0.00000	0.00000	L 177
TR1	R1					AP											03366118	0.00000	0.00000	L 178
TR1	R1					AP											03366121	0.00000	0.17200	L 166
TR1	R1					AP											03366122	0.00000	0.36000	PM 43/131/1
TR1	R1					AP											03366123	0.00000	0.39000	PM 43/131/2
TR1	R1					AP											03366201	11.00000	0.00000	L 133
TR1	R1					AP											03366202	11.00000	0.00000	L 134
TR1	R1					AP											03366203	0.00000	0.00000	L 135
TR1	R1					AP											03366204	0.00000	0.00000	L 136
TR1	R1					AP											03366205	0.00000	0.20900	L 137
TR1	R1					AP											03366206	11.00000	0.00000	L 138
TR1	R1					AP											03366207	0.00000	0.00000	L 139
TR1	R1					AP											03366208	11.00000	0.00000	L 140
TR1	R1					AP											03366209	11.00000	0.00000	L 141
TR1	R1					AP											03366210	11.00000	0.00000	L 142
TR1	R1					AP											03366211	11.00000	0.00000	L 143
TR1	R1					AP											03366212	0.00000	0.00000	L 144
TR1	R1					AP											03366213	0.00000	0.00000	L 145
TR1	R1					AP											03366214	11.00000	0.00000	L 146
TR1	R1					AP											03366215	0.00000	0.00000	L 147
TR1	R1					AP											03366216	11.00000	0.00000	L 148
TR1	R1					AP											03366217	0.00000	0.70600	L 149
TR1	R1					AP											03366218	11.00000	0.00000	L 150
TR1	R1					AP											03366219	0.00000	0.00000	L 151
TR1	R1					AP											03366220	0.00000	0.00000	L 152
TR1	R1					AP											03366221	11.00000	0.00000	L 153
TR1	R1					AP											03366222	0.00000	0.52300	L 154
TR1	R1					AP											03366223	11.00000	0.00000	L 155
TR1	R1					AP											03366224	11.00000	0.00000	L 156
TR1	R1					AP											03367201	0.00000	0.00000	L 193

TR1	R1					AP											03367202	0.00000	0.00000	L 194
TR1	R1					AP											03367203	0.00000	0.00000	L 195
TR1	R1					AP											03367204	11.00000	0.00000	L 196
TR1	R1					AP											03367205	11.00000	0.00000	L 197
TR1	R1					AP											03367206	0.00000	0.00000	L 198
TR1	R1					AP											03367207	0.00000	0.00000	L 199
TR1	R1					AP											03367208	0.00000	0.00000	L 200
TR1	R1					AP											03367209	0.00000	0.00000	L 201
TR1	R1					AP											03367210	11.00000	0.00000	L 202
TR1	R1					AP											03367301	0.00000	0.00000	L 203
TR1	R1					AP											03367302	0.00000	0.00000	L 204
TR1	R1					AP											03367303	0.00000	0.00000	L 205
TR1	R1					AP											03367304	0.00000	0.15800	L 206
TR1	R1					AP											03367305	0.00000	0.00000	L 207
TR1	R1					AP											03367306	0.00000	0.00000	L 208
TR1	R1					AP											03367307	0.00000	0.00000	L 209
TR1	R1					AP											03367308	0.00000	0.00000	L 210
TR1	R1					AP											03367309	0.00000	0.00000	L 211
TR1	R1					AP											03367310	0.00000	0.17900	L 212
TR1	R1					AP											03367313	0.00000	0.00000	L 213
TR1	R1					AP											03367401	0.00000	0.00000	L 159
TR1	R1					AP											03367402	0.00000	0.00000	L 160
TR1	R1					AP											03367403	0.00000	0.00000	L 179
TR1	R1					AP											03367404	0.00000	0.00000	L 180
TR1	R1					AP											03367405	0.00000	0.20700	L 181
TR1	R1					AP											03367406	0.00000	0.00000	L 182
TR1	R1					AP											03367407	11.00000	0.00000	L 183
TRT	RF-L					AP											03367601	0.00000	0.00000	L 228
CT	CC					AP											03367701	11.00000	0.00000	L 225
CT	CC					AP											03367702	11.00000	0.00000	L 226
TR1	R1					AP											03367703	0.00000	0.00000	L 227
TR1	R1					AP											03367801	0.00000	0.00000	L 157
TR1	R1					AP											03367802	11.00000	0.00000	L 158
TR1	R1					AP											03367803	11.00000	0.00000	L 184
TR1	R1					AP											03367804	11.00000	0.00000	L 185
TR1	R1					AP											03367805	0.00000	0.00000	L 186
TR1	R1					AP											03367806	0.00000	0.00000	L 187
TR1	R1					AP											03367807	0.00000	0.00000	L 188
TR1	R1					AP											03367808	11.00000	0.00000	L 189
TR1	R1					AP											03367809	11.00000	0.00000	L 190
TR1	R1					AP											03367810	0.00000	0.16500	L 191
TR1	R1					AP											03367811	0.00000	0.00000	L 192
TR1	R1					AP											03367814	0.00000	0.00000	L 221
TR1	R1					AP											03367815	0.00000	0.00000	L 222
TR1	R1					AP											03367816	0.00000	0.00000	L 223
CT	CC					AP											03367817	0.00000	0.34600	L 224

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TR1	R1					AP											03368107	11.00000	0.00000	L 264
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TR1	R1					AP											03368202	0.00000	0.00000	L 357
TR1	R1					AP											03368203	0.00000	0.00000	L 358
TR1	R1					AP											03368206	11.00000	0.00000	L 361
TR1	R1					AP											03368207	0.00000	0.00000	L 362
TR1	R1					AP											03368208	0.00000	0.00000	L 363
TR1	R1					AP											03368209	11.00000	0.00000	L 364
TR1	R1					AP											03368210	11.00000	0.00000	L 365
TR1	R1					AP											03368211	11.00000	0.00000	L 366
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TR1	R1					AP											03368224	11.00000	0.00000	L 268
TR1	R1					AP											03368225	11.00000	0.00000	L 267
TR1	R1					AP											03368226	11.00000	0.00000	L 266
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TR1	R1					AP											03368301	0.00000	0.00000	L 388
TR1	R1					AP											03368302	0.00000	0.00000	L 389
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TR1	R1					AP											03368402	0.00000	0.00000	L 375
TR1	R1					AP											03368403	0.00000	0.00000	L 376
TR1	R1					AP											03368404	0.00000	0.00000	L 377
TR1	R1					AP											03368405	0.00000	0.00000	L 378
TR1	R1					AP											03368406	0.00000	0.00000	L 379
TR1	R1					AP											03368407	0.00000	0.00000	L 380
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TR1	R1					AP											03369110	0.00000	0.00000	L 254
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TR1	R1					AP											03369113	11.00000	0.00000	L 257
TR1	R1					AP											03369114	11.00000	0.00000	L 258
TR1	R1					AP											03369115	11.00000	0.00000	L 259
TR1	R1					AP											03369116	11.00000	0.00000	L 260
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TR1	R1					AP											03369202	11.00000	0.00000	L 277
TR1	R1					AP											03369203	0.00000	0.00000	L 278
TR1	R1					AP											03369204	0.00000	0.17900	L 279
TR1	R1					AP											03369205	0.00000	0.00000	L 280
TR1	R1					AP											03369206	11.00000	0.00000	L 281
TR1	R1					AP											03369207	11.00000	0.00000	L 285
TR1	R1					AP											03369208	0.00000	0.00000	L 286
TR1	R1					AP											03369209	11.00000	0.00000	L 287
TR1	R1					AP											03369210	11.00000	0.00000	L 288
TR1	R1					AP											03369211	11.00000	0.00000	L 289
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TR1	R1					AP											03369403	0.00000	0.00000	L 392
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TR1	R1					AP											03369405	11.00000	0.00000	L 394
TR1	R1					AP											03369406	11.00000	0.00000	L 395
TR1	R1					AP											03369407	0.00000	0.00000	L 396
TR1	R1					AP											03370102	11.00000	0.00000	L 249
TR1	R1					AP											03370103	0.00000	0.00000	L 250
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TR1	R1					AP											03370203	0.00000	0.00000	L 302
TR1	R1					AP											03370204	0.00000	0.00000	L 303
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TR1	R1					AP											03370206	11.00000	0.00000	L 305
TR1	R1					AP											03370207	11.00000	0.00000	L 306

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TR1	R1					AP											03370302	0.00000	0.00000	L 327
TR1	R1					AP											03370303	0.00000	0.00000	L 328
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TR1	R1					AP											03370307	11.00000	0.00000	L 298
TR1	R1					AP											03370308	11.00000	0.00000	L 297
TR1	R1					AP											03370309	11.00000	0.00000	L 296
TR1	R1					AP											03370310	0.00000	0.28900	L 351
TR1	R1					AP											03370311	11.00000	0.00000	L 350
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TR1	R1					AP											03370313	0.00000	0.52000	L 348
TR1	R1					AP											03370314	0.00000	0.00000	L 347
TR1	R1					AP											03370315	0.00000	0.00000	L 346
TR1	R1					AP											03370316	0.00000	0.00000	L 345
TR1	R1					AP											03370317	0.00000	0.34000	L 344
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TR1	R1					AP											03370402	0.00000	0.26400	L 283
TR1	R1					AP											03370403	0.00000	0.00000	L 284
TR1	R1					AP											03370501	0.00000	0.00000	L 397
TR1	R1					AP											03370502	0.00000	0.00000	L 398
TR1	R1					AP											03370503	11.00000	0.00000	L 399
TR1	R1					AP											03370504	0.00000	0.00000	L 400
TR1	R1					AP											03370505	0.00000	0.00000	L 401
TR1	R1					AP											03370506	0.00000	0.00000	L 402
TR1	R1					AP											03370507	0.00000	0.00000	L 403
TR1	R1					AP											03370508	0.00000	0.00000	L 404
TR1	R1					AP											03370509	11.00000	0.00000	L 405
TR1	R1					AP											03370510	11.00000	0.00000	L 406
TR1	R1					AP											03370511	0.00000	0.00000	L 407
TR1	R1					AP											03370512	0.00000	0.16500	L 408
TR1	R1					AP											03371101	11.00000	0.00000	L 308
TR1	R1					AP											03371102	11.00000	0.00000	L 309
TR1	R1					AP											03371103	0.00000	0.00000	L 310
TR1	R1					AP											03371104	0.00000	0.00000	L 311
TR1	R1					AP											03371105	0.00000	0.00000	L 312
TR1	R1					AP											03371106	0.00000	0.30300	L 313
TR1	R1					AP											03371107	0.00000	0.00000	L 314
TR1	R1					AP											03371108	11.00000	0.00000	L 315
TR1	R1					AP											03371109	0.00000	0.00000	L 316
TR1	R1					AP											03371201	11.00000	0.00000	L 317
TR1	R1					AP											03371202	0.00000	0.00000	L 318
TR1	R1					AP											03371203	0.00000	0.00000	L 319
TR1	R1					AP											03371204	11.00000	0.00000	L 320

TR1	R1					AP											03371205	11.00000	0.00000	L 321
TR1	R1					AP											03371206	11.00000	0.00000	L 322
TR1	R1					AP											03371207	11.00000	0.00000	L 323
TR1	R1					AP											03371208	11.00000	0.00000	L 324
TR1	R1					AP											03371209	11.00000	0.00000	L 325
TR1	R1					AP											03371210	0.00000	0.00000	L 343
TR1	R1					AP											03371211	0.00000	0.00000	L 342
TR1	R1					AP											03371212	0.00000	0.22000	L 341
TR1	R1					AP											03371213	0.00000	0.00000	L 340
TR1	R1					AP											03371217	0.00000	0.00000	L 336
TR1	R1					AP											03371218	0.00000	0.00000	L 335
TR1	R1					AP											03371219	0.00000	0.28800	L 334
TR1	R1					AP											03371220	0.00000	0.00000	L 333
TR1	R1					AP											03371221	0.00000	0.00000	L 332
TR1	R1					AP											03371222	11.00000	0.00000	L 331
TR1	R1					AP											03371225	0.00000	0.41000	RS 24/11/2
TR1	R1					AP											03371226	0.00000	0.25000	RS 24/11/1
TR1	R1					AP											03371301	0.00000	0.00000	L 423
TR1	R1					AP											03371302	0.00000	0.00000	L 424
TR1	R1					AP											03371303	0.00000	0.22100	L 425
TR1	R1					AP											03371304	0.00000	0.00000	L 426
TR1	R1					AP											03371305	0.00000	0.00000	L 427
TR1	R1					AP											03371306	0.00000	0.00000	L 428
TR1	R1					AP											03371307	0.00000	0.00000	L 429
TR1	R1					AP											03371308	0.00000	0.00000	L 430
TR1	R1					AP											03371401	0.00000	0.00000	L 418
TR1	R1					AP											03371402	0.00000	0.00000	L 419
TR1	R1					AP											03371403	0.00000	0.16500	L 420
TR1	R1					AP											03371404	0.00000	0.18200	L 421
TR1	R1					AP											03371405	0.00000	0.00000	L 422
TR1	R1					AP											03371501	0.00000	0.00000	L 409
TR1	R1					AP											03371502	0.00000	0.00000	L 410
TR1	R1					AP											03371503	0.00000	0.00000	L 411
TR1	R1					AP											03371504	0.00000	0.00000	L 412
TR1	R1					AP											03371505	0.00000	0.00000	L 413
TR1	R1					AP											03371506	0.00000	0.00000	L 414
TR1	R1					AP											03371509	0.00000	0.20900	L 417
TR1	R1					AP											03371510	0.00000	0.35800	PM 44/50/1
TR1	R1					AP											03372003	11.00000	4.85000	SEC 18 12 18
TR1	R1					AP											03372004	11.00000	4.87000	SEC 18 12 18
TR1	R1					AP											03372007	0.00000	1.00400	SEC 18 12 18
TR1	R1					AP											03372008	11.00000	1.00000	SEC 18 12 18
TR1	R1					AP											03372010	11.00000	1.00400	SEC 18 12 18
TR1	R1					AP											03372011	11.00000	1.43000	SEC 18 12 18
TR1	R1					AP											03372012	11.00000	0.50000	SEC 18 12 18
TR1	R1					AP											03372018	11.00000	1.00000	SEC 18 12 18

TR1	R1					AP											03372019	0.00000	1.00400	SEC 18 12 18
TR1	R1					AP											03372020	11.00000	0.90000	SEC 18 12 18
TR1	R1					AP											03372021	11.00000	1.00000	SEC 18 12 18
TR1	R1					AP											03372022	0.00000	1.01000	RS 32/73/1
TR1	R1					AP											03372023	11.00000	2.00000	SEC 18 12 18
TR1	R1					AP											03372026	11.00000	4.91000	SEC 18 12 18
TR1	FR-160					AP											03372027	11.00000	0.00000	POR SEC 18 12 18
TR1	R1					AP											03372028	11.00000	1.90000	RS 32/71/1
TR1	R1					AP											03372029	0.00000	1.00400	SEC 18 12 18
TR1	R1					AP											03372032	11.00000	1.79000	SEC 18 12 18
TR1	R1					AP											03372033	11.00000	1.00000	SEC 18 12 18
TR1	R1					AP											03372034	11.00000	1.00000	PAR A P/M 4-111
TR1	R1					AP											03372035	11.00000	1.00000	PAR B P/M 4-111
TR1	R1					AP											03373101	11.00000	0.00000	L 1
TR1	R1					AP											03373201	0.00000	0.27100	L 2
TR1	R1					AP											03373202	11.00000	0.00000	L 3
TR1	R1					AP											03373203	0.00000	0.00000	L 4
TR1	R1					AP											03373204	11.00000	0.00000	L 5
TR1	R1					AP											03373205	0.00000	0.00000	L 6
TR1	R1					AP											03373206	0.00000	0.00000	L 7
TR1	R1					AP											03373301	0.00000	0.21600	L 17
TR1	R1					AP											03373302	0.00000	0.00000	L 18
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TR1	R1					AP											03373305	0.00000	0.00000	L 21
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TR1	R1					AP											03373403	11.00000	0.00000	L 10
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TR1	R1					AP											03373405	11.00000	0.00000	L 8
TR1	R1					AP											03373406	0.00000	0.00000	L 16
TR1	R1					AP											03373407	11.00000	0.00000	L 15
TR1	R1					AP											03373408	11.00000	0.00000	L 14
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TR1	R1					AP											03373501	11.00000	0.00000	L 24
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TR1	R1					AP											03373503	11.00000	0.00000	L 26
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TR1	R1					AP											03373505	11.00000	0.00000	L 28
TR1	R1					AP											03373506	0.00000	0.00000	L 29
TR1	R1					AP											03373507	0.00000	0.00000	L 30
TR1	R1					AP											03373508	0.00000	0.00000	L 50
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TR1	R1					AP											03373510	11.00000	0.00000	L 52

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TR1	R1					AP											03373602	11.00000	0.00000	L 56
TR1	R1					AP											03373603	11.00000	0.00000	L 57
TR1	R1					AP											03373604	0.00000	0.00000	L 58
TR1	R1					AP											03373605	11.00000	0.00000	L 75
TR1	R1					AP											03373606	11.00000	0.00000	L 76
TR1	R1					AP											03373607	11.00000	0.00000	L 77
TR1	R1					AP											03373608	11.00000	0.00000	L 78
TR1	R1					AP											03373609	0.00000	0.00000	L 79
TR1	R1					AP											03373610	0.00000	0.00000	L 80
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TR1	R1					AP											03373613	0.00000	0.00000	L 83
TR1	R1					AP											03373701	11.00000	0.00000	L 84
TR1	R1					AP											03373702	11.00000	0.00000	L 85
TR1	R1					AP											03373703	11.00000	0.00000	L 86
TR1	R1					AP											03373704	11.00000	0.00000	L 87
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TR1	R1					AP											03374101	11.00000	0.00000	L 120
TR1	R1					AP											03374102	11.00000	0.00000	L 119
TR1	R1					AP											03374103	11.00000	0.00000	L 118
TR1	R1					AP											03374104	11.00000	0.00000	L 117
TR1	R1					AP											03374105	11.00000	0.00000	L 116
TR1	R1					AP											03374106	11.00000	0.00000	L 115
TR1	R1					AP											03374107	11.00000	0.00000	L 114
TR1	R1					AP											03374108	11.00000	0.00000	L 113
TR1	R1					AP											03374109	11.00000	0.00000	L 112
TR1	R1					AP											03374110	11.00000	0.00000	L 111
TR1	R1					AP											03374111	11.00000	0.00000	L 110
TR1	R1					AP											03374201	11.00000	0.00000	L 121
TR1	R1					AP											03374202	11.00000	0.00000	L 122
TR1	R1					AP											03374203	11.00000	0.00000	L 123
TR1	R1					AP											03374204	11.00000	0.00000	L 124
TR1	R1					AP											03374205	11.00000	0.00000	L 125
TR1	R1					AP											03374206	11.00000	0.00000	L 126
TR1	R1					AP											03374207	11.00000	0.00000	L 127
TR1	R1					AP											03374208	11.00000	0.00000	L 128
TR1	R1					AP											03374209	11.00000	0.00000	L 129
TR1	R1					AP											03374210	11.00000	0.00000	L 130
TR1	R1					AP											03374211	11.00000	0.00000	L 131
TR1	R1					AP											03374212	11.00000	0.00000	L 132
TR1	R1					AP											03374213	11.00000	0.00000	L 133
TR1	R1					AP											03374214	11.00000	0.00000	L 134
TR1	R1					AP											03374215	11.00000	0.00000	L 135

TR1	R1					AP											03374216	11.00000	0.00000	L 136
TR1	R1					AP											03374217	11.00000	0.00000	L 137
TR1	R1					AP											03374218	11.00000	0.00000	L 138
TR1	R1					AP											03374219	11.00000	0.00000	L 139
TR1	R1					AP											03374220	11.00000	0.00000	L 140
TR1	R1					AP											03374301	11.00000	0.00000	L 108
TR1	R1					AP											03374302	11.00000	0.00000	L 109
TR1	R1					AP											03374401	0.00000	0.00000	L 107
TR1	R1					AP											03374402	0.00000	0.00000	L 106
TR1	R1					AP											03374403	0.00000	0.00000	L 105
TR1	R1					AP											03374404	11.00000	0.00000	L 104
TR1	R1					AP											03375101	0.00000	0.00000	L 31
TR1	R1					AP											03375102	11.00000	0.00000	L 32
TR1	R1					AP											03375103	0.00000	0.00000	L 33
TR1	R1					AP											03375104	11.00000	0.00000	L 34
TR1	R1					AP											03375105	0.00000	0.00000	L 35
TR1	R1					AP											03375106	0.00000	0.00000	L 36
TR1	R1					AP											03375107	0.00000	0.00000	L 37
TR1	R1					AP											03375108	0.00000	0.00000	L 38
TR1	R1					AP											03375109	0.00000	0.00000	L 39
TR1	R1					AP											03375110	0.00000	0.00000	L 40
TR1	R1					AP											03375111	11.00000	0.00000	L 41
TR1	R1					AP											03375112	11.00000	0.00000	L 42
TR1	R1					AP											03375113	11.00000	0.00000	L 43
TR1	R1					AP											03375114	0.00000	0.00000	L 44
TR1	R1					AP											03375115	0.00000	0.00000	L 45
TR1	R1					AP											03375116	11.00000	0.00000	L 46
TR1	R1					AP											03375117	0.00000	0.25100	L 47
TR1	R1					AP											03375118	11.00000	0.00000	L 48
TR1	R1					AP											03375119	11.00000	0.00000	L 49
TR1	R1					AP											03375201	11.00000	0.00000	L 59
TR1	R1					AP											03375202	11.00000	0.00000	L 60
TR1	R1					AP											03375203	0.00000	0.00000	L 61
TR1	R1					AP											03375204	0.00000	0.00000	L 62
TR1	R1					AP											03375205	11.00000	0.00000	L 63
TR1	R1					AP											03375206	0.00000	0.00000	L 64
TR1	R1					AP											03375207	11.00000	0.00000	L 65
TR1	R1					AP											03375208	0.00000	0.00000	L 66
TR1	R1					AP											03375209	11.00000	0.00000	L 67
TR1	R1					AP											03375210	0.00000	0.00000	L 68
TR1	R1					AP											03375211	0.00000	0.00000	L 69
TR1	R1					AP											03375212	0.00000	0.22800	L 70
TR1	R1					AP											03375213	11.00000	0.00000	L 71
TR1	R1					AP											03375214	0.00000	0.00000	L 72
TR1	R1					AP											03375215	0.00000	0.23000	L 73
TR1	R1					AP											03375216	11.00000	0.00000	L 74

TR1	R1					AP											03375301	11.00000	0.00000	L 103
TR1	R1					AP											03375302	11.00000	0.00000	L 102
TR1	R1					AP											03375303	0.00000	0.00000	L 101
TR1	R1					AP											03375401	11.00000	0.00000	L 100
TR1	R1					AP											03375402	11.00000	0.00000	L 99
TR1	R1					AP											03375403	11.00000	0.00000	L 98
TR1	R1					AP											03375404	0.00000	0.00000	L 97
TR1	R1					AP											03375405	11.00000	0.00000	L 96
TR1	R1					AP											03375406	11.00000	0.00000	L 95
TR1	R1					AP											03375407	11.00000	0.00000	L 94
TR1	R1					AP											03375408	11.00000	0.00000	L 93
TR1	R1					AP											03375409	11.00000	0.00000	L 92
TR1	R1					AP											03375410	11.00000	0.00000	L 91
TR1	R1					AP											03375411	11.00000	0.00000	L 90
TR1	R1					AP											03377101	11.00000	0.00000	L 50
TRT	RF-L					AP											03377102	11.00000	0.00000	L 51
TRT	RF-L					AP											03377103	11.00000	0.00000	L 52
TRT	RF-L					AP											03377104	11.00000	0.00000	L 53
TRT	RF-L					AP											03377105	11.00000	0.00000	L 54
TRT	RF-L					AP											03377106	11.00000	0.00000	L 55
TRT	RF-L					AP											03377107	11.00000	0.00000	L 56
TRT	RF-L					AP											03377108	11.00000	0.00000	L 57
TRT	RF-L					AP											03377109	11.00000	0.00000	L 58
TR1	R1					AP											03378101	0.00000	0.00000	L 1
TR1	R1					AP											03378102	0.00000	0.00000	L 2
TR1	R1					AP											03378103	0.00000	0.00000	L 3
TR1	R1					AP											03378104	0.00000	0.00000	L 4
TR1	R1					AP											03378105	0.00000	0.00000	L 5
TR1	R1					AP											03378106	0.00000	0.00000	L 6
TR1	R1					AP											03378107	0.00000	0.00000	L 7
TR1	R1					AP											03378108	0.00000	0.00000	L 8
TR1	R1					AP											03378109	11.00000	0.00000	L 9
TR1	R1					AP											03378110	0.00000	0.00000	L 10
TR1	R1					AP											03378111	0.00000	0.00000	L 11
TR1	R1					AP											03378112	11.00000	0.00000	L 12
TR1	R1					AP											03378113	11.00000	0.00000	L 13
TR1	R1					AP											03378114	0.00000	0.21600	L 14
TR1	R1					AP											03378115	0.00000	0.00000	L 15
TR1	R1					AP											03378116	0.00000	0.00000	L 16
TR1	R1					AP											03378201	0.00000	0.00000	L 17
TR1	R1					AP											03378202	0.00000	0.00000	L 18
TR1	R1					AP											03378205	0.00000	0.00000	LOT 19 & LOT 20
TR1	R1					AP											03378301	0.00000	0.00000	L 21
TR1	R1					AP											03378302	0.00000	0.00000	L 22
TR1	R1					AP											03378303	11.00000	0.00000	L 23
TR1	R1					AP											03378304	0.00000	0.00000	L 24

TR1	R1					AP											03378305	0.00000	0.00000	L 25
TR1	R1					AP											03378306	0.00000	0.00000	L 26
TR1	R1					AP											03378307	11.00000	0.00000	L 27
TR1	R1					AP											03378308	11.00000	0.00000	L 28
TR1	R1					AP											03378309	11.00000	0.00000	L 29
TR1	R1					AP											03378310	0.00000	0.00000	L 30
TR1	R1					AP											03378311	11.00000	0.00000	L 31
TR1	R1					AP											03378312	0.00000	0.12000	L 32
TR1	R1					AP											03378313	0.00000	0.00000	L 33
TR1	R1					AP											03378314	11.00000	0.00000	L 34
TR1	R1					AP											03378315	0.00000	0.15100	L 35
TR1	R1					AP											03378316	0.00000	0.00000	L 36
TR1	R1					AP											03378317	11.00000	0.00000	L 37
TR1	R1					AP											03378318	0.00000	0.00000	L 38
TR1	R1					AP											03378401	0.00000	0.00000	L 39
TR1	R1					AP											03378402	0.00000	0.00000	L 40
TR1	R1					AP											03378403	0.00000	0.00000	L 41
TR1	R1					AP											03378404	11.00000	0.00000	L 42
TR1	R1					AP											03378405	0.00000	0.00000	L 43
TR1	R1					AP											03378501	11.00000	0.00000	L 44
TR1	R1					AP											03378504	0.00000	0.00000	L 47
TR1	R1					AP											03378505	11.00000	0.00000	L 48
TR1	R1					AP											03378506	0.00000	0.00000	L 49
TR1	R1					AP											03378507	0.00000	0.00000	LOT 45 & 46
TR1	R1					AP											03379101	0.00000	0.00000	L 94
TR1	R1					AP											03379102	11.00000	0.00000	L 95
TR1	R1					AP											03379103	11.00000	0.00000	L 96
TR1	R1					AP											03379104	11.00000	0.00000	L 97
TR1	R1					AP											03379105	11.00000	0.00000	L 98
TR1	R1					AP											03379106	11.00000	0.00000	L 99
TR1	R1					AP											03379201	11.00000	0.00000	L 59
TR1	R1					AP											03379202	0.00000	0.00000	L 60
TR1	R1					AP											03379203	0.00000	0.00000	L 61
TR1	R1					AP											03379204	0.00000	0.00000	L 62
TR1	R1					AP											03379205	0.00000	0.00000	L 63
TR1	R1					AP											03379206	0.00000	0.00000	L 64
TR1	R1					AP											03379207	11.00000	0.00000	L 65
TR1	R1					AP											03379208	11.00000	0.00000	L 66
TR1	R1					AP											03379209	0.00000	0.00000	L 67
TR1	R1					AP											03379210	0.00000	0.00000	L 68
TR1	R1					AP											03379211	11.00000	0.00000	L 69
TR1	R1					AP											03379212	11.00000	0.00000	L 70
TR1	R1					AP											03379213	0.00000	0.00000	L 71
TR1	R1					AP											03379214	0.00000	0.00000	L 72
TR1	R1					AP											03379215	0.00000	0.00000	L 73
TR1	R1					AP											03379216	0.00000	0.00000	L 74

TR1	R1					AP											03379217	0.00000	0.00000	L 75
TR1	R1					AP											03379218	0.00000	0.00000	L 76
TR1	R1					AP											03379219	0.00000	0.00000	L 77
TR1	R1					AP											03379220	0.00000	0.00000	L 78
TR1	R1					AP											03379221	0.00000	0.00000	L 79
TR1	R1					AP											03379222	0.00000	0.00000	L 80
TR1	R1					AP											03379223	0.00000	0.00000	L 81
TR1	R1					AP											03379224	0.00000	0.00000	L 82
TR1	R1					AP											03379225	0.00000	0.00000	L 83
TR1	R1					AP											03379226	0.00000	0.00000	L 84
TR1	R1					AP											03379227	0.00000	0.24400	L 85
TR1	R1					AP											03379228	0.00000	0.00000	L 86
TR1	R1					AP											03379229	0.00000	0.00000	L 87
TR1	R1					AP											03379230	11.00000	0.00000	L 88
TR1	R1					AP											03379231	0.00000	0.27700	L 89
TR1	R1					AP											03379232	0.00000	0.29300	L 90
TR1	R1					AP											03379233	0.00000	0.00000	L 91
TR1	R1					AP											03379234	0.00000	0.00000	L 92
TR1	R1					AP											03379235	0.00000	0.00000	L 93
TR1	R1					AP											03380101	0.00000	0.00000	L 100
TR1	R1					AP											03380102	11.00000	0.00000	L 101
TR1	R1					AP											03380103	0.00000	0.00000	L 102
TR1	R1					AP											03380104	0.00000	0.00000	L 103
TR1	R1					AP											03380105	11.00000	0.00000	L 104
TR1	R1					AP											03380106	0.00000	0.00000	L 105
TR1	R1					AP											03380107	0.00000	0.00000	L 106
TR1	R1					AP											03380108	0.00000	0.00000	L 107
TR1	R1					AP											03380109	0.00000	0.00000	L 108
TR1	R1					AP											03380110	0.00000	0.00000	L 109
TR1	R1					AP											03380111	0.00000	0.00000	L 110
TR1	R1					AP											03380112	0.00000	0.00000	L 111
TR1	R1					AP											03380113	0.00000	0.00000	L 112
TR1	R1					AP											03380114	0.00000	0.23400	L 113
TR1	R1					AP											03380115	0.00000	0.23400	L 114
TR1	R1					AP											03380116	0.00000	0.00000	L 115
TR1	R1					AP											03380117	0.00000	0.00000	L 116
TR1	R1					AP											03380118	0.00000	0.00000	L 117
TR1	R1					AP											03381101	0.00000	0.00000	L 118
TR1	R1					AP											03381102	0.00000	0.00000	L 119
TR1	R1					AP											03381103	0.00000	0.00000	L 120
TR1	R1					AP											03381104	0.00000	0.00000	L 121
TR1	R1					AP											03381105	0.00000	0.00000	L 122
TR1	R1					AP											03381106	0.00000	0.00000	L 123
TR1	R1					AP											03381107	11.00000	0.00000	L 124
TR1	R1					AP											03381108	0.00000	0.00000	L 125
TR1	R1					AP											03381109	0.00000	0.23600	L 126

TR1	R1					AP											03381113	11.00000	0.32000	PAR 1 P/M 44-132
TR1	R1					AP											03381114	0.00000	0.29000	PM 44/132/2
TR1	R1					AP											03381201	0.00000	0.00000	L 129
TR1	R1					AP											03381202	0.00000	0.00000	L 130
TR1	R1					AP											03381203	0.00000	0.00000	L 131
TR1	R1					AP											03381204	0.00000	0.00000	L 132
TR1	R1					AP											03381205	0.00000	0.00000	L 133
TR1	R1					AP											03381206	0.00000	0.00000	L 134
TR1	R1					AP											03381301	11.00000	0.00000	L 135
TR1	R1					AP											03381302	11.00000	0.00000	L 136
TR1	R1					AP											03381303	0.00000	0.00000	L 137
TR1	R1					AP											03381304	0.00000	0.00000	L 138
TR1	R1					AP											03381305	0.00000	0.00000	L 139
TR1	R1					AP											03381306	0.00000	0.00000	L 140
TR1	R1					AP											03381307	11.00000	0.00000	L 141
TR1	R1					AP											03381401	11.00000	0.00000	L 142
TR1	R1					AP											03381402	11.00000	0.00000	L 143
TR1	R1					AP											03381403	11.00000	0.00000	L 144
TR1	R1					AP											03381404	11.00000	0.00000	L 145
TR1	R1					AP											03381405	11.00000	0.00000	L 146
TR1	R1					AP											03381406	11.00000	0.00000	L 147
TR1	R1					AP											03381407	11.00000	0.00000	L 148
TR1	R1					AP											03381408	11.00000	0.00000	L 149
TR1	R1					AP											03381409	0.00000	0.00000	L 150
TR1	R1					AP											03381410	0.00000	0.00000	L 151
TR1	R1					AP											03381411	11.00000	0.00000	L 152
TR1	R1					AP											03381412	11.00000	0.00000	L 153
TR1	R1					AP											03382101	0.00000	0.00000	L 249
TR1	R1					AP											03382102	0.00000	0.23100	L 250
TR1	R1					AP											03382103	11.00000	0.00000	L 251
TR1	R1					AP											03382104	0.00000	0.23500	L 252
TR1	R1					AP											03382105	0.00000	0.00000	L 253
TR1	R1					AP											03382106	11.00000	0.00000	L 254
TR1	R1					AP											03382107	0.00000	0.00000	L 255
TR1	R1					AP											03382108	0.00000	0.00000	L 256
TR1	R1					AP											03382109	0.00000	0.28700	L 257
TR1	R1					AP											03382110	0.00000	0.25800	L 258
TR1	R1					AP											03382111	0.00000	0.00000	L 259
TR1	R1					AP											03382112	11.00000	0.00000	L 260
TR1	R1					AP											03382113	11.00000	0.00000	L 261
TR1	R1					AP											03382115	0.00000	0.00000	L 262
TR1	R1					AP											03382201	11.00000	0.00000	L 263
TR1	R1					AP											03382202	11.00000	0.00000	L 264
TR1	R1					AP											03382203	11.00000	0.00000	L 265
TR1	R1					AP											03382204	0.00000	0.00000	L 266
TR1	R1					AP											03382205	0.00000	0.00000	L 267

TR1	R1					AP											03382206	11.00000	0.00000	L 268
TR1	R1					AP											03382207	0.00000	0.00000	L 269
TR1	R1					AP											03382208	0.00000	0.00000	L 270
TR1	R1					AP											03382209	11.00000	0.00000	L 271
TR1	R1					AP											03382210	11.00000	0.00000	L 272
TR1	R1					AP											03382211	0.00000	0.00000	L 273
TR1	R1					AP											03382212	0.00000	0.36800	L 274
TR1	R1					AP											03382213	11.00000	0.00000	L 275
TR1	R1					AP											03382214	11.00000	0.00000	L 276
TR1	R1					AP											03382301	0.00000	0.00000	L 277
TR1	R1					AP											03382302	0.00000	0.00000	L 278
TR1	R1					AP											03382303	11.00000	0.00000	L 279
TR1	R1					AP											03382401	0.00000	0.27100	L 214
TR1	R1					AP											03382402	11.00000	0.00000	L 215
TR1	R1					AP											03382501	0.00000	0.00000	L 216
TR1	R1					AP											03382502	0.00000	0.00000	L 217
TR1	R1					AP											03382503	11.00000	0.00000	L 218
TR1	R1					AP											03382504	0.00000	0.00000	L 219
TR1	R1					AP											03382601	0.00000	0.24400	L 220
TR1	R1					AP											03382602	0.00000	0.00000	L 221
TR1	R1					AP											03382603	0.00000	0.00000	L 222
TR1	R1					AP											03382604	0.00000	0.00000	L 223
TR1	R1					AP											03382701	11.00000	0.00000	L 224
TR1	R1					AP											03382702	0.00000	0.00000	L 225
TR1	R1					AP											03382703	0.00000	0.00000	L 227
TR1	R1					AP											03382704	0.00000	0.24400	L 226
TR1	R1					AP											03383101	0.00000	0.28900	L 285
TR1	R1					AP											03383102	11.00000	0.00000	L 286
TR1	R1					AP											03383103	0.00000	0.35300	L 291
TR1	R1					AP											03383104	0.00000	0.00000	L 292
TR1	R1					AP											03383105	11.00000	0.00000	L 297
TR1	R1					AP											03383106	0.00000	0.00000	L 298
TR1	R1					AP											03383107	11.00000	0.00000	L 299
TR1	R1					AP											03383201	11.00000	0.00000	L 234
TR1	R1					AP											03383202	11.00000	0.00000	L 235
TR1	R1					AP											03383203	0.00000	0.00000	L 236
TR1	R1					AP											03383204	11.00000	0.00000	L 284
TR1	R1					AP											03383205	0.00000	0.00000	L 283
TR1	R1					AP											03383206	11.00000	0.00000	L 282
TR1	R1					AP											03383301	11.00000	0.00000	L 237
TR1	R1					AP											03383302	11.00000	0.00000	L 238
TR1	R1					AP											03383303	0.00000	0.00000	L 239
TR1	R1					AP											03383304	0.00000	0.00000	L 240
TR1	R1					AP											03383305	0.00000	0.00000	L 241
TR1	R1					AP											03383306	0.00000	0.00000	L 242
TR1	R1					AP											03383307	0.00000	0.24700	L 243

TR1	R1					AP											03383308	0.00000	0.00000	L 244
TR1	R1					AP											03383309	11.00000	0.00000	L 245
TR1	R1					AP											03383310	0.00000	0.00000	L 246
TR1	R1					AP											03383311	0.00000	0.00000	L 247
TR1	R1					AP											03383312	11.00000	0.00000	L 248
TR1	R1					AP											03383401	0.00000	0.24400	L 228
TR1	R1					AP											03383402	11.00000	0.00000	L 229
TR1	R1					AP											03383403	0.00000	0.00000	L 230
TR1	R1					AP											03383404	0.00000	0.00000	L 231
TR1	R1					AP											03383501	0.00000	0.00000	L 233
TR1	R1					AP											03383502	0.00000	0.00000	L 232
TR1	R1					AP											03383503	0.00000	0.00000	L 280
TR1	R1					AP											03383504	0.00000	0.00000	L 281
TR1	R1					AP											03383601	0.00000	0.00000	L 287
TR1	R1					AP											03383602	0.00000	0.00000	L 288
TR1	R1					AP											03383603	0.00000	0.24100	L 289
TR1	R1					AP											03383604	11.00000	0.00000	L 290
TR1	R1					AP											03383701	0.00000	0.00000	L 293
TR1	R1					AP											03383702	0.00000	0.25700	L 294
TR1	R1					AP											03383703	11.00000	0.00000	L 295
TR1	R1					AP											03383704	0.00000	0.34100	L 296
TR1	R1					AP											03384101	11.00000	0.00000	L 511
TR1	R1					AP											03384102	0.00000	0.00000	L 512
TR1	R1					AP											03384103	11.00000	0.00000	L 513
TR1	R1					AP											03384104	11.00000	0.00000	L 514
TR1	R1					AP											03384105	0.00000	0.00000	L 515
TR1	R1					AP											03384106	11.00000	0.00000	L 516
TR1	R1					AP											03384107	0.00000	0.00000	L 517
TR1	R1					AP											03384108	11.00000	0.00000	L 518
TR1	R1					AP											03384109	11.00000	0.00000	L 519
TR1	R1					AP											03384110	0.00000	0.24100	L 520
TR1	R1					AP											03384111	0.00000	0.00000	L 521
TR1	R1					AP											03384112	0.00000	0.00000	L 522
TR1	R1					AP											03384113	0.00000	0.00000	L 523
TR1	R1					AP											03384114	0.00000	0.00000	L 524
TR1	R1					AP											03384115	0.00000	0.00000	L 525
TR1	R1					AP											03384116	0.00000	0.00000	L 526
TR1	R1					AP											03384117	0.00000	0.23700	L 527
TR1	R1					AP											03384118	0.00000	0.00000	L 528
TR1	R1					AP											03384119	0.00000	0.00000	L 529
TR1	R1					AP											03384122	0.00000	0.33000	L 554
TR1	R1					AP											03384123	0.00000	0.00000	L 555
TR1	R1					AP											03384124	0.00000	0.00000	L 556
TR1	R1					AP											03384125	0.00000	0.00000	L 557
TR1	R1					AP											03384126	0.00000	0.00000	L 558
TR1	R1					AP											03384127	0.00000	0.23100	L 559

TR1	R1					AP											03384129	0.00000	0.23100	L 561
TR1	R1					AP											03384130	0.00000	0.00000	L 562
TR1	R1					AP											03384131	0.00000	0.23100	L 563
TR1	R1					AP											03384132	0.00000	0.23100	L 564
TR1	R1					AP											03384133	0.00000	0.00000	L 565
TR1	R1					AP											03384134	0.00000	0.00000	L 566
TR1	R1					AP											03384135	0.00000	0.00000	L 567
TR1	R1					AP											03384136	0.00000	0.00000	L 568
TR1	R1					AP											03384137	0.00000	0.00000	L 569
TR1	R1					AP											03384138	11.00000	0.00000	L 570
TR1	R1					AP											03384139	0.00000	0.00000	L 571
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TR1	R1					AP											03384142	0.00000	0.00000	L 574
TR1	R1					AP											03384143	0.00000	0.00000	L 575
TR1	R1					AP											03384144	0.00000	0.00000	L 576
TR1	R1					AP											03384145	0.00000	0.00000	L 577
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TR1	R1					AP											03384154	0.00000	0.00000	LOT 530 &LOT 553
TR1	R1					AP											03384201	0.00000	0.00000	L 531
TR1	R1					AP											03384202	0.00000	0.00000	L 532
TR1	R1					AP											03384203	0.00000	0.00000	L 533
TR1	R1					AP											03384204	0.00000	0.00000	L 534
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TR1	R1					AP											03384206	0.00000	0.24100	L 536
TR1	R1					AP											03384207	0.00000	0.00000	L 537
TR1	R1					AP											03384208	0.00000	0.00000	L 538
TR1	R1					AP											03384209	0.00000	0.00000	L 539
TR1	R1					AP											03384210	11.00000	0.00000	L 540
TR1	R1					AP											03384211	0.00000	0.00000	L 541
TR1	R1					AP											03384212	0.00000	0.00000	L 542
TR1	R1					AP											03384213	0.00000	0.00000	L 543
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TR1	R1					AP											03384221	0.00000	0.00000	L 551

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TR1	R1					AP											03385104	0.00000	0.00000	L 38
TR1	R1					AP											03385105	0.00000	0.00000	L 37
TR1	R1					AP											03385106	0.00000	0.00000	L 36
TR1	R1					AP											03385201	0.00000	0.00000	L 35
TR1	R1					AP											03385202	0.00000	0.00000	L 34
TR1	R1					AP											03385203	0.00000	0.00000	L 33
TR1	R1					AP											03385204	0.00000	0.13800	L 32
TR1	R1					AP											03385207	0.00000	0.00000	L 29
TR1	R1					AP											03385208	0.00000	0.00000	L 28
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TR1	R1					AP											03385404	0.00000	0.13800	L 163
TR1	R1					AP											03385405	0.00000	0.00000	L 164
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TR1	R1					AP											03385409	0.00000	0.00000	L 168
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TR1	R1					AP										03385422	0.00000	0.00000	L 216
TR1	R1					AP										03385423	0.00000	0.13800	L 217
TR1	R1					AP										03385424	0.00000	0.00000	L 218
TR1	R1					AP										03385425	0.00000	0.00000	L 219
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TR1	R1					AP										03385503	0.00000	0.00000	L 106
TR1	R1					AP										03385504	0.00000	0.14000	L 107
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TR1	R1					AP										03385506	0.00000	0.00000	L 109
TR1	R1					AP										03385507	0.00000	0.00000	L 110
TR1	R1					AP										03385508	0.00000	0.00000	L 111
TR1	R1					AP										03385509	0.00000	0.00000	L 112
TR1	R1					AP										03385510	0.00000	0.13800	L 113
TR1	R1					AP										03385511	11.00000	0.00000	L 114
TR1	R1					AP										03385512	0.00000	0.13800	L 115
TR1	R1					AP										03385513	0.00000	0.00000	L 116
TR1	R1					AP										03385514	0.00000	0.00000	L 117
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TR1	R1					AP										03385516	0.00000	0.00000	L 147
TR1	R1					AP										03385517	0.00000	0.00000	L 148
TR1	R1					AP										03385518	0.00000	0.00000	L 149
TR1	R1					AP										03385519	0.00000	0.00000	L 150
TR1	R1					AP										03385520	0.00000	0.00000	L 151
TR1	R1					AP										03385521	0.00000	0.00000	L 152
TR1	R1					AP										03385522	0.00000	0.00000	L 153
TR1	R1					AP										03385523	0.00000	0.00000	L 154
TR1	R1					AP										03385524	0.00000	0.13700	L 155
TR1	R1					AP										03385525	0.00000	0.00000	L 156
TR1	R1					AP										03385526	0.00000	0.00000	L 157
TR1	R1					AP										03385529	0.00000	0.00000	L 158 & 159
TR1	R1					AP										03385601	0.00000	0.00000	L 55
TR1	R1					AP										03385602	0.00000	0.00000	L 54
TR1	R1					AP										03385603	0.00000	0.00000	L 53
TR1	R1					AP										03385604	0.00000	0.00000	L 247
TR1	R1					AP										03385605	0.00000	0.00000	L 246
TR1	R1					AP										03385606	0.00000	0.00000	L 245
TR1	R1					AP										03385607	0.00000	0.00000	L 244

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TR1	R1					AP											03385609	0.00000	0.15900	L 242
TR1	R1					AP											03385610	0.00000	0.14800	L 58
TR1	R1					AP											03385611	0.00000	0.14800	L 57
TR1	R1					AP											03385612	0.00000	0.14600	L 56
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TR1	R1					AP											03385706	0.00000	0.13800	L 64
TR1	R1					AP											03385707	0.00000	0.00000	L 65
TR1	R1					AP											03385708	0.00000	0.00000	L 66
TR1	R1					AP											03385709	0.00000	0.00000	L 67
TR1	R1					AP											03385710	0.00000	0.00000	L 68
TR1	R1					AP											03385711	11.00000	0.00000	L 232
TR1	R1					AP											03385712	11.00000	0.00000	L 233
TR1	R1					AP											03385713	0.00000	0.00000	L 234
TR1	R1					AP											03385714	0.00000	0.00000	L 235
TR1	R1					AP											03385715	0.00000	0.00000	L 236
TR1	R1					AP											03385716	11.00000	0.00000	L 237
TR1	R1					AP											03385717	11.00000	0.00000	L 238
TR1	R1					AP											03385718	0.00000	0.16600	L 239
TR1	R1					AP											03385719	0.00000	0.11800	L 240
TR1	R1					AP											03385720	0.00000	0.00000	L 241
TR1	R1					AP											03386101	0.00000	0.00000	L 25
TR1	R1					AP											03386102	0.00000	0.00000	L 24
TR1	R1					AP											03386103	0.00000	0.00000	L 23
TR1	R1					AP											03386104	0.00000	0.00000	L 22
TR1	R1					AP											03386105	0.00000	0.13800	L 21
TR1	R1					AP											03386106	0.00000	0.13800	L 20
TR1	R1					AP											03386107	0.00000	0.00000	L 19
TR1	R1					AP											03386108	0.00000	0.00000	L 18
TR1	R1					AP											03386109	0.00000	0.00000	L 17
TR1	R1					AP											03386110	0.00000	0.00000	L 16
TR1	R1					AP											03386111	0.00000	0.00000	L 15
TR1	R1					AP											03386112	0.00000	0.14000	L 14
TR1	R1					AP											03386113	0.00000	0.00000	L 13
TR1	R1					AP											03386114	0.00000	0.00000	L 12
TR1	R1					AP											03386115	0.00000	0.00000	L 11
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TR1	R1					AP											03386202	0.00000	0.13800	L 175
TR1	R1					AP											03386203	0.00000	0.00000	L 176
TR1	R1					AP											03386204	0.00000	0.00000	L 177
TR1	R1					AP											03386205	0.00000	0.00000	L 178
TR1	R1					AP											03386206	0.00000	0.00000	L 179

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TR1	R1					AP											03386208	11.00000	0.00000	L 181
TR1	R1					AP											03386209	0.00000	0.00000	L 182
TR1	R1					AP											03386210	0.00000	0.00000	L 183
TR1	R1					AP											03386211	11.00000	0.00000	L 184
TR1	R1					AP											03386212	11.00000	0.00000	L 185
TR1	R1					AP											03386213	0.00000	0.00000	L 186
TR1	R1					AP											03386214	11.00000	0.00000	L 187
TR1	R1					AP											03386215	0.00000	0.13800	L 195
TR1	R1					AP											03386216	0.00000	0.00000	L 196
TR1	R1					AP											03386217	0.00000	0.00000	L 197
TR1	R1					AP											03386218	0.00000	0.00000	L 198
TR1	R1					AP											03386219	11.00000	0.00000	L 199
TR1	R1					AP											03386220	0.00000	0.13800	L 200
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TR1	R1					AP											03386406	0.00000	0.00000	L 74
TR1	R1					AP											03386407	0.00000	0.00000	L 75
TR1	R1					AP											03386408	0.00000	0.00000	L 76
TR1	R1					AP											03386409	0.00000	0.00000	L 77
TR1	R1					AP											03386410	0.00000	0.00000	L 78
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TR1	R1					AP											03386419	0.00000	0.00000	L 228
TR1	R1					AP											03386420	0.00000	0.00000	L 229
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TR1	R1					AP											03387109	0.00000	0.00000	L 2
TR1	R1					AP											03387110	0.00000	0.00000	L 1
TR1	R1					AP											03387201	0.00000	0.00000	L 194
TR1	R1					AP											03387202	0.00000	0.00000	L 193
TR1	R1					AP											03387203	0.00000	0.16200	L 192
TR1	R1					AP											03387204	0.00000	0.00000	L 191
TR1	R1					AP											03387205	0.00000	0.00000	L 190
TR1	R1					AP											03387206	11.00000	0.00000	L 189
TR1	R1					AP											03387207	11.00000	0.00000	L 188
TR1	R1					AP											03387301	0.00000	0.00000	L 83
TR1	R1					AP											03387302	0.00000	0.00000	L 84
TR1	R1					AP											03387303	0.00000	0.16500	L 85

TR1	R1					AP											03387304	11.00000	0.00000	L 86
TR1	R1					AP											03387305	11.00000	0.00000	L 87
TR1	R1					AP											03387306	0.00000	0.00000	L 88
TR1	R1					AP											03387307	0.00000	0.00000	L 89
TR1	R1					AP											03387308	0.00000	0.16500	L 90
TR1	R1					AP											03387309	11.00000	0.00000	L 91
TR1	R1					AP											03387310	0.00000	0.00000	L 92
TR1	R1					AP											03387311	0.00000	0.00000	L 93
TR1	R1					AP											03387312	0.00000	0.00000	L 94
TR1	R1					AP											03387313	0.00000	0.00000	L 95
TR1	R1					AP											03387314	0.00000	0.00000	L 96
TR1	R1					AP											03387315	0.00000	0.00000	L 97
TR1	R1					AP											03387316	0.00000	0.00000	L 98
TR1	R1					AP											03387317	0.00000	0.00000	L 99
TR1	R1					AP											03387318	0.00000	0.00000	L 274
TR1	R1					AP											03387319	0.00000	0.00000	L 273
TR1	R1					AP											03387320	0.00000	0.00000	L 272
TR1	R1					AP											03387321	0.00000	0.00000	L 271
TR1	R1					AP											03387322	11.00000	0.00000	L 270
TR1	R1					AP											03387323	0.00000	0.00000	L 269
TR1	R1					AP											03387324	0.00000	0.00000	L 268
TR1	R1					AP											03387325	0.00000	0.00000	L 267
TR1	R1					AP											03387326	11.00000	0.00000	L 266
TR1	R1					AP											03387327	11.00000	0.00000	L 265
TR1	R1					AP											03387328	11.00000	0.00000	L 264
TR1	R1					AP											03387329	0.00000	0.00000	L 263
TR1	R1					AP											03387330	0.00000	0.00000	L 262
TR1	R1					AP											03387331	11.00000	0.00000	L 261
TR1	R1					AP											03387332	11.00000	0.00000	L 260
TR1	R1					AP											03387401	0.00000	0.00000	L 297
TR1	R1					AP											03387402	0.00000	0.14200	L 298
TR1	R1					AP											03387403	0.00000	0.14200	L 299
TR1	R1					AP											03387404	11.00000	0.00000	L 300
TR1	R1					AP											03387405	11.00000	0.00000	L 301
TR1	R1					AP											03387406	0.00000	0.00000	L 302
TR1	R1					AP											03387407	0.00000	0.00000	L 303
TR1	R1					AP											03387408	0.00000	0.00000	L 304
TR1	R1					AP											03387409	0.00000	0.14200	L 305
TR1	R1					AP											03387410	0.00000	0.14200	L 306
TR1	R1					AP											03387411	11.00000	0.00000	L 307
TR1	R1					AP											03387412	0.00000	0.00000	L 308
TR1	R1					AP											03387501	0.00000	0.00000	L 103
TR1	R1					AP											03387502	0.00000	0.00000	L 102
TR1	R1					AP											03387503	0.00000	0.00000	L 101
TR1	R1					AP											03387504	0.00000	0.13800	L 100
TR1	R1					AP											03387505	0.00000	0.00000	L 275

TR1	R1					AP											03387506	0.00000	0.14700	L 276
TR1	R1					AP											03387601	0.00000	0.00000	L 277
TR1	R1					AP											03387602	0.00000	0.00000	L 278
TR1	R1					AP											03387603	0.00000	0.00000	L 279
TR1	R1					AP											03387604	0.00000	0.00000	L 280
TR1	R1					AP											03387605	0.00000	0.00000	L 281
TR1	R1					AP											03387606	0.00000	0.14100	L 282
TR1	R1					AP											03387609	0.00000	0.00000	L 285
TR1	R1					AP											03387611	0.00000	0.47000	PM 6/97/A
TR1	R1					AP											03387612	0.00000	0.38000	PM 6/97/B
TR1	R1					AP											03387613	0.00000	0.28000	PM 6/97/C
TR1	R1					AP											03387614	11.00000	0.22000	PAR D P/M 6-97
TR1	R1					AP											03387615	0.00000	0.28000	PM 43/43/1
TR1	R1					AP											03387702	0.00000	0.29000	PM 6/9/A
TR1	R1					AP											03387703	0.00000	0.34000	PM 6/9/B
TR1	R1					AP											03387704	0.00000	0.30000	PM 6/9/C
TR1	R1					AP											03387705	0.00000	0.24900	PM 6/9/D
TR1	R1					AP											03388101	0.00000	0.00000	L 252
TR1	R1					AP											03388102	11.00000	0.00000	L 253
TR1	R1					AP											03388103	0.00000	0.00000	L 82
TR1	R1					AP											03388104	0.00000	0.00000	L 254
TR1	R1					AP											03388105	11.00000	0.00000	L 255
TR1	R1					AP											03388106	0.00000	0.00000	L 256
TR1	R1					AP											03388107	11.00000	0.00000	L 257
TR1	R1					AP											03388108	0.00000	0.18100	L 258
TR1	R1					AP											03388109	11.00000	0.00000	L 259
TR1	R1					AP											03388201	0.00000	0.00000	L 314
TR1	R1					AP											03388203	0.00000	0.73200	L 312
TR1	R1					AP											03388204	0.00000	0.00000	L 311
TR1	R1					AP											03388205	11.00000	0.00000	L 310
TR1	R1					AP											03388206	0.00000	0.00000	L 309
TR1	R1					AP											03388207	0.00000	0.00000	L 296
TR1	R1					AP											03388210	0.00000	0.00000	L 293
TR1	R1					AP											03388211	0.00000	0.00000	L 292
TR1	R1					AP											03388212	11.00000	0.00000	L 291
TR1	R1					AP											03388214	0.00000	0.35000	PM 44/137/1
TR1	R1					AP											03388216	0.00000	3.62000	RS 30/17/2
TR1	R1					AP											03388217	0.00000	1.38000	RS 30/17/1
TR1	R1					AP											03388301	11.00000	0.00000	L 286
TR1	R1					AP											03388302	0.00000	0.14100	L 287
TR1	R1					AP											03388303	0.00000	0.00000	L 288
TR1	R1					AP											03388304	0.00000	0.15800	L 289
TR1	R1					AP											03388305	0.00000	0.00000	L 290
TR1	R1					AP											03388401	11.00000	0.00000	L 315
TR1	R1					AP											03388402	11.00000	0.00000	L 316
TR1	R1					AP											03388403	0.00000	0.00000	L 317

TR1	R1					AP											03388404	0.00000	0.00000	L 318
TR1	R1					AP											03388405	0.00000	0.00000	L 319
TR1	R1					AP											03388406	0.00000	0.00000	L 320
TR1	R1					AP											03388407	0.00000	0.00000	L 321
TR1	R1					AP											03388410	0.00000	0.00000	L 324
TR1	R1					AP											03388412	11.00000	0.00000	L 326
TR1	R1					AP											03388413	11.00000	0.00000	L 327
TR1	R1					AP											03388414	0.00000	0.57000	PM 44/74/1
TR1	R1					AP											03388415	0.00000	0.30000	L 325 & L 340
TR1	FR-160					AP											03401013	11.00000	9.77000	SEC 30 12 18
TR1	FR-160					AP											03401018	11.00000	10.65000	SEC 30 12 18
TR1	FR-160					AP											03401020	11.00000	118.33000	S30 12 18 RS13-5
TR1	R1					AP											03401022	11.00000	0.01000	SEC 30 12 18
TR1	R1					AP											03401023	11.00000	4.32000	SEC 30 12 18
TR1	R1					AP											03401024	11.00000	1.29000	SEC 30 12 18
TR1	FR-160					AP											03402003	11.00000	40.20000	SEC 30 12 18
TR1	R1					AP											03402006	11.00000	1.28000	SEC 30 12 18
TR1	R1					AP											03402010	11.00000	0.30000	SEC 30 12 18
TR1	FR-160					AP											03402012	11.00000	22.68000	SEC 30 12 18
TA	FR-160					AP											03402014	11.00000	1.00000	SEC 30 12 18
TA	FR-160					AP											03402017	11.00000	21.87000	SEC 30 12 18
CP	RM					AP											03402024	11.00000	3.74000	SEC 30 12 18
TA	RM					AP											03402024	11.00000	3.74000	SEC 30 12 18
CP	RM					AP											03402026	11.00000	12.51000	PAR 2 P/M 4-47
TA	RM					AP											03402026	11.00000	12.51000	PAR 2 P/M 4-47
CP	CC					AP											03402028	11.00000	7.00000	PAR 3 P/M 4-47
RM	CC					AP											03402028	11.00000	7.00000	PAR 3 P/M 4-47
CP	CC					AP											03402029	11.00000	17.08000	PAR 1 P/M 4-47
TR1	R1					AP											03402030	11.00000	1.88000	PAR 4 P/M 4-47
TR1	FR-160					AP											03402031	11.00000	35.30000	SEC 30 12 18
TR1	FR-160					AP											03403004	11.00000	12.71000	SEC 29 12 18
TR1	R1					AP											03403006	0.00000	0.23400	RS 30/49/1
TA	FR-160					AP											03407004	0.00000	1.14000	SEC 29 12 18
TA	FR-160					AP											03407010	0.00000	1.00000	SEC 29 12 18
TA	FR-160					AP											03407011	0.00000	50.01000	SEC 29 12 18
TR1	R1					AP											03408101	0.00000	0.00000	POR L 102
TR1	R1					AP											03408102	0.00000	0.00000	L 103
TR1	R1					AP											03408103	0.00000	0.00000	L 104
TR1	R1					AP											03408104	11.00000	0.00000	L 105
TR1	R1					AP											03408105	0.00000	0.00000	L 106
TR1	R1					AP											03408106	0.00000	0.00000	L 38
TR1	R1					AP											03408107	0.00000	0.00000	L 39
TR1	R1					AP											03408108	0.00000	0.00000	L 40
TR1	R1					AP											03408109	11.00000	0.00000	L 41
TR1	R1					AP											03408110	11.00000	0.00000	L 42
TR1	R1					AP											03408111	11.00000	0.00000	L 43

TR1	R1					AP											03408112	11.00000	0.00000	L 44
TR1	R1					AP											03408113	11.00000	0.00000	L 45
TR1	R1					AP											03408114	0.00000	0.00000	L 46
TR1	R1					AP											03408115	11.00000	0.00000	L 47
TR1	R1					AP											03408116	11.00000	0.00000	L 48
TR1	R1					AP											03408119	0.00000	0.00000	L 49 & POR RDWY
TR1	R1					AP											03408201	0.00000	0.00000	L 58
TR1	R1					AP											03408202	0.00000	0.00000	L 57
TR1	R1					AP											03408203	0.00000	0.27200	L 56
TR1	R1					AP											03408204	0.00000	0.00000	L 55
TR1	R1					AP											03408205	11.00000	0.00000	L 54
TR1	R1					AP											03408206	0.00000	0.00000	L 53
TR1	R1					AP											03408207	11.00000	0.00000	L 64
TR1	R1					AP											03408208	0.00000	0.22900	L 63
TR1	R1					AP											03408209	11.00000	0.00000	L 62
TR1	R1					AP											03408210	0.00000	0.00000	L 61
TR1	R1					AP											03408211	0.00000	0.00000	L 60
TR1	R1					AP											03408212	11.00000	0.00000	L 59
TR1	R1					AP											03408301	0.00000	0.00000	L 77
TR1	R1					AP											03408302	0.00000	0.00000	L 76
TR1	R1					AP											03408303	0.00000	0.00000	L 75
TR1	R1					AP											03408304	0.00000	0.00000	L 74
TR1	R1					AP											03408305	0.00000	0.00000	L 73
TR1	R1					AP											03408306	0.00000	0.00000	L 72
TR1	R1					AP											03408307	0.00000	0.00000	POR L 71
TR1	R1					AP											03408308	0.00000	0.00000	POR L 83
TR1	R1					AP											03408309	0.00000	0.00000	POR L 82
TR1	R1					AP											03408310	11.00000	0.27100	RS 32/17 L 81
TR1	R1					AP											03408311	0.00000	0.00000	POR L 80
TR1	R1					AP											03408312	0.00000	0.00000	L 79
TR1	R1					AP											03408313	0.00000	0.00000	POR L 78
TR1	R1					AP											03408404	11.00000	0.00000	POR L 99
TR1	R1					AP											03408405	0.00000	0.00000	POR L 98
TR1	R1					AP											03408406	0.00000	0.00000	POR L 97
TR1	R1					AP											03408407	0.00000	0.00000	POR L 96
TR1	R1					AP											03408408	0.00000	0.00000	POR L 95
TR1	R1					AP											03408409	0.00000	0.00000	POR L 94
TR1	R1					AP											03408410	0.00000	0.00000	POR L 93
TR1	R1					AP											03408411	11.00000	0.00000	L 92
TR1	R1					AP											03408412	0.00000	0.00000	L 91
TR1	R1					AP											03408413	0.00000	0.00000	L 90
TR1	R1					AP											03408414	0.00000	0.00000	L 89
TR1	R1					AP											03408502	11.00000	0.00000	L 51
TR1	R1					AP											03408503	11.00000	0.00000	L 52
TR1	R1					AP											03408504	0.00000	0.00000	L 65
TR1	R1					AP											03408505	0.00000	0.00000	L 68

TR1	R1					AP											03408506	0.00000	0.00000	POR L 69
TR1	R1					AP											03408507	0.00000	0.00000	POR L 67 & 70
TR1	R1					AP											03408508	0.00000	0.00000	L 66
TR1	R1					AP											03408510	0.00000	0.00000	LOT 50 &POR RDWY
TR1	R1					AP											03408601	0.00000	0.00000	POR L 84
TR1	R1					AP											03408602	0.00000	0.00000	POR L 85
TR1	R1					AP											03408603	0.00000	0.00000	POR L 86
TR1	R1					AP											03408604	11.00000	0.00000	L 87
TR1	R1					AP											03408605	0.00000	0.28900	L 88
TR1	R1					AP											03409101	0.00000	0.00000	L 186
TR1	R1					AP											03409102	0.00000	0.00000	L 187
TR1	R1					AP											03409201	0.00000	0.18400	L 170
TR1	R1					AP											03409202	0.00000	0.00000	L 171
TR1	R1					AP											03409203	11.00000	0.00000	L 172
TR1	R1					AP											03409204	11.00000	0.00000	L 173
TR1	R1					AP											03409205	0.00000	0.00000	L 174
TR1	R1					AP											03409206	0.00000	0.00000	L 175
TR1	R1					AP											03409210	0.00000	0.00000	L 179
TR1	R1					AP											03409211	0.00000	0.00000	L 180
TR1	R1					AP											03409212	0.00000	0.00000	L 181
TR1	R1					AP											03409213	0.00000	0.00000	L 182
TR1	R1					AP											03409214	0.00000	0.00000	L 183
TR1	R1					AP											03409217	0.00000	0.46000	PM 22/119/A
TR1	R1					AP											03409218	0.00000	0.42000	PM 22/119/B
TR1	R1					AP											03409301	0.00000	0.00000	L 188
TR1	R1					AP											03409302	0.00000	0.00000	L 189
TR1	R1					AP											03409303	0.00000	0.17900	L 190
TR1	R1					AP											03409304	0.00000	0.00000	L 191
TR1	R1					AP											03409305	0.00000	0.00000	L 192
TR1	R1					AP											03409401	0.00000	0.17900	L 193
TR1	R1					AP											03409402	0.00000	0.00000	L 194
TR1	R1					AP											03409403	0.00000	0.17900	L 195
TR1	R1					AP											03409404	0.00000	0.00000	L 196
TR1	R1					AP											03409405	0.00000	0.00000	L 198
TR1	R1					AP											03409406	0.00000	0.00000	L 199
TR1	R1					AP											03409501	0.00000	0.00000	L 201
TR1	R1					AP											03409502	11.00000	0.00000	L 202
TR1	R1					AP											03409503	0.00000	0.00000	L 203
TR1	R1					AP											03409504	0.00000	0.00000	L 204
TR1	R1					AP											03409505	0.00000	0.00000	L 205
TR1	R1					AP											03409506	0.00000	0.00000	L 206
TR1	R1					AP											03409507	0.00000	0.00000	L 207
TR1	R1					AP											03409508	0.00000	0.00000	L 208
TR1	R1					AP											03409601	0.00000	0.17900	L 161
TR1	R1					AP											03409602	0.00000	0.00000	L 162
TR1	R1					AP											03409603	0.00000	0.00000	L 163

TR1	R1					AP											03409604	0.00000	0.00000	L 164
TR1	R1					AP											03409605	0.00000	0.00000	L 165
TR1	R1					AP											03409606	0.00000	0.00000	L 166
TR1	R1					AP											03409607	11.00000	0.00000	L 167
TR1	R1					AP											03409608	0.00000	0.00000	L 168
TR1	R1					AP											03409609	11.00000	0.00000	L 169
TR1	R1					AP											03409701	0.00000	0.00000	L 141
TR1	R1					AP											03409702	0.00000	0.00000	L 142
TR1	R1					AP											03409703	0.00000	0.00000	L 143
TR1	R1					AP											03409704	0.00000	0.19300	L 144
TR1	R1					AP											03409705	0.00000	0.00000	L 145
TR1	R1					AP											03409706	0.00000	0.00000	L 153
TR1	R1					AP											03409707	0.00000	0.00000	L 154
TR1	R1					AP											03409708	0.00000	0.00000	L 155
TR1	R1					AP											03409709	0.00000	0.00000	L 156
TR1	R1					AP											03409710	0.00000	0.00000	L 157
TR1	R1					AP											03409711	0.00000	0.00000	L 158
TR1	R1					AP											03409712	0.00000	0.00000	L 159
TR1	R1					AP											03409713	0.00000	0.00000	L 160
TR1	R1					AP											03409714	0.00000	0.00000	L 209
TR1	R1					AP											03409717	0.00000	0.00000	L 212
TR1	R1					AP											03409718	0.00000	0.00000	LOT 210 & 211
TR1	R1					AP											03409801	11.00000	0.00000	L 149
TR1	R1					AP											03409802	0.00000	0.00000	L 150
TR1	R1					AP											03409803	0.00000	0.00000	L 151
TR1	R1					AP											03409804	0.00000	0.00000	L 152
TR1	R1					AP											03409901	11.00000	0.00000	L 140
TR1	R1					AP											03409902	0.00000	0.00000	L 146
TR1	R1					AP											03409903	0.00000	0.00000	L 147
TR1	R1					AP											03409904	0.00000	0.00000	L 148
TR1	R1					AP											03410101	0.00000	0.17900	L 132
TR1	R1					AP											03410102	0.00000	0.17900	L 133
TR1	R1					AP											03410103	11.00000	0.00000	L 134
TR1	R1					AP											03410104	0.00000	0.00000	L 135
TR1	R1					AP											03410105	0.00000	0.17900	L 136
TR1	R1					AP											03410106	0.00000	0.00000	L 137
TR1	R1					AP											03410107	0.00000	0.00000	L 131
TR1	R1					AP											03410108	0.00000	0.00000	L 130
TR1	R1					AP											03410109	0.00000	0.17900	L 129
TR1	R1					AP											03410110	0.00000	0.17900	L 128
TR1	R1					AP											03410111	0.00000	0.00000	L 127
TR1	R1					AP											03410112	0.00000	0.00000	L 126
TR1	R1					AP											03410201	0.00000	0.00000	L 138
TR1	R1					AP											03410203	0.00000	0.00000	L 125
TR1	R1					AP											03410204	0.00000	0.32500	LOT 139& POR 481
TR1	R1					AP											03410301	0.00000	0.00000	L 118

TR1	R1					AP											03410302	0.00000	0.00000	L 119
TR1	R1					AP											03410303	0.00000	0.00000	L 120
TR1	R1					AP											03410304	0.00000	0.19400	L 121
TR1	R1					AP											03410305	11.00000	0.00000	L 122
TR1	R1					AP											03410306	0.00000	0.00000	L 117
TR1	R1					AP											03410307	0.00000	0.00000	L 116
TR1	R1					AP											03410401	0.00000	0.00000	L 123
TR1	R1					AP											03410402	0.00000	0.00000	L 124
TR1	R1					AP											03410403	0.00000	0.00000	L 115
TR1	R1					AP											03410404	0.00000	0.00000	L 114
TR1	R1					AP											03410405	0.00000	0.00000	L 113
TR1	R1					AP											03410501	0.00000	0.00000	L 107
TR1	R1					AP											03410502	0.00000	0.00000	L 108
TR1	R1					AP											03410601	0.00000	0.00000	L 109
TR1	R1					AP											03410602	0.00000	0.00000	L 110
TR1	R1					AP											03410603	0.00000	0.00000	L 111
TR1	R1					AP											03410604	0.00000	0.00000	L 112
TR1	R1					AP											03411102	0.00000	0.00000	L 574
TR1	R1					AP											03411103	0.00000	0.00000	L 573
TR1	R1					AP											03411104	0.00000	0.00000	L 578
TR1	R1					AP											03411105	11.00000	0.00000	POR LOT 575
TR1	R1					AP											03411106	0.00000	0.22000	POR LOT 575
TR1	R1					AP											03411107	11.00000	0.00000	POR LOT 575
TR1	R1					AP											03411201	0.00000	0.00000	L 554
TR1	R1					AP											03411202	0.00000	0.00000	L 555
TR1	R1					AP											03411203	0.00000	0.00000	L 556
TR1	R1					AP											03411204	0.00000	0.00000	L 557
TR1	R1					AP											03411205	0.00000	0.00000	L 558
TR1	R1					AP											03411206	0.00000	0.00000	L 559
TR1	R1					AP											03411207	11.00000	0.00000	L 560
TR1	R1					AP											03411208	0.00000	0.00000	L 561
TR1	R1					AP											03411209	0.00000	0.00000	L 564
TR1	R1					AP											03411210	0.00000	0.00000	L 565
TR1	R1					AP											03411211	0.00000	0.00000	L 566
TR1	R1					AP											03411212	11.00000	0.00000	L 568
TR1	R1					AP											03411213	0.00000	0.00000	L 569
TR1	R1					AP											03411214	0.00000	0.00000	L 570
TR1	R1					AP											03411215	0.00000	0.00000	L 571
TR1	R1					AP											03411216	0.00000	0.00000	L 572
TR1	R1					AP											03411217	0.00000	0.00000	L 579
TR1	R1					AP											03411218	0.00000	0.00000	L 580
TR1	R1					AP											03411226	0.00000	0.29000	RS 20/139/1
TR1	R1					AP											03411227	0.00000	0.30000	RS 20/139/2
TR1	R1					AP											03411303	0.00000	0.00000	L 553
TR1	R1					AP											03411304	0.00000	0.00000	LOTS 551 & 552
TR1	R1					AP											03412101	0.00000	0.41000	L 531

TR1	R1					AP											03412102	11.00000	0.00000	L 530
TR1	R1					AP											03412103	0.00000	0.00000	L 529
TR1	R1					AP											03412104	0.00000	0.00000	L 528
TR1	R1					AP											03412105	11.00000	0.00000	L 527
TR1	R1					AP											03412106	0.00000	0.00000	L 526
TR1	R1					AP											03412107	0.00000	0.00000	L 525
TR1	R1					AP											03412108	11.00000	0.00000	L 524
TR1	R1					AP											03412109	11.00000	0.00000	L 514
TR1	R1					AP											03412110	11.00000	0.00000	L 513
TR1	R1					AP											03412111	11.00000	0.00000	L 512
TR1	R1					AP											03412112	0.00000	0.00000	L 511
TR1	R1					AP											03412113	11.00000	0.00000	L 510
TR1	R1					AP											03412114	0.00000	0.00000	L 509
TR1	R1					AP											03412115	11.00000	0.00000	L 508
TR1	R1					AP											03412116	0.00000	0.00000	L 507
TR1	R1					AP											03412117	0.00000	0.00000	L 506
TR1	R1					AP											03412118	0.00000	0.00000	L 505
TR1	R1					AP											03412119	0.00000	0.00000	L 504
TR1	R1					AP											03412120	0.00000	0.00000	L 503
TR1	R1					AP											03412121	0.00000	0.00000	L 502
TR1	R1					AP											03412122	0.00000	0.00000	L 501
TR1	R1					AP											03412123	11.00000	0.00000	L 500
TR1	R1					AP											03412124	11.00000	0.00000	L 489
TR1	R1					AP											03412125	0.00000	0.00000	L 488
TR1	R1					AP											03412126	11.00000	0.00000	L 487
TR1	R1					AP											03412127	11.00000	0.00000	L 486
TR1	R1					AP											03412128	11.00000	0.00000	L 485
TR1	R1					AP											03412129	11.00000	0.00000	L 484
TR1	R1					AP											03412130	11.00000	0.00000	L 483
TR1	R1					AP											03412131	0.00000	0.00000	L 482
TR1	R1					AP											03412134	0.00000	0.32500	POR LOT 481
TR1	R1					AP											03412201	0.00000	0.00000	L 520
TR1	R1					AP											03412202	11.00000	0.00000	L 521
TR1	R1					AP											03412203	0.00000	0.23000	L 522
TR1	R1					AP											03412204	11.00000	0.00000	L 523
TR1	R1					AP											03412205	0.00000	0.00000	L 516
TR1	R1					AP											03412206	0.00000	0.00000	L 517
TR1	R1					AP											03412207	0.00000	0.22900	L 518
TR1	R1					AP											03412208	0.00000	0.00000	L 519
TR1	R1					AP											03412301	0.00000	0.00000	L 496
TR1	R1					AP											03412303	0.00000	0.00000	L 499
TR1	R1					AP											03412304	11.00000	0.00000	L 491
TR1	R1					AP											03412305	0.00000	0.00000	L 492
TR1	R1					AP											03412306	11.00000	0.00000	L 493
TR1	R1					AP											03412307	0.00000	0.00000	L 494
TR1	R1					AP											03412311	0.00000	0.00000	POR L 497

TR1	R1					AP											03412312	0.00000	0.23000	POR L 497
TR1	R1					AP											03413101	11.00000	0.00000	L 841
TR1	R1					AP											03413102	0.00000	0.00000	L 842
TR1	R1					AP											03413103	11.00000	0.00000	L 843
TR1	R1					AP											03413104	11.00000	0.00000	L 844
TR1	R1					AP											03413105	11.00000	0.00000	L 845
TR1	R1					AP											03413106	0.00000	0.00000	L 846
TR1	R1					AP											03413107	0.00000	0.00000	L 847
TR1	R1					AP											03413108	0.00000	0.25300	L 848
TR1	R1					AP											03413109	11.00000	0.00000	L 849
TR1	R1					AP											03413110	11.00000	0.00000	L 850
TR1	R1					AP											03413111	0.00000	0.00000	L 851
TR1	R1					AP											03413112	11.00000	0.00000	L 852
TR1	R1					AP											03413113	11.00000	0.00000	L 853
TR1	R1					AP											03413114	11.00000	0.00000	L 854
TR1	R1					AP											03413115	0.00000	0.00000	L 855
TR1	R1					AP											03413201	0.00000	0.00000	L 801
TR1	R1					AP											03413202	0.00000	0.00000	L 802
TR1	R1					AP											03413203	0.00000	0.00000	L 803
TR1	R1					AP											03413204	0.00000	0.00000	L 804
TR1	R1					AP											03413205	0.00000	0.00000	L 805
TR1	R1					AP											03413206	0.00000	0.00000	L 806
TR1	R1					AP											03413207	11.00000	0.00000	L 807
TR1	R1					AP											03413208	0.00000	0.00000	L 808
TR1	R1					AP											03413209	0.00000	0.00000	L 809
TR1	R1					AP											03413210	0.00000	0.00000	L 810
TR1	R1					AP											03413211	0.00000	0.00000	L 811
TR1	R1					AP											03413212	0.00000	0.00000	L 812
TR1	R1					AP											03413213	0.00000	0.23000	L 813
TR1	R1					AP											03413214	0.00000	0.00000	L 822
TR1	R1					AP											03413215	11.00000	0.00000	L 823
TR1	R1					AP											03413216	0.00000	0.00000	L 824
TR1	R1					AP											03413217	0.00000	0.00000	L 825
TR1	R1					AP											03413218	11.00000	0.00000	L 826
TR1	R1					AP											03413219	11.00000	0.00000	L 827
TR1	R1					AP											03413220	11.00000	0.00000	L 828
TR1	R1					AP											03413221	11.00000	0.00000	L 829
TR1	R1					AP											03413222	11.00000	0.00000	L 830
TR1	R1					AP											03413223	11.00000	0.00000	L 831
TR1	R1					AP											03413224	11.00000	0.00000	L 832
TR1	R1					AP											03413225	11.00000	0.00000	L 833
TR1	R1					AP											03413226	0.00000	0.00000	L 834
TR1	R1					AP											03413227	0.00000	0.00000	L 835
TR1	R1					AP											03413228	11.00000	0.00000	L 836
TR1	R1					AP											03413229	11.00000	0.00000	L 837
TR1	R1					AP											03413230	11.00000	0.00000	L 838

TR1	R1					AP											03413231	0.00000	0.00000	L 839
TR1	R1					AP											03413232	11.00000	0.00000	L 840
TR1	R1					AP											03413301	0.00000	0.00000	L 814
TR1	R1					AP											03413302	0.00000	0.00000	L 815
TR1	R1					AP											03413303	0.00000	0.00000	L 816
TR1	R1					AP											03413304	0.00000	0.00000	L 817
TR1	R1					AP											03413305	0.00000	0.00000	L 818
TR1	R1					AP											03413306	0.00000	0.00000	L 819
TR1	R1					AP											03413307	0.00000	0.00000	L 820
TR1	R1					AP											03413308	0.00000	0.00000	L 821
TR1	R1					AP											03414101	11.00000	0.00000	L 856
TR1	R1					AP											03414102	11.00000	0.00000	L 857
TR1	R1					AP											03414103	11.00000	0.00000	L 858
TR1	R1					AP											03414104	11.00000	0.00000	L 859
TR1	R1					AP											03414105	0.00000	0.00000	L 860
TR1	R1					AP											03414106	0.00000	0.00000	L 861
TR1	R1					AP											03414107	11.00000	0.00000	L 862
TR1	R1					AP											03414108	11.00000	0.00000	L 863
TR1	R1					AP											03414109	11.00000	0.00000	L 864
TR1	R1					AP											03414110	0.00000	0.00000	L 865
TR1	R1					AP											03414111	11.00000	0.00000	L 866
TR1	R1					AP											03414112	11.00000	0.00000	L 867
TR1	R1					AP											03414113	0.00000	0.00000	L 868
TR1	R1					AP											03414201	11.00000	0.00000	L 869
TR1	R1					AP											03414202	11.00000	0.00000	L 870
TR1	R1					AP											03414203	11.00000	0.00000	L 871
TR1	R1					AP											03414204	0.00000	0.00000	L 872
TR1	R1					AP											03414205	11.00000	0.00000	L 873
TR1	R1					AP											03414206	11.00000	0.00000	L 874
TR1	R1					AP											03414207	0.00000	0.00000	L 875
TR1	R1					AP											03414208	0.00000	0.00000	L 876
TR1	R1					AP											03414209	11.00000	0.00000	L 877
TR1	R1					AP											03415101	0.00000	0.00000	L 243
TR1	R1					AP											03415102	0.00000	0.00000	L 244
TR1	R1					AP											03415103	0.00000	0.00000	L 245
TR1	R1					AP											03415104	0.00000	0.00000	L 246
TR1	R1					AP											03415105	0.00000	0.00000	L 247
TR1	R1					AP											03415106	0.00000	0.00000	L 248
TR1	R1					AP											03415107	0.00000	0.00000	L 249
TR1	R1					AP											03415108	0.00000	0.00000	L 250
TR1	R1					AP											03415109	0.00000	0.24800	L 251
TR1	R1					AP											03415110	11.00000	0.00000	L 252
TR1	R1					AP											03415111	11.00000	0.00000	L 253
TR1	R1					AP											03415112	11.00000	0.00000	L 254
TR1	R1					AP											03415201	0.00000	0.00000	L 314
TR1	R1					AP											03415202	11.00000	0.00000	L 313

TR1	R1					AP											03415203	0.00000	0.00000	L 312
TR1	R1					AP											03415204	11.00000	0.00000	L 311
TR1	R1					AP											03415205	11.00000	0.00000	L 310
TR1	R1					AP											03415206	11.00000	0.00000	L 309
TR1	R1					AP											03415207	11.00000	0.00000	L 308
TR1	R1					AP											03415208	0.00000	0.00000	L 307
TR1	R1					AP											03415209	0.00000	0.00000	L 306
TR1	R1					AP											03415210	11.00000	0.00000	L 305
TR1	R1					AP											03415211	11.00000	0.00000	L 304
TR1	R1					AP											03415212	11.00000	0.00000	L 326
TR1	R1					AP											03415214	11.00000	0.00000	L 324
TR1	R1					AP											03415215	11.00000	0.00000	L 323
TR1	R1					AP											03415216	0.00000	0.23200	L 322
TR1	R1					AP											03415217	11.00000	0.00000	L 321
TR1	R1					AP											03415218	0.00000	0.00000	L 320
TR1	R1					AP											03415219	11.00000	0.00000	L 319
TR1	R1					AP											03415220	11.00000	0.00000	L 318
TR1	R1					AP											03415221	0.00000	0.00000	L 317
TR1	R1					AP											03415222	0.00000	0.00000	L 316
TR1	R1					AP											03415223	11.00000	0.00000	L 315
TR1	R1					AP											03415224	0.00000	0.00000	POR L 325
TR1	R1					AP											03415225	0.00000	0.00000	POR L 325
TR1	R1					AP											03415301	11.00000	0.00000	L 386
TR1	R1					AP											03415302	11.00000	0.00000	L 385
TR1	R1					AP											03415303	11.00000	0.00000	L 384
TR1	R1					AP											03415304	0.00000	0.22000	L 383
TR1	R1					AP											03415305	11.00000	0.00000	L 382
TR1	R1					AP											03415306	0.00000	0.00000	L 381
TR1	R1					AP											03415307	0.00000	0.00000	L 380
TR1	R1					AP											03415308	11.00000	0.00000	L 379
TR1	R1					AP											03415309	11.00000	0.00000	L 378
TR1	R1					AP											03415310	11.00000	0.00000	L 377
TR1	R1					AP											03415311	0.00000	0.00000	L 376
TR1	R1					AP											03415312	11.00000	0.00000	L 397
TR1	R1					AP											03415313	0.00000	0.28100	L 396
TR1	R1					AP											03415314	11.00000	0.00000	L 395
TR1	R1					AP											03415315	11.00000	0.00000	L 394
TR1	R1					AP											03415316	0.00000	0.23000	L 393
TR1	R1					AP											03415317	0.00000	0.00000	L 392
TR1	R1					AP											03415318	0.00000	0.00000	L 391
TR1	R1					AP											03415319	0.00000	0.00000	L 390
TR1	R1					AP											03415320	11.00000	0.00000	L 389
TR1	R1					AP											03415321	0.00000	0.00000	L 388
TR1	R1					AP											03415322	0.00000	0.00000	L 387
TR1	R1					AP											03415401	0.00000	0.00000	L 399
TR1	R1					AP											03415402	11.00000	0.00000	L 401

TR1	R1					AP											03415403	11.00000	0.00000	L 400
TR1	R1					AP											03415404	0.00000	0.00000	L 398
TR1	R1					AP											03415405	0.00000	0.00000	L 402
TR1	R1					AP											03415406	0.00000	0.00000	L 403
TR1	R1					AP											03415407	0.00000	0.00000	L 404
TR1	R1					AP											03415408	11.00000	0.00000	L 405
TR1	R1					AP											03415409	11.00000	0.00000	L 406
TR1	R1					AP											03415410	11.00000	0.00000	L 407
TR1	R1					AP											03415411	0.00000	0.00000	L 408
TR1	R1					AP											03415412	11.00000	0.00000	L 409
TR1	R1					AP											03415413	0.00000	0.00000	L 410
TR1	R1					AP											03415414	0.00000	0.26700	L 411
TR1	R1					AP											03415415	0.00000	0.00000	L 412
TR1	R1					AP											03415416	11.00000	0.00000	L 413
TR1	R1					AP											03415417	0.00000	0.00000	L 414
TR1	R1					AP											03415418	11.00000	0.00000	L 415
TR1	R1					AP											03415419	0.00000	0.00000	L 416
TR1	R1					AP											03415501	0.00000	0.00000	L 242
TR1	R1					AP											03416101	0.00000	0.00000	L 342
TR1	R1					AP											03416102	0.00000	0.00000	L 341
TR1	R1					AP											03416103	11.00000	0.00000	L 340
TR1	R1					AP											03416104	0.00000	0.00000	L 339
TR1	R1					AP											03416105	11.00000	0.00000	L 338
TR1	R1					AP											03416106	11.00000	0.00000	L 337
TR1	R1					AP											03416107	11.00000	0.00000	L 336
TR1	R1					AP											03416108	0.00000	0.00000	L 335
TR1	R1					AP											03416109	0.00000	0.00000	L 334
TR1	R1					AP											03416110	0.00000	0.00000	L 333
TR1	R1					AP											03416111	0.00000	0.00000	L 332
TR1	R1					AP											03416112	0.00000	0.00000	L 331
TR1	R1					AP											03416113	0.00000	0.00000	L 330
TR1	R1					AP											03416114	11.00000	0.00000	L 329
TR1	R1					AP											03416115	0.00000	0.00000	L 328
TR1	R1					AP											03416116	0.00000	0.00000	L 327
TR1	R1					AP											03416117	0.00000	0.00000	L 375
TR1	R1					AP											03416118	11.00000	0.00000	L 374
TR1	R1					AP											03416119	0.00000	0.00000	L 373
TR1	R1					AP											03416120	0.00000	0.00000	L 372
TR1	R1					AP											03416121	0.00000	0.00000	L 371
TR1	R1					AP											03416122	11.00000	0.00000	L 370
TR1	R1					AP											03416123	11.00000	0.00000	L 369
TR1	R1					AP											03416124	11.00000	0.00000	L 368
TR1	R1					AP											03416125	11.00000	0.00000	L 367
TR1	R1					AP											03416126	11.00000	0.00000	L 366
TR1	R1					AP											03416127	0.00000	0.00000	L 365
TR1	R1					AP											03416128	11.00000	0.00000	L 364

TR1	R1					AP											03416129	11.00000	0.00000	L 363
TR1	R1					AP											03416130	0.00000	0.00000	L 362
TR1	R1					AP											03416131	0.00000	0.00000	L 361
TR1	R1					AP											03416132	0.00000	0.00000	L 360
TR1	R1					AP											03416133	0.00000	0.00000	L 359
TR1	R1					AP											03416134	0.00000	0.00000	L 358
TR1	R1					AP											03416135	0.00000	0.00000	L 357
TR1	R1					AP											03416136	0.00000	0.00000	L 356
TR1	R1					AP											03416137	0.00000	0.24300	L 355
TR1	R1					AP											03416138	0.00000	0.00000	L 354
TR1	R1					AP											03416139	0.00000	0.00000	L 353
TR1	R1					AP											03416140	0.00000	0.00000	L 352
TR1	R1					AP											03416141	0.00000	0.00000	L 351
TR1	R1					AP											03416142	0.00000	0.00000	L 350
TR1	R1					AP											03416143	0.00000	0.00000	L 349
TR1	R1					AP											03416144	0.00000	0.00000	L 348
TR1	R1					AP											03416145	0.00000	0.00000	L 347
TR1	R1					AP											03416146	0.00000	0.00000	L 346
TR1	R1					AP											03416147	0.00000	0.00000	L 345
TR1	R1					AP											03416148	0.00000	0.00000	L 344
TR1	R1					AP											03416149	0.00000	0.00000	L 343
TR1	R1					AP											03416201	0.00000	0.00000	L 440
TR1	R1					AP											03416202	0.00000	0.00000	L 439
TR1	R1					AP											03416203	0.00000	0.00000	L 438
TR1	R1					AP											03416204	0.00000	0.00000	L 437
TR1	R1					AP											03416207	0.00000	0.00000	L 434
TR1	R1					AP											03416211	11.00000	0.00000	L 430
TR1	R1					AP											03416212	11.00000	0.00000	L 429
TR1	R1					AP											03416213	11.00000	0.00000	L 428
TR1	R1					AP											03416214	0.00000	0.00000	L 427
TR1	R1					AP											03416215	0.00000	0.00000	L 426
TR1	R1					AP											03416216	0.00000	0.00000	L 425
TR1	R1					AP											03416217	0.00000	0.00000	L 424
TR1	R1					AP											03416218	0.00000	0.00000	L 423
TR1	R1					AP											03416219	11.00000	0.00000	L 422
TR1	R1					AP											03416220	0.00000	0.00000	L 421
TR1	R1					AP											03416221	0.00000	0.00000	L 420
TR1	R1					AP											03416222	11.00000	0.00000	L 419
TR1	R1					AP											03416223	11.00000	0.00000	L 418
TR1	R1					AP											03416224	0.00000	0.00000	L 417
TR1	R1					AP											03416226	0.00000	0.94000	PM 22/29/1
TR1	R1					AP											03416227	0.00000	0.00000	PM 44/140/1
TR1	R1					AP											03417101	0.00000	0.00000	L 255
TR1	R1					AP											03417102	0.00000	0.00000	L 256
TR1	R1					AP											03417103	0.00000	0.00000	L 257
TR1	R1					AP											03417104	11.00000	0.00000	L 258

TR1	R1					AP											03417105	11.00000	0.00000	L 259
TR1	R1					AP											03417106	0.00000	0.00000	L 260
TR1	R1					AP											03417107	0.00000	0.00000	L 261
TR1	R1					AP											03417108	0.00000	0.00000	L 262
TR1	R1					AP											03417109	0.00000	0.00000	L 263
TR1	R1					AP											03417110	11.00000	0.00000	L 264
TR1	R1					AP											03417111	0.00000	0.00000	L 265
TR1	R1					AP											03417112	0.00000	0.00000	L 266
TR1	R1					AP											03417113	0.00000	0.00000	L 267
TR1	R1					AP											03417114	0.00000	0.00000	L 268
TR1	R1					AP											03417115	0.00000	0.00000	L 269
TR1	R1					AP											03417116	0.00000	0.00000	L 270
TR1	R1					AP											03417117	0.00000	0.00000	L 271
TR1	R1					AP											03417118	11.00000	0.00000	L 272
TR1	R1					AP											03417119	0.00000	0.00000	L 273
TR1	R1					AP											03417120	0.00000	0.00000	L 275
TR1	R1					AP											03417121	11.00000	0.00000	L 276
TR1	R1					AP											03417122	0.00000	0.00000	L 443
TR1	R1					AP											03417123	0.00000	0.00000	L 442
TR1	R1					AP											03417124	0.00000	0.00000	L 441
TR1	R1					AP											03417201	0.00000	0.00000	L 277
TR1	R1					AP											03417202	0.00000	0.00000	L 278
TR1	R1					AP											03417203	11.00000	0.00000	L 279
TR1	R1					AP											03417204	11.00000	0.00000	L 280
TR1	R1					AP											03417205	0.00000	0.00000	L 281
TR1	R1					AP											03417206	0.00000	0.00000	L 282
TR1	R1					AP											03417207	11.00000	0.00000	L 283
TR1	R1					AP											03417208	0.00000	0.00000	L 284
TR1	R1					AP											03417209	11.00000	0.00000	L 285
TR1	R1					AP											03417210	0.00000	0.00000	L 286
TR1	R1					AP											03417211	11.00000	0.00000	L 287
TR1	R1					AP											03417212	0.00000	0.00000	L 288
TR1	R1					AP											03417213	11.00000	0.00000	L 289
TR1	R1					AP											03417214	11.00000	0.00000	L 290
TR1	R1					AP											03417215	0.00000	0.00000	L 291
TR1	R1					AP											03417216	0.00000	0.00000	L 292
TR1	R1					AP											03417217	0.00000	0.00000	L 293
TR1	R1					AP											03417218	0.00000	0.00000	L 294
TR1	R1					AP											03417219	0.00000	0.00000	L 295
TR1	R1					AP											03417220	0.00000	0.23100	L 296
TR1	R1					AP											03417221	0.00000	0.00000	L 297
TR1	R1					AP											03417222	11.00000	0.00000	L 298
TR1	R1					AP											03417223	0.00000	0.00000	L 299
TR1	R1					AP											03417224	0.00000	0.00000	L 300
TR1	R1					AP											03417225	0.00000	0.00000	L 301
TR1	R1					AP											03417226	0.00000	0.00000	L 302

TR1	R1					AP											03417227	0.00000	0.00000	L 303
TR1	R1					AP											03418101	11.00000	0.00000	L 909
TR1	R1					AP											03418102	11.00000	0.00000	L 910
TR1	R1					AP											03418103	0.00000	0.00000	L 911
TR1	R1					AP											03418104	0.00000	0.00000	L 912
TR1	R1					AP											03418105	0.00000	0.00000	L 913
TR1	R1					AP											03418106	11.00000	0.00000	L 914
TR1	R1					AP											03418107	11.00000	0.00000	L 915
TR1	R1					AP											03418108	0.00000	0.00000	L 916
TR1	R1					AP											03418109	11.00000	0.00000	L 917
TR1	R1					AP											03418110	11.00000	0.00000	L 918
TR1	R1					AP											03418111	11.00000	0.00000	L 919
TR1	R1					AP											03418112	0.00000	0.00000	L 920
TR1	R1					AP											03418113	11.00000	0.00000	L 921
TR1	R1					AP											03418114	11.00000	0.00000	L 935
TR1	R1					AP											03418115	11.00000	0.00000	L 936
TR1	R1					AP											03418116	0.00000	0.00000	L 937
TR1	R1					AP											03418117	0.00000	0.00000	L 938
TR1	R1					AP											03418118	0.00000	0.00000	L 939
TR1	R1					AP											03418119	11.00000	0.00000	L 940
TR1	R1					AP											03418120	0.00000	0.00000	L 941
TR1	R1					AP											03418121	0.00000	0.00000	L 942
TR1	R1					AP											03418122	0.00000	0.00000	L 943
TR1	R1					AP											03418123	0.00000	0.00000	L 944
TR1	R1					AP											03418124	0.00000	0.00000	L 945
TR1	R1					AP											03418125	11.00000	0.00000	L 946
TR1	R1					AP											03418201	11.00000	0.00000	L 947
TR1	R1					AP											03418202	0.00000	0.00000	L 948
TR1	R1					AP											03418203	11.00000	0.00000	L 949
TR1	R1					AP											03418301	0.00000	0.00000	L 901
TR1	R1					AP											03418302	0.00000	0.00000	L 902
TR1	R1					AP											03418303	0.00000	0.00000	L 903
TR1	R1					AP											03418304	0.00000	0.00000	L 904
TR1	R1					AP											03418307	0.00000	0.00000	L 907
TR1	R1					AP											03418308	11.00000	0.00000	L 908
TR1	R1					AP											03418309	0.00000	0.00000	LOT 905 &LOT 906
TR1	R1					AP											03419101	11.00000	0.00000	L 922
TR1	R1					AP											03419102	0.00000	0.00000	L 923
TR1	R1					AP											03419103	11.00000	0.00000	L 924
TR1	R1					AP											03419104	11.00000	0.00000	L 925
TR1	R1					AP											03419105	11.00000	0.00000	L 926
TR1	R1					AP											03419106	11.00000	0.00000	L 927
TR1	R1					AP											03419107	11.00000	0.00000	L 928
TR1	R1					AP											03419108	11.00000	0.00000	L 929
TR1	R1					AP											03419109	11.00000	0.00000	L 930
TR1	R1					AP											03419110	11.00000	0.00000	L 931

TR1	R1					AP											03419111	11.00000	0.00000	L 932
TR1	R1					AP											03419112	0.00000	0.00000	L 933
TR1	R1					AP											03419113	0.00000	0.00000	L 934
TR1	R1					AP											03419201	0.00000	0.00000	L 950
TR1	R1					AP											03419202	0.00000	0.00000	L 951
TR1	R1					AP											03419203	11.00000	0.00000	L 952
TR1	R1					AP											03419206	0.00000	0.00000	L 955
TR1	R1					AP											03419207	0.00000	0.00000	L 956
TR1	R1					AP											03419208	0.00000	0.00000	L 957
TR1	R1					AP											03419209	11.00000	0.00000	L 958
TR1	R1					AP											03419210	11.00000	0.00000	L 959
TR1	R1					AP											03419211	0.00000	0.00000	L 960
TR1	R1					AP											03419212	0.00000	0.00000	L 961
TR1	R1					AP											03419213	0.00000	0.00000	L 962
TR1	R1					AP											03419214	0.00000	0.00000	L 963
TR1	R1					AP											03419216	0.00000	0.16100	RS 32/126/2
TR1	R1					AP											03419217	0.00000	0.30400	RS 32/126/1
TR1	R1					AP											03419301	0.00000	0.00000	L 964
TR1	R1					AP											03419302	11.00000	0.00000	L 965
TR1	R1					AP											03419303	11.00000	0.00000	L 966
TR1	R1					AP											03419304	11.00000	0.00000	L 967
TR1	R1					AP											03419305	11.00000	0.00000	L 968
TR1	R1					AP											03420101	0.00000	0.36000	L 647
TR1	R1					AP											03420102	11.00000	0.00000	L 648
TR1	R1					AP											03420103	11.00000	0.00000	L 649
TR1	R1					AP											03420104	0.00000	0.00000	L 650
TR1	R1					AP											03420105	0.00000	0.00000	L 651
TR1	R1					AP											03420106	0.00000	0.00000	L 652
TR1	R1					AP											03420107	11.00000	0.00000	L 653
TR1	R1					AP											03420108	0.00000	0.00000	L 654
TR1	R1					AP											03420109	0.00000	0.00000	L 655
TR1	R1					AP											03420110	0.00000	0.23300	L 656
TR1	R1					AP											03420111	11.00000	0.00000	L 657
TR1	R1					AP											03420112	0.00000	0.00000	L 658
TR1	R1					AP											03420201	0.00000	0.00000	L 610
TR1	R1					AP											03420202	0.00000	0.00000	L 611
TR1	R1					AP											03420203	0.00000	0.00000	L 612
TR1	R1					AP											03420204	0.00000	0.00000	L 613
TR1	R1					AP											03420205	0.00000	0.00000	L 614
TR1	R1					AP											03420206	11.00000	0.00000	L 615
TR1	R1					AP											03420207	0.00000	0.00000	L 616
TR1	R1					AP											03420208	0.00000	0.23300	L 617
TR1	R1					AP											03420209	0.00000	0.00000	L 618
TR1	R1					AP											03420301	0.00000	0.00000	L 619
TR1	R1					AP											03420302	0.00000	0.00000	L 620
TR1	R1					AP											03420303	0.00000	0.00000	L 621

TR1	R1					AP											03420304	11.00000	0.00000	L 622
TR1	R1					AP											03420305	11.00000	0.00000	L 623
TR1	R1					AP											03420306	0.00000	0.57100	L 624
TR1	R1					AP											03420309	0.00000	0.00000	L 627
TR1	R1					AP											03420310	0.00000	0.28500	L 628
TR1	R1					AP											03420311	0.00000	0.00000	L 629
TR1	R1					AP											03420312	0.00000	0.00000	L 640
TR1	R1					AP											03420313	0.00000	0.00000	L 641
TR1	R1					AP											03420314	11.00000	0.00000	L 642
TR1	R1					AP											03420318	11.00000	0.00000	L 646
TR1	R1					AP											03420319	0.00000	0.82900	L 644 645 646
TR1	R1					AP											03420320	0.00000	0.00000	LOTS 625 & 626
TR1	R1					AP											03420401	0.00000	0.00000	L 606
TR1	R1					AP											03420402	11.00000	0.00000	L 607
TR1	R1					AP											03420403	11.00000	0.00000	L 608
TR1	R1					AP											03420404	0.00000	0.00000	L 609
TR1	R1					AP											03421101	11.00000	0.00000	L 659
TR1	R1					AP											03421102	11.00000	0.00000	L 660
TR1	R1					AP											03421103	11.00000	0.00000	L 661
TR1	R1					AP											03421104	11.00000	0.00000	L 662
TR1	R1					AP											03421105	0.00000	0.00000	L 663
TR1	R1					AP											03421201	0.00000	0.00000	L 630
TR1	R1					AP											03421202	11.00000	0.00000	L 631
TR1	R1					AP											03421203	0.00000	0.00000	L 632
TR1	R1					AP											03421204	11.00000	0.00000	L 633
TR1	R1					AP											03421205	11.00000	0.00000	L 634
TR1	R1					AP											03421206	0.00000	0.00000	L 635
TR1	R1					AP											03421207	11.00000	0.00000	L 636
TR1	R1					AP											03421208	0.00000	0.00000	L 637
TR1	R1					AP											03421209	0.00000	0.00000	L 638
TR1	R1					AP											03421210	0.00000	0.00000	L 639
TR1	R1					AP											03421301	0.00000	0.00000	L 601
TR1	R1					AP											03421302	0.00000	0.00000	L 602
TR1	R1					AP											03421303	0.00000	0.00000	L 603
TR1	R1					AP											03421304	0.00000	0.00000	L 604
TR1	R1					AP											03421305	0.00000	0.00000	L 605
TR1	R1					AP											03421401	0.00000	0.00000	L 664
TR1	R1					AP											03421501	11.00000	0.00000	L 665
TR1	R1					AP											03421502	0.00000	0.00000	L 666
TR1	R1					AP											03421503	0.00000	0.00000	L 667
TR1	R1					AP											03421504	0.00000	0.00000	L 668
TR1	R1					AP											03421505	0.00000	0.00000	L 669
TR1	R1					AP											03421506	0.00000	0.00000	L 670
TR1	R1					AP											03421507	0.00000	0.00000	L 671
TR1	R1					AP											03421508	11.00000	0.00000	L 672
TR1	R1					AP											03421509	0.00000	0.24100	L 673

TR1	R1					AP											03421601	11.00000	0.00000	L 674
TR1	R1					AP											03421602	11.00000	0.00000	L 675
TR1	R1					AP											03421603	11.00000	0.00000	L 676
TR1	R1					AP											03422103	0.00000	0.00000	L 5
TR1	R1					AP											03422104	0.00000	0.00000	L 6
TR1	R1					AP											03422105	0.00000	0.00000	L 7
TR1	R1					AP											03422106	0.00000	0.00000	L 8
TR1	R1					AP											03422107	0.00000	0.17100	L 9
TR1	R1					AP											03422108	11.00000	0.00000	L 10
TR1	R1					AP											03422109	0.00000	0.00000	L 11
TR1	R1					AP											03422110	0.00000	0.00000	L 12
TR1	R1					AP											03422111	11.00000	0.00000	L 13
TR1	R1					AP											03422112	0.00000	0.00000	L 14
TR1	R1					AP											03422113	11.00000	0.00000	L 15
TR1	R1					AP											03422114	11.00000	0.00000	L 16
TR1	R1					AP											03422115	0.00000	0.00000	L 17
TR1	R1					AP											03422116	11.00000	0.00000	L 18
TR1	R1					AP											03422117	0.00000	0.00000	L 19
TR1	R1					AP											03422118	0.00000	0.00000	L A
TR1	R1					AP											03422119	0.00000	0.00000	L 20
TR1	R1					AP											03422120	0.00000	0.00000	L 21
TR1	R1					AP											03422121	0.00000	0.00000	L 22
TR1	R1					AP											03422122	0.00000	0.00000	L 23
TR1	R1					AP											03422123	0.00000	0.00000	L 24
TR1	R1					AP											03422124	0.00000	0.00000	L 25
TR1	R1					AP											03422125	0.00000	0.00000	L 26
TR1	R1					AP											03422126	0.00000	0.00000	L 27
TR1	R1					AP											03422127	11.00000	0.00000	L 28
TR1	R1					AP											03422128	11.00000	0.00000	L 29
TR1	R1					AP											03422129	0.00000	0.00000	L 30
TR1	R1					AP											03422130	11.00000	0.00000	L 42
TR1	R1					AP											03422132	0.00000	0.00000	L 44
TR1	R1					AP											03422133	0.00000	0.00000	L 45
TR1	R1					AP											03422134	0.00000	0.00000	L 46
TR1	R1					AP											03422135	11.00000	0.00000	L 47
TR1	R1					AP											03422136	0.00000	0.18700	L 48
TR1	R1					AP											03422137	0.00000	0.00000	L 49
TR1	R1					AP											03422138	0.00000	0.00000	L 50
TR1	R1					AP											03422139	0.00000	0.00000	L 51
TR1	R1					AP											03422140	0.00000	0.00000	L 52
TR1	R1					AP											03422141	0.00000	0.00000	L 53
TR1	R1					AP											03422145	11.00000	0.00000	POR L 43
TR1	R1					AP											03422146	0.00000	0.00000	L 4
TR1	R1					AP											03422147	11.00000	0.00000	POR LOT 43
TR1	R1					AP											03422148	11.00000	0.00000	LOT 3
TR1	R1					AP											03422201	11.00000	0.00000	L 31

TR1	R1					AP											03422202	0.00000	0.00000	L 32
TR1	R1					AP											03422203	0.00000	0.00000	L 33
TR1	R1					AP											03422204	0.00000	0.00000	L 34
TR1	R1					AP											03422205	0.00000	0.00000	L 35
TR1	R1					AP											03422206	11.00000	0.00000	L 36
TR1	R1					AP											03422207	0.00000	0.00000	L 37
TR1	R1					AP											03422208	0.00000	0.00000	L 38
TR1	R1					AP											03422209	0.00000	0.00000	L 39
TR1	R1					AP											03422210	0.00000	0.00000	L 40
TR1	R1					AP											03422211	0.00000	0.00000	L 41
TR1	R1					AP											03422212	0.00000	0.00000	L 69
TR1	R1					AP											03422301	11.00000	0.00000	L 54
TR1	R1					AP											03422302	0.00000	0.00000	L 55
TR1	R1					AP											03422303	0.00000	0.13800	L 56
TR1	R1					AP											03422304	0.00000	0.00000	L 57
TR1	R1					AP											03422305	0.00000	0.14800	L 58
TR1	R1					AP											03422306	0.00000	0.00000	L 59
TR1	R1					AP											03422307	0.00000	0.00000	L 60
TR1	R1					AP											03422308	0.00000	0.00000	L 61
TR1	R1					AP											03422309	0.00000	0.00000	L 62
TR1	R1					AP											03422403	11.00000	0.00000	POR L 63
TR1	R1					AP											03422406	0.00000	0.00000	L 65
TR1	R1					AP											03422409	0.00000	0.00000	L 68
TR1	R1					AP											03422414	11.00000	0.00000	POR LOT 63
TR1	R1					AP											03422415	0.00000	0.00000	L 64
TR1	R1					AP											03422418	0.00000	0.22600	LOT 66 &POR RDWY
TR1	R1					AP											03422419	0.00000	0.00000	LOT 67 & POR RW
TR1	R1					AP											03422421	0.00000	0.00000	LOTS 1&2
TR1	R1					AP											03423101	11.00000	0.00000	L 705
TR1	R1					AP											03423102	0.00000	0.00000	L 706
TR1	R1					AP											03423103	0.00000	0.00000	L 707
TR1	R1					AP											03423104	11.00000	0.00000	L 708
TR1	R1					AP											03423105	0.00000	0.00000	L 709
TR1	R1					AP											03423106	0.00000	0.00000	L 710
TR1	R1					AP											03423107	11.00000	0.00000	L 711
TR1	R1					AP											03423110	11.00000	0.00000	L 714
TR1	R1					AP											03423111	0.00000	0.00000	L 715
TR1	R1					AP											03423112	0.00000	0.00000	L 716
TR1	R1					AP											03423113	11.00000	0.00000	L 717
TR1	R1					AP											03423114	0.00000	0.00000	L 718
TR1	R1					AP											03423115	0.00000	0.00000	L 719
TR1	R1					AP											03423116	0.00000	0.00000	L 720
TR1	R1					AP											03423117	11.00000	0.00000	L 721
TR1	R1					AP											03423118	0.00000	0.46000	LOT 712 & 713
TR1	R1					AP											03423201	0.00000	0.00000	L 681
TR1	R1					AP											03423202	11.00000	0.00000	L 682

TR1	R1					AP											03423203	11.00000	0.00000	L 683
TR1	R1					AP											03423204	0.00000	0.00000	L 684
TR1	R1					AP											03423205	11.00000	0.00000	L 685
TR1	R1					AP											03423206	11.00000	0.00000	L 686
TR1	R1					AP											03423207	0.00000	0.24000	L 687
TR1	R1					AP											03423208	0.00000	0.00000	L 688
TR1	R1					AP											03423209	0.00000	0.00000	L 689
TR1	R1					AP											03423210	0.00000	0.00000	L 690
TR1	R1					AP											03423211	0.00000	0.00000	L 691
TR1	R1					AP											03423212	11.00000	0.00000	L 692
TR1	R1					AP											03423213	11.00000	0.00000	L 693
TR1	R1					AP											03423214	11.00000	0.00000	L 694
TR1	R1					AP											03423215	11.00000	0.00000	L 695
TR1	R1					AP											03423216	0.00000	0.28300	L 696
TR1	R1					AP											03423217	0.00000	0.00000	L 697
TR1	R1					AP											03423218	11.00000	0.00000	L 698
TR1	R1					AP											03423219	0.00000	0.00000	L 699
TR1	R1					AP											03423220	11.00000	0.00000	L 700
TR1	R1					AP											03423221	11.00000	0.00000	L 701
TR1	R1					AP											03423222	11.00000	0.00000	L 702
TR1	R1					AP											03423223	0.00000	0.00000	L 703
TR1	R1					AP											03423224	0.00000	0.00000	L 704
TR1	R1					AP											03423301	0.00000	0.00000	L 677
TR1	R1					AP											03423302	0.00000	0.00000	L 678
TR1	R1					AP											03423303	11.00000	0.00000	L 679
TR1	R1					AP											03423305	0.00000	0.00000	POR L 680
TR1	R1					AP											03423306	0.00000	0.00000	POR L 680
TR1	R1					AP											03424101	0.00000	0.00000	L 1
TR1	R1					AP											03424102	0.00000	0.00000	L 2
TR1	R1					AP											03424103	0.00000	0.00000	L 3
TR1	R1					AP											03424104	0.00000	0.17600	L 4
TR1	R1					AP											03424105	0.00000	0.16100	L 5
TR1	R1					AP											03424106	0.00000	0.00000	L 6
TR1	R1					AP											03424201	0.00000	0.00000	L 7
TR1	R1					AP											03424202	0.00000	0.00000	L 8
TR1	R1					AP											03424203	0.00000	0.00000	L 9
TR1	R1					AP											03424204	0.00000	0.00000	L 10
TR1	R1					AP											03424205	0.00000	0.00000	L 11
TR1	R1					AP											03424206	11.00000	0.00000	L 12
TR1	R1					AP											03424207	0.00000	0.00000	L 13
TR1	R1					AP											03424208	0.00000	0.00000	L 14
TR1	R1					AP											03424209	0.00000	0.00000	L 15
TR1	R1					AP											03424210	11.00000	0.00000	L 16
TR1	R1					AP											03424301	11.00000	0.00000	L 17
TR1	R1					AP											03424302	0.00000	0.00000	L 18
TR1	R1					AP											03424303	11.00000	0.00000	L 19

TR1	R1					AP											03424304	0.00000	0.00000	L 20
TR1	R1					AP											03424305	11.00000	0.00000	L 21
TR1	R1					AP											03424306	0.00000	0.00000	L 22
TR1	R1					AP											03424307	0.00000	0.00000	L 23
TR1	R1					AP											03424308	0.00000	0.13800	L 24
TR1	R1					AP											03424309	0.00000	0.00000	L 25
TR1	R1					AP											03424310	0.00000	0.00000	L 26
TR1	R1					AP											03424311	0.00000	0.00000	L 27
TR1	R1					AP											03424312	0.00000	0.13800	L 28
TR1	R1					AP											03425101	0.00000	0.00000	L 15
TR1	R1					AP											03425102	0.00000	0.13800	L 16
TR1	R1					AP											03425103	0.00000	0.00000	L 17
TR1	R1					AP											03425104	0.00000	0.00000	L 18
TR1	R1					AP											03425105	0.00000	0.00000	L 19
TR1	R1					AP											03425106	0.00000	0.00000	L 20
TR1	R1					AP											03425107	0.00000	0.13800	L 21
TR1	R1					AP											03425108	0.00000	0.13800	L 22
TR1	R1					AP											03425109	0.00000	0.13800	L 23
TR1	R1					AP											03425110	0.00000	0.12400	L 24
TR1	R1					AP											03425111	11.00000	0.00000	L 25
TR1	R1					AP											03425112	11.00000	0.00000	L 26
TR1	R1					AP											03425201	0.00000	0.00000	L 27
TR1	R1					AP											03425202	0.00000	0.00000	L 28
TR1	R1					AP											03425203	0.00000	0.00000	L 29
TR1	R1					AP											03425204	0.00000	0.00000	L 30
TR1	R1					AP											03425205	0.00000	0.00000	L 31
TR1	R1					AP											03425206	0.00000	0.00000	L 32
TR1	R1					AP											03425207	0.00000	0.00000	L 33
TR1	R1					AP											03425208	0.00000	0.00000	L 34
TR1	R1					AP											03425209	0.00000	0.00000	L 35
TR1	R1					AP											03425210	0.00000	0.00000	L 36
TR1	R1					AP											03425211	0.00000	0.00000	L 37
TR1	R1					AP											03425212	0.00000	0.00000	L 38
TR1	R1					AP											03425213	0.00000	0.00000	L 39
TR1	R1					AP											03425214	0.00000	0.00000	L 40
TR1	R1					AP											03425215	0.00000	0.13800	L 41
TR1	R1					AP											03425216	0.00000	0.00000	L 42
TR1	R1					AP											03425217	0.00000	0.13800	L 43
TR1	R1					AP											03425218	0.00000	0.00000	L 44
TR1	R1					AP											03425219	0.00000	0.13800	L 45
TR1	R1					AP											03425220	0.00000	0.13800	L 46
TR1	R1					AP											03425221	0.00000	0.13800	L 47
TR1	R1					AP											03425222	0.00000	0.00000	L 48
TR1	R1					AP											03425223	0.00000	0.00000	L 49
TR1	R1					AP											03425224	0.00000	0.13800	L 50
TR1	R1					AP											03425227	0.00000	0.00000	L 53

TR1	R1					AP											03425228	11.00000	0.00000	L 54
TR1	R1					AP											03425229	0.00000	0.00000	LOT 51 & 52
TR1	R1					AP											03425301	0.00000	0.00000	L 135
TR1	R1					AP											03425304	0.00000	0.12600	L 138
TR1	R1					AP											03425305	0.00000	0.00000	L 139
TR1	R1					AP											03425308	0.00000	0.00000	L 142
TR1	R1					AP											03425309	0.00000	0.00000	L 143
TR1	R1					AP											03425310	0.00000	0.00000	L 144
TR1	R1					AP											03425311	0.00000	0.00000	L 145
TR1	R1					AP											03425312	0.00000	0.00000	L 146
TR1	R1					AP											03425313	0.00000	0.00000	L 147
TR1	R1					AP											03425314	0.00000	0.00000	L 148
TR1	R1					AP											03425315	0.00000	0.00000	L 149
TR1	R1					AP											03425316	0.00000	0.00000	L 150
TR1	R1					AP											03425317	0.00000	0.00000	L 151
TR1	R1					AP											03425318	0.00000	0.00000	L 152
TR1	R1					AP											03425321	0.00000	0.00000	L 155
TR1	R1					AP											03425322	0.00000	0.00000	L 156
TR1	R1					AP											03425323	0.00000	0.25300	LOT 136 & 137
TR1	R1					AP											03425324	0.00000	0.00000	LOT 140&LOT 141
TR1	R1					AP											03425325	0.00000	0.00000	LOT 153 & 154
TR1	R1					AP											03425401	0.00000	0.00000	L 157
TR1	R1					AP											03425402	0.00000	0.00000	L 158
TR1	R1					AP											03425403	0.00000	0.00000	L 159
TR1	R1					AP											03425404	0.00000	0.13200	L 160
TR1	R1					AP											03425405	0.00000	0.00000	L 161
TR1	R1					AP											03425406	0.00000	0.00000	L 162
TR1	R1					AP											03425407	0.00000	0.00000	L 163
TR1	R1					AP											03425408	0.00000	0.00000	L 164
TR1	R1					AP											03425409	0.00000	0.00000	L 165
TR1	R1					AP											03425410	0.00000	0.00000	L 166
TR1	R1					AP											03425411	0.00000	0.14000	L 167
TR1	R1					AP											03425412	0.00000	0.00000	L 168
TR1	R1					AP											03425413	0.00000	0.11200	L 169
TR1	R1					AP											03425414	0.00000	0.00000	L 170
TR1	R1					AP											03425415	0.00000	0.00000	L 171
TR1	R1					AP											03426101	0.00000	0.00000	L 1
TR1	R1					AP											03426102	0.00000	0.00000	L 2
TR1	R1					AP											03426103	0.00000	0.00000	L 3
TR1	R1					AP											03426104	0.00000	0.00000	L 4
TR1	R1					AP											03426105	0.00000	0.00000	L 5
TR1	R1					AP											03426106	0.00000	0.00000	L 6
TR1	R1					AP											03426107	0.00000	0.00000	L 7
TR1	R1					AP											03426108	0.00000	0.00000	L 8
TR1	R1					AP											03426109	0.00000	0.00000	L 9
TR1	R1					AP											03426110	0.00000	0.00000	L 10

TR1	R1					AP											03426111	0.00000	0.13800	L 11
TR1	R1					AP											03426112	0.00000	0.00000	L 12
TR1	R1					AP											03426115	0.00000	0.00000	L 14 & L 13
TR1	R1					AP											03426201	0.00000	0.00000	L 55
TR1	R1					AP											03426202	11.00000	0.00000	L 56
TR1	R1					AP											03426203	0.00000	0.00000	L 57
TR1	R1					AP											03426204	0.00000	0.13800	L 58
TR1	R1					AP											03426205	0.00000	0.13800	L 59
TR1	R1					AP											03426206	0.00000	0.00000	L 60
TR1	R1					AP											03426207	0.00000	0.00000	L 61
TR1	R1					AP											03426208	0.00000	0.00000	L 62
TR1	R1					AP											03426301	0.00000	0.00000	L 63
TR1	R1					AP											03426302	0.00000	0.00000	L 64
TR1	R1					AP											03426303	0.00000	0.00000	L 65
TR1	R1					AP											03426304	0.00000	0.00000	L 66
TR1	R1					AP											03426305	0.00000	0.00000	L 67
TR1	R1					AP											03426306	0.00000	0.00000	L 68
TR1	R1					AP											03426401	0.00000	0.00000	L 69
TR1	R1					AP											03426402	0.00000	0.00000	L 70
TR1	R1					AP											03426403	0.00000	0.00000	L 71
TR1	R1					AP											03426404	0.00000	0.00000	L 72
TR1	R1					AP											03426405	0.00000	0.00000	L 73
TR1	R1					AP											03426406	0.00000	0.00000	L 74
TR1	R1					AP											03426501	0.00000	0.00000	L 75
TR1	R1					AP											03426502	0.00000	0.00000	L 76
TR1	R1					AP											03426503	0.00000	0.13800	L 77
TR1	R1					AP											03426504	0.00000	0.00000	L 78
TR1	R1					AP											03426505	0.00000	0.13800	L 79
TR1	R1					AP											03426506	0.00000	0.00000	L 80
TR1	R1					AP											03426507	0.00000	0.00000	L 81
TR1	R1					AP											03426508	0.00000	0.13800	L 82
TR1	R1					AP											03426509	0.00000	0.00000	L 83
TR1	R1					AP											03426510	0.00000	0.13800	L 84
TR1	R1					AP											03426511	0.00000	0.00000	L 85
TR1	R1					AP											03426512	0.00000	0.13800	L 86
TR1	R1					AP											03426513	0.00000	0.00000	L 87
TR1	R1					AP											03426514	0.00000	0.00000	L 88
TR1	R1					AP											03426515	0.00000	0.00000	L 89
TR1	R1					AP											03426516	0.00000	0.00000	L 90
TR1	R1					AP											03426517	0.00000	0.00000	L 91
TR1	R1					AP											03426518	0.00000	0.13800	L 92
TR1	R1					AP											03426519	0.00000	0.00000	L 93
TR1	R1					AP											03426520	0.00000	0.00000	L 94
TR1	R1					AP											03426521	0.00000	0.00000	L 95
TR1	R1					AP											03426522	0.00000	0.00000	L 96
TR1	R1					AP											03426523	0.00000	0.00000	L 97

TR1	R1					AP											03426524	0.00000	0.00000	L 98
TR1	R1					AP											03426525	0.00000	0.00000	L 99
TR1	R1					AP											03426526	0.00000	0.00000	L 100
TR1	R1					AP											03426527	0.00000	0.13800	L 101
TR1	R1					AP											03426528	0.00000	0.00000	L 102
TR1	R1					AP											03426529	0.00000	0.00000	L 103
TR1	R1					AP											03426601	0.00000	0.00000	L 104
TR1	R1					AP											03426602	0.00000	0.13800	L 105
TR1	R1					AP											03426603	0.00000	0.13800	L 106
TR1	R1					AP											03426604	0.00000	0.13800	L 107
TR1	R1					AP											03426607	0.00000	0.13800	L 110
TR1	R1					AP											03426608	0.00000	0.00000	L 111
TR1	R1					AP											03426609	0.00000	0.00000	L 112
TR1	R1					AP											03426610	0.00000	0.00000	L 113
TR1	R1					AP											03426611	0.00000	0.00000	L 114
TR1	R1					AP											03426612	0.00000	0.15700	L 115
TR1	R1					AP											03426613	0.00000	0.00000	L 116
TR1	R1					AP											03426614	0.00000	0.00000	L 117
TR1	R1					AP											03426615	0.00000	0.00000	L 118
TR1	R1					AP											03426616	0.00000	0.00000	L 119
TR1	R1					AP											03426617	11.00000	0.00000	L 120
TR1	R1					AP											03426618	11.00000	0.00000	L 121
TR1	R1					AP											03426619	0.00000	0.00000	L 122
TR1	R1					AP											03426620	0.00000	0.00000	L 123
TR1	R1					AP											03426621	0.00000	0.00000	L 124
TR1	R1					AP											03426622	0.00000	0.13800	L 125
TR1	R1					AP											03426623	0.00000	0.00000	L 126
TR1	R1					AP											03426624	0.00000	0.00000	L 127
TR1	R1					AP											03426625	0.00000	0.00000	L 128
TR1	R1					AP											03426626	0.00000	0.13800	L 129
TR1	R1					AP											03426627	0.00000	0.00000	L 130
TR1	R1					AP											03426628	0.00000	0.00000	L 131
TR1	R1					AP											03426629	0.00000	0.13800	L 132
TR1	R1					AP											03426630	0.00000	0.00000	L 133
TR1	R1					AP											03426631	0.00000	0.00000	L 134
TR1	R1					AP											03426632	0.00000	0.27500	LOT 108 & 109
TR1	R1					AP											03426704	0.00000	0.00000	SEC 29 12 18
TR1	R1					AP											03426705	0.00000	0.17000	SEC 29 12 18
TR1	R1					AP											03426706	0.00000	0.24800	SEC 29 12 18
TR1	R1					AP											03426707	0.00000	0.17000	SEC 29 12 18
TR1	R1					AP											03426708	0.00000	0.16500	SEC 29 12 18
TR1	R1					AP											03426709	0.00000	0.51000	S 29 12 18
CT	CC					AP											03427039	11.00000	0.00000	POR L 15 R/S SEC
CT	CC					AP											03427040	11.00000	0.00000	POR L 14 R/S
CT	CC					AP											03427041	11.00000	0.00000	POR SEC 29 12 18
TTC	CC					AP											03427041	11.00000	0.00000	POR SEC 29 12 18

CT	TC					AP											03427046	0.00000	0.00000	POR L 12 & 13 SE
TTC	TC					AP											03427046	0.00000	0.00000	POR L 12 & 13 SE
TTC	TC					AP											03427047	11.00000	0.00000	POR SEC 29 12 18
CT	CC					AP											03427055	11.00000	0.00000	POR SEC 29 12 18
CT	CC					AP											03427060	11.00000	0.00000	POR SEC 29 12 18
TR1	R1					AP											03428301	0.00000	0.23000	L 102
TR1	R1					AP											03428302	0.00000	0.00000	L 103
TR1	R1					AP											03428303	0.00000	0.00000	L 104
TR1	R1					AP											03428304	0.00000	0.00000	L 105
TR1	R1					AP											03428305	0.00000	0.23000	L 106
TR1	R1					AP											03428306	0.00000	0.00000	L 107
TR1	R1					AP											03428307	0.00000	0.00000	L 108
TR1	R1					AP											03428308	0.00000	0.23000	L 109
TR1	R1					AP											03428309	0.00000	0.23000	L 110
TR1	R1					AP											03428310	0.00000	0.00000	L 111
TR1	R1					AP											03428313	0.00000	0.00000	L 114
TR1	R1					AP											03428314	0.00000	0.00000	L 89
TR1	R1					AP											03428315	0.00000	0.23000	L 90
TR1	R1					AP											03428316	0.00000	0.00000	L 91
TR1	R1					AP											03428317	0.00000	0.00000	L 92
TR1	R1					AP											03428318	0.00000	0.00000	L 93
TR1	R1					AP											03428319	0.00000	0.00000	L 94
TR1	R1					AP											03428320	0.00000	0.23000	L 95
TR1	R1					AP											03428321	0.00000	0.00000	L 96
TR1	R1					AP											03428322	0.00000	0.00000	L 97
TR1	R1					AP											03428323	0.00000	0.00000	L 98
TR1	R1					AP											03428324	0.00000	0.23000	L 99
TR1	R1					AP											03428325	0.00000	0.23000	L 100
TR1	R1					AP											03428326	0.00000	0.00000	L 101
TR1	R1					AP											03428327	0.00000	0.46000	LOT 112 & 113
TR1	R1					AP											03428401	0.00000	0.00000	L 76
TR1	R1					AP											03428402	0.00000	0.00000	L 77
TR1	R1					AP											03428403	0.00000	0.00000	L 78
TR1	R1					AP											03428406	0.00000	0.00000	L 81
TR1	R1					AP											03428407	0.00000	0.00000	L 82
TR1	R1					AP											03428408	0.00000	0.00000	L 83
TR1	R1					AP											03428409	0.00000	0.00000	L 84
TR1	R1					AP											03428410	0.00000	0.23000	L 85
TR1	R1					AP											03428411	0.00000	0.23000	L 86
TR1	R1					AP											03428412	0.00000	0.00000	L 87
TR1	R1					AP											03428413	0.00000	0.23000	L 88
TR1	R1					AP											03428414	0.00000	0.25600	L 63
TR1	R1					AP											03428415	0.00000	0.00000	L 64
TR1	R1					AP											03428416	0.00000	0.00000	L 65
TR1	R1					AP											03428419	0.00000	0.00000	L 68
TR1	R1					AP											03428420	0.00000	0.00000	L 69

TR1	R1					AP											03428421	0.00000	0.23100	L 70
TR1	R1					AP											03428422	0.00000	0.00000	L 71
TR1	R1					AP											03428423	0.00000	0.00000	L 72
TR1	R1					AP											03428424	0.00000	0.00000	L 73
TR1	R1					AP											03428425	0.00000	0.00000	L 74
TR1	R1					AP											03428426	0.00000	0.23000	L 75
TR1	R1					AP											03428427	0.00000	0.00000	POR L 67
TR1	R1					AP											03428428	0.00000	0.00000	L 66 POR L 67
TR1	R1					AP											03428429	0.00000	0.46000	LOTS 79 & 80
TR1	R1					AP											03428501	0.00000	0.27800	L 62
TR1	R1					AP											03428502	0.00000	0.00000	L 61
TR1	R1					AP											03428503	0.00000	0.00000	L 60
TR1	R1					AP											03428506	0.00000	0.00000	L 57
TR1	R1					AP											03428507	0.00000	0.00000	LOTS 58 & 59
TR1	R1					AP											03429401	0.00000	0.00000	L 23
TR1	R1					AP											03429402	0.00000	0.00000	L 24
TR1	R1					AP											03429403	0.00000	0.00000	L 25
TR1	R1					AP											03429404	11.00000	0.00000	L 26
TR1	R1					AP											03429405	0.00000	0.00000	L 27
TR1	R1					AP											03429406	0.00000	0.00000	L 28
TR1	R1					AP											03429407	0.00000	0.23100	L 29
TR1	R1					AP											03429408	0.00000	0.00000	L 30
TR1	R1					AP											03429409	0.00000	0.00000	L 31
TR1	R1					AP											03429410	0.00000	0.00000	L 32
TR1	R1					AP											03429411	0.00000	0.00000	L 33
TR1	R1					AP											03429414	0.00000	0.23400	L 36
TR1	R1					AP											03429415	0.00000	0.23400	L 37
TR1	R1					AP											03429416	0.00000	0.00000	L 38
TR1	R1					AP											03429417	0.00000	0.00000	L 39
TR1	R1					AP											03429418	0.00000	0.00000	L 40
TR1	R1					AP											03429419	0.00000	0.00000	L 41
TR1	R1					AP											03429420	0.00000	0.00000	L 42
TR1	R1					AP											03429423	0.00000	0.00000	L 43 & POR 44
TR1	R1					AP											03429425	0.00000	0.28000	PM 24/111/A
TR1	R1					AP											03429426	0.00000	0.20000	PM 24/111/B
TR1	R1					AP											03429502	0.00000	0.00000	L 46
TR1	R1					AP											03429503	0.00000	0.00000	L 47
TR1	R1					AP											03429504	0.00000	0.00000	L 48
TR1	R1					AP											03429505	0.00000	0.00000	L 49
TR1	R1					AP											03429506	0.00000	0.00000	L 50
TR1	R1					AP											03429507	0.00000	0.00000	L 51
TR1	R1					AP											03429508	0.00000	0.00000	L 52
TR1	R1					AP											03429509	0.00000	0.00000	L 53
TR1	R1					AP											03429510	0.00000	0.00000	L 54
TR1	R1					AP											03429511	0.00000	0.00000	L 55
TR1	R1					AP											03429512	0.00000	0.00000	L 56

TR1	R1					AP											03429513	0.00000	0.00000	L 45
TRT	RF-L					AP											03430010	11.00000	7.79700	RS 32/30/1
TR2	RM					AP											03430024	11.00000	0.00000	POR 30&31 12 18
TR1	R1					AP											03431101	0.00000	0.00000	L 1101
TR1	R1					AP											03431201	0.00000	0.00000	L 1102
TR1	R1					AP											03431202	11.00000	0.00000	L 1103
TR1	R1					AP											03431203	0.00000	0.00000	L 1104
TR1	R1					AP											03431204	0.00000	0.00000	L 1105
TR1	R1					AP											03431205	11.00000	0.00000	L 1106
TR1	R1					AP											03431301	0.00000	0.00000	L 1107
TR1	R1					AP											03431302	0.00000	0.31600	L 1108
TR1	R1					AP											03431303	0.00000	0.00000	L 1109
TR1	R1					AP											03431304	0.00000	0.23100	L 1110
TR1	R1					AP											03431305	0.00000	0.00000	L 1111
TR1	R1					AP											03431306	0.00000	0.00000	L 1112
TR1	R1					AP											03431307	0.00000	0.00000	L 1113
TR1	R1					AP											03431308	0.00000	0.00000	L 1114
TR1	R1					AP											03431309	11.00000	0.00000	L 1115
TR1	R1					AP											03432101	0.00000	0.00000	L 1116
TR1	R1					AP											03432102	0.00000	0.29400	L 1117
TR1	R1					AP											03432103	0.00000	0.00000	L 1118
TR1	R1					AP											03432104	0.00000	0.00000	L 1119
TR1	R1					AP											03432105	0.00000	0.00000	L 1120
TR1	R1					AP											03433106	0.00000	0.00000	L 41
TR1	R1					AP											03433107	0.00000	0.00000	L 42
TR1	R1					AP											03433108	0.00000	0.23000	L 43
TR1	R1					AP											03433109	0.00000	0.00000	L 44
TR1	R1					AP											03433110	0.00000	0.23000	L 45
TR1	R1					AP											03433111	0.00000	0.00000	L 46
TR1	R1					AP											03433112	0.00000	0.00000	L 47
TR1	R1					AP											03433113	0.00000	0.00000	L 48
TR1	R1					AP											03433114	0.00000	0.00000	L 49
TR1	R1					AP											03433201	0.00000	0.00000	L 24
TR1	R1					AP											03433202	0.00000	0.00000	L 25
TR1	R1					AP											03433203	0.00000	0.00000	L 26
TR1	R1					AP											03433204	0.00000	0.23200	L 27
TR1	R1					AP											03433207	0.00000	0.00000	L 30
TR1	R1					AP											03433208	0.00000	0.47000	PM 43/87/1
TR1	R1					AP											03433301	0.00000	0.00000	L 10
TR1	R1					AP											03433302	0.00000	0.00000	L 11
TR1	R1					AP											03433303	0.00000	0.30800	L 12
TR1	R1					AP											03433304	0.00000	0.30600	L 13
TR1	R1					AP											03433305	0.00000	0.00000	L 14
TR1	R1					AP											03433306	0.00000	0.30300	L 15
TR1	R1					AP											03433401	11.00000	0.00000	L 4
TR1	R1					AP											03433402	0.00000	0.00000	L 5

TR1	R1					AP											03433403	0.00000	0.00000	L 6
TR1	R1					AP											03433404	0.00000	0.00000	L 7
TR1	R1					AP											03433405	0.00000	0.00000	L 8
TR1	R1					AP											03433406	0.00000	0.27200	L 9
TR1	R1					AP											03434101	0.00000	0.00000	L 37
TR1	R1					AP											03434102	0.00000	0.00000	L 38
TR1	R1					AP											03434103	0.00000	0.00000	L 39
TR1	R1					AP											03434104	0.00000	0.00000	L 40
TR1	R1					AP											03434301	11.00000	0.00000	L 17
TR1	R1					AP											03434305	0.00000	0.32400	L 21
TR1	R1					AP											03434306	0.00000	0.00000	L 22
TR1	R1					AP											03434307	0.00000	0.00000	L 23
TR1	R1					AP											03434308	0.00000	0.00000	L 31
TR1	R1					AP											03434309	0.00000	0.00000	L 32
TR1	R1					AP											03434310	0.00000	0.00000	L 33
TR1	R1					AP											03434311	0.00000	0.00000	L 34
TR1	R1					AP											03434312	0.00000	0.00000	L 35
TR1	R1					AP											03434313	0.00000	0.00000	POR LOT 20
TR1	R1					AP											03434316	0.00000	0.00000	POR LOT 19 & 20
TR1	R1					AP											03434318	0.00000	0.00000	L 18 & POR L 19
TA	FR-160					AP											03434401	0.00000	0.00000	L K
TR1	R1					AP											03435005	0.00000	0.00000	POR L 9
TR1	R1					AP											03435006	0.00000	0.00000	POR L 9
TR1	R1					AP											03435007	0.00000	0.00000	POR L 10
TR1	R1					AP											03435008	0.00000	0.00000	POR L 10
TR1	R1					AP											03436101	0.00000	0.00000	L 1201
TR1	R1					AP											03436102	0.00000	0.00000	L 1202
TR1	R1					AP											03436103	11.00000	0.00000	L 1203
TR1	R1					AP											03436104	11.00000	0.00000	L 1204
TR1	R1					AP											03436105	0.00000	0.23400	L 1205
TR1	R1					AP											03436106	11.00000	0.00000	L 1206
TR1	R1					AP											03436107	11.00000	0.00000	L 1207
TR1	R1					AP											03436108	11.00000	0.00000	L 1208
TR1	R1					AP											03436109	11.00000	0.00000	L 1209
TR1	R1					AP											03436201	11.00000	0.00000	L 1211
TR1	R1					AP											03436202	11.00000	0.00000	L 1212
TR1	R1					AP											03436203	11.00000	0.00000	L 1213
TR1	R1					AP											03436204	11.00000	0.00000	L 1214
TR1	R1					AP											03436205	11.00000	0.00000	L 1215
TR1	R1					AP											03436206	0.00000	0.00000	L 1216
TR1	R1					AP											03436207	11.00000	0.00000	L 1217
TR1	R1					AP											03436208	0.00000	0.00000	L 1218
TR1	R1					AP											03436209	11.00000	0.00000	L 1219
TR1	R1					AP											03436210	0.00000	0.00000	L 1220
TR1	R1					AP											03436211	0.00000	0.00000	L 1221
TR1	R1					AP											03436212	11.00000	0.00000	L 1222

TR1	R1					AP											03436213	11.00000	0.00000	L 1223
TR1	R1					AP											03436214	0.00000	0.00000	L 1224
TR1	R1					AP											03436301	0.00000	0.00000	L 1210
TR1	R1					AP											03436302	0.00000	0.00000	L 1225
TR1	R1					AP											03436303	0.00000	0.00000	L 1226
TR1	R1					AP											03436304	11.00000	0.00000	L 1227
TR1	R1					AP											03436305	0.00000	0.00000	L 1228
TR1	R1					AP											03436306	11.00000	0.00000	L 1229
TR1	R1					AP											03436307	11.00000	0.00000	L 1230
TR1	R1					AP											03436308	11.00000	0.00000	L 1231
TR1	R1					AP											03436309	11.00000	0.00000	L 1232
TR1	R1					AP											03436310	0.00000	0.23400	L 1233
TR1	R1					AP											03436311	11.00000	0.00000	L 1234
TR1	R1					AP											03436312	11.00000	0.00000	L 1235
TR1	R1					AP											03437101	0.00000	0.24000	L 762
TR1	R1					AP											03437102	0.00000	0.00000	L 761
TR1	R1					AP											03437103	0.00000	0.00000	L 760
TR1	R1					AP											03437104	0.00000	0.00000	L 759
TR1	R1					AP											03437105	0.00000	0.00000	L 758
TR1	R1					AP											03437106	0.00000	0.00000	L 757
TR1	R1					AP											03437107	0.00000	0.00000	L 756
TR1	R1					AP											03437108	0.00000	0.00000	L 755
TR1	R1					AP											03437109	0.00000	0.00000	L 754
TR1	R1					AP											03437201	0.00000	0.00000	L 763
TR1	R1					AP											03437202	0.00000	0.00000	L 764
TR1	R1					AP											03437203	0.00000	0.00000	L 765
TR1	R1					AP											03437205	0.00000	0.00000	L 767
TR1	R1					AP											03437206	0.00000	0.00000	L 768
TR1	R1					AP											03437207	11.00000	0.00000	L 769
TR1	R1					AP											03437208	0.00000	0.00000	L 770
TR1	R1					AP											03437209	0.00000	0.00000	L 771
TR1	R1					AP											03437210	0.00000	0.00000	L 791
TR1	R1					AP											03437211	11.00000	0.00000	L 790
TR1	R1					AP											03437212	11.00000	0.00000	L 789
TR1	R1					AP											03437213	11.00000	0.00000	L 792
TR1	R1					AP											03437214	0.00000	0.00000	L 793
TR1	R1					AP											03437215	0.00000	0.00000	L 794
TR1	R1					AP											03437216	11.00000	0.00000	L 795
TR1	R1					AP											03437217	11.00000	0.00000	L 788
TR1	R1					AP											03437218	0.00000	0.00000	L 787
TR1	R1					AP											03437219	11.00000	0.00000	L 786
TR1	R1					AP											03437220	11.00000	0.00000	L 785
TR1	R1					AP											03437221	0.00000	0.00000	L 766
TR1	R1					AP											03438101	0.00000	0.00000	L 747
TR1	R1					AP											03438102	11.00000	0.00000	L 748
TR1	R1					AP											03438103	11.00000	0.00000	L 749

TR1	R1					AP											03438104	0.00000	0.00000	L 750
TR1	R1					AP											03438105	0.00000	0.00000	L 751
TR1	R1					AP											03438106	0.00000	0.00000	L 752
TR1	R1					AP											03438107	0.00000	0.23700	L 753
TR1	R1					AP											03438201	0.00000	0.00000	L 722
TR1	R1					AP											03438202	0.00000	0.00000	L 723
TR1	R1					AP											03438203	0.00000	0.00000	L 724
TR1	R1					AP											03438204	11.00000	0.00000	L 725
TR1	R1					AP											03438205	0.00000	0.00000	L 726
TR1	R1					AP											03438206	0.00000	0.00000	L 727
TR1	R1					AP											03438207	0.00000	0.00000	L 728
TR1	R1					AP											03438208	11.00000	0.00000	L 729
TR1	R1					AP											03438209	11.00000	0.00000	L 730
TR1	R1					AP											03438210	0.00000	0.00000	L 731
TR1	R1					AP											03438211	11.00000	0.00000	L 732
TR1	R1					AP											03438212	11.00000	0.00000	L 733
TR1	R1					AP											03438213	0.00000	0.00000	L 734
TR1	R1					AP											03438214	0.00000	0.00000	L 774
TR1	R1					AP											03438215	0.00000	0.00000	L 773
TR1	R1					AP											03438216	11.00000	0.00000	L 772
TR1	R1					AP											03438217	11.00000	0.00000	L 775
TR1	R1					AP											03438218	11.00000	0.00000	L 776
TR1	R1					AP											03438219	11.00000	0.00000	L 777
TR1	R1					AP											03438220	11.00000	0.00000	L 778
TR1	R1					AP											03438221	11.00000	0.00000	L 779
TR1	R1					AP											03438222	11.00000	0.00000	L 780
TR1	R1					AP											03438223	0.00000	0.00000	L 781
TR1	R1					AP											03438224	0.00000	0.00000	L 782
TR1	R1					AP											03438225	0.00000	0.00000	L 783
TR1	R1					AP											03438226	11.00000	0.00000	L 784
TR1	R1					AP											03438301	0.00000	0.00000	L 735
TR1	R1					AP											03438302	0.00000	0.00000	L 736
TR1	R1					AP											03438303	11.00000	0.00000	L 737
TR1	R1					AP											03438304	11.00000	0.00000	L 738
TR1	R1					AP											03438401	11.00000	0.00000	L 739
TR1	R1					AP											03438402	11.00000	0.00000	L 740
TR1	R1					AP											03438403	11.00000	0.00000	L 741
TR1	R1					AP											03438404	0.00000	0.00000	L 742
TR1	R1					AP											03438405	0.00000	0.24400	L 743
TR1	R1					AP											03438406	0.00000	0.00000	L 744
TR1	R1					AP											03438407	0.00000	0.00000	L 745
TR1	R1					AP											03438408	0.00000	0.00000	L 746
CT	CC					AP											03440124	0.00000	0.09100	SEC 29 12 18
CT	CC					AP											03440125	0.00000	0.09200	SEC 29 12 18
TR1	R1					AP											03443101	11.00000	0.00000	L 344
TR1	R1					AP											03443102	11.00000	0.00000	L 345

TR1	R1					AP											03443103	11.00000	0.00000	L 346
TR1	R1					AP											03443104	0.00000	0.51400	L 347
TR1	R1					AP											03443105	11.00000	0.00000	L 348
TR1	R1					AP											03443201	11.00000	0.00000	L 327
TR1	R1					AP											03443202	0.00000	0.00000	L 328
TR1	R1					AP											03443203	11.00000	0.00000	L 329
TR1	R1					AP											03443204	0.00000	0.00000	L 330
TR1	R1					AP											03443205	11.00000	0.00000	L 331
TR1	R1					AP											03443206	11.00000	0.00000	L 332
TR1	R1					AP											03443207	11.00000	0.00000	L 337
TR1	R1					AP											03443208	11.00000	0.00000	L 338
TR1	R1					AP											03443209	0.00000	0.00000	L 339
TR1	R1					AP											03443210	11.00000	0.00000	L 340
TR1	R1					AP											03443211	11.00000	0.00000	L 341
TR1	R1					AP											03443212	11.00000	0.00000	L 342
TR1	R1					AP											03443213	0.00000	0.00000	L 343
TR1	R1					AP											03443301	0.00000	0.23000	L 313
TR1	R1					AP											03443302	11.00000	0.00000	L 314
TR1	R1					AP											03443303	0.00000	0.24800	L 315
TR1	R1					AP											03443304	0.00000	0.00000	L 316
TR1	R1					AP											03443305	0.00000	0.00000	L 317
TR1	R1					AP											03443306	0.00000	0.00000	L 318
TR1	R1					AP											03443307	0.00000	0.00000	L 323
TR1	R1					AP											03443308	0.00000	0.00000	L 324
TR1	R1					AP											03443309	0.00000	0.00000	L 325
TR1	R1					AP											03443310	0.00000	0.00000	L 326
TR1	R1					AP											03443401	0.00000	0.00000	L 300
TR1	R1					AP											03443402	11.00000	0.00000	L 301
TR1	R1					AP											03443403	0.00000	0.00000	L 302
TR1	R1					AP											03443404	0.00000	0.28000	L 303
TR1	R1					AP											03443405	0.00000	0.00000	L 308
TR1	R1					AP											03443406	0.00000	0.00000	L 309
TR1	R1					AP											03443407	11.00000	0.00000	L 310
TR1	R1					AP											03443408	0.00000	0.24400	L 311
TR1	R1					AP											03443409	0.00000	0.23500	L 312
TR1	R1					AP											03443501	0.00000	0.00000	L 304
TR1	R1					AP											03443502	0.00000	0.00000	L 305
TR1	R1					AP											03443503	11.00000	0.00000	L 306
TR1	R1					AP											03443504	0.00000	0.00000	L 307
TR1	R1					AP											03443601	11.00000	0.00000	L 319
TR1	R1					AP											03443602	11.00000	0.00000	L 322
TR1	R1					AP											03443603	0.00000	0.00000	L 321
TR1	R1					AP											03443604	0.00000	0.00000	L 320
TR1	R1					AP											03443701	11.00000	0.00000	L 333
TR1	R1					AP											03443702	11.00000	0.00000	L 334
TR1	R1					AP											03443703	0.00000	0.00000	L 335

TR1	R1					AP											03443704	0.00000	0.00000	L 336
TR1	R1					AP											03444101	0.00000	0.00000	L 349
TR1	R1					AP											03444102	11.00000	0.00000	L 350
TR1	R1					AP											03444103	11.00000	0.00000	L 376
TR1	R1					AP											03444104	0.00000	0.00000	L 377
TR1	R1					AP											03444105	11.00000	0.00000	L 378
TR1	R1					AP											03444106	11.00000	0.00000	L 379
TR1	R1					AP											03444107	11.00000	0.00000	L 380
TR1	R1					AP											03444108	11.00000	0.00000	L 381
TR1	R1					AP											03444109	11.00000	0.00000	L 382
TR1	R1					AP											03444110	11.00000	0.00000	L 383
TR1	R1					AP											03444201	11.00000	0.00000	L 373
TR1	R1					AP											03444202	0.00000	0.00000	L 374
TR1	R1					AP											03444203	11.00000	0.00000	L 375
TR1	R1					AP											03444301	0.00000	0.00000	L 351
TR1	R1					AP											03444302	0.00000	0.00000	L 352
TR1	R1					AP											03444303	0.00000	0.00000	L 353
TR1	R1					AP											03444304	0.00000	0.00000	L 354
TR1	R1					AP											03444305	11.00000	0.00000	L 355
TR1	R1					AP											03444306	11.00000	0.00000	L 356
TR1	R1					AP											03444307	11.00000	0.00000	L 357
TR1	R1					AP											03444308	11.00000	0.00000	L 358
TR1	R1					AP											03444309	11.00000	0.00000	L 359
TR1	R1					AP											03445101	0.00000	0.00000	L 395
TR1	R1					AP											03445102	0.00000	0.00000	L 396
TR1	R1					AP											03445103	0.00000	0.00000	L 397
TR1	R1					AP											03445201	11.00000	0.00000	L 384
TR1	R1					AP											03445202	11.00000	0.00000	L 385
TR1	R1					AP											03445203	0.00000	0.00000	L 386
TR1	R1					AP											03445204	11.00000	0.00000	L 387
TR1	R1					AP											03445205	11.00000	0.00000	L 388
TR1	R1					AP											03445206	0.00000	0.00000	L 389
TR1	R1					AP											03445207	11.00000	0.00000	L 390
TR1	R1					AP											03445208	11.00000	0.00000	L 391
TR1	R1					AP											03445209	0.00000	0.00000	L 392
TR1	R1					AP											03445210	11.00000	0.00000	L 393
TR1	R1					AP											03445211	11.00000	0.00000	L 394
TR1	R1					AP											03445301	11.00000	0.00000	L 366
TR1	R1					AP											03445302	0.00000	0.00000	L 367
TR1	R1					AP											03445303	11.00000	0.00000	L 368
TR1	R1					AP											03445304	11.00000	0.00000	L 369
TR1	R1					AP											03445305	0.00000	0.35000	L 370
TR1	R1					AP											03445306	0.00000	0.00000	L 371
TR1	R1					AP											03445307	11.00000	0.00000	L 372
TR1	R1					AP											03445401	11.00000	0.00000	L 360
TR1	R1					AP											03445402	11.00000	0.00000	L 361

TR1	R1					AP											03445403	0.00000	0.00000	L 362
TR1	R1					AP											03445404	11.00000	0.00000	L 363
TR1	R1					AP											03445405	11.00000	0.00000	L 364
TR1	R1					AP											03445406	11.00000	0.00000	L 365
TR1	R1					AP											03447101	0.00000	0.00000	L 584
TR1	R1					AP											03447102	0.00000	0.00000	L 585
TR1	R1					AP											03447103	0.00000	0.00000	L 586
TR1	R1					AP											03447104	0.00000	0.00000	L 587
TR1	R1					AP											03447105	0.00000	0.00000	L 588
TR1	R1					AP											03447106	0.00000	0.24400	L 589
TR1	R1					AP											03447107	0.00000	0.24100	L 590
TR1	R1					AP											03447108	0.00000	0.00000	L 591
TR1	R1					AP											03447109	0.00000	0.00000	L 592
TR1	R1					AP											03447110	11.00000	0.00000	L 593
TR1	R1					AP											03447201	0.00000	0.24700	L 594
TR1	R1					AP											03447202	0.00000	0.00000	L 595
TR1	R1					AP											03447203	11.00000	0.00000	L 596
TR1	R1					AP											03447204	0.00000	0.00000	L 597
TR1	R1					AP											03447205	0.00000	0.00000	L 598
TR1	R1					AP											03447206	0.00000	0.23400	L 599
TR1	R1					AP											03447207	0.00000	0.00000	L 600
TR1	R1					AP											03447208	0.00000	0.00000	L 601
TR1	R1					AP											03447209	0.00000	0.00000	L 602
TR1	R1					AP											03447210	0.00000	0.00000	L 603
TR1	R1					AP											03447211	0.00000	0.24100	L 604
TR1	R1					AP											03447212	0.00000	0.00000	L 605
TR1	R1					AP											03447213	0.00000	0.00000	L 606
TR1	R1					AP											03447214	11.00000	0.00000	L 607
TR1	R1					AP											03447215	0.00000	0.00000	L 608
TR1	R1					AP											03447216	0.00000	0.00000	L 609
TR1	R1					AP											03447217	0.00000	0.00000	L 610
TR1	R1					AP											03447218	0.00000	0.00000	L 611
TR1	R1					AP											03447219	0.00000	0.00000	L 612
TR1	R1					AP											03447304	0.00000	0.00000	L 616
TR1	R1					AP											03447305	11.00000	0.00000	L 617
TR1	R1					AP											03447308	0.00000	0.00000	L 620
TR1	R1					AP											03447309	11.00000	0.00000	L 621
TR1	R1					AP											03447310	0.00000	0.00000	L 622
TR1	R1					AP											03447311	0.00000	0.00000	L 623
TR1	R1					AP											03447312	0.00000	0.00000	L 624
TR1	R1					AP											03447313	0.00000	0.00000	L 625
TR1	R1					AP											03447314	11.00000	0.00000	L 626
TR1	R1					AP											03447315	11.00000	0.00000	L 627
TR1	R1					AP											03447316	11.00000	0.00000	L 628
TR1	R1					AP											03447317	0.00000	0.23100	L 629
TR1	R1					AP											03447318	0.00000	0.00000	L 630

TR1	R1					AP											03447319	0.00000	0.00000	L 631
TR1	R1					AP											03447320	0.00000	0.00000	L 632
TR1	R1					AP											03447325	0.00000	0.00000	L 613 & POR 614
TR1	R1					AP											03447326	0.00000	0.00000	L 615 & POR 614
TR1	R1					AP											03447327	0.00000	0.46300	LOT 618 &619
TR1	R1					AP											03447401	11.00000	0.00000	L 633
TR1	R1					AP											03447402	0.00000	0.00000	L 634
TR1	R1					AP											03447403	0.00000	0.00000	L 635
TR1	R1					AP											03447404	11.00000	0.00000	L 636
TR1	R1					AP											03447405	0.00000	0.00000	L 637
TR1	R1					AP											03447406	0.00000	0.00000	L 638
TR1	R1					AP											03447407	11.00000	0.00000	L 639
TR1	R1					AP											03447408	0.00000	0.00000	L 640
TR1	R1					AP											03447409	11.00000	0.00000	L 641
TR1	R1					AP											03447410	11.00000	0.00000	L 642
TR1	R1					AP											03447411	0.00000	0.00000	L 643
TR1	R1					AP											03447412	0.00000	0.00000	L 644
TR1	R1					AP											03447413	0.00000	0.00000	L 645
TR1	R1					AP											03447414	11.00000	0.00000	L 646
TR1	R1					AP											03447415	11.00000	0.00000	L 647
TR1	R1					AP											03447416	11.00000	0.00000	L 648
TR1	R1					AP											03447501	11.00000	0.00000	L 649
TR1	R1					AP											03447502	0.00000	0.00000	L 650
TR1	R1					AP											03447503	0.00000	0.00000	L 651
TR1	R1					AP											03447504	0.00000	0.00000	L 652
TR1	R1					AP											03447505	0.00000	0.00000	L 653
TR1	R1					AP											03448101	0.00000	0.00000	L 1
TR1	R1					AP											03448102	0.00000	0.00000	L 2
TR1	R1					AP											03448104	0.00000	0.00000	L 4
TR1	R1					AP											03448105	11.00000	0.00000	L 5
TR1	R1					AP											03448106	11.00000	0.00000	L 6
TR1	R1					AP											03448107	11.00000	0.00000	L 7
TR1	R1					AP											03448108	0.00000	0.00000	L 8
TR1	R1					AP											03448109	0.00000	0.00000	L 9
TR1	R1					AP											03448110	11.00000	0.00000	L 10
TR1	R1					AP											03448111	0.00000	0.00000	L 11
TR1	R1					AP											03448112	0.00000	0.00000	L 12
TR1	R1					AP											03448113	11.00000	0.00000	L 13
TR1	R1					AP											03448114	0.00000	0.00000	L 14
TR1	R1					AP											03448115	0.00000	0.00000	L 15
TR1	R1					AP											03448116	11.00000	0.00000	L 16
TR1	R1					AP											03448117	11.00000	0.00000	L 17
TR1	R1					AP											03448118	0.00000	0.00000	L 18
TR1	R1					AP											03448119	0.00000	0.00000	L 19
TR1	R1					AP											03448120	0.00000	0.00000	L 20
TR1	R1					AP											03448121	11.00000	0.00000	L 21

TR1	R1					AP											03448123	11.00000	0.00000	L 23
TR1	R1					AP											03448124	11.00000	0.00000	POR L 3
TR1	R1					AP											03448125	11.00000	0.00000	POR L 3
TR1	R1					AP											03448126	11.00000	0.00000	POR L 22
TR1	R1					AP											03448127	11.00000	0.00000	POR L 22
TR1	R1					AP											03448201	0.00000	0.00000	L 24
TR1	R1					AP											03448202	0.00000	0.00000	L 25
TR1	R1					AP											03448203	11.00000	0.00000	L 26
TR1	R1					AP											03448204	0.00000	0.00000	L 27
TR1	R1					AP											03448205	0.00000	0.00000	L 28
TR1	R1					AP											03448206	0.00000	0.00000	L 29
TR1	R1					AP											03449101	0.00000	0.00000	L 30
TR1	R1					AP											03449102	0.00000	0.00000	L 31
TR1	R1					AP											03449103	0.00000	0.00000	L 32
TR1	R1					AP											03449106	0.00000	0.00000	L 35
TR1	R1					AP											03449107	0.00000	0.00000	L 36
TR1	R1					AP											03449110	0.00000	0.29500	RS 27/16/3
TR1	R1					AP											03449113	11.00000	0.00000	POR L 37
TR1	R1					AP											03449114	11.00000	0.00000	POR L 37
TR1	R1					AP											03449115	0.00000	0.29500	RS 27/16/2
TR1	R1					AP											03449116	0.00000	0.29600	RS 27/16/1
TR1	R1					AP											03449117	11.00000	0.00000	L 34
TR1	R1					AP											03450101	11.00000	0.00000	L 1173
TR1	R1					AP											03450102	11.00000	0.00000	L 1174
TR1	R1					AP											03450103	11.00000	0.00000	L 1175
TR1	R1					AP											03450104	0.00000	0.00000	L 1176
TR1	R1					AP											03450105	0.00000	0.00000	L 1177
TR1	R1					AP											03450106	0.00000	0.00000	L 1178
TR1	R1					AP											03450107	0.00000	0.00000	L 1179
TR1	R1					AP											03450108	11.00000	0.00000	L 1180
TR1	R1					AP											03450109	11.00000	0.00000	L 1181
TR1	R1					AP											03450110	0.00000	0.00000	L 1182
TR1	R1					AP											03450201	11.00000	0.00000	L 1158
TR1	R1					AP											03450202	11.00000	0.00000	L 1159
TR1	R1					AP											03450204	11.00000	0.00000	L 1161
TR1	R1					AP											03450205	0.00000	0.00000	L 1162
TR1	R1					AP											03450206	0.00000	0.00000	L 1163
TR1	R1					AP											03450207	0.00000	0.26300	L 1164
TR1	R1					AP											03450208	11.00000	0.00000	L 1165
TR1	R1					AP											03450209	11.00000	0.00000	L 1166
TR1	R1					AP											03450210	11.00000	0.00000	L 1167
TR1	R1					AP											03450211	11.00000	0.00000	L 1168
TR1	R1					AP											03450212	11.00000	0.00000	L 1169
TR1	R1					AP											03450213	11.00000	0.00000	L 1170
TR1	R1					AP											03450214	11.00000	0.00000	L 1171
TR1	R1					AP											03450215	11.00000	0.00000	L 1172

TR1	R1					AP											03450217	0.00000	0.00000	L 1160
TR1	R1					AP											03450301	0.00000	0.00000	L 1151
TR1	R1					AP											03450302	11.00000	0.00000	L 1152
TR1	R1					AP											03450303	11.00000	0.00000	L 1153
TR1	R1					AP											03450304	0.00000	0.00000	L 1154
TR1	R1					AP											03450305	0.00000	0.00000	L 1155
TR1	R1					AP											03450306	11.00000	0.00000	L 1156
TR1	R1					AP											03450307	11.00000	0.00000	L 1157
TR1	R1					AP											03451101	0.00000	0.23600	L 986
TR1	R1					AP											03451102	0.00000	0.24800	L 987
TR1	R1					AP											03451103	0.00000	0.00000	L 988
TR1	R1					AP											03451104	11.00000	0.00000	L 989
TR1	R1					AP											03451105	0.00000	0.23900	L 990
TR1	R1					AP											03451201	0.00000	0.00000	L 971
TR1	R1					AP											03451202	0.00000	0.00000	L 972
TR1	R1					AP											03451203	0.00000	0.00000	L 973
TR1	R1					AP											03451204	0.00000	0.00000	L 974
TR1	R1					AP											03451205	0.00000	0.00000	L 975
TR1	R1					AP											03451206	0.00000	0.00000	L 976
TR1	R1					AP											03451207	0.00000	0.00000	L 977
TR1	R1					AP											03451208	0.00000	0.00000	L 978
TR1	R1					AP											03451209	0.00000	0.23100	L 979
TR1	R1					AP											03451210	0.00000	0.00000	L 980
TR1	R1					AP											03451211	0.00000	0.00000	L 981
TR1	R1					AP											03451212	0.00000	0.23100	L 982
TR1	R1					AP											03451213	0.00000	0.00000	L 983
TR1	R1					AP											03451214	11.00000	0.00000	L 984
TR1	R1					AP											03451215	0.00000	0.00000	L 985
TR1	R1					AP											03451301	0.00000	0.00000	L 936
TR1	R1					AP											03451302	0.00000	0.00000	L 937
TR1	R1					AP											03451303	0.00000	0.00000	L 938
TR1	R1					AP											03451304	0.00000	0.00000	L 939
TR1	R1					AP											03451305	0.00000	0.00000	L 940
TR1	R1					AP											03451306	0.00000	0.00000	L 941
TR1	R1					AP											03451307	0.00000	0.00000	L 942
TR1	R1					AP											03451308	0.00000	0.00000	L 943
TR1	R1					AP											03451309	0.00000	0.00000	L 944
TR1	R1					AP											03451310	0.00000	0.00000	L 945
TR1	R1					AP											03451311	0.00000	0.00000	L 947
TR1	R1					AP											03451312	0.00000	0.00000	L 948
TR1	R1					AP											03451313	0.00000	0.00000	L 949
TR1	R1					AP											03451314	0.00000	0.00000	L 950
TR1	R1					AP											03451315	11.00000	0.00000	L 951
TR1	R1					AP											03451316	0.00000	0.00000	L 952
TR1	R1					AP											03451317	11.00000	0.00000	L 953
TR1	R1					AP											03451318	0.00000	0.23100	L 954

TR1	R1					AP											03451319	0.00000	0.00000	L 955
TR1	R1					AP											03451320	11.00000	0.00000	L 956
TR1	R1					AP											03451321	0.00000	0.00000	L 957
TR1	R1					AP											03451322	0.00000	0.00000	L 958
TR1	R1					AP											03451325	0.00000	0.00000	L 961
TR1	R1					AP											03451326	0.00000	0.00000	L 962
TR1	R1					AP											03451327	0.00000	0.00000	L 963
TR1	R1					AP											03451328	0.00000	0.00000	L 964
TR1	R1					AP											03451329	0.00000	0.00000	L 965
TR1	R1					AP											03451330	0.00000	0.00000	L 966
TR1	R1					AP											03451331	0.00000	0.00000	L 967
TR1	R1					AP											03451333	0.00000	0.00000	POR L 959
TR1	R1					AP											03451334	0.00000	0.00000	L 960 & POR 959
TR1	R1					AP											03451401	0.00000	0.00000	L 946
TR1	R1					AP											03451501	11.00000	0.00000	L 921
TR1	R1					AP											03451502	0.00000	0.00000	L 922
TR1	R1					AP											03451503	11.00000	0.00000	L 923
TR1	R1					AP											03451504	0.00000	0.23800	L 924
TR1	R1					AP											03451505	11.00000	0.00000	L 925
TR1	R1					AP											03451506	0.00000	0.00000	L 926
TR1	R1					AP											03451507	11.00000	0.00000	L 927
TR1	R1					AP											03451508	0.00000	0.00000	L 928
TR1	R1					AP											03451509	0.00000	0.00000	L 929
TR1	R1					AP											03451510	0.00000	0.00000	L 930
TR1	R1					AP											03451511	0.00000	0.00000	L 931
TR1	R1					AP											03451512	0.00000	0.00000	L 932
TR1	R1					AP											03451513	0.00000	0.00000	L 933
TR1	R1					AP											03451514	0.00000	0.00000	L 934
TR1	R1					AP											03451517	11.00000	0.00000	L 969
TR1	R1					AP											03451518	11.00000	0.00000	L 970
TR1	R1					AP											03451519	0.00000	0.00000	LOT 935 & 968
TR1	R1					AP											03452101	11.00000	0.00000	L 1035
TR1	R1					AP											03452102	11.00000	0.00000	L 1036
TR1	R1					AP											03452103	0.00000	0.00000	L 1037
TR1	R1					AP											03452104	11.00000	0.00000	L 1038
TR1	R1					AP											03452105	11.00000	0.00000	L 1039
TR1	R1					AP											03452106	0.00000	0.00000	L 1040
TR1	R1					AP											03452107	11.00000	0.00000	L 1041
TR1	R1					AP											03452108	0.00000	0.00000	L 1042
TR1	R1					AP											03452109	0.00000	0.00000	L 1043
TR1	R1					AP											03452110	0.00000	0.00000	L 1044
TR1	R1					AP											03452111	0.00000	0.23800	L 1045
TR1	R1					AP											03452112	11.00000	0.00000	L 1046
TR1	R1					AP											03452113	0.00000	0.00000	L 1047
TR1	R1					AP											03452114	11.00000	0.00000	L 1048
TR1	R1					AP											03452201	0.00000	0.00000	L 991

TR1	R1					AP											03452202	11.00000	0.00000	L 992
TR1	R1					AP											03452203	0.00000	0.00000	L 993
TR1	R1					AP											03452204	11.00000	0.00000	L 994
TR1	R1					AP											03452205	0.00000	0.00000	L 995
TR1	R1					AP											03452206	0.00000	0.00000	L 996
TR1	R1					AP											03452207	0.00000	0.00000	L 997
TR1	R1					AP											03453101	11.00000	0.00000	L 1021
TR1	R1					AP											03453102	11.00000	0.00000	L 1022
TR1	R1					AP											03453103	0.00000	0.00000	L 1023
TR1	R1					AP											03453104	0.00000	0.00000	L 1024
TR1	R1					AP											03453105	0.00000	0.00000	L 1025
TR1	R1					AP											03453106	0.00000	0.00000	L 1026
TR1	R1					AP											03453107	0.00000	0.00000	L 1027
TR1	R1					AP											03453108	0.00000	0.00000	L 1028
TR1	R1					AP											03453109	0.00000	0.00000	L 1029
TR1	R1					AP											03453110	0.00000	0.00000	L 1030
TR1	R1					AP											03453111	0.00000	0.00000	L 1031
TR1	R1					AP											03453112	11.00000	0.00000	L 1032
TR1	R1					AP											03453113	0.00000	0.25700	L 1033
TR1	R1					AP											03453114	11.00000	0.00000	L 1034
TR1	R1					AP											03453201	0.00000	0.00000	L 998
TR1	R1					AP											03453202	0.00000	0.00000	L 999
TR1	R1					AP											03453203	0.00000	0.00000	L 1000
TR1	R1					AP											03453204	0.00000	0.00000	L 1001
TR1	R1					AP											03453205	0.00000	0.00000	L 1002
TR1	R1					AP											03453206	0.00000	0.00000	L 1003
TR1	R1					AP											03453207	0.00000	0.00000	L 1004
TR1	R1					AP											03453208	0.00000	0.23100	L 1005
TR1	R1					AP											03453209	11.00000	0.00000	L 1006
TR1	R1					AP											03453210	0.00000	0.00000	L 1007
TR1	R1					AP											03453211	0.00000	0.00000	L 1008
TR1	R1					AP											03453212	11.00000	0.00000	L 1009
TR1	R1					AP											03453213	0.00000	0.00000	L 1010
TR1	R1					AP											03453214	0.00000	0.00000	L 1011
TR1	R1					AP											03453215	0.00000	0.00000	L 1012
TR1	R1					AP											03453216	0.00000	0.00000	L 1013
TR1	R1					AP											03453217	0.00000	0.00000	L 1014
TR1	R1					AP											03453218	0.00000	0.00000	L 1015
TR1	R1					AP											03453219	0.00000	0.00000	L 1016
TR1	R1					AP											03453301	0.00000	0.23700	L 1017
TR1	R1					AP											03453302	0.00000	0.00000	L 1018
TR1	R1					AP											03453401	0.00000	0.00000	L 1019
TR1	R1					AP											03453402	11.00000	0.00000	L 1020
TR1	R1					AP											03454101	0.00000	0.00000	L 1049
TR1	R1					AP											03454102	0.00000	0.00000	L 1050
TR1	R1					AP											03454103	11.00000	0.00000	L 1051

TR1	R1					AP											03454104	0.00000	0.00000	L 1052
TR1	R1					AP											03454105	0.00000	0.00000	L 1053
TR1	R1					AP											03454106	0.00000	0.00000	L 1054
TR1	R1					AP											03454107	0.00000	0.00000	L 1055
TR1	R1					AP											03454108	0.00000	0.23800	L 1056
TR1	R1					AP											03454109	11.00000	0.00000	L 1057
TR1	R1					AP											03454110	11.00000	0.00000	L 1058
TR1	R1					AP											03454111	11.00000	0.00000	L 1059
TR1	R1					AP											03454112	0.00000	0.00000	L 1060
TR1	R1					AP											03454113	11.00000	0.00000	L 1061
TR1	R1					AP											03454114	0.00000	0.00000	L 1062
TR1	R1					AP											03454201	0.00000	0.00000	L 1103
TR1	R1					AP											03454202	0.00000	0.00000	L 1104
TR1	R1					AP											03454203	0.00000	0.23100	L 1105
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TR1	R1					AP											03454207	0.00000	0.23900	L 1109
TR1	R1					AP											03454208	11.00000	0.00000	L 1110
TR1	R1					AP											03454209	0.00000	0.00000	L 1111
TR1	R1					AP											03454210	0.00000	0.00000	L 1112
TR1	R1					AP											03454211	0.00000	0.24500	L 1113
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TR1	R1					AP											03457221	11.00000	0.00000	L 1244
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TR1	R1					AP											03459111	0.00000	0.00000	PM 6/36/A
TR1	R1					AP											03459112	11.00000	0.00000	PM 6/36/B
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TR1	R1					AP											03461106	11.00000	0.00000	L 6
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TR1	R1					AP											03461109	11.00000	0.00000	L 9
TR1	R1					AP											03461110	11.00000	0.00000	L 10
TR1	R1					AP											03461111	0.00000	0.00000	L 11
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TR1	R1					AP											03461113	11.00000	0.00000	L 13
TR1	R1					AP											03461114	0.00000	0.00000	L 14
TR1	R1					AP											03461115	11.00000	0.00000	L 15
TR1	R1					AP											03461201	0.00000	0.00000	L 16
TR1	R1					AP											03461202	11.00000	0.00000	L 17
TR1	R1					AP											03461203	0.00000	0.00000	L 18
TR1	R1					AP											03461204	0.00000	0.00000	L 19
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TR1	R1					AP											03461209	0.00000	0.00000	L 24
TR1	R1					AP											03461210	11.00000	0.00000	L 25
TR1	R1					AP											03461211	11.00000	0.00000	L 26
TR1	R1					AP											03461301	0.00000	0.00000	L 27
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TR1	R1					AP											03461303	11.00000	0.00000	L 29
TR1	R1					AP											03461304	11.00000	0.00000	L 30
TR1	R1					AP											03461305	0.00000	0.00000	L 31
TR1	R1					AP											03461306	11.00000	0.00000	L 32

TR1	R1					AP											03461307	0.00000	0.00000	L 33
TR1	R1					AP											03461308	0.00000	0.00000	L 34
TR1	R1					AP											03461309	11.00000	0.00000	L 35
TR1	R1					AP											03461310	11.00000	0.00000	L 36
TR1	R1					AP											03461401	0.00000	0.00000	L 37
TR1	R1					AP											03461402	11.00000	0.00000	L 38
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TR1	R1					AP											03461404	0.00000	0.00000	L 40
TR1	R1					AP											03461405	11.00000	0.00000	L 41
TR1	R1					AP											03461406	11.00000	0.00000	L 42
TR1	R1					AP											03461407	11.00000	0.00000	L 43
TR1	R1					AP											03461408	11.00000	0.00000	L 44
TR1	R1					AP											03461411	0.00000	0.00000	PM 43/107/1
TR1	R1					AP											03462101	0.00000	0.00000	L 1326
TR1	R1					AP											03462102	11.00000	0.00000	L 1327
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TR1	R1					AP											03462205	0.00000	0.00000	L 1333
TR1	R1					AP											03462206	11.00000	0.00000	L 1334
TR1	R1					AP											03462207	11.00000	0.00000	L 1335
TR1	R1					AP											03462301	11.00000	0.00000	L 1336
TR1	R1					AP											03462302	11.00000	0.00000	L 1337
TR1	R1					AP											03462303	11.00000	0.00000	L 1338
TR1	R1					AP											03462304	11.00000	0.00000	L 1339
TR1	R1					AP											03462305	11.00000	0.00000	L 1340
TR1	R1					AP											03462306	11.00000	0.00000	L 1341
TR1	R1					AP											03462307	0.00000	0.00000	L 1342
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TR1	R1					AP											03463102	0.00000	0.00000	L 1362
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TR1	R1					AP											03463104	11.00000	0.00000	L 1370
TR1	R1					AP											03463105	11.00000	0.00000	L 1371
TR1	R1					AP											03463106	11.00000	0.00000	L 1360
TR1	R1					AP											03463107	11.00000	0.00000	L 1359
TR1	R1					AP											03463108	0.00000	0.00000	L 1358
TR1	R1					AP											03463109	11.00000	0.00000	L 1357
TR1	R1					AP											03463110	11.00000	0.00000	L 1356
TR1	R1					AP											03463111	0.00000	0.00000	L 1355
TR1	R1					AP											03463112	11.00000	0.00000	L 1354
TR1	R1					AP											03463113	11.00000	0.00000	L 1353
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TR1	R1					AP											03463116	0.00000	0.00000	L 1350

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TR1	R1					AP											03464203	11.00000	0.00000	L 1365
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TR1	R1					AP											03465105	0.00000	0.00000	L 11

TR1	R1					AP											03465106	11.00000	0.00000	L 10
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TR1	R1					AP											03465208	0.00000	0.00000	L 31
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TR1	R1					AP											03465211	0.00000	0.00000	L 22
TR1	R1					AP											03465212	11.00000	0.00000	L 21
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TR1	R1					AP											03465309	0.00000	0.00000	L 56
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TR1	R1					AP											03465312	0.00000	0.00000	L 47
TR1	R1					AP											03465313	0.00000	0.00000	L 46
TR1	R1					AP											03465314	0.00000	0.00000	L 45
TR1	R1					AP											03465315	0.00000	0.00000	L 44
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TR1	R1					AP											03465406	0.00000	0.00000	L 70

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TR1	R1					AP											03465408	0.00000	0.00000	L 72
TR1	R1					AP											03465409	0.00000	0.00000	L 73
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TR1	R1					AP											03465411	11.00000	0.00000	L 75
TR1	R1					AP											03465412	0.00000	0.00000	L 76
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TR1	R1					AP											03466102	11.00000	0.00000	L 2
TR1	R1					AP											03466103	11.00000	0.00000	L 3
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TR1	R1					AP											03466106	0.00000	0.00000	L 6
TR1	R1					AP											03466107	0.00000	0.27000	L 7
TR1	R1					AP											03466201	0.00000	0.00000	L 24
TR1	R1					AP											03466202	0.00000	0.00000	L 25
TR1	R1					AP											03466203	0.00000	0.00000	L 26
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TR1	R1					AP											03466304	0.00000	0.00000	L 52
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TR1	R1					AP											03466306	0.00000	0.00000	L 54
TR1	R1					AP											03466401	0.00000	0.00000	L 82
TR1	R1					AP											03466402	11.00000	0.00000	L 83
TR1	R1					AP											03466403	0.00000	0.00000	L 84
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TR1	R1					AP											03466405	0.00000	0.00000	L 86
TR1	R1					AP											03466406	0.00000	0.00000	L 87
TR1	R1					AP											03466407	0.00000	0.00000	L 88
TR1	R1					AP											03466408	0.00000	0.00000	L 89
TR1	R1					AP											03466409	0.00000	0.00000	L 90
TR1	R1					AP											03466410	0.00000	0.00000	L 91
TR1	R1					AP											03466411	0.00000	0.00000	L 92
TR1	R1					AP											03466501	0.00000	0.00000	L 111
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TR1	R1					AP											03466510	11.00000	0.00000	L 105
TR1	R1					AP											03466511	0.00000	0.00000	L 104
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TR1	R1					AP											03466521	11.00000	0.00000	L 77
TR1	R1					AP											03466522	11.00000	0.00000	L 78
TR1	R1					AP											03466523	11.00000	0.00000	L 79
TR1	R1					AP											03466524	11.00000	0.00000	L 94
TR1	R1					AP											03466525	11.00000	0.00000	L 80
TR1	R1					AP											03466526	11.00000	0.00000	L 81
TR1	R1					AP											03466527	11.00000	0.00000	L 93
TR1	R1					AP											03466528	0.00000	1.12900	PM 44/105/1
TR1	R1					AP											03468101	0.00000	0.00000	L 452
TR1	R1					AP											03468102	0.00000	0.00000	L 453
TR1	R1					AP											03468103	0.00000	0.00000	L 454
TR1	R1					AP											03468104	0.00000	0.00000	L 455
TR1	R1					AP											03468105	0.00000	0.00000	L 456
TR1	R1					AP											03468106	11.00000	0.00000	L 457
TR1	R1					AP											03468201	0.00000	0.00000	L 458
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TR1	R1					AP											03468203	0.00000	0.00000	L 460
TR1	R1					AP											03468204	0.00000	0.00000	L 461
TR1	R1					AP											03468205	0.00000	0.00000	L 462
TR1	R1					AP											03468206	0.00000	0.00000	L 463
TR1	R1					AP											03468207	0.00000	0.00000	L 464
TR1	R1					AP											03468208	0.00000	0.00000	L 465
TR1	R1					AP											03468209	0.00000	0.00000	L 466
TR1	R1					AP											03468210	0.00000	0.00000	L 467
TR1	R1					AP											03468211	0.00000	0.00000	L 468
TR1	R1					AP											03468212	0.00000	0.00000	L 469
TR1	R1					AP											03468215	0.00000	0.00000	L 472
TR1	R1					AP											03468216	0.00000	0.00000	L 473
TR1	R1					AP											03468217	0.00000	0.00000	L 474
TR1	R1					AP											03468218	0.00000	0.00000	L 475
TR1	R1					AP											03468219	11.00000	0.00000	L 476
TR1	R1					AP											03468220	11.00000	0.00000	L 477
TR1	R1					AP											03468221	0.00000	0.00000	L 478
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TR1	R1					AP											03468224	0.00000	0.00000	L 481
TR1	R1					AP											03468225	0.00000	0.00000	L 482
TR1	R1					AP											03468226	0.00000	0.00000	L 483

TR1	R1					AP											03468227	0.00000	0.00000	L 484
TR1	R1					AP											03468228	0.00000	0.00000	L 485
TR1	R1					AP											03468229	0.00000	0.00000	L 486
TR1	R1					AP											03468230	0.00000	0.00000	L 487
TR1	R1					AP											03468231	0.00000	0.00000	L 488
TR1	R1					AP											03468232	0.00000	0.39000	PM 37/106/A
TR1	R1					AP											03468301	0.00000	0.00000	L 451
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TR1	R1					AP											03468303	0.00000	0.00000	L 449
TR1	R1					AP											03468304	0.00000	0.00000	L 448
TR1	R1					AP											03468305	0.00000	0.00000	L 447
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TR1	R1					AP											03468307	0.00000	0.00000	L 445
TR1	R1					AP											03468308	0.00000	0.00000	L 444
TR1	R1					AP											03468309	0.00000	0.00000	L 443
TR1	R1					AP											03468310	11.00000	0.00000	L 442
TR1	R1					AP											03468311	11.00000	0.00000	L 441
TR1	R1					AP											03468312	0.00000	0.00000	L 440
TR1	R1					AP											03468313	0.00000	0.00000	L 439
TR1	R1					AP											03468314	0.00000	0.00000	L 438
TR1	R1					AP											03468315	0.00000	0.00000	L 437
TR1	R1					AP											03468316	0.00000	0.00000	L 436
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TR1	R1					AP											03469101	0.00000	0.00000	L 414
TR1	R1					AP											03469102	0.00000	0.00000	L 415
TR1	R1					AP											03469103	0.00000	0.00000	L 416
TR1	R1					AP											03469104	11.00000	0.00000	L 417
TR1	R1					AP											03469105	11.00000	0.00000	L 418
TR1	R1					AP											03469106	11.00000	0.00000	L 419
TR1	R1					AP											03469107	11.00000	0.00000	L 420
TR1	R1					AP											03469108	11.00000	0.00000	L 421
TR1	R1					AP											03469109	0.00000	0.00000	L 422
TR1	R1					AP											03469112	0.00000	0.00000	L 425
TR1	R1					AP											03469113	11.00000	0.00000	L 426
TR1	R1					AP											03469114	0.00000	0.00000	L 427
TR1	R1					AP											03469115	11.00000	0.00000	L 428
TR1	R1					AP											03469116	11.00000	0.00000	L 429
TR1	R1					AP											03469117	0.00000	0.00000	L 430
TR1	R1					AP											03469118	0.00000	0.00000	L 431
TR1	R1					AP											03469119	11.00000	0.00000	L 432
TR1	R1					AP											03469120	0.00000	0.00000	LOT 424 &LOT 423
TR1	R1					AP											03469201	11.00000	0.00000	L 413
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TR1	R1					AP											03469203	0.00000	0.00000	L 411

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TR1	R1					AP											03469205	0.00000	0.00000	L 409
TR1	R1					AP											03469206	0.00000	0.20200	L 408
TR1	R1					AP											03469207	11.00000	0.00000	L 407
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TR1	R1					AP											03469210	0.00000	0.00000	L 404
TR1	R1					AP											03469211	0.00000	0.00000	L 403
TR1	R1					AP											03469212	0.00000	0.00000	L 402
TR1	R1					AP											03469213	0.00000	0.16800	L 401
TR1	R1					AP											03469214	0.00000	0.00000	L 400
TR1	R1					AP											03469215	0.00000	0.16800	L 399
TR1	R1					AP											03469216	0.00000	0.00000	L 385
TR1	R1					AP											03469217	0.00000	0.00000	L 386
TR1	R1					AP											03469218	11.00000	0.00000	L 387
TR1	R1					AP											03469219	0.00000	0.16600	L 388
TR1	R1					AP											03469224	11.00000	0.00000	L 393
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TR1	R1					AP											03469226	11.00000	0.00000	L 395
TR1	R1					AP											03469227	0.00000	0.00000	L 396
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TR1	R1					AP											03469229	0.00000	0.00000	L 398
TR1	R1					AP											03469230	0.00000	0.00000	PM 31/90/1
TR1	R1					AP											03469231	0.00000	0.39000	PM 44/120/1
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TR1	R1					AP											03469302	0.00000	0.00000	L 383
TR1	R1					AP											03469303	0.00000	0.00000	L 382
TR1	R1					AP											03469304	0.00000	0.00000	L 381
TR1	R1					AP											03469305	0.00000	0.00000	L 380
TR1	R1					AP											03469306	0.00000	0.00000	L 379
TR1	R1					AP											03469307	0.00000	0.00000	L 378
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TR1	R1					AP											03469309	0.00000	0.00000	L 376
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TR1	R1					AP											03475311	0.00000	0.00000	L 83

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TR1	R1					AP											03475320	0.00000	0.31400	PM 1/125/1
TR1	R1					AP											03475321	0.00000	0.00000	PM 1/125/2
TR1	R1					AP											03475403	0.00000	0.00000	L 107
TR1	R1					AP											03475404	0.00000	0.00000	L 108
TR1	R1					AP											03475405	0.00000	0.00000	L 109
TR1	R1					AP											03475406	0.00000	0.00000	L 110
TR1	R1					AP											03475407	0.00000	0.00000	L 111
TR1	R1					AP											03475408	0.00000	0.00000	L 112
TR1	R1					AP											03475409	0.00000	0.00000	L 113
TR1	R1					AP											03475410	0.00000	0.00000	L 114
TR1	R1					AP											03475411	0.00000	0.00000	L 115
TR1	R1					AP											03475412	0.00000	0.00000	LOT 105& LOT 106
TR1	R1					AP											03476101	0.00000	0.00000	L 24
TR1	R1					AP											03476102	0.00000	0.00000	L 25
TR1	R1					AP											03476103	0.00000	0.19900	L 26
TR1	R1					AP											03476104	0.00000	0.00000	L 27
TR1	R1					AP											03476105	0.00000	0.00000	L 28
TR1	R1					AP											03476106	11.00000	0.00000	L 29
TR1	R1					AP											03476107	11.00000	0.00000	L 30
TR1	R1					AP											03476108	11.00000	0.00000	L 31
TR1	R1					AP											03476109	0.00000	0.00000	L 32
TR1	R1					AP											03476111	11.00000	0.00000	L 34
TR1	R1					AP											03476112	11.00000	0.00000	L 35
TR1	R1					AP											03476113	11.00000	0.00000	L 36
TR1	R1					AP											03476114	11.00000	0.00000	L 37
TR1	R1					AP											03476115	11.00000	0.00000	L 38
TR1	R1					AP											03476116	11.00000	0.00000	L 39
TR1	R1					AP											03476117	11.00000	0.00000	L 40
TR1	R1					AP											03476118	11.00000	0.00000	L 41
TR1	R1					AP											03476119	0.00000	0.00000	POR L 33
TR1	R1					AP											03476120	11.00000	0.00000	L 33
TR1	R1					AP											03476201	11.00000	0.00000	L 52
TR1	R1					AP											03476202	0.00000	0.00000	L 53
TR1	R1					AP											03476203	11.00000	0.00000	L 54
TR1	R1					AP											03476204	11.00000	0.00000	L 55
TR1	R1					AP											03476205	0.00000	0.00000	L 56
TR1	R1					AP											03476206	0.00000	0.00000	L 57
TR1	R1					AP											03476207	0.00000	0.00000	L 58
TR1	R1					AP											03476208	0.00000	0.00000	L 59

TR1	R1					AP											03476209	0.00000	0.00000	L 60
TR1	R1					AP											03476210	0.00000	0.00000	L 61
TR1	R1					AP											03476211	0.00000	0.00000	L 62
TR1	R1					AP											03476212	0.00000	0.00000	L 63
TR1	R1					AP											03476213	0.00000	0.00000	L 64
TR1	R1					AP											03476214	0.00000	0.00000	L 65
TR1	R1					AP											03476301	0.00000	0.00000	L 121
TR1	R1					AP											03476302	0.00000	0.00000	L 122
TR1	R1					AP											03476303	11.00000	0.00000	L 123
TR1	R1					AP											03476304	0.00000	0.00000	L 124
TR1	R1					AP											03476305	11.00000	0.00000	L 125
TR1	R1					AP											03476306	0.00000	0.00000	L 126
TR1	R1					AP											03476307	0.00000	0.00000	L 127
TR1	R1					AP											03476308	0.00000	0.00000	L 128
TR1	R1					AP											03476309	11.00000	0.00000	L 129
TR1	R1					AP											03476310	11.00000	0.00000	L 130
TR1	R1					AP											03476311	0.00000	0.00000	L 131
TR1	R1					AP											03477101	0.00000	0.00000	L 97
TR1	R1					AP											03477102	0.00000	0.00000	L 98
TR1	R1					AP											03477103	0.00000	0.00000	L 99
TR1	R1					AP											03477104	0.00000	0.00000	L 100
TR1	R1					AP											03477105	0.00000	0.00000	L 101
TR1	R1					AP											03477106	0.00000	0.00000	L 102
TR1	R1					AP											03477107	0.00000	0.00000	L 103
TR1	R1					AP											03477201	0.00000	0.00000	L 116
TR1	R1					AP											03477202	0.00000	0.00000	L 117
TR1	R1					AP											03477203	0.00000	0.00000	L 118
TR1	R1					AP											03477204	0.00000	0.00000	L 119
TR1	R1					AP											03477205	0.00000	0.00000	L 120
TR1	R1					AP											03477206	11.00000	0.00000	L 132
TR1	R1					AP											03477207	11.00000	0.00000	L 133
TR1	R1					AP											03477208	11.00000	0.00000	L 134
TR1	R1					AP											03477209	0.00000	0.00000	L 135
TR1	R1					AP											03477211	11.00000	0.00000	L 137
TR1	R1					AP											03477212	11.00000	0.00000	L 138
TR1	R1					AP											03477214	11.00000	0.00000	L 140
TR1	R1					AP											03477215	11.00000	0.00000	L 141
TR1	R1					AP											03477216	0.00000	0.00000	L 142
TR1	R1					AP											03477217	11.00000	0.00000	L 143
TR1	R1					AP											03477218	0.00000	0.00000	L 144
TR1	R1					AP											03477219	11.00000	0.00000	L 145
TR1	R1					AP											03477220	11.00000	0.00000	L 146
TR1	R1					AP											03477221	11.00000	0.00000	L 147
TR1	R1					AP											03477222	11.00000	0.00000	L 148
TR1	R1					AP											03477223	11.00000	0.00000	L 149
TR1	R1					AP											03477224	11.00000	0.00000	L 150

TR1	R1					AP											03477225	11.00000	0.00000	L 151
TR1	R1					AP											03477226	11.00000	0.00000	L 152
TR1	R1					AP											03477227	0.00000	0.68000	PM 36/34/A
TR1	R1					AP											03477301	0.00000	0.00000	L 96
TR1	R1					AP											03477302	0.00000	0.00000	L 95
TR1	R1					AP											03477303	0.00000	0.00000	L 94
TR1	R1					AP											03477304	0.00000	0.00000	L 93
TR1	R1					AP											03477305	0.00000	0.00000	L 92
TR1	R1					AP											03477306	0.00000	0.00000	L 104
TR1	R1					AP											03478101	11.00000	0.00000	L 153
TR1	R1					AP											03478102	11.00000	0.00000	L 154
TR1	R1					AP											03478103	0.00000	0.00000	L 155
TR1	R1					AP											03478104	0.00000	0.00000	L 156
TR1	R1					AP											03478105	11.00000	0.00000	L 157
TR1	R1					AP											03478106	11.00000	0.00000	L 158
TR1	R1					AP											03478107	11.00000	0.00000	L 159
TR1	R1					AP											03478108	11.00000	0.00000	L 160
TR1	R1					AP											03478109	11.00000	0.00000	L 161
TR1	R1					AP											03478110	11.00000	0.00000	L 162
TR1	R1					AP											03478111	0.00000	0.00000	L 163
TR1	R1					AP											03478201	0.00000	0.00000	L 5
TR1	R1					AP											03478202	0.00000	0.00000	L 6
TR1	R1					AP											03478203	11.00000	0.00000	L 7
TR1	R1					AP											03478204	11.00000	0.00000	L 8
TR1	R1					AP											03478205	11.00000	0.00000	L 9
TR1	R1					AP											03478206	0.00000	0.00000	L 10
TR1	R1					AP											03478207	11.00000	0.00000	L 11
TR1	R1					AP											03478208	0.00000	0.00000	L 12
TR1	R1					AP											03478209	0.00000	0.00000	L 13
TR1	R1					AP											03478301	0.00000	0.00000	L 14
TR1	R1					AP											03478302	11.00000	0.00000	L 15
TR1	R1					AP											03478303	11.00000	0.00000	L 16
TR1	R1					AP											03478304	11.00000	0.00000	L 17
TR1	R1					AP											03478305	0.00000	0.00000	L 18
TR1	R1					AP											03478306	11.00000	0.00000	L 19
TR1	R1					AP											03478307	0.00000	0.00000	L 20
TR1	R1					AP											03478308	11.00000	0.00000	L 21
TR1	R1					AP											03478309	0.00000	0.00000	L 22
TR1	R1					AP											03478310	0.00000	0.00000	L 23
TR1	R1					AP											03478401	11.00000	0.00000	L 1
TR1	R1					AP											03478402	11.00000	0.00000	L 2
TR1	R1					AP											03478403	11.00000	0.00000	L 3
TR1	R1					AP											03478404	11.00000	0.00000	L 4
TR1	FR-160					AP											03479101	11.00000	0.00000	L B
TR1	R1					AP											03479102	0.00000	0.00000	L 59
TR1	R1					AP											03479103	0.00000	0.00000	L 60

TR1	R1					AP											03479104	0.00000	0.00000	L 61
TR1	R1					AP											03479105	0.00000	0.00000	L 62
TR1	R1					AP											03479106	11.00000	0.00000	L 63
TR1	R1					AP											03479107	0.00000	0.00000	L 64
TR1	R1					AP											03479108	0.00000	0.00000	L 65
TR1	R1					AP											03479109	11.00000	0.00000	L 66
TR1	R1					AP											03479201	0.00000	0.00000	L 71
TR1	R1					AP											03479202	0.00000	0.00000	L 72
TR1	R1					AP											03479203	11.00000	0.00000	L 73
TR1	R1					AP											03479204	0.00000	0.00000	L 74
TR1	R1					AP											03479205	0.00000	0.00000	L 75
TR1	R1					AP											03479206	0.00000	0.00000	L 76
TR1	R1					AP											03479207	0.00000	0.00000	L 77
TR1	R1					AP											03479208	11.00000	0.00000	L 78
TR1	R1					AP											03479209	0.00000	0.00000	L 79
TR1	R1					AP											03479210	0.00000	0.00000	L 80
TR1	R1					AP											03479211	0.00000	0.00000	L 81
TR1	R1					AP											03479301	0.00000	0.00000	L 49
TR1	R1					AP											03479302	0.00000	0.00000	L 50
TR1	R1					AP											03479303	0.00000	0.00000	L 51
TR1	R1					AP											03479304	0.00000	0.00000	L 52
TR1	R1					AP											03479305	0.00000	0.00000	L 53
TR1	R1					AP											03479306	0.00000	0.19400	L 54
TR1	R1					AP											03479307	11.00000	0.00000	L 55
TR1	R1					AP											03479308	0.00000	0.00000	L 56
TR1	R1					AP											03479309	0.00000	0.00000	L 57
TR1	R1					AP											03479310	11.00000	0.00000	L 58
TR1	R1					AP											03480101	0.00000	0.00000	L 11
TR1	R1					AP											03480102	0.00000	0.00000	L 12
TR1	R1					AP											03480103	0.00000	0.00000	L 13
TR1	R1					AP											03480104	0.00000	0.00000	L 14
TR1	R1					AP											03480105	0.00000	0.00000	L 15
TR1	R1					AP											03480106	11.00000	0.00000	L 16
TR1	R1					AP											03480107	0.00000	0.00000	L 17
TR1	R1					AP											03480108	0.00000	0.00000	L 18
TR1	R1					AP											03480109	0.00000	0.00000	L 19
TR1	R1					AP											03480110	0.00000	0.00000	L 20
TR1	R1					AP											03480111	0.00000	0.00000	L 21
TR1	R1					AP											03480112	0.00000	0.00000	L 22
TR1	R1					AP											03480113	0.00000	0.00000	L 23
TR1	R1					AP											03480114	0.00000	0.00000	L 24
TR1	R1					AP											03480115	0.00000	0.00000	L 25
TR1	R1					AP											03480116	0.00000	0.00000	L 26
TR1	R1					AP											03480117	0.00000	0.00000	L 27
TR1	R1					AP											03480118	0.00000	0.00000	L 28
TR1	R1					AP											03480119	11.00000	0.00000	L 29

TR1	R1					AP											03480120	11.00000	0.00000	L 30
TR1	R1					AP											03480121	0.00000	0.00000	L 31
TR1	R1					AP											03480122	0.00000	0.00000	L 32
TR1	R1					AP											03480123	11.00000	0.00000	L 33
TR1	R1					AP											03480124	0.00000	0.00000	L 34
TR1	FR-160					AP											03480201	11.00000	0.00000	L A
TR1	R1					AP											03480202	11.00000	0.00000	L 67
TR1	R1					AP											03480203	0.00000	0.00000	L 68
TR1	R1					AP											03480204	11.00000	0.00000	L 69
TR1	R1					AP											03480205	11.00000	0.00000	L 70
TR1	R1					AP											03480301	0.00000	0.00000	L 35
TR1	R1					AP											03480302	0.00000	0.00000	L 36
TR1	R1					AP											03480303	0.00000	0.00000	L 37
TR1	R1					AP											03480304	11.00000	0.00000	L 38
TR1	R1					AP											03480305	0.00000	0.00000	L 39
TR1	R1					AP											03480306	0.00000	0.00000	L 40
TR1	R1					AP											03480307	0.00000	0.00000	L 41
TR1	R1					AP											03480308	0.00000	0.00000	L 42
TR1	R1					AP											03480309	11.00000	0.00000	L 43
TR1	R1					AP											03480310	11.00000	0.00000	L 44
TR1	R1					AP											03480311	11.00000	0.00000	L 45
TR1	R1					AP											03480312	0.00000	0.00000	L 46
TR1	R1					AP											03480313	11.00000	0.00000	L 47
TR1	R1					AP											03480314	0.00000	0.00000	L 48
TR1	R1					AP											03481101	0.00000	0.00000	L 1
TR1	R1					AP											03481102	0.00000	0.00000	L 2
TR1	R1					AP											03481103	0.00000	0.00000	L 3
TR1	R1					AP											03481104	0.00000	0.00000	L 4
TR1	R1					AP											03481105	11.00000	0.00000	L 5
TR1	R1					AP											03481106	11.00000	0.00000	L 6
TR1	R1					AP											03481107	0.00000	0.00000	L 7
TR1	R1					AP											03481108	11.00000	0.00000	L 8
TR1	R1					AP											03481109	0.00000	0.00000	L 9
TR1	R1					AP											03481110	0.00000	0.00000	L 10
TR1	R1					AP											03482101	0.00000	0.00000	LOT 1 & LOT 2
TR1	R1					AP											03482102	0.00000	0.00000	L 3
TR1	R1					AP											03482103	0.00000	0.00000	L 4
TR1	R1					AP											03482104	0.00000	0.00000	L 5
TR1	R1					AP											03482105	0.00000	0.00000	L 6
TR1	R1					AP											03482106	0.00000	0.00000	L 7
TR1	R1					AP											03482107	0.00000	0.00000	L 8
TR1	R1					AP											03482108	0.00000	0.23000	L 9
TR1	R1					AP											03482109	0.00000	0.00000	L 10
TR1	R1					AP											03482110	0.00000	0.00000	L 11
TR1	R1					AP											03482111	0.00000	0.00000	L 148
TR1	R1					AP											03482112	0.00000	0.46000	PM 44/19/1

TR1	R1					AP											03482113	0.00000	0.00000	L 151
TR1	R1					AP											03482114	0.00000	0.23000	L 152
TR1	R1					AP											03482115	0.00000	0.23000	L 153
TR1	R1					AP											03482116	0.00000	0.00000	L 154
TR1	R1					AP											03482117	0.00000	0.00000	L 155
TR1	R1					AP											03482118	0.00000	0.00000	L 156
TR1	R1					AP											03482119	0.00000	0.00000	L 157
TR1	R1					AP											03482120	0.00000	0.00000	L 158
TR1	R1					AP											03482201	0.00000	0.00000	L 12
TR1	R1					AP											03482202	0.00000	0.00000	L 13
TR1	R1					AP											03482203	0.00000	0.00000	L 14
TR1	R1					AP											03482204	0.00000	0.23000	L 15
TR1	R1					AP											03482205	0.00000	0.00000	L 16
TR1	R1					AP											03482301	0.00000	0.00000	L 17
TR1	R1					AP											03482302	0.00000	0.00000	L 18
TR1	R1					AP											03482303	0.00000	0.23000	L 19
TR1	R1					AP											03482304	0.00000	0.00000	L 20
TR1	R1					AP											03482305	0.00000	0.00000	L 21
TR1	R1					AP											03482306	0.00000	0.23000	L 22
TR1	R1					AP											03482401	11.00000	0.00000	L 116
TR1	R1					AP											03482402	11.00000	0.00000	L 117
TR1	R1					AP											03482403	11.00000	0.00000	L 118
TR1	R1					AP											03482404	11.00000	0.00000	L 119
TR1	R1					AP											03482405	11.00000	0.00000	L 120
TR1	R1					AP											03482406	11.00000	0.00000	L 121
TR1	R1					AP											03482407	11.00000	0.00000	L 122
TR1	R1					AP											03482408	11.00000	0.00000	L 123
TR1	R1					AP											03482409	0.00000	0.00000	L 124
TR1	R1					AP											03482410	0.00000	0.23000	L 125
TR1	R1					AP											03482501	0.00000	0.00000	L 126
TR1	R1					AP											03482502	0.00000	0.23000	L 127
TR1	R1					AP											03482503	0.00000	0.00000	L 128
TR1	R1					AP											03482504	0.00000	0.23000	L 129
TR1	R1					AP											03482505	0.00000	0.00000	L 130
TR1	R1					AP											03482506	0.00000	0.00000	L 131
TR1	R1					AP											03482507	0.00000	0.00000	L 132
TR1	R1					AP											03482508	0.00000	0.00000	L 133
TR1	R1					AP											03482509	0.00000	0.23000	L 134
TR1	R1					AP											03482510	11.00000	0.00000	L 135
TR1	R1					AP											03482511	11.00000	0.00000	L 136
TR1	R1					AP											03482512	11.00000	0.00000	L 137
TR1	R1					AP											03482513	0.00000	0.00000	L 138
TR1	R1					AP											03482514	0.00000	0.00000	L 139
TR1	R1					AP											03482515	0.00000	0.23000	L 140
TR1	R1					AP											03482516	0.00000	0.23000	L 141
TR1	R1					AP											03482517	0.00000	0.00000	POR L 142

TR1	R1					AP											03482518	0.00000	0.00000	L 143 & POR 142
TR1	R1					AP											03482519	0.00000	0.00000	L 144
TR1	R1					AP											03482520	0.00000	0.00000	L 145
TR1	R1					AP											03482521	0.00000	0.00000	L 146
TR1	R1					AP											03482522	0.00000	0.00000	L 147
TRT	RF-L					AP											03501002	0.00000	0.27000	SEC 31 12 18
TRT	RF-L					AP											03501006	11.00000	0.95000	SEC 31 12 18
TRT	RF-L					AP											03501007	0.00000	0.50000	SEC 31 12 18
TRT	RF-L					AP											03501008	11.00000	0.51000	SEC 31 12 18
TR1	R1					AP											03501011	11.00000	0.56000	S31 12 18RS17-59
TR1	FR-160					AP											03501015	11.00000	38.64000	SEC 31 12 18
TA	FR-160					AP											03501017	11.00000	41.99000	SEC 31 12 18
TR1	FR-160					AP											03501017	11.00000	41.99000	SEC 31 12 18
TR1	FR-160					AP											03501017	11.00000	41.99000	SEC 31 12 18
TRT	R1					AP											03501017	11.00000	41.99000	SEC 31 12 18
TR1	FR-160					AP											03501018	11.00000	70.58000	SEC 31 12 18
TR1	R1					AP											03501019	11.00000	0.69000	SEC 31 12 18
TR1	RF-L					AP											03501020	11.00000	8.46000	SEC 31 12 18
TRT	RF-L					AP											03501020	11.00000	8.46000	SEC 31 12 18
TRT	RF-L					AP											03501023	0.00000	16.16500	SEC 31 12 18
TRT	RF-L					AP											03501025	0.00000	1.50000	SEC 31 12 18
TA	FR-160					AP											03501026	0.00000	5.03000	SEC 31 12 18
TR1	FR-160					AP											03501027	11.00000	18.00000	SEC 31 12 18
TRT	RF-L					AP											03501028	11.00000	1.02000	PAR 1 P/M 2-97
TRT	RF-L					AP											03501029	11.00000	1.18000	PAR 2 P/M 2-97
TRT	RF-L					AP											03501030	0.00000	1.14000	PM 2/97/3
TR1	FR-160					AP											03501031	11.00000	0.00000	POR SEC 31 12 18
TR1	FR-160					AP											03502005	11.00000	0.00000	L 12 SEC31 12 18
TA	FR-160					AP											03502012	11.00000	0.00000	POR SEC 31 12 18
TA	FR-160					AP											03502013	11.00000	18.99000	POR SEC 31 12 18
TA	FR-160					AP											03502014	11.00000	19.24000	POR SEC 31 12 18
TR1	FR-160					AP											03502015	11.00000	0.00000	POR SEC 31 12 18
TR1	FR-160					AP											03502016	11.00000	0.00000	POR SEC 31 12 18
TR1	R1					AP											03503003	0.00000	8.20000	SEC 32 12 18
TR1	R1					AP											03503007	11.00000	0.01000	SEC 32 12 18
TR1	FR-160					AP											03503015	11.00000	8.91000	SEC 32 12 18
TR1	FR-160					AP											03503020	11.00000	0.00000	POR SEC 32 12 18
TA	FR-160					AP											03503021	11.00000	0.00000	POR SEC 32 12 18
TR1	FR-160					AP											03504008	11.00000	0.00000	POR SEC 32 12 18
TA	FR-160					AP											03504009	11.00000	0.00000	POR SEC 32 12 18
TA	FR-160					AP											03506001	11.00000	160.00000	POR SEC 33 12 18
TA	FR-160					AP											03506002	11.00000	160.00000	POR SEC 33 12 18
TR1	R1					AP											03507001	11.00000	0.00000	LOT 44
TR1	R1					AP											03507002	11.00000	0.00000	LOT 43
TR1	R1					AP											03507003	11.00000	0.00000	LOT 42
TR1	R1					AP											03507004	11.00000	0.00000	LOT 41

TR1	R1					AP											03507005	11.00000	0.00000	LOT 40
TR1	R1					AP											03508001	11.00000	0.00000	LOT 39
TR1	R1					AP											03508002	11.00000	0.00000	LOT 38
TR1	R1					AP											03508003	11.00000	0.00000	LOT 37
TR1	R1					AP											03508004	11.00000	0.00000	LOT 36
TR1	R1					AP											03508005	11.00000	0.00000	LOT 35
TR1	R1					AP											03508006	11.00000	0.00000	L 53
TR1	R1					AP											03508007	11.00000	0.00000	L 52
TR1	R1					AP											03508008	11.00000	0.00000	L 51
TR1	R1					AP											03508009	11.00000	0.00000	L 50
TR1	R1					AP											03508010	11.00000	0.00000	L 49
TR1	R1					AP											03509001	11.00000	0.00000	L 34
TR1	R1					AP											03509002	11.00000	0.00000	L 33
TR1	R1					AP											03509003	11.00000	0.21000	L 32
TR1	R1					AP											03509004	11.00000	0.00000	L 31
TR1	R1					AP											03509005	11.00000	0.00000	L 30
TR1	R1					AP											03509006	11.00000	0.00000	L 48
TR1	R1					AP											03509007	11.00000	0.00000	L 47
TR1	R1					AP											03509008	11.00000	0.46000	L 46
TR1	R1					AP											03509009	11.00000	0.00000	L 45
TR1	R1					AP											03510001	11.00000	0.00000	L 29
TR1	R1					AP											03510002	11.00000	0.00000	L 28
TR1	R1					AP											03510003	11.00000	0.00000	L 27
TR1	R1					AP											03510004	11.00000	0.00000	L 15
TR1	R1					AP											03510005	11.00000	0.00000	L 14
TR1	R1					AP											03510006	11.00000	0.00000	L 13
TR1	R1					AP											03510007	11.00000	0.00000	L 12
TR1	R1					AP											03510008	11.00000	0.00000	L 11
TR1	R1					AP											03510009	11.00000	0.00000	LOT 10
TR1	R1					AP											03510010	11.00000	0.00000	LOT 9
TR1	R1					AP											03510011	11.00000	0.00000	LOT 8
TR1	R1					AP											03511001	11.00000	0.00000	L 7
TR1	R1					AP											03511002	11.00000	0.41000	L 1
TR1	R1					AP											03511003	11.00000	0.00000	LOT 2
TR1	R1					AP											03511004	11.00000	0.00000	LOT 3
TR1	R1					AP											03511005	11.00000	0.00000	LOT 4
TR1	R1					AP											03511006	11.00000	0.00000	L 6
TR1	R1					AP											03511007	11.00000	0.00000	LOT 16
TR1	R1					AP											03511008	11.00000	0.00000	LOT 17
TR1	R1					AP											03512001	11.00000	0.00000	LOT 18
TR1	R1					AP											03512002	11.00000	0.29000	L 19
TR1	R1					AP											03512003	11.00000	0.27000	LOT 20
TR1	R1					AP											03512004	11.00000	0.00000	L 21
TR1	R1					AP											03512005	11.00000	0.00000	L 22
TR1	R1					AP											03512006	11.00000	0.00000	L 23
TR1	R1					AP											03512007	11.00000	0.00000	LOT 24

TR1	R1					AP											03512008	11.00000	0.00000	L 25
TR1	R1					AP											03512009	11.00000	0.00000	L 26
TR1	R1					AP											03513101	0.00000	0.00000	L 1
TR1	R1					AP											03513102	0.00000	0.00000	L 2
TR1	R1					AP											03513103	0.00000	0.00000	L 3
TR1	R1					AP											03513104	0.00000	0.00000	L 4
TR1	R1					AP											03513105	0.00000	0.00000	L 5
TR1	R1					AP											03513106	0.00000	0.00000	L 6
TR1	R1					AP											03513107	0.00000	0.00000	L 7
TR1	R1					AP											03513108	0.00000	0.13800	L 8
TR1	R1					AP											03513109	0.00000	0.00000	L 9
TR1	R1					AP											03513110	0.00000	0.00000	L 10
TR1	R1					AP											03513111	0.00000	0.00000	L 11
TR1	R1					AP											03513112	0.00000	0.00000	L 12
TR1	R1					AP											03513201	0.00000	0.00000	L 13
TR1	R1					AP											03513202	0.00000	0.00000	L 14
TR1	R1					AP											03513203	0.00000	0.13300	L 15
TR1	R1					AP											03513204	0.00000	0.00000	L 16
TR1	R1					AP											03513205	0.00000	0.13300	L 17
TR1	R1					AP											03513206	0.00000	0.00000	L 18
TR1	R1					AP											03513207	0.00000	0.13300	L 19
TR1	R1					AP											03513208	0.00000	0.13300	L 20
TR1	R1					AP											03513209	0.00000	0.13100	L 21
TR1	R1					AP											03513210	0.00000	0.13100	L 22
TR1	R1					AP											03513211	0.00000	0.00000	L 23
TR1	R1					AP											03513214	0.00000	0.00000	L 26
TR1	R1					AP											03513215	0.00000	0.00000	L 27
TR1	R1					AP											03513216	0.00000	0.00000	L 28
TR1	R1					AP											03513217	0.00000	0.00000	L 29
TR1	R1					AP											03513218	0.00000	0.00000	L 30
TR1	R1					AP											03513219	0.00000	0.00000	LOT 24 & LOT 25
TR1	R1					AP											03513303	0.00000	0.13300	L 33
TR1	R1					AP											03513304	0.00000	0.13300	L 34
TR1	R1					AP											03513305	0.00000	0.00000	L 35
TR1	R1					AP											03513306	0.00000	0.00000	L 36
TR1	R1					AP											03513307	0.00000	0.00000	L 37
TR1	R1					AP											03513308	0.00000	0.00000	L 38
TR1	R1					AP											03513309	0.00000	0.13100	L 39
TR1	R1					AP											03513310	0.00000	0.00000	L 40
TR1	R1					AP											03513311	0.00000	0.00000	L 41
TR1	R1					AP											03513312	0.00000	0.00000	L 42
TR1	R1					AP											03513313	0.00000	0.00000	L 43
TR1	R1					AP											03513314	0.00000	0.00000	L 44
TR1	R1					AP											03513315	0.00000	0.00000	L 45
TR1	R1					AP											03513316	0.00000	0.13300	L 46
TR1	R1					AP											03513321	0.00000	0.13300	L 47

TR1	R1					AP											03513322	0.00000	0.13300	L 32
TR1	R1					AP											03513323	11.00000	0.00000	L 48
TR1	R1					AP											03513324	0.00000	0.13700	L 31
TR1	R1					AP											03513401	0.00000	0.00000	L 49
TR1	R1					AP											03513402	0.00000	0.00000	L 50
TR1	R1					AP											03513403	0.00000	0.00000	L 51
TR1	R1					AP											03513404	0.00000	0.00000	L 52
TR1	R1					AP											03513405	0.00000	0.00000	L 53
TR1	R1					AP											03513406	0.00000	0.13500	L 54
TR1	R1					AP											03513407	0.00000	0.00000	L 55
TR1	R1					AP											03514101	0.00000	0.00000	L 56
TR1	R1					AP											03514102	0.00000	0.00000	L 57
TR1	R1					AP											03514203	11.00000	0.00000	LOT 60
TR1	R1					AP											03514204	0.00000	0.00000	L 61
TR1	R1					AP											03514205	0.00000	0.00000	L 62
TR1	R1					AP											03514206	11.00000	0.00000	LOT 63
TR1	R1					AP											03514207	0.00000	0.23000	L 64
TR1	R1					AP											03514208	0.00000	0.00000	L 65
TR1	R1					AP											03514209	0.00000	0.00000	L 66
TR1	R1					AP											03514210	11.00000	0.00000	LOT 67
TR1	R1					AP											03514211	11.00000	0.00000	LOT 68
TR1	R1					AP											03514212	0.00000	0.00000	L 69
TR1	R1					AP											03514213	0.00000	0.00000	L 70
TR1	R1					AP											03514214	0.00000	0.00000	LOT 58 & 59
TR1	R1					AP											03514301	0.00000	0.25200	L 71
TR1	R1					AP											03514302	0.00000	0.00000	L 72
TR1	R1					AP											03514303	0.00000	0.00000	L 73
TR1	R1					AP											03514304	0.00000	0.00000	L 74
TR1	R1					AP											03514305	0.00000	0.23600	L 75
TR1	R1					AP											03514306	0.00000	0.00000	L 76
TR1	R1					AP											03514307	0.00000	0.00000	L 77
TR1	R1					AP											03514308	0.00000	0.00000	L 78
TR1	R1					AP											03514309	0.00000	0.25400	L 79
TR1	R1					AP											03514401	0.00000	0.00000	L 80
TR1	R1					AP											03514402	0.00000	0.24900	L 81
TR1	R1					AP											03514403	0.00000	0.24900	L 82
TR1	R1					AP											03514404	0.00000	0.00000	L 83
TR1	R1					AP											03514405	0.00000	0.00000	L 84
TR1	R1					AP											03514406	0.00000	0.00000	L 85
TR1	R1					AP											03514407	0.00000	0.00000	L 86
TR1	R1					AP											03514408	0.00000	0.00000	L 87
TR1	R1					AP											03514409	0.00000	0.00000	L 88
TR1	R1					AP											03514501	0.00000	0.00000	L 94
TR1	R1					AP											03514502	0.00000	0.23600	L 95
TR1	R1					AP											03514503	0.00000	0.00000	L 96
TR1	R1					AP											03514504	0.00000	0.00000	L 97

TR1	R1					AP											03514505	0.00000	0.00000	L 98
TR1	R1					AP											03514506	11.00000	0.00000	LOT 99
TR1	R1					AP											03514507	11.00000	0.00000	LOT 100
TR1	R1					AP											03514601	0.00000	0.00000	L 89
TR1	R1					AP											03514602	0.00000	0.00000	L 90
TR1	R1					AP											03514603	0.00000	0.00000	L 91
TR1	R1					AP											03514604	0.00000	0.00000	L 92
TR1	R1					AP											03514605	0.00000	0.00000	L 93
TR1	R1					AP											03515101	11.00000	0.00000	L 33
TR1	R1					AP											03515102	11.00000	0.00000	L 34
TR1	R1					AP											03515103	11.00000	0.00000	L 35
TR1	R1					AP											03515104	11.00000	0.00000	L 36
TR1	R1					AP											03515105	0.00000	0.00000	L 37
TR1	R1					AP											03515106	11.00000	0.00000	L 38
TR1	R1					AP											03515107	0.00000	0.00000	L 39
TR1	R1					AP											03515108	0.00000	0.00000	L 40
TR1	R1					AP											03515109	0.00000	0.00000	L 41
TR1	R1					AP											03515110	11.00000	0.00000	L 42
TR1	R1					AP											03515111	11.00000	0.00000	L 43
TR1	R1					AP											03515112	0.00000	0.00000	L 44
TR1	R1					AP											03515113	0.00000	0.00000	L 45
TR1	R1					AP											03515114	0.00000	0.00000	L 47
TR1	R1					AP											03515115	11.00000	0.00000	L 48
TR1	R1					AP											03515116	0.00000	0.00000	L 49
TR1	R1					AP											03515117	11.00000	0.00000	L 50
TR1	R1					AP											03515201	11.00000	0.00000	L 51
TR1	R1					AP											03515202	11.00000	0.00000	L 52
TR1	R1					AP											03515203	11.00000	0.00000	L 53
TR1	R1					AP											03515204	0.00000	0.57600	L 54
TR1	R1					AP											03516101	0.00000	0.00000	L 12
TR1	R1					AP											03516102	11.00000	0.00000	L 28
TR1	R1					AP											03516103	11.00000	0.00000	L 29
TR1	R1					AP											03516104	0.00000	0.00000	L 30
TR1	R1					AP											03516105	11.00000	0.00000	L 31
TR1	R1					AP											03516106	0.00000	0.40100	L 32
TR1	R1					AP											03516201	11.00000	0.00000	L 55
TR1	R1					AP											03516202	11.00000	0.00000	L 56
TR1	R1					AP											03516203	11.00000	0.00000	L 57
TR1	R1					AP											03516204	11.00000	0.00000	L 58
TR1	R1					AP											03516205	11.00000	0.00000	L 59
TR1	R1					AP											03516206	11.00000	0.00000	L 60
TR1	R1					AP											03516207	11.00000	0.00000	L 61
TR1	R1					AP											03516208	11.00000	0.00000	L 62
TR1	R1					AP											03516209	11.00000	0.00000	L 63
TR1	R1					AP											03516210	0.00000	0.00000	L 64
TR1	R1					AP											03516211	11.00000	0.00000	L 65

TR1	R1					AP											03516212	11.00000	0.00000	L 66
TR1	R1					AP											03516213	0.00000	0.00000	L 67
TR1	R1					AP											03516214	0.00000	0.00000	L 68
TR1	R1					AP											03516215	0.00000	0.00000	L 69
TR1	R1					AP											03516216	0.00000	0.00000	L 70
TR1	R1					AP											03516217	0.00000	0.00000	L 71
TR1	R1					AP											03516218	11.00000	0.00000	L 72
TR1	R1					AP											03516219	11.00000	0.00000	L 73
TR1	R1					AP											03516220	11.00000	0.00000	L 74
TR1	R1					AP											03516221	0.00000	0.00000	L 75
TR1	R1					AP											03516222	11.00000	0.00000	L 76
TR1	R1					AP											03516223	11.00000	0.00000	L 13
TR1	R1					AP											03517101	11.00000	0.00000	L 1
TR1	R1					AP											03517102	11.00000	0.00000	L 2
TR1	R1					AP											03517103	11.00000	0.00000	L 3
TR1	R1					AP											03517104	11.00000	0.00000	L 4
TR1	R1					AP											03517105	11.00000	0.00000	L 5
TR1	R1					AP											03517106	11.00000	0.00000	L 6
TR1	R1					AP											03517107	11.00000	0.00000	L 7
TR1	R1					AP											03517108	0.00000	0.00000	L 8
TR1	R1					AP											03517109	11.00000	0.00000	L 9
TR1	R1					AP											03517110	0.00000	0.00000	L 10
TR1	R1					AP											03517111	0.00000	0.00000	L 11
TR1	R1					AP											03517201	11.00000	0.00000	L 14
TR1	R1					AP											03517202	0.00000	0.00000	L 15
TR1	R1					AP											03517203	11.00000	0.00000	L 16
TR1	R1					AP											03517204	11.00000	0.00000	L 17
TR1	R1					AP											03517205	11.00000	0.00000	L 18
TR1	R1					AP											03517206	11.00000	0.00000	L 19
TR1	R1					AP											03517207	11.00000	0.00000	L 20
TR1	R1					AP											03517208	11.00000	0.00000	L 21
TR1	R1					AP											03517209	11.00000	0.00000	L 22
TR1	R1					AP											03517210	11.00000	0.00000	L 23
TR1	R1					AP											03517211	0.00000	0.00000	L 24
TR1	R1					AP											03517212	0.00000	0.00000	L 25
TR1	R1					AP											03517213	11.00000	0.00000	L 26
TR1	R1					AP											03517214	11.00000	0.00000	L 27
TRT	RF-L					AP											03522305	11.00000	0.00000	L 211
TRT	RF-L					AP											03522306	11.00000	0.00000	L 212
TRT	RF-L					AP											03522307	11.00000	0.00000	L 213
TRT	RF-L					AP											03522308	11.00000	0.00000	L 214
TRT	RF-L					AP											03522309	0.00000	0.00000	LOT 209 &LOT 210
TRT	RF-L					AP											03522402	0.00000	0.00000	L 224
TRT	RF-L					AP											03522403	0.00000	0.00000	L 223
TRT	RF-L					AP											03522404	0.00000	0.00000	L 222
TRT	RF-L					AP											03522405	0.00000	0.00000	L 221

TRT	RF-L					AP											03522406	0.00000	0.00000	L 220
TRT	RF-L					AP											03522407	0.00000	0.00000	L 219
TRT	RF-L					AP											03522408	0.00000	0.18600	L 218
TRT	RF-L					AP											03522409	11.00000	0.00000	L 217
TRT	RF-L					AP											03522410	0.00000	0.00000	L 216
TRT	RF-L					AP											03522501	0.00000	0.00000	L 215
TR1	R1					AP											03523106	0.00000	0.33700	L 125
TR1	R1					AP											03523107	0.00000	0.00000	L 124
TR1	R1					AP											03523108	0.00000	0.00000	L 123
TR1	R1					AP											03523109	0.00000	0.00000	L 122
TR1	R1					AP											03523110	0.00000	0.00000	L 121
TR1	R1					AP											03523111	0.00000	0.16500	L 120
TR1	R1					AP											03523112	0.00000	0.00000	L 119
TR1	R1					AP											03523113	0.00000	0.00000	L 118
TR1	R1					AP											03523114	0.00000	0.16500	L 117
TR1	R1					AP											03523115	0.00000	0.00000	L 116
TR1	R1					AP											03523116	0.00000	0.00000	L 115
TR1	R1					AP											03523117	0.00000	0.00000	L 114
TR1	R1					AP											03523118	0.00000	0.00000	L 113
TR1	R1					AP											03523119	0.00000	0.00000	L 112
TR1	R1					AP											03523120	0.00000	0.00000	L 111
TR1	R1					AP											03523121	0.00000	0.16500	L 110
TR1	R1					AP											03523122	0.00000	0.16500	L 109
TR1	R1					AP											03523123	0.00000	0.16500	L 108
TR1	R1					AP											03523315	0.00000	0.00000	L 84
TR1	R1					AP											03523316	0.00000	0.00000	L 83
TR1	R1					AP											03523317	0.00000	0.00000	L 82
TR1	R1					AP											03523318	0.00000	0.00000	L 81
TR1	R1					AP											03523319	0.00000	0.00000	L 80
TR1	R1					AP											03523320	0.00000	0.16500	L 79
TR1	R1					AP											03523321	0.00000	0.00000	L 78
TR1	R1					AP											03523322	0.00000	0.00000	L 77
TR1	R1					AP											03523323	0.00000	0.00000	L 76
TR1	R1					AP											03523324	0.00000	0.00000	L 75
TR1	R1					AP											03523325	0.00000	0.00000	L 74
TR1	R1					AP											03523326	0.00000	0.00000	L 73
TR1	R1					AP											03523327	0.00000	0.00000	L 72
TR1	R1					AP											03523328	0.00000	0.00000	L 71
TR1	R1					AP											03523329	0.00000	0.00000	L 70
TR1	R1					AP											03523330	0.00000	0.00000	L 69
TR1	R1					AP											03524101	0.00000	0.17900	L 107
TR1	R1					AP											03524102	0.00000	0.00000	L 106
TR1	R1					AP											03524103	0.00000	0.00000	L 105
TR1	R1					AP											03524104	0.00000	0.00000	L 104
TR1	R1					AP											03524105	0.00000	0.00000	L 103
TR1	R1					AP											03524106	0.00000	0.16500	L 102

TR1	R1					AP											03524107	0.00000	0.00000	L 101
TR1	R1					AP											03524108	0.00000	0.00000	L 100
TR1	R1					AP											03524109	0.00000	0.00000	L 99
TR1	R1					AP											03524201	11.00000	0.00000	L 85
TR1	R1					AP											03524202	0.00000	0.00000	L 86
TR1	R1					AP											03524203	0.00000	0.00000	L 87
TR1	R1					AP											03524204	0.00000	0.00000	L 88
TR1	R1					AP											03524205	0.00000	0.00000	L 89
TR1	R1					AP											03524206	0.00000	0.00000	L 90
TR1	R1					AP											03524207	0.00000	0.00000	L 91
TR1	R1					AP											03524208	0.00000	0.00000	L 92
TR1	R1					AP											03524209	0.00000	0.00000	L 93
TR1	R1					AP											03524401	0.00000	0.00000	L 98
TR1	R1					AP											03524402	0.00000	0.00000	L 97
TR1	R1					AP											03524405	0.00000	0.16500	L 94
TR1	R1					AP											03524406	0.00000	0.00000	L 35
TR1	R1					AP											03524407	0.00000	0.00000	L 34
TR1	R1					AP											03524408	0.00000	0.00000	L 33
TR1	R1					AP											03524409	0.00000	0.00000	L 32
TR1	R1					AP											03524410	0.00000	0.00000	L 156
TR1	R1					AP											03524411	0.00000	0.00000	L 155
TR1	R1					AP											03524412	0.00000	0.00000	L 154
TR1	R1					AP											03524413	0.00000	0.00000	L 153
TR1	R1					AP											03524414	0.00000	0.33000	PM 44/18/1
TR1	R1					AP											03524501	0.00000	0.00000	L 142
TR1	R1					AP											03524502	0.00000	0.15800	L 143
TR1	R1					AP											03524503	0.00000	0.00000	L 144
TR1	R1					AP											03524504	0.00000	0.00000	L 145
TR1	R1					AP											03524505	0.00000	0.00000	L 146
TR1	R1					AP											03524506	0.00000	0.00000	L 147
TR1	R1					AP											03524507	0.00000	0.00000	L 148
TR1	R1					AP											03524508	0.00000	0.00000	L 149
TR1	R1					AP											03524509	0.00000	0.00000	L 150
TR1	R1					AP											03524510	0.00000	0.00000	L 151
TR1	R1					AP											03524511	0.00000	0.00000	L 152
TR1	R1					AP											03524607	0.00000	0.00000	L 127
TR1	R1					AP											03524608	0.00000	0.00000	L 128
TR1	R1					AP											03524609	0.00000	0.15100	L 129
TR1	R1					AP											03524610	0.00000	0.00000	L 130
TR1	R1					AP											03524611	0.00000	0.00000	L 131
TR1	R1					AP											03524612	0.00000	0.00000	L 132
TR1	R1					AP											03524613	11.00000	0.00000	L 133
TR1	R1					AP											03524614	0.00000	0.00000	L 134
TR1	R1					AP											03524615	0.00000	0.15100	L 135
TR1	R1					AP											03524616	0.00000	0.00000	L 136
TR1	R1					AP											03524617	0.00000	0.00000	L 30

TR1	R1					AP											03524618	0.00000	0.00000	L 31
TR1	R1					AP											03524619	0.00000	0.00000	L 126
TR1	R1					AP											03524701	0.00000	0.00000	L 141
TR1	R1					AP											03524702	0.00000	0.00000	L 140
TR1	R1					AP											03524703	0.00000	0.00000	L 139
TR1	R1					AP											03524704	0.00000	0.00000	L 138
TR1	R1					AP											03524707	0.00000	0.00000	L 137
TR1	R1					AP											03525101	0.00000	0.00000	L 200
TR1	R1					AP											03525102	0.00000	0.00000	L 199
TR1	R1					AP											03525103	0.00000	0.14200	L 198
TR1	R1					AP											03525104	0.00000	0.00000	L 197
TR1	R1					AP											03525105	0.00000	0.00000	L 196
TR1	R1					AP											03525106	0.00000	0.00000	L 195
TR1	R1					AP											03525107	0.00000	0.00000	L 194
TR1	R1					AP											03525108	0.00000	0.16800	L 193
TR1	R1					AP											03525109	0.00000	0.00000	L 192
TR1	R1					AP											03525112	0.00000	0.00000	L 189
TR1	R1					AP											03525113	0.00000	0.00000	L 188
TR1	R1					AP											03525114	0.00000	0.00000	L 187
TR1	R1					AP											03525115	0.00000	0.33000	PM 38/135/1
TR1	R1					AP											03525201	0.00000	0.00000	L 157
TR1	R1					AP											03525202	0.00000	0.00000	L 158
TR1	R1					AP											03525203	0.00000	0.00000	L 159
TR1	R1					AP											03525204	0.00000	0.00000	L 160
TR1	R1					AP											03525205	0.00000	0.00000	L 161
TR1	R1					AP											03525206	0.00000	0.00000	L 162
TR1	R1					AP											03525207	0.00000	0.00000	L 163
TR1	R1					AP											03525208	0.00000	0.00000	L 164
TR1	R1					AP											03525211	0.00000	0.00000	L 167
TR1	R1					AP											03525212	0.00000	0.16500	L 168
TR1	R1					AP											03525213	0.00000	0.00000	L 169
TR1	R1					AP											03525214	0.00000	0.00000	L 170
TR1	R1					AP											03525215	0.00000	0.00000	L 171
TR1	R1					AP											03525216	0.00000	0.00000	L 172
TR1	R1					AP											03525217	0.00000	0.00000	L 173
TR1	R1					AP											03525218	0.00000	0.17600	L 174
TR1	R1					AP											03525219	0.00000	0.00000	L 175
TR1	R1					AP											03525220	0.00000	0.00000	L 176
TR1	R1					AP											03525223	0.00000	0.00000	L 178
TR1	R1					AP											03525224	0.00000	0.00000	L 179
TR1	R1					AP											03525225	0.00000	0.00000	L 177
TR1	R1					AP											03525226	0.00000	0.00000	LOT 166&LOT 165
TR1	R1					AP											03525301	0.00000	0.17500	L 186
TR1	R1					AP											03525302	0.00000	0.00000	L 185
TR1	R1					AP											03525305	0.00000	0.00000	L 183
TR1	R1					AP											03525306	11.00000	0.00000	L 182

TR1	R1					AP											03525307	0.00000	0.00000	L 184
TR1	R1					AP											03525401	11.00000	0.00000	L 181
TR1	R1					AP											03525501	0.00000	0.00000	L 180
TR1	R1					AP									MYRS		03526218	11.00000	0.16000	PAR 2 P/M 45-133
TR1	R1					AP											03527101	0.00000	0.00000	L 3
TR1	R1					AP											03527102	0.00000	0.00000	L 4
TR1	R1					AP											03527103	0.00000	0.00000	L 5
TR1	R1					AP											03527104	11.00000	0.00000	L 6
TR1	R1					AP											03527105	0.00000	0.00000	L 7
TR1	R1					AP											03527106	0.00000	0.00000	L 8
TR1	R1					AP											03527107	0.00000	0.00000	L 9
TR1	R1					AP											03527108	0.00000	0.00000	L 10
TR1	R1					AP											03527109	0.00000	0.00000	L 11
TR1	R1					AP											03527110	11.00000	0.00000	L 12
TR1	R1					AP											03527111	0.00000	0.00000	L 13
TR1	R1					AP											03527112	0.00000	0.00000	L 14
TR1	R1					AP											03527113	0.00000	0.15700	L 15
TR1	R1					AP											03527114	0.00000	0.00000	L 16
TR1	R1					AP											03527115	0.00000	0.00000	L 17
TR1	R1					AP											03527116	0.00000	0.00000	L 18
TR1	R1					AP											03527117	0.00000	0.00000	L 19
TR1	R1					AP											03527118	0.00000	0.22900	L 20
TR1	R1					AP											03527119	0.00000	0.00000	L 21
TR1	R1					AP											03527120	0.00000	0.00000	L 22
TR1	R1					AP											03527121	0.00000	0.17400	L 23
TR1	R1					AP											03527122	0.00000	0.00000	L 24
TR1	R1					AP											03527123	0.00000	0.00000	L 25
TR1	R1					AP											03527124	0.00000	0.00000	L 26
TR1	R1					AP											03527125	0.00000	0.00000	L 27
TR1	R1					AP											03527126	0.00000	0.00000	L 28
TR1	R1					AP											03527127	0.00000	0.00000	L 29
TR1	R1					AP											03527201	0.00000	0.00000	L 30
TR1	R1					AP											03527202	0.00000	0.00000	L 31
TR1	R1					AP											03527203	0.00000	0.00000	L 32
TR1	R1					AP											03527204	0.00000	0.00000	L 33
TR1	R1					AP											03527205	0.00000	0.00000	L 34
TR1	R1					AP											03527206	0.00000	0.00000	L 35
TR1	R1					AP											03527207	0.00000	0.00000	L 36
TR1	R1					AP											03527208	0.00000	0.00000	L 37
TR1	R1					AP											03527209	0.00000	0.00000	L 38
TR1	R1					AP											03527212	0.00000	0.00000	L 41
TR1	R1					AP											03527213	11.00000	0.00000	L 42
TR1	R1					AP											03527214	0.00000	0.00000	L 43
TR1	R1					AP											03527215	0.00000	0.00000	L 44
TR1	R1					AP											03527216	0.00000	0.00000	L 45
TR1	R1					AP											03527217	0.00000	0.00000	L 46

TR1	R1					AP											03527218	0.00000	0.13800	L 47
TR1	R1					AP											03527219	0.00000	0.00000	L 48
TR1	R1					AP											03527220	0.00000	0.00000	L 49
TR1	R1					AP											03527221	0.00000	0.00000	L 50
TR1	R1					AP											03527222	0.00000	0.00000	L 51
TR1	R1					AP											03527225	0.00000	0.00000	L 54
TR1	R1					AP											03527226	0.00000	0.00000	L 55
TR1	R1					AP											03527227	0.00000	0.13800	L 56
TR1	R1					AP											03527228	0.00000	0.00000	L 57
TR1	R1					AP											03527229	11.00000	0.00000	LOT 39
TR1	R1					AP											03527231	11.00000	0.00000	LOT 40
TR1	R1					AP											03527233	0.00000	0.27500	PM 43/32/1
TR1	R1					AP											03527301	0.00000	0.00000	L 64
TR1	R1					AP											03527302	0.00000	0.00000	L 65
TR1	R1					AP											03527303	0.00000	0.00000	L 66
TR1	R1					AP											03527304	11.00000	0.00000	L 67
TR1	R1					AP											03527305	11.00000	0.00000	L 68
TR1	R1					AP											03527306	11.00000	0.00000	L 69
TR1	R1					AP											03527307	11.00000	0.00000	L 70
TR1	R1					AP											03527308	0.00000	0.00000	L 71
TR1	R1					AP											03527309	0.00000	0.00000	L 72
TR1	R1					AP											03527310	0.00000	0.00000	L 73
TR1	R1					AP											03527311	0.00000	0.13800	L 74
TR1	R1					AP											03527312	0.00000	0.13800	L 75
TR1	R1					AP											03527313	0.00000	0.13800	L 76
TR1	R1					AP											03527314	0.00000	0.00000	L 77
TR1	R1					AP											03527315	0.00000	0.00000	L 78
TR1	R1					AP											03527316	0.00000	0.00000	L 79
TR1	R1					AP											03527317	0.00000	0.00000	L 80
TR1	R1					AP											03527318	0.00000	0.00000	L 81
TR1	R1					AP											03527319	0.00000	0.00000	L 82
TR1	R1					AP											03527320	0.00000	0.00000	L 83
TR1	R1					AP											03527321	0.00000	0.00000	L 84
TR1	R1					AP											03527322	0.00000	0.00000	L 85
TR1	R1					AP											03527323	0.00000	0.00000	L 86
TR1	R1					AP											03527324	0.00000	0.00000	L 87
TR1	R1					AP											03527325	0.00000	0.00000	L 88
TR1	R1					AP											03527326	11.00000	0.00000	L 89
TR1	R1					AP											03527327	11.00000	0.00000	L 90
TR1	R1					AP											03527328	11.00000	0.00000	L 91
TR1	R1					AP											03527329	11.00000	0.00000	L 92
TR1	R1					AP											03527401	0.00000	0.00000	L 58
TR1	R1					AP											03527402	0.00000	0.00000	L 59
TR1	R1					AP											03527403	0.00000	0.13800	L 60
TR1	R1					AP											03527404	0.00000	0.13800	L 61
TR1	R1					AP											03527405	11.00000	0.00000	L 62

TR1	R1					AP											03527406	0.00000	0.00000	L 63
TR1	R1					AP											03528101	0.00000	0.00000	L 307
TR1	R1					AP											03528102	0.00000	0.00000	L 308
TR1	R1					AP											03528103	0.00000	0.00000	L 309
TR1	R1					AP											03528104	0.00000	0.00000	L 310
TR1	R1					AP											03528105	0.00000	0.13800	L 311
TR1	R1					AP											03528106	0.00000	0.00000	L 312
TR1	R1					AP											03528107	0.00000	0.00000	L 313
TR1	R1					AP											03528108	0.00000	0.00000	L 314
TR1	R1					AP											03528109	11.00000	0.00000	L 315
TR1	R1					AP											03528110	0.00000	0.00000	L 316
TR1	R1					AP											03528111	0.00000	0.00000	L 317
TR1	R1					AP											03528112	11.00000	0.00000	L 318
TR1	R1					AP											03528113	0.00000	0.00000	L 319
TR1	R1					AP											03528114	0.00000	0.00000	L 320
TR1	R1					AP											03528117	0.00000	0.00000	L 2
TR1	R1					AP											03528118	0.00000	0.00000	LOT 1 & 321
TR1	R1					AP											03528201	0.00000	0.00000	L 183
TR1	R1					AP											03528202	0.00000	0.00000	L 184
TR1	R1					AP											03528203	0.00000	0.00000	L 185
TR1	R1					AP											03528204	11.00000	0.00000	L 186
TR1	R1					AP											03528205	11.00000	0.00000	L 187
TR1	R1					AP											03528206	0.00000	0.00000	L 188
TR1	R1					AP											03528207	11.00000	0.00000	L 189
TR1	R1					AP											03528208	0.00000	0.00000	L 190
TR1	R1					AP											03528209	0.00000	0.00000	L 191
TR1	R1					AP											03528210	0.00000	0.00000	L 192
TR1	R1					AP											03528211	0.00000	0.00000	L 193
TR1	R1					AP											03528212	0.00000	0.00000	L 194
TR1	R1					AP											03528213	0.00000	0.00000	L 195
TR1	R1					AP											03528214	0.00000	0.00000	L 196
TR1	R1					AP											03528215	0.00000	0.00000	L 197
TR1	R1					AP											03528216	0.00000	0.14700	L 198
TR1	R1					AP											03528301	0.00000	0.00000	RS 32/139 L 148
TR1	R1					AP											03528302	0.00000	0.00000	RS 32/139 L 149
TR1	R1					AP											03528303	0.00000	0.00000	RS 32/139 L 150
TR1	R1					AP											03528304	0.00000	0.00000	RS 32/139 L 151
TR1	R1					AP											03528305	11.00000	0.00000	RS 32/139 L 152
TR1	R1					AP											03528306	0.00000	0.00000	RS 32/139 L 153
TR1	R1					AP											03528307	0.00000	0.00000	RS 32/139 L 154
TR1	R1					AP											03528308	0.00000	0.00000	L 155
TR1	R1					AP											03528309	11.00000	0.00000	L 156
TR1	R1					AP											03528310	0.00000	0.00000	L 157
TR1	R1					AP											03528311	0.00000	0.00000	L 158
TR1	R1					AP											03528312	11.00000	0.00000	L 159
TR1	R1					AP											03528313	0.00000	0.00000	L 160

TR1	R1					AP											03528314	11.00000	0.00000	L 161
TR1	R1					AP											03528315	0.00000	0.00000	L 162
TR1	R1					AP											03528316	0.00000	0.00000	L 163
TR1	R1					AP											03528317	11.00000	0.00000	L 164
TR1	R1					AP											03528318	0.00000	0.14900	L 165
TR1	R1					AP											03528319	0.00000	0.00000	L 166
TR1	R1					AP											03528320	0.00000	0.00000	L 167
TR1	R1					AP											03528321	0.00000	0.00000	L 168
TR1	R1					AP											03528322	0.00000	0.40400	L 169
TR1	R1					AP											03528323	0.00000	0.00000	L 170
TR1	R1					AP											03528324	0.00000	0.00000	L 171
TR1	R1					AP											03528325	0.00000	0.00000	L 172
TR1	R1					AP											03528326	11.00000	0.00000	L 173
TR1	R1					AP											03528327	11.00000	0.00000	L 174
TR1	R1					AP											03528328	11.00000	0.00000	RS 32/139 L 175
TR1	R1					AP											03528329	0.00000	0.00000	RS 32/139 L 176
TR1	R1					AP											03528330	0.00000	0.00000	RS 32/139 L 177
TR1	R1					AP											03528331	0.00000	0.00000	RS 32/139 L 178
TR1	R1					AP											03528332	11.00000	0.00000	RS 32/139 L 179
TR1	R1					AP											03528333	0.00000	0.00000	RS 32/139 L 180
TR1	R1					AP											03528334	11.00000	0.00000	RS 32/139 L 181
TR1	R1					AP											03528335	11.00000	0.00000	RS 32/139 L 182
TR1	R1					AP											03528401	11.00000	0.00000	L 108
TR1	R1					AP											03528402	0.00000	0.00000	L 109
TR1	R1					AP											03528403	0.00000	0.00000	L 110
TR1	R1					AP											03528404	11.00000	0.00000	L 111
TR1	R1					AP											03528405	0.00000	0.00000	L 112
TR1	R1					AP											03528406	0.00000	0.00000	L 113
TR1	R1					AP											03528407	11.00000	0.00000	L 114
TR1	R1					AP											03528408	11.00000	0.00000	L 115
TR1	R1					AP											03528411	0.00000	0.00000	L 118
TR1	R1					AP											03528412	0.00000	0.00000	L 119
TR1	R1					AP											03528413	0.00000	0.00000	L 120
TR1	R1					AP											03528414	11.00000	0.00000	L 121
TR1	R1					AP											03528415	11.00000	0.00000	L 122
TR1	R1					AP											03528416	11.00000	0.00000	L 123
TR1	R1					AP											03528417	11.00000	0.00000	L 124
TR1	R1					AP											03528418	11.00000	0.00000	L 125
TR1	R1					AP											03528419	0.00000	0.00000	L 126
TR1	R1					AP											03528420	0.00000	0.00000	L 127
TR1	R1					AP											03528421	0.00000	0.13800	L 128
TR1	R1					AP											03528422	0.00000	0.00000	L 129
TR1	R1					AP											03528423	0.00000	0.14700	L 130
TR1	R1					AP											03528424	0.00000	0.00000	L 116 & 117
TR1	R1					AP											03528501	0.00000	0.00000	L 93
TR1	R1					AP											03528502	0.00000	0.00000	L 94

TR1	R1					AP											03528503	0.00000	0.00000	L 95
TR1	R1					AP											03528504	11.00000	0.00000	L 96
TR1	R1					AP											03528505	0.00000	0.17900	L 97
TR1	R1					AP											03528506	0.00000	0.00000	L 98
TR1	R1					AP											03528507	11.00000	0.00000	L 99
TR1	R1					AP											03528508	0.00000	0.00000	L 100
TR1	R1					AP											03528509	0.00000	0.00000	L 101
TR1	R1					AP											03528510	11.00000	0.00000	L 102
TR1	R1					AP											03528511	11.00000	0.00000	L 103
TR1	R1					AP											03528512	0.00000	0.17900	L 104
TR1	R1					AP											03528513	0.00000	0.00000	L 105
TR1	R1					AP											03528514	0.00000	0.14900	L 106
TR1	R1					AP											03528515	11.00000	0.00000	L 107
TR1	R1					AP											03528601	0.00000	0.00000	L 131
TR1	R1					AP											03528602	0.00000	0.13800	L 132
TR1	R1					AP											03528605	0.00000	0.00000	L 135
TR1	R1					AP											03528606	11.00000	0.00000	L 136
TR1	R1					AP											03528607	0.00000	0.13800	L 137
TR1	R1					AP											03528608	11.00000	0.00000	L 138
TR1	R1					AP											03528609	0.00000	0.00000	L 139
TR1	R1					AP											03528610	11.00000	0.00000	L 140
TR1	R1					AP											03528611	11.00000	0.00000	L 141
TR1	R1					AP											03528612	11.00000	0.00000	L 142
TR1	R1					AP											03528613	0.00000	0.00000	L 143
TR1	R1					AP											03528614	11.00000	0.00000	L 144
TR1	R1					AP											03528615	11.00000	0.00000	L 145
TR1	R1					AP											03528616	0.00000	0.27500	LOT 133&LOT 134
TR1	R1					AP											03529101	11.00000	0.00000	L 293
TR1	R1					AP											03529102	0.00000	0.00000	L 294
TR1	R1					AP											03529103	11.00000	0.00000	L 295
TR1	R1					AP											03529104	11.00000	0.00000	L 296
TR1	R1					AP											03529105	0.00000	0.00000	L 297
TR1	R1					AP											03529106	0.00000	0.00000	L 298
TR1	R1					AP											03529107	0.00000	0.00000	L 299
TR1	R1					AP											03529108	11.00000	0.00000	L 300
TR1	R1					AP											03529109	0.00000	0.00000	L 301
TR1	R1					AP											03529110	0.00000	0.00000	L 302
TR1	R1					AP											03529111	0.00000	0.00000	L 303
TR1	R1					AP											03529112	11.00000	0.00000	L 304
TR1	R1					AP											03529201	0.00000	0.00000	L 305
TR1	R1					AP											03529202	0.00000	0.00000	L 306
TR1	R1					AP											03529301	11.00000	0.00000	L 252
TR1	R1					AP											03529302	0.00000	0.00000	L 253
TR1	R1					AP											03529303	11.00000	0.00000	L 254
TR1	R1					AP											03529304	11.00000	0.00000	L 255
TR1	R1					AP											03529305	11.00000	0.00000	L 256

TR1	R1					AP											03529306	0.00000	0.00000	L 257
TR1	R1					AP											03529307	11.00000	0.00000	L 258
TR1	R1					AP											03529308	11.00000	0.00000	L 259
TR1	R1					AP											03529309	11.00000	0.00000	L 260
TR1	R1					AP											03529310	11.00000	0.00000	L 261
TR1	R1					AP											03529311	11.00000	0.00000	L 262
TR1	R1					AP											03529312	0.00000	0.00000	L 263
TR1	R1					AP											03529313	11.00000	0.00000	L 264
TR1	R1					AP											03529314	11.00000	0.00000	L 265
TR1	R1					AP											03529315	0.00000	0.00000	L 266
TR1	R1					AP											03529316	0.00000	0.00000	L 267
TR1	R1					AP											03529317	0.00000	0.00000	L 268
TR1	R1					AP											03529318	11.00000	0.00000	L 269
TR1	R1					AP											03529319	0.00000	0.00000	L 270
TR1	R1					AP											03529320	11.00000	0.00000	L 271
TR1	R1					AP											03529321	0.00000	0.00000	L 272
TR1	R1					AP											03529322	11.00000	0.00000	L 273
TR1	R1					AP											03529323	0.00000	0.00000	L 274
TR1	R1					AP											03529324	11.00000	0.00000	L 275
TR1	R1					AP											03529325	11.00000	0.00000	L 276
TR1	R1					AP											03529326	0.00000	0.00000	L 277
TR1	R1					AP											03529327	11.00000	0.00000	L 278
TR1	R1					AP											03529328	0.00000	0.00000	L 279
TR1	R1					AP											03529329	11.00000	0.00000	L 280
TR1	R1					AP											03529330	11.00000	0.00000	L 281
TR1	R1					AP											03529401	0.00000	0.00000	L 215
TR1	R1					AP											03529402	0.00000	0.00000	L 216
TR1	R1					AP											03529403	11.00000	0.00000	L 217
TR1	R1					AP											03529404	11.00000	0.00000	L 218
TR1	R1					AP											03529405	0.00000	0.00000	L 219
TR1	R1					AP											03529406	11.00000	0.00000	L 220
TR1	R1					AP											03529407	0.00000	0.00000	L 221
TR1	R1					AP											03529408	11.00000	0.00000	L 222
TR1	R1					AP											03529409	0.00000	0.00000	L 223
TR1	R1					AP											03529410	11.00000	0.00000	L 224
TR1	R1					AP											03529411	0.00000	0.13800	L 225
TR1	R1					AP											03529413	0.00000	0.00000	L 227
TR1	R1					AP											03529414	0.00000	0.13800	L 228
TR1	R1					AP											03529415	0.00000	0.00000	L 229
TR1	R1					AP											03529416	0.00000	0.00000	L 230
TR1	R1					AP											03529417	11.00000	0.00000	L 231
TR1	R1					AP											03529418	11.00000	0.00000	L 232
TR1	R1					AP											03529419	0.00000	0.00000	L 233
TR1	R1					AP											03529420	11.00000	0.00000	L 234
TR1	R1					AP											03529421	11.00000	0.00000	L 235
TR1	R1					AP											03529422	11.00000	0.00000	L 236

TR1	R1					AP											03529423	11.00000	0.00000	L 237
TR1	R1					AP											03529424	0.00000	0.00000	L 238
TR1	R1					AP											03529425	0.00000	0.00000	L 239
TR1	R1					AP											03529426	11.00000	0.00000	L 240
TR1	R1					AP											03529427	0.00000	0.13800	L 241
TR1	R1					AP											03529428	0.00000	0.00000	L 242
TR1	R1					AP											03529429	0.00000	0.00000	L 243
TR1	R1					AP											03529430	11.00000	0.00000	L 244
TR1	R1					AP											03529431	0.00000	0.00000	L 245
TR1	R1					AP											03529432	0.00000	0.00000	L 246
TR1	R1					AP											03529433	0.00000	0.14900	L 226
TR1	R1					AP											03529501	0.00000	0.00000	L 199
TR1	R1					AP											03529502	0.00000	0.00000	L 200
TR1	R1					AP											03529503	0.00000	0.00000	L 201
TR1	R1					AP											03529504	0.00000	0.00000	L 202
TR1	R1					AP											03529505	0.00000	0.00000	L 203
TR1	R1					AP											03529506	0.00000	0.00000	L 204
TR1	R1					AP											03529507	0.00000	0.00000	L 205
TR1	R1					AP											03529508	0.00000	0.00000	L 206
TR1	R1					AP											03529509	11.00000	0.00000	L 207
TR1	R1					AP											03529510	0.00000	0.00000	L 208
TR1	R1					AP											03529511	11.00000	0.00000	L 209
TR1	R1					AP											03529512	0.00000	0.00000	L 210
TR1	R1					AP											03529513	11.00000	0.00000	L 211
TR1	R1					AP											03529514	0.00000	0.00000	L 212
TR1	R1					AP											03529515	0.00000	0.00000	L 213
TR1	R1					AP											03529516	0.00000	0.00000	L 214
TR1	R1					AP											03529601	11.00000	0.00000	L 247
TR1	R1					AP											03529602	11.00000	0.00000	L 248
TR1	R1					AP											03529603	11.00000	0.00000	L 249
TR1	R1					AP											03529604	11.00000	0.00000	L 250
TR1	R1					AP											03529605	0.00000	0.00000	L 251
TR1	R1					AP											03529606	11.00000	0.00000	L 282
TR1	R1					AP											03529607	11.00000	0.00000	L 283
TR1	R1					AP											03529608	0.00000	0.00000	L 284
TR1	R1					AP											03529609	0.00000	0.00000	L 285
TR1	R1					AP											03529610	0.00000	0.00000	L 286
TR1	R1					AP											03529611	11.00000	0.00000	L 287
TR1	R1					AP											03529612	11.00000	0.00000	L 288
TR1	R1					AP											03529613	11.00000	0.00000	L 289
TR1	R1					AP											03529614	0.00000	0.37400	L 290
TR1	R1					AP											03529701	11.00000	0.00000	L 146
TR1	R1					AP											03529702	11.00000	0.00000	L 147
TA	FR-160					AP											03530101	0.00000	9.50000	POR L 291 ADM
TA	FR-160					AP											03530102	11.00000	0.00000	POR L 292 ADM
TR1	R1					AP											03530103	0.00000	0.00000	POR L 291 ADM

TR1	R1					AP											03530104	0.00000	0.00000	POR L 291 ADM
TR1	R1					AP											03530105	11.00000	0.00000	POR L 292 ADM
TR1	R1					AP											03530106	11.00000	0.00000	POR L 292 ADM
RA-160	FR-160					AP											03601003	11.00000	0.00000	SEC 7 11 18
TA	FR-160					AP											03601003	11.00000	0.00000	SEC 7 11 18
RA-160	FR-160					AP											03601004	11.00000	0.00000	S 6 11 18RS20-50
TA	FR-160					AP											03601004	11.00000	0.00000	S 6 11 18RS20-50
TA	FR-160					AP											03601009	0.00000	40.31000	POR RS 9/124 ADM
TA	FR-160					AP											03601010	11.00000	0.00000	SEC 4 & 9 11 18
TA	FR-160					AP											03601014	11.00000	0.00000	S 5 11 18
TA	FR-160					AP											03601014	11.00000	0.00000	S 5 11 18
TA	FR-160					AP											03601014	11.00000	0.00000	S 5 11 18
TA	FR-160					AP											03602001	11.00000	0.00000	SEC 3&10 11 18
TA	FR-160					AP											03602002	11.00000	0.00000	SEC 24& 11 11 18
TA	FR-160					AP											03602003	11.00000	0.00000	SEC 1&12 11 18
TA	FR-160					AP											03603001	11.00000	0.00000	POR S 1&12 11 18
TA	FR-160					AP											03604102	11.00000	80.00000	SEC 21 11 18
A	FR-160					AP											03604103	11.00000	0.00000	SEC 18 11 18
TA	FR-160					AP											03604103	11.00000	0.00000	SEC 18 11 18
TA	FR-160					AP											03604104	11.00000	0.00000	POR SEC 17 11 18
TA	FR-160					AP											03604105	11.00000	0.00000	POR S16&17 11 18
TA	FR-160					AP											03604106	11.00000	0.00000	S 19 20&21 11 18
TA	FR-160					AP											03605101	11.00000	60.00000	SEC 24 11 18
TA	FR-160					AP											03605102	11.00000	40.00000	SEC 14 11 18
TA	FR-160					AP											03605103	11.00000	640.00000	SEC 22 11 18
TA	FR-160					AP											03605104	11.00000	640.00000	SEC 23 11 8
TA	FR-160					AP											03605105	11.00000	0.00000	SEC 14&15 11 18
TA	FR-160					AP											03606101	11.00000	120.00000	SEC 28 11 18
TA	FR-160					AP											03606102	11.00000	0.00000	S 28 29&30 11 18
TA	FR-160					AP											03607101	11.00000	120.00000	SEC 27 11 18
TA	FR-160					AP											03607102	11.00000	0.00000	SEC 26&27 11 18
TA	FR-160					AP											03608002	11.00000	0.00000	LOT 40
TA	FR-160					AP											03608003	11.00000	0.00000	LOT 60
TA	FR-160					AP											03608004	11.00000	0.00000	LOT 64
TA	FR-160					AP											03608007	11.00000	1.83000	S1 11 17S6 11 18
TA	FR-160					AP											03608007	11.00000	1.83000	S1 11 17S6 11 18
TA	FR-160					AP											03609001	11.00000	0.00000	LOT 63
TA	FR-160					AP											03610001	11.00000	0.00000	LOT 53
TA	FR-160					AP											03610002	11.00000	0.00000	LOT 52
TA	FR-160					AP											03610003	11.00000	0.00000	LOT 51
TA	FR-160					AP											03610004	11.00000	0.00000	LOT 50
TA	FR-160					AP											03610005	11.00000	0.00000	LOT 58
TA	FR-160					AP											03610006	11.00000	0.00000	LOT 11
TA	FR-160					AP											03610007	11.00000	0.00000	LOT 1
TA	FR-160					AP											03610008	11.00000	0.00000	LOT 2
TA	FR-160					AP											03610009	11.00000	0.00000	L 3

TA	FR-160					AP											03610010	11.00000	0.00000	LOT 30
TA	FR-160					AP											03610011	11.00000	0.00000	LOT 31
TA	FR-160					AP											03610012	11.00000	0.00000	LOT 32
TA	FR-160					AP											03610013	11.00000	0.00000	LOT 33
TA	FR-160					AP											03610014	11.00000	0.00000	LOT 34
TA	FR-160					AP											03610015	11.00000	0.00000	LOT 35
TA	FR-160					AP											03610016	11.00000	0.00000	LOT 36
TA	FR-160					AP											03610017	11.00000	0.00000	LOT 37
TA	FR-160					AP											03610018	11.00000	0.00000	L 38
TA	FR-160					AP											03610019	11.00000	0.00000	LOT 39
TA	FR-160					NR											03610020	11.00000	0.00000	LOT 47
TA	FR-160					NR											03610021	11.00000	0.00000	LOT 48
TA	FR-160					NR											03610022	11.00000	0.00000	LOT 49
TA	FR-160					AP											03610023	11.00000	0.00000	LOT 43
TA	FR-160					AP											03610024	11.00000	0.00000	LOT 44
TA	FR-160					AP											03610025	11.00000	0.00000	L 45
TA	FR-160					AP											03610026	11.00000	0.00000	LOT 46
TA	FR-160					AP											03611001	11.00000	0.00000	LOT 4
TA	FR-160					AP											03611002	11.00000	0.00000	LOT 5
TA	FR-160					AP											03611003	11.00000	0.00000	LOT 6
TA	FR-160					AP											03611004	11.00000	0.00000	LOT 42
TA	FR-160					AP											03611005	11.00000	0.00000	LOT 26
TA	FR-160					AP											03611006	11.00000	0.00000	LOT 13
TA	FR-160					AP											03611007	11.00000	0.00000	LOT 41
TA	FR-160					AP											03611008	11.00000	0.00000	LOT 27
TA	FR-160					AP											03611009	11.00000	0.00000	L 10
TA	FR-160					NR											03611010	11.00000	0.00000	LOT 28
TA	FR-160					NR											03611011	11.00000	0.00000	LOT 29
TA	FR-160					AP											03611012	11.00000	0.00000	LOT 7
TA	FR-160					NR											03611013	11.00000	0.00000	LOT 8
TA	FR-160					NR											03611014	11.00000	0.00000	LOT 9
TA	FR-160					AP											03612001	11.00000	0.00000	L 1
TA	FR-160					AP											03612002	11.00000	0.42000	L 3
TA	FR-160					AP											03612003	11.00000	0.00000	L 8
TA	FR-160					AP											03612004	11.00000	0.00000	L 2
TA	FR-160					AP											03612005	11.00000	0.00000	L 9
TA	FR-160					AP											03612006	11.00000	0.32000	L 10
TA	FR-160					AP											03613001	11.00000	0.00000	L 11
TA	FR-160					AP											03613002	11.00000	0.00000	L 12
TA	FR-160					AP											03613003	11.00000	0.00000	L 13
TA	FR-160					AP											03613004	11.00000	0.00000	L 14
TA	FR-160					AP											03613005	11.00000	0.00000	L 5
TA	FR-160					AP											03613006	11.00000	0.00000	L 6
TA	FR-160					AP											03613007	11.00000	0.00000	L 7
TA	FR-160					AP											03613008	11.00000	0.00000	L 15
TA	FR-160					AP											03613009	11.00000	0.00000	L 16

C	R1					HDR							LN				03614117	0.00000	0.39000	RS 31/38/1
R1	R1A					HDR							LN				03614140	0.00000	2.93700	6 11 18 R/S25-56
RE-5	R1A					HDR							LN				03614140	0.00000	2.93700	6 11 18 R/S25-56
R1	RE-5					LDR											03614141	0.00000	0.00000	L C
R1	RE-5					LDR											03614143	0.00000	0.00000	SEC 6 11 18
R1	RE-5					LDR											03614143	0.00000	0.00000	SEC 6 11 18
R1	RE-5					LDR											03614144	0.00000	5.78000	SEC 6 11 18
C	CC					C							LN				03615001	0.00000	2.00000	SEC 6 11 18
C	CC					C							LN				03615004	0.00000	2.36000	SEC 6 11 18
RA-160	FR-160					NR											03616001	11.00000	0.23000	L 9
RA-160	FR-160					NR											03616002	11.00000	0.23000	L 8
RA-160	FR-160					NR											03616003	11.00000	0.21000	L 7
RA-160	FR-160					NR											03616004	11.00000	0.24000	L 6
RA-160	FR-160					NR											03616005	11.00000	0.27000	L 30
RA-160	FR-160					NR											03616006	11.00000	0.20000	L 31
RA-160	FR-160					NR											03616007	11.00000	0.25000	L 29
RA-160	FR-160					NR											03617001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											03617002	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03617003	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03617004	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03617005	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03617006	11.00000	0.00000	LOT 32
RA-160	FR-160					NR											03617007	11.00000	0.00000	LOT 33
RA-160	FR-160					NR											03617008	11.00000	0.00000	LOT 34
RA-160	FR-160					NR											03617009	11.00000	0.00000	LOT 35
RA-160	FR-160					NR											03617010	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03617011	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											03617012	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03617013	11.00000	0.00000	LOT 13 14 15
RA-160	FR-160					NR											03617014	11.00000	0.00000	LOT 17 & 19
RA-160	FR-160					NR											03617015	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											03617021	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											03617022	11.00000	0.00000	LOT 28
TA	FR-160					NR											03618001	11.00000	0.00000	LOT 19
TA	FR-160					AP											03618002	11.00000	0.00000	LOT 18
TA	FR-160					AP											03618003	11.00000	0.00000	LOT 17
TA	FR-160					AP											03618004	11.00000	0.00000	LOT 16
TA	FR-160					AP											03618005	11.00000	0.00000	LOT 15
TA	FR-160					AP											03618006	11.00000	0.00000	LOT 14
TA	FR-160					AP											03618007	11.00000	0.00000	LOT 20
TA	FR-160					AP											03618008	11.00000	0.00000	LOT 21
TA	FR-160					AP											03618009	11.00000	0.00000	LOT 22
TA	FR-160					AP											03619001	11.00000	0.00000	LOT 23
TA	FR-160					AP											03619002	11.00000	0.00000	LOT 24
TA	FR-160					AP											03619003	11.00000	0.00000	LOT 25
TA	FR-160					NR											03619004	11.00000	0.00000	LOT 54

TA	FR-160					NR											03619005	11.00000	0.00000	LOT 55
TA	FR-160					NR											03619006	11.00000	0.00000	LOT 56
TA	FR-160					NR											03619007	11.00000	0.00000	LOT 57
TA	FR-160					NR											03620002	11.00000	0.00000	LOT 47
TA	FR-160					AP											03620003	11.00000	0.00000	LOT 49
TA	FR-160					AP											03620004	11.00000	0.00000	LOT 48
TA	FR-160					AP											03620005	11.00000	0.00000	LOT 1
TA	FR-160					NR											03621001	11.00000	0.00000	LOT 3
TA	FR-160					AP											03621002	11.00000	0.00000	LOT 4
TA	FR-160					AP											03621003	11.00000	0.00000	LOT 5
TA	FR-160					AP											03621004	11.00000	0.00000	LOT 6
TA	FR-160					AP											03621005	11.00000	0.00000	LOT 7
TA	FR-160					AP											03621006	11.00000	0.00000	LOT 8
TA	FR-160					AP											03621007	11.00000	0.00000	LOT 9
TA	FR-160					AP											03622001	11.00000	0.00000	LOT 10
TA	FR-160					AP											03622002	11.00000	0.00000	LOT 11
TA	FR-160					AP											03622003	11.00000	0.00000	LOT 12
TA	FR-160					AP											03622004	11.00000	0.00000	LOT 13
TA	FR-160					AP											03622005	11.00000	0.00000	LOT 14
TA	FR-160					AP											03622006	11.00000	0.00000	LOT 43
TA	FR-160					AP											03623001	11.00000	0.00000	LOT 15
TA	FR-160					AP											03623002	11.00000	0.00000	LOT 16
TA	FR-160					AP											03623003	11.00000	0.00000	LOT 17
TA	FR-160					AP											03623004	11.00000	0.00000	LOT 18
TA	FR-160					AP											03623005	11.00000	0.00000	LOT 19
TA	FR-160					AP											03623006	11.00000	0.00000	L 20
TA	FR-160					AP											03623007	11.00000	0.00000	LOT 21
TA	FR-160					AP											03623008	11.00000	0.00000	LOT 22
TA	FR-160					AP											03624001	11.00000	0.00000	LOT 23
TA	FR-160					AP											03624002	11.00000	0.00000	LOT 24
TA	FR-160					AP											03624003	11.00000	0.00000	LOT 25
TA	FR-160					AP											03624004	11.00000	0.00000	LOT 26
TA	FR-160					AP											03624005	11.00000	0.00000	LOT 27
TA	FR-160					AP											03624006	11.00000	0.00000	LOT 28
TA	FR-160					AP											03626001	11.00000	0.00000	LOT 29
TA	FR-160					AP											03626002	11.00000	0.00000	LOT 30
TA	FR-160					AP											03626003	11.00000	0.00000	LOT 31
TA	FR-160					AP											03626004	11.00000	0.00000	LOT 32
TA	FR-160					AP											03626005	11.00000	0.00000	LOT 33
TA	FR-160					AP											03626006	11.00000	0.00000	LOT 44
TA	FR-160					AP											03627001	11.00000	0.00000	LOT 35
TA	FR-160					AP											03627002	11.00000	0.00000	LOT 36
TA	FR-160					AP											03627003	11.00000	0.00000	LOT 37
TA	FR-160					AP											03627004	11.00000	0.00000	LOT 38
TA	FR-160					AP											03627005	11.00000	0.00000	LOT 39
TA	FR-160					AP											03627006	11.00000	0.20000	LOT 40

TA	FR-160					AP											03627007	11.00000	0.00000	LOT 41
TA	FR-160					AP											03627008	11.00000	0.00000	LOT 42
TA	FR-160					AP											03627009	11.00000	0.00000	LOT 45
TR1	R1					AP											03628001	11.00000	0.00000	LOT 10
TR1	R1					AP											03628002	11.00000	0.00000	L 11
TR1	R1					AP											03628003	11.00000	0.00000	LOT 12
TR1	R1					AP											03628004	11.00000	0.22000	LOT 4
TR1	R1					AP											03628005	11.00000	0.00000	LOT 14
TR1	R1					AP											03628006	11.00000	0.00000	LOT 15
TR1	R1					AP											03628007	11.00000	0.00000	LOT 16
TR1	R1					AP											03628008	11.00000	0.00000	LOT 17
TR1	R1					AP											03628009	11.00000	0.00000	LOT 18
TR1	R1					AP											03629001	11.00000	0.00000	LOT 1
TR1	R1					AP											03629002	11.00000	0.00000	LOT 2
TR1	R1					AP											03629003	11.00000	0.00000	LOT 3
TR1	R1					AP											03629004	11.00000	0.00000	LOT 4
TR1	R1					AP											03629005	11.00000	0.00000	LOT 5
TR1	R1					AP											03629006	11.00000	0.00000	LOT 6
TR1	R1					AP											03629007	11.00000	0.00000	LOT 7
TR1	R1					AP											03629008	11.00000	0.00000	LOT 8
TR1	R1					AP											03629009	11.00000	0.00000	LOT 9
TR1	R1					AP											03629010	11.00000	0.00000	LOT 26
TR1	R1					AP											03629011	11.00000	0.18000	LOT 25
TR1	R1					AP											03629012	11.00000	0.00000	LOT 24
TR1	R1					AP											03629013	11.00000	0.00000	L 23
TR1	R1					AP											03629014	11.00000	0.00000	LOT 22
TR1	R1					AP											03629015	11.00000	0.00000	LOT 21
TR1	R1					AP											03629016	11.00000	0.00000	LOT 20
TR1	R1					AP											03629017	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											03630001	11.00000	0.00000	LOT 12
TA	FR-160					NR											03630001	11.00000	0.00000	LOT 12
TA	FR-160					AP											03631001	11.00000	0.00000	L 24
TA	FR-160					AP											03631002	11.00000	0.00000	L 23
TA	FR-160					AP											03631003	11.00000	0.00000	L 22
TA	FR-160					AP											03631004	11.00000	0.00000	L 21
TA	FR-160					AP											03631005	11.00000	0.00000	L 20
TA	FR-160					AP											03631006	11.00000	0.33000	L 19
TA	FR-160					AP											03631007	11.00000	0.32000	L 18
TR1	R1					AP											03635004	11.00000	2.50000	SEC 5 11 18
TR1	R1					AP											03635005	11.00000	2.50000	SEC 5 11 18
TR1	R1					AP											03635008	0.00000	2.50000	SEC 5 11 18
TR1	R1					AP											03635009	0.00000	2.50000	SEC 5 11 18
TR1	FR-160					AP											03635021	11.00000	10.00000	SEC 5 11 18
TR1	R1					AP											03635024	11.00000	0.62000	SEC 5 11 18
TA	FR-160					AP											03635027	0.00000	1.35700	SEC 5 11 18
TR1	FR-160					AP											03637003	11.00000	18.84000	SEC 17 11 18

TR1	FR-160					AP											03637007	11.00000	21.97000	SEC 17 11 18
TR1	R1					AP											03637010	0.00000	1.62800	RS 32/65/1
TR1	R1					AP											03637012	0.00000	2.78600	SEC 17 11 18
TR1	R1					AP											03637016	11.00000	0.90000	SEC 17 11 18
TR1	R1					AP											03637017	11.00000	0.91000	SEC 17 11 18
TR1	R1					AP											03637020	11.00000	3.50000	SEC 17 11 18
TR1	R1					AP											03637021	11.00000	3.41000	SEC 17 11 18
TR1	R1					AP											03637022	11.00000	3.31000	SEC 17 11 18
TR1	R1					AP											03637023	11.00000	3.31000	SEC 17 11 18
TR1	R1					AP											03637024	0.00000	0.52000	SEC 17 11 18
TR1	R1					AP											03637025	0.00000	0.52000	SEC 17 11 18
TR1	R1					AP											03637026	0.00000	0.88300	PM 2/131/1
TR1	R1					AP											03637027	0.00000	0.88000	PM 2/131/2
TR1	R1					AP											03637029	0.00000	0.00000	8.55 A SEC 8 11
TR1	FR-160					AP											03637031	11.00000	29.44000	S8 & 17 11 18
TR1	R1					AP											03637035	11.00000	1.47000	TR 1 RS 18-142
TR1	FR-160					AP											03637036	11.00000	6.93000	17 11 18RS18-142
TR1	R1					AP											03638021	0.00000	0.49000	SEC 5 11 18
TR1	R1					AP											03638022	0.00000	0.65000	SEC 5 11 18
TR1	R1					AP											03638023	0.00000	1.54000	SEC 5 11 18
TR1	R1					AP											03638024	0.00000	1.55000	SEC 5 11 18
TR1	R1					AP											03638028	11.00000	0.28000	RS 32/129
TR1	R1					AP											03638029	0.00000	0.73000	SEC 5 11 18
TR1	R1					AP											03638030	0.00000	0.32000	RS 32/129
TR1	R1					AP											03638031	11.00000	0.28000	SEC 5 11 18
TR1	R1					AP											03638032	0.00000	0.28000	SEC 5 11 18
TR1	R1					AP											03638034	0.00000	0.20700	SEC 5 11 18
TR1	R1					AP											03638035	0.00000	0.21000	SEC 5 11 18
TR1	R1					AP											03638036	11.00000	0.21000	SEC 5 11 18
TR1	R1					AP											03638037	11.00000	0.83000	SEC 5 11 18
TR1	R1					AP											03639101	0.00000	2.28500	L 1
TR1	R1					AP											03639102	0.00000	1.74000	L 2
TR1	R1					AP											03639103	0.00000	0.00000	L 3
TR1	R1					AP											03639104	0.00000	0.00000	L 4
TR1	R1					AP											03639105	0.00000	0.00000	L 5
TR1	R1					AP											03639106	0.00000	0.00000	L 6
TR1	R1					AP											03639107	0.00000	0.00000	L 7
TR1	R1					AP											03639108	0.00000	0.00000	L 8
TR1	R1					AP											03639109	0.00000	0.00000	L 9
TR1	R1					AP											03639110	0.00000	0.00000	L 10
TR1	R1					AP											03639111	0.00000	0.00000	L 11
TR1	R1					AP											03639112	0.00000	0.00000	L 12
TR1	R1					AP											03639113	0.00000	0.00000	L 13
TR1	R1					AP											03639114	11.00000	0.00000	L 14
TR1	R1					AP											03639115	11.00000	0.00000	L 15
TR1	R1					AP											03639116	11.00000	0.00000	L 16

TR1	R1					AP											03639117	11.00000	0.00000	L 17
TR1	R1					AP											03639201	11.00000	0.00000	L 18
TR1	R1					AP											03639202	0.00000	0.35300	L 19
TR1	R1					AP											03639203	11.00000	0.00000	L 20
TR1	R1					AP											03639204	0.00000	0.00000	L 21
TR1	R1					AP											03639205	0.00000	0.00000	L 22
TR1	R1					AP											03640101	11.00000	0.00000	L 23
TR1	R1					AP											03640102	0.00000	1.60000	L 24
TR1	R1					AP											03640103	11.00000	0.00000	L 25
TR1	R1					AP											03640104	11.00000	0.00000	L 26
TR1	R1					AP											03640105	0.00000	0.00000	L 27
TR1	R1					AP											03640106	0.00000	0.00000	L 28
TR1	R1					AP											03640107	0.00000	0.00000	L 29
TR1	R1					AP											03640108	11.00000	0.00000	L 30
TR1	R1					AP											03640109	0.00000	0.00000	L 31
TR1	R1					AP											03640110	11.00000	0.00000	L 32
TR1	R1					AP											03640111	0.00000	0.00000	L 33
TR1	R1					AP											03640112	11.00000	0.00000	L 34
TR1	R1					AP											03640113	0.00000	0.00000	L 35
TR1	R1					AP											03640114	0.00000	0.00000	L 36
TR1	R1					AP											03640115	0.00000	0.30300	L 37
TR1	R1					AP											03640116	0.00000	0.00000	L 38
TR1	R1					AP											03640117	0.00000	0.00000	L 39
TR1	R1					AP											03640118	0.00000	0.00000	L 40
TR1	R1					AP											03640119	0.00000	0.00000	L 41
TR1	R1					AP											03641101	0.00000	0.00000	L 76
TR1	R1					AP											03641102	0.00000	0.23000	L 77
TR1	R1					AP											03641103	11.00000	0.00000	L 78
TR1	R1					AP											03641104	0.00000	0.00000	L 79
TR1	R1					AP											03641105	0.00000	0.00000	L 80
TR1	R1					AP											03641106	0.00000	0.00000	L 81
TR1	R1					AP											03641201	0.00000	0.00000	L 38
TR1	R1					AP											03641202	11.00000	0.00000	L 39
TR1	R1					AP											03641203	0.00000	0.00000	L 40
TR1	R1					AP											03641204	0.00000	0.00000	L 41
TR1	R1					AP											03641205	0.00000	0.00000	L 42
TR1	R1					AP											03641206	0.00000	0.00000	L 43
TR1	R1					AP											03641207	0.00000	0.00000	L 44
TR1	R1					AP											03641208	0.00000	0.00000	L 45
TR1	R1					AP											03641209	0.00000	0.00000	L 46
TR1	R1					AP											03641210	0.00000	0.00000	L 47
TR1	R1					AP											03641211	0.00000	0.00000	L 48
TR1	R1					AP											03641212	0.00000	0.22900	L 49
TR1	R1					AP											03641213	0.00000	0.00000	L 50
TR1	R1					AP											03641214	0.00000	0.00000	L 51
TR1	R1					AP											03641215	0.00000	0.23000	L 52

TR1	R1					AP											03641301	0.00000	0.00000	L 1
TR1	R1					AP											03641302	0.00000	0.12000	L 2
TR1	R1					AP											03641305	0.00000	0.00000	L 5
TR1	R1					AP											03641306	0.00000	0.00000	L 6
TR1	R1					AP											03641307	0.00000	0.00000	L 7
TR1	R1					AP											03641308	0.00000	0.00000	L 3 & 4
TR1	R1					AP											03642101	0.00000	0.00000	L 61
TR1	R1					AP											03642102	11.00000	0.00000	L 62
TR1	R1					AP											03642103	11.00000	0.00000	L 63
TR1	R1					AP											03642104	0.00000	0.00000	L 64
TR1	R1					AP											03642105	0.00000	0.00000	L 65
TR1	R1					AP											03642107	0.00000	0.00000	L 67
TR1	R1					AP											03642108	11.00000	0.00000	L 68
TR1	R1					AP											03642109	0.00000	0.00000	L 69
TR1	R1					AP											03642110	0.00000	0.00000	L 70
TR1	R1					AP											03642111	0.00000	0.00000	L 71
TR1	R1					AP											03642112	0.00000	0.00000	L 72
TR1	R1					AP											03642113	0.00000	0.00000	L 73
TR1	R1					AP											03642114	11.00000	0.00000	L 74
TR1	R1					AP											03642115	0.00000	0.00000	L 75
TR1	R1					AP											03642201	0.00000	0.00000	L 30
TR1	R1					AP											03642202	0.00000	0.23000	L 31
TR1	R1					AP											03642203	0.00000	0.00000	L 32
TR1	R1					AP											03642204	0.00000	0.00000	L 33
TR1	R1					AP											03642205	11.00000	0.00000	L 34
TR1	R1					AP											03642206	0.00000	0.00000	L 35
TR1	R1					AP											03642207	0.00000	0.00000	L 36
TR1	R1					AP											03642208	11.00000	0.00000	L 37
TR1	R1					AP											03642209	0.00000	0.23000	L 53
TR1	R1					AP											03642210	0.00000	0.00000	L 54
TR1	R1					AP											03642211	0.00000	0.23000	L 55
TR1	R1					AP											03642212	0.00000	0.23000	L 56
TR1	R1					AP											03642213	0.00000	0.00000	L 57
TR1	R1					AP											03642214	0.00000	0.00000	L 58
TR1	R1					AP											03642215	0.00000	0.23000	L 59
TR1	R1					AP											03642216	0.00000	0.00000	L 60
TR1	R1					AP											03642301	0.00000	0.00000	L 8
TR1	R1					AP											03642302	11.00000	0.00000	L 9
TR1	R1					AP											03642303	0.00000	0.23000	L 10
TR1	R1					AP											03642304	0.00000	0.23000	L 11
TR1	R1					AP											03642305	0.00000	0.23000	L 12
TR1	R1					AP											03642306	0.00000	0.00000	L 13
TR1	R1					AP											03642307	0.00000	0.00000	L 14
TR1	R1					AP											03642308	0.00000	0.00000	L 15
TR1	R1					AP											03642309	0.00000	0.00000	L 16
TR1	R1					AP											03642310	0.00000	0.00000	L 17

TR1	R1					AP											03642313	0.00000	0.00000	L 29
TR1	R1					AP											03642314	0.00000	0.00000	L 25
TR1	R1					AP											03642317	0.00000	0.00000	L 18
TR1	R1					AP											03642318	0.00000	0.00000	LOTS 27 & 28
TR1	R1					AP											03642319	0.00000	0.45900	LOT 19 & 26
TR1	R1					AP											03642401	11.00000	0.00000	L 20
TR1	R1					AP											03642402	0.00000	0.00000	L 21
TR1	R1					AP											03642403	0.00000	0.00000	L 22
TR1	R1					AP											03642404	0.00000	0.00000	L 23
TR1	R1					AP											03642405	0.00000	0.00000	L 24
TR1	R1					AP											03643101	0.00000	1.28000	RS 1/100/7
TR1	R1					AP											03643103	0.00000	1.01000	RS 1/100/9
TR1	R1					AP											03643104	0.00000	1.02000	RS 1/100/10
TR1	R1					AP											03643105	0.00000	1.04000	RS 1/100/11
TR1	R1					AP											03643106	11.00000	1.10000	TR 12 RS 1-100
TR1	R1					AP											03643107	11.00000	1.00000	TR 13 RS 1-100
TR1	R1					AP											03643108	0.00000	1.00000	RS 1/100/14
TR1	R1					AP											03643110	0.00000	1.04000	RS 1/100/16
TR1	R1					AP											03643111	0.00000	0.46000	POR TR 8 RS1-100
TR1	R1					AP											03643112	0.00000	0.72000	POR TR 8 RS1-100
TR1	R1					AP											03643113	0.00000	0.00000	POR TR15 RS1-100
TR1	R1					AP											03643114	0.00000	0.00000	POR TR15 RS1-100
TR1	R1					AP											03643201	0.00000	0.52000	PRS 32/129
TR1	R1					AP											03643202	11.00000	0.17000	PRS 32/129
TR1	R1					AP											03643203	11.00000	0.35000	POR TR 4 RS1-100
TR1	R1					AP											03643204	0.00000	1.19000	RS 1/100/5
TR1	R1					AP											03643205	0.00000	0.88000	POR TR 6 RS1-100
TR1	R1					AP											03643206	11.00000	0.95000	PRS 32/129
TR1	R1					AP											03643301	0.00000	1.03000	RS 1/100/1
TR1	R1					AP											03643302	0.00000	1.00700	RS 1/100/2
TR1	R1					AP											03643303	0.00000	1.00000	RS 1/100/3
TR1	R1					AP											03645101	11.00000	0.00000	L 42
TR1	R1					AP											03645102	0.00000	0.00000	L 43
TR1	R1					AP											03645103	11.00000	0.00000	L 44
TR1	R1					AP											03645104	0.00000	0.00000	L 45
TR1	R1					AP											03645105	0.00000	0.00000	L 46
TR1	R1					AP											03645106	0.00000	0.00000	L 47
TR1	R1					AP											03645107	0.00000	0.00000	L 48
TR1	R1					AP											03645108	0.00000	0.00000	L 49
TR1	R1					AP											03645109	0.00000	1.60000	L 50
TR1	R1					AP											03645110	0.00000	0.00000	L 51
TR1	R1					AP											03645111	0.00000	0.00000	L 52
TR1	R1					AP											03645112	0.00000	0.00000	L 53
TR1	R1					AP											03646101	0.00000	0.00000	L 65
TR1	R1					AP											03646102	11.00000	0.00000	L 66
TR1	R1					AP											03646103	11.00000	0.00000	L 67

TR1	R1					AP											03646104	0.00000	0.00000	L 68
TR1	R1					AP											03646105	11.00000	0.00000	L 69
TR1	R1					AP											03646106	11.00000	0.00000	L 70
TR1	R1					AP											03646107	0.00000	1.10300	L 71
TR1	R1					AP											03646108	11.00000	0.00000	L 72
TR1	R1					AP											03646109	11.00000	0.00000	L 73
TR1	R1					AP											03646110	0.00000	0.00000	L 74
TR1	R1					AP											03646111	0.00000	1.26500	L 75
TR1	R1					AP											03646112	0.00000	0.00000	L 76
TR1	R1					AP											03646113	0.00000	0.00000	L 54
TR1	R1					AP											03646201	11.00000	0.00000	L 55
TR1	R1					AP											03646202	0.00000	0.00000	L 56
TR1	R1					AP											03646203	0.00000	0.00000	L 57
TR1	R1					AP											03646204	0.00000	0.00000	L 58
TR1	R1					AP											03646205	11.00000	0.00000	L 59
TR1	R1					AP											03646206	0.00000	0.00000	L 60
TR1	R1					AP											03646207	0.00000	0.00000	L 61
TR1	R1					AP											03646208	0.00000	0.00000	L 62
TR1	R1					AP											03646209	0.00000	0.00000	L 63
TR1	R1					AP											03646210	0.00000	0.00000	L 64
TR1	R1					AP											03647101	0.00000	0.00000	L 1
TR1	R1					AP											03647105	0.00000	0.23000	L 5
TR1	R1					AP											03647110	0.00000	0.32000	PM 44/131/2
TR1	R1					AP											03647111	0.00000	0.46000	PM 44/131/1
TR1	R1					AP											03647201	0.00000	0.00000	L 6
TR1	R1					AP											03647202	0.00000	0.00000	L 7
TR1	R1					AP											03647203	0.00000	0.00000	L 8
TR1	R1					AP											03647204	0.00000	0.00000	L 9
TR1	R1					AP											03647205	0.00000	0.00000	L 10
TR1	R1					AP											03647206	0.00000	0.00000	L 11
TR1	R1					AP											03647207	0.00000	0.00000	L 12
TR1	R1					AP											03647208	0.00000	0.00000	L 13
TR1	R1					AP											03647301	0.00000	0.00000	L 14
TR1	R1					AP											03647302	0.00000	0.00000	L 15
TR1	R1					AP											03647303	0.00000	0.00000	L 16
TR1	R1					AP											03647304	0.00000	0.31000	RS 32/149 L 17
TR1	R1					AP											03647305	0.00000	0.00000	L 18
TR1	R1					AP											03647306	0.00000	0.00000	L 19
TR1	R1					AP											03647403	11.00000	0.00000	L 22
TR1	R1					AP											03647404	0.00000	0.00000	L 23
TR1	R1					AP											03647405	11.00000	0.00000	L 24
TR1	R1					AP											03647406	0.00000	0.00000	L 25
TR1	R1					AP											03647407	11.00000	0.00000	L 26
TR1	R1					AP											03647408	0.00000	0.00000	L 27
TR1	R1					AP											03647411	0.00000	0.36000	RS 23/27/1
TR1	R1					AP											03647501	0.00000	0.36300	L 28 RS26-45

TR1	R1					AP											03647502	0.00000	0.00000	L 29 RS26-45
TR1	R1					AP											03647503	0.00000	0.00000	L 30 RS26-45
TR1	R1					AP											03647506	11.00000	1.47200	L 33 R/S26-45
TR1	R1					AP											03647507	0.00000	0.00000	L 34
TR1	R1					AP											03647508	11.00000	1.36100	L 35 RS 26-45
TR1	R1					AP											03647509	11.00000	1.00300	L 36 RS26-45
TR1	R1					AP											03647510	0.00000	0.00000	L 37
TR1	R1					AP											03647511	0.00000	1.33000	PM 45/90/1
TR1	R1					AP											03648102	11.00000	0.00000	L 2
TR1	R1					AP											03648103	11.00000	0.00000	L 3
TR1	R1					AP											03648104	0.00000	0.00000	L 4
TR1	R1					AP											03648105	0.00000	0.00000	L 5
TR1	R1					AP											03648106	11.00000	0.00000	L 6
TR1	R1					AP											03648107	11.00000	0.00000	L 7
TR1	R1					AP											03648108	0.00000	0.00000	L 8
TR1	R1					AP											03648109	11.00000	0.00000	L 9
TR1	R1					AP											03648110	11.00000	0.00000	L 10
TR1	R1					AP											03648111	11.00000	0.00000	L 11
TR1	R1					AP											03648112	11.00000	0.00000	L 12
TR1	R1					AP											03648113	0.00000	0.00000	POR L 1
TR1	R1					AP											03648114	0.00000	0.00000	POR L 1
TR1	R1					AP											03649101	0.00000	0.00000	L 23
TR1	R1					AP											03649102	0.00000	0.00000	L 24
TR1	R1					AP											03649103	11.00000	0.00000	L 25
TR1	R1					AP											03649104	0.00000	0.00000	L 26
TR1	R1					AP											03649105	0.00000	0.00000	L 27
TR1	R1					AP											03649201	0.00000	0.00000	L 78
TR1	R1					AP											03649202	11.00000	0.00000	L 79
TR1	R1					AP											03649203	11.00000	0.00000	L 80
TR1	R1					AP											03649204	11.00000	0.00000	L 81
TR1	R1					AP											03649206	11.00000	0.00000	POR LOT 82
TR1	R1					AP											03650103	11.00000	0.00000	L 30
TR1	R1					AP											03650104	0.00000	0.00000	L 31
TR1	R1					AP											03650105	11.00000	0.00000	L 32
TR1	R1					AP											03650106	0.00000	2.26000	PM 32/1/A
TR1	R1					AP											03650201	0.00000	0.00000	L 41
TR1	R1					AP											03650301	0.00000	0.00000	L 74
TR1	R1					AP											03650302	11.00000	0.00000	L 75
TR1	R1					AP											03650303	0.00000	0.00000	L 76
TR1	R1					AP											03650304	11.00000	0.00000	L 77
TR1	R1					AP											03651101	11.00000	0.00000	L 33
TR1	R1					AP											03651102	11.00000	0.00000	L 34
TR1	R1					AP											03651201	0.00000	0.00000	L 36
TR1	R1					AP											03651202	11.00000	0.00000	L 37
TR1	R1					AP											03651203	11.00000	0.00000	L 38
TR1	R1					AP											03651204	0.00000	0.00000	L 39

TR1	R1					AP											03651205	11.00000	0.00000	L 40
TR1	R1					AP											03652001	11.00000	1.89000	SEC 8 11 18
TR1	R1					AP											03652002	0.00000	0.41000	SEC 8 11 18
TR1	R1					AP											03652003	11.00000	0.51000	SEC 8 11 18
TA	FR-160					AP											03653006	11.00000	1.65000	SEC 5 11 18
TR1	R1					AP											03653010	0.00000	0.90000	SEC 5 11 18
TR1	R1					AP											03653011	0.00000	2.47000	SEC 5 11 18
TR1	R1					AP											03653012	0.00000	0.76000	RS 27/112/1
TR1	R1					AP											03653013	11.00000	0.87000	SEC 5 11 18
TR1	R1					AP											03653020	0.00000	1.00000	SEC 5 11 18
TR1	R1					AP											03653021	0.00000	1.00000	SEC 5 11 18
TR1	R1					AP											03653022	0.00000	0.06000	SEC 5 11 18
TA	FR-160					AP											03653023	0.00000	2.50000	SEC 5 11 18
TR1	R1					AP											03653025	0.00000	0.90300	PM 49/51/1
TR1	R1					AP											03653026	0.00000	0.57800	PM 49/51/2
TR1	R1					AP											03654102	0.00000	0.00000	L 184
TR1	R1					AP											03654106	0.00000	0.00000	L 188
TR1	R1					AP											03654107	0.00000	0.35600	L 189
TR1	R1					AP											03654108	0.00000	0.00000	L 190
TR1	R1					AP											03654110	0.00000	0.37000	RS 23/27/2
TR1	R1					AP											03654114	0.00000	0.40000	RS 23/120/2
TR1	R1					AP											03654115	0.00000	0.46100	RS 23/120/1
TR1	R1					AP											03654201	0.00000	0.00000	L 151
TR1	R1					AP											03654202	0.00000	0.00000	L 152
TR1	R1					AP											03654203	0.00000	0.00000	L 153
TR1	R1					AP											03654204	0.00000	0.00000	L 154
TR1	R1					AP											03654205	0.00000	0.00000	L 155
TR1	R1					AP											03654206	0.00000	0.00000	L 156
TR1	R1					AP											03654207	0.00000	0.00000	L 177
TR1	R1					AP											03654208	0.00000	0.00000	L 178
TR1	R1					AP											03654209	0.00000	0.00000	L 179
TR1	R1					AP											03654210	0.00000	0.00000	L 180
TR1	R1					AP											03654211	0.00000	0.00000	L 181
TR1	R1					AP											03654212	0.00000	0.00000	L 182
TR1	R1					AP											03654301	0.00000	0.00000	L 124
TR1	R1					AP											03654302	0.00000	0.00000	L 125
TR1	R1					AP											03654303	0.00000	0.00000	L 126
TR1	R1					AP											03654304	0.00000	0.00000	L 127
TR1	R1					AP											03654305	0.00000	0.00000	L 128
TR1	R1					AP											03654306	0.00000	0.00000	L 145
TR1	R1					AP											03654307	0.00000	0.23000	L 146
TR1	R1					AP											03654308	0.00000	0.00000	L 147
TR1	R1					AP											03654309	0.00000	0.00000	L 148
TR1	R1					AP											03654310	0.00000	0.00000	L 149
TR1	R1					AP											03654311	0.00000	0.00000	L 150
TR1	R1					AP											03654401	0.00000	0.22900	L 114

TR1	R1					AP											03654402	0.00000	0.00000	L 115
TR1	R1					AP											03654403	0.00000	0.23000	L 116
TR1	R1					AP											03654407	0.00000	0.23000	L 120
TR1	R1					AP											03654408	0.00000	0.00000	L 121
TR1	R1					AP											03654409	0.00000	0.00000	L 122
TR1	R1					AP											03654410	11.00000	0.00000	L 123
TR1	R1					AP											03654413	0.00000	0.32600	RS 29/32/1
TR1	R1					AP											03654414	0.00000	0.38700	RS 29/32/2
TR1	R1					AP											03654501	0.00000	0.00000	L 38
TR1	R1					AP											03654503	11.00000	0.00000	L 39
TR1	R1					AP											03654504	11.00000	0.00000	L 40
TR1	R1					AP											03654505	0.00000	0.00000	L 41
TR1	R1					AP											03654506	0.00000	0.00000	L 42
TR1	R1					AP											03654507	0.00000	0.00000	L 43
TR1	R1					AP											03654508	0.00000	0.74900	L 44
TR1	R1					AP											03654511	0.00000	2.32000	PM 3/133/A&B
TR1	R1					AP											03654601	0.00000	0.00000	L 129
TR1	R1					AP											03654602	0.00000	0.00000	L 130
TR1	R1					AP											03654603	0.00000	0.00000	L 131
TR1	R1					AP											03654605	0.00000	0.00000	L 143
TR1	R1					AP											03654606	0.00000	0.00000	L 144
TR1	R1					AP											03654701	0.00000	0.00000	L 157
TR1	R1					AP											03654702	0.00000	0.00000	L 158
TR1	R1					AP											03654703	0.00000	0.00000	L 159
TR1	R1					AP											03654704	0.00000	0.00000	L 174
TR1	R1					AP											03654705	0.00000	0.00000	L 175
TR1	R1					AP											03654706	0.00000	0.00000	L 176
TR1	R1					AP											03654802	0.00000	0.00000	L 192
TR1	R1					AP											03654803	0.00000	0.00000	L 207
TR1	R1					AP											03654805	0.00000	0.50000	PM 43/69/1
TR1	R1					AP											03655101	0.00000	0.00000	L 193
TR1	R1					AP											03655102	0.00000	0.00000	L 194
TR1	R1					AP											03655103	0.00000	0.00000	L 195
TR1	R1					AP											03655104	0.00000	0.00000	L 196
TR1	R1					AP											03655105	0.00000	0.00000	L 197
TR1	R1					AP											03655106	0.00000	0.24500	L 198
TR1	R1					AP											03655107	0.00000	0.00000	L 199
TR1	R1					AP											03655108	0.00000	0.00000	L 200
TR1	R1					AP											03655109	0.00000	0.00000	L 201
TR1	R1					AP											03655110	0.00000	0.00000	L 202
TR1	R1					AP											03655111	0.00000	0.00000	L 203
TR1	R1					AP											03655112	0.00000	0.22900	L 204
TR1	R1					AP											03655113	0.00000	0.22900	L 205
TR1	R1					AP											03655114	0.00000	0.00000	L 206
TR1	R1					AP											03655201	0.00000	0.00000	L 160
TR1	R1					AP											03655202	0.00000	0.23000	L 161

TR1	R1					AP											03655203	0.00000	0.00000	L 162
TR1	R1					AP											03655204	0.00000	0.00000	L 163
TR1	R1					AP											03655205	0.00000	0.23000	L 164
TR1	R1					AP											03655206	0.00000	0.00000	L 165
TR1	R1					AP											03655207	0.00000	0.23700	L 166
TR1	R1					AP											03655208	0.00000	0.00000	L 167
TR1	R1					AP											03655209	0.00000	0.00000	L 168
TR1	R1					AP											03655212	0.00000	0.00000	L 171
TR1	R1					AP											03655213	0.00000	0.00000	L 172
TR1	R1					AP											03655214	0.00000	0.00000	L 173
TR1	R1					AP											03655215	0.00000	0.48000	PM 41/101/1
TR1	R1					AP											03655301	0.00000	0.23000	L 132
TR1	R1					AP											03655302	0.00000	0.23000	L 133
TR1	R1					AP											03655303	0.00000	0.00000	L 134
TR1	R1					AP											03655304	0.00000	0.26400	L 135
TR1	R1					AP											03655305	0.00000	0.00000	L 136
TR1	R1					AP											03655306	0.00000	0.00000	L 137
TR1	R1					AP											03655307	0.00000	0.00000	L 138
TR1	R1					AP											03655308	0.00000	0.00000	L 139
TR1	R1					AP											03655309	0.00000	0.00000	L 140
TR1	R1					AP											03655311	0.00000	0.46000	PM 43/120/1
TR1	R1					AP											03655402	0.00000	0.00000	L 45
TR1	R1					AP											03655403	0.00000	0.00000	L 46
TR1	R1					AP											03655404	0.00000	0.63700	L 47
TR1	R1					AP											03655405	11.00000	0.00000	L 48
TR1	R1					AP											03655406	0.00000	0.00000	L 49
TR1	R1					AP											03655407	11.00000	0.00000	L 50
TR1	R1					AP											03655408	0.00000	0.00000	L 51
TR1	R1					AP											03655410	11.00000	0.77000	TR 2 RS 19-119
TR1	R1					AP											03655414	0.00000	3.80000	RS 19/119/1+
TR1	R1					AP											03656101	0.00000	0.29700	L 209
TR1	R1					AP											03656102	0.00000	0.00000	L 210
TR1	R1					AP											03656103	0.00000	0.00000	L 211
TR1	R1					AP											03656104	0.00000	0.00000	L 212
TR1	R1					AP											03656105	0.00000	0.00000	L 213
TR1	R1					AP											03656106	0.00000	0.00000	L 214
TR1	R1					AP											03656107	0.00000	0.00000	L 215
TR1	R1					AP											03656108	0.00000	0.00000	L 216
TR1	R1					AP											03656109	0.00000	0.00000	L 217
TR1	R1					AP											03656201	0.00000	0.00000	L 100
TR1	R1					AP											03656202	0.00000	0.23400	L 99
TR1	R1					AP											03656203	0.00000	0.00000	L 98
TR1	R1					AP											03656204	0.00000	0.00000	L 97
TR1	R1					AP											03656205	0.00000	0.00000	L 96
TR1	R1					AP											03656206	0.00000	0.00000	L 95
TR1	R1					AP											03656207	0.00000	0.00000	L 106

TR1	R1					AP											03656208	0.00000	0.00000	L 105
TR1	R1					AP											03656209	0.00000	0.00000	L 104
TR1	R1					AP											03656210	0.00000	0.00000	L 103
TR1	R1					AP											03656211	0.00000	0.00000	L 102
TR1	R1					AP											03656212	0.00000	0.23300	L 101
TR1	R1					AP											03656301	11.00000	0.00000	L 267
TR1	R1					AP											03656302	0.00000	0.00000	L 52
TR1	R1					AP											03656303	11.00000	0.00000	L 53
TR1	R1					AP											03656304	0.00000	0.00000	L 54
TR1	R1					AP											03656305	0.00000	0.00000	L 55
TR1	R1					AP											03656306	0.00000	0.97800	L 56
TR1	R1					AP											03656307	0.00000	0.00000	L 57
TR1	R1					AP											03656308	0.00000	0.00000	L 58
TR1	R1					AP											03656309	0.00000	0.92000	L 59
TR1	R1					AP											03656310	11.00000	0.00000	L 60
TR1	R1					AP											03656313	0.00000	0.00000	L 63
TR1	R1					AP											03656314	0.00000	0.00000	LOTS 61 & 62
TR1	R1					AP											03657101	0.00000	0.00000	L 218
TR1	R1					AP											03657102	0.00000	0.00000	L 219
TR1	R1					AP											03657103	0.00000	0.00000	L 220
TR1	R1					AP											03657104	0.00000	0.00000	L 221
TR1	R1					AP											03657105	0.00000	0.00000	L 222
TR1	R1					AP											03657106	11.00000	0.00000	L 223
TR1	R1					AP											03657107	0.00000	0.00000	L 224
TR1	R1					AP											03657108	11.00000	0.00000	L 225
TR1	R1					AP											03657109	0.00000	0.00000	L 226
TR1	R1					AP											03657110	0.00000	0.00000	L 227
TR1	R1					AP											03657111	0.00000	0.00000	L 228
TR1	R1					AP											03657112	11.00000	0.00000	L 229
TR1	R1					AP											03657113	0.00000	0.00000	L 230
TR1	R1					AP											03657201	0.00000	0.00000	L 94
TR1	R1					AP											03657202	0.00000	0.23000	L 93
TR1	R1					AP											03657203	0.00000	0.00000	L 92
TR1	R1					AP											03657204	0.00000	0.23000	L 91
TR1	R1					AP											03657205	11.00000	0.00000	L 90
TR1	R1					AP											03657206	0.00000	0.00000	L 89
TR1	R1					AP											03657207	0.00000	0.00000	L 88
TR1	R1					AP											03657208	0.00000	0.00000	L 113
TR1	R1					AP											03657209	11.00000	0.00000	L 112
TR1	R1					AP											03657210	11.00000	0.00000	L 111
TR1	R1					AP											03657211	0.00000	0.00000	L 110
TR1	R1					AP											03657212	0.00000	0.00000	L 109
TR1	R1					AP											03657213	0.00000	0.00000	L 108
TR1	R1					AP											03657214	0.00000	0.00000	L 107
TR1	R1					AP											03657301	11.00000	0.00000	L 64
TR1	R1					AP											03657302	0.00000	0.00000	L 65

TR1	R1					AP											03657303	0.00000	0.00000	L 66
TR1	R1					AP											03657304	0.00000	0.00000	L 67
TR1	R1					AP											03657305	0.00000	0.00000	L 68
TR1	R1					AP											03657306	0.00000	0.00000	L 69
TR1	R1					AP											03657307	0.00000	0.00000	L 70
TR1	R1					AP											03657308	0.00000	0.00000	L 71
TR1	R1					AP											03657309	11.00000	0.00000	L 72
TR1	R1					AP											03657310	0.00000	0.00000	L 73
TR1	R1					AP											03657311	0.00000	0.00000	L 74
TR1	R1					AP											03657312	11.00000	0.00000	L 75
TR1	R1					AP											03657313	11.00000	0.00000	L 76
TR1	R1					AP											03657314	11.00000	0.00000	L 77
TR1	R1					AP											03657315	0.00000	0.00000	L 78
TR1	R1					AP											03657316	0.00000	0.00000	L 79
TR1	R1					AP											03657317	0.00000	0.00000	L 80
TR1	R1					AP											03657318	0.00000	0.00000	L 81
TR1	R1					AP											03657319	11.00000	0.00000	L 82
TR1	R1					AP											03657320	11.00000	0.00000	L 83
TR1	R1					AP											03657321	11.00000	0.00000	L 84
TR1	R1					AP											03657322	0.00000	0.00000	L 85
TR1	R1					AP											03657323	0.00000	0.00000	L 86
TR1	R1					AP											03657324	0.00000	0.00000	L 87
TR1	R1					AP											03658101	11.00000	0.00000	L 264
TR1	R1					AP											03658103	0.00000	0.00000	L 231
TR1	R1					AP											03658104	0.00000	0.00000	L 232
TR1	R1					AP											03658105	0.00000	0.00000	L 233
TR1	R1					AP											03658106	11.00000	0.00000	L 234
TR1	R1					AP											03658107	0.00000	0.00000	L 235
TR1	R1					AP											03658108	0.00000	0.00000	L 236
TR1	R1					AP											03658109	0.00000	0.23000	L 237
TR1	R1					AP											03658110	0.00000	0.27400	L 238
TR1	R1					AP											03658111	0.00000	0.00000	POR L 263
TR1	R1					AP											03658112	0.00000	0.00000	POR L 263
TR1	R1					AP											03658202	0.00000	0.00000	L 261
TR1	R1					AP											03658203	0.00000	0.00000	L 260
TR1	R1					AP											03658204	11.00000	0.00000	L 259
TR1	R1					AP											03658205	11.00000	0.00000	L 258
TR1	R1					AP											03658206	0.00000	0.00000	L 257
TR1	R1					AP											03658207	0.00000	0.00000	L 256
TR1	R1					AP											03658208	0.00000	0.41000	L 255
TR1	R1					AP											03658209	11.00000	0.00000	L 254
TR1	R1					AP											03658210	0.00000	0.00000	L 253
TR1	R1					AP											03658211	0.00000	0.00000	L 252
TR1	R1					AP											03658212	0.00000	0.00000	L 251
RF	RF-H					AP											03658213	11.00000	0.00000	POR L 262
TR1	R1					AP											03658218	0.00000	0.52000	PM 27/55/A

TR1	R1					AP											03658220	0.00000	0.54000	PM 27/55/B
TR1	R1					AP											03659101	0.00000	0.27500	L 239
TR1	R1					AP											03659102	0.00000	0.00000	L 240
TR1	R1					AP											03659103	0.00000	0.00000	L 241
TR1	R1					AP											03659104	0.00000	0.00000	L 242
TR1	R1					AP											03659105	0.00000	0.00000	L 243
TR1	R1					AP											03659108	0.00000	0.00000	LOT 244 & 245
TR1	R1					AP											03659201	0.00000	0.00000	L 250
TR1	R1					AP											03659202	11.00000	0.00000	L 249
TR1	R1					AP											03659203	11.00000	0.00000	L 248
TR1	R1					AP											03659206	0.00000	1.72000	L 246 & 247
TR1	R1					AP											03660002	11.00000	4.00000	SEC 5 11 18
TR1	R1					AP											03660004	0.00000	2.07000	SEC 5 11 18
TR1	FR-160					AP											03660005	11.00000	7.95000	SEC 5 11 18
TR1	R1					AP											03660006	0.00000	2.00000	SEC 5 11 18
TR1	R1					AP											03660007	11.00000	2.00000	SEC 5 11 18
TR1	R1					AP											03660008	0.00000	2.00000	SEC 5 11 18
TR1	R1					AP											03660009	11.00000	2.00000	SEC 5 11 18
TR1	R1					AP											03660010	0.00000	2.00000	SEC 5 11 18
TA	FR-160					AP											03660013	0.00000	0.00000	SEC 5 & 6 11 18
TR1	R1					AP											03661101	0.00000	0.00000	L 48
TR1	R1					AP											03661102	0.00000	0.00000	L 47
TR1	R1					AP											03661103	11.00000	0.00000	L 46
TR1	R1					AP											03661104	0.00000	0.00000	L 45
TR1	R1					AP											03661105	0.00000	0.00000	L 44
TR1	R1					AP											03661106	11.00000	0.00000	L 43
TR1	R1					AP											03661107	11.00000	0.00000	L 42
TR1	R1					AP											03661108	11.00000	0.00000	L 41
TR1	R1					AP											03661109	0.00000	0.00000	L 40
TR1	R1					AP											03661110	0.00000	0.83700	L 39
TR1	R1					AP											03661111	11.00000	0.00000	L 38
TR1	R1					AP											03661112	0.00000	0.00000	L 37
TR1	R1					AP											03661113	0.00000	1.30000	L 36
TR1	R1					AP											03661114	0.00000	0.00000	L 35
TR1	R1					AP											03661115	0.00000	0.00000	L 34
TR1	R1					AP											03661118	11.00000	0.00000	L 31
TR1	R1					AP											03661119	0.00000	0.00000	L 30
TR1	R1					AP											03661120	11.00000	0.00000	L 29
TR1	R1					AP											03661127	0.00000	0.48500	LOT 32 & LOT 33
TR1	R1					AP											03661201	0.00000	0.00000	L 49
TR1	R1					AP											03661202	0.00000	0.00000	L 50
TR1	R1					AP											03661203	11.00000	0.00000	L 51
TR1	R1					AP											03661204	0.00000	0.00000	L 52
TR1	R1					AP											03661210	0.00000	0.00000	L 58
TR1	R1					AP											03661212	0.00000	0.00000	L 60
TR1	R1					AP											03661213	0.00000	0.00000	L 61

TR1	R1					AP											03661214	11.00000	0.00000	L 62
TR1	R1					AP											03661215	11.00000	0.00000	L 63
TR1	R1					AP											03661216	0.00000	0.00000	L 64
TR1	R1					AP											03661217	0.00000	0.00000	LOT 55 & 56
TR1	R1					AP											03661218	0.00000	0.00000	LOT 53 & 54
TR1	R1					AP											03661219	0.00000	0.27800	LOTS 57 & 59
TR1	R1					AP											03661301	11.00000	0.00000	L 65
TR1	R1					AP											03661302	11.00000	0.00000	L 66
TR1	R1					AP											03661303	11.00000	0.00000	L 67
TR1	R1					AP											03661304	0.00000	0.00000	L 68
TR1	R1					AP											03661305	11.00000	0.00000	L 69
TR1	R1					AP											03661306	0.00000	0.15500	L 70
TR1	R1					AP											03661307	0.00000	0.00000	L 71
TR1	R1					AP											03661308	0.00000	0.00000	L 72
TR1	R1					AP											03662101	0.00000	0.00000	L 28
TR1	R1					AP											03662102	11.00000	0.00000	L 27
TR1	R1					AP											03662103	11.00000	0.00000	L 26
TR1	R1					AP											03662104	11.00000	0.00000	L 25
TR1	R1					AP											03662105	11.00000	0.00000	L 24
TR1	R1					AP											03662106	0.00000	0.00000	L 23
TR1	R1					AP											03662107	11.00000	0.00000	L 15
TR1	R1					AP											03662108	11.00000	0.00000	L 14
TR1	R1					AP											03662111	11.00000	0.00000	L 11
TR1	R1					AP											03662112	11.00000	0.00000	L 10
TR1	R1					AP											03662113	11.00000	0.00000	L 9
TR1	R1					AP											03662114	11.00000	0.00000	L 8
TR1	R1					AP											03662115	11.00000	0.00000	L 7
TR1	R1					AP											03662116	11.00000	0.00000	L 6
TR1	R1					AP											03662117	11.00000	0.00000	L 5
TR1	R1					AP											03662118	11.00000	0.00000	L 4
TR1	R1					AP											03662119	0.00000	0.00000	L 3
TR1	R1					AP											03662120	11.00000	0.00000	L 2
TR1	R1					AP											03662121	11.00000	0.00000	L 1
TR1	R1					AP											03662122	0.00000	1.29000	LOT 12 & 13
TR1	R1					AP											03662201	0.00000	0.00000	L 16
TR1	R1					AP											03662202	11.00000	0.00000	L 17
TR1	R1					AP											03662203	0.00000	0.00000	L 18
TR1	R1					AP											03662204	0.00000	0.00000	L 19
TR1	R1					AP											03662205	0.00000	0.00000	L 20
TR1	R1					AP											03662206	0.00000	0.00000	L 21
TR1	R1					AP											03662207	0.00000	0.00000	L 22
RE-5	R1					AP											03663103	0.00000	5.00000	PM 16/147/1
TR1	R1					AP											03663103	0.00000	5.00000	PM 16/147/1
TR1	RE-5					AP											03663104	2.00000	30.68000	PAR 2 P/M 16-147
TR1	R1					AP											03664101	0.00000	0.00000	UNIT 1
TR1	R1					AP											03664102	0.00000	0.00000	UNIT 2

TR1	R1					AP											03664103	0.00000	0.00000	UNIT 3
TR1	R1					AP											03664104	0.00000	0.00000	UNIT 4
TR1	R1					AP											03664105	0.00000	0.00000	UNIT 5
TR1	R1					AP											03664106	0.00000	0.00000	UNIT 6
TR1	R1					AP											03664107	0.00000	0.00000	UNIT 7
TR1	R1					AP											03664108	0.00000	0.00000	UNIT 8
TR1	R1					AP											03664109	0.00000	0.00000	UNIT 9
R3A	RL-10					RR											03701004	0.00000	28.26000	SEC 2 11 17
RE-10	RL-10					RR											03701004	0.00000	28.26000	SEC 2 11 17
PD	CC					C							PHLP				03701007	0.00000	21.38000	SEC 11 11 17
RE-10	CC					C							PHLP				03701007	0.00000	21.38000	SEC 11 11 17
RE-10	RL-10					RR											03701009	0.00000	5.00000	SEC 11 11 17
RA-160	FR-160					NR											03701019	11.00000	0.00000	LOT 2-A
RA-20	RL-20					RR											03701024	0.00000	60.50000	SEC 12 11 17
RE-5	RL-20					RR											03701024	0.00000	60.50000	SEC 12 11 17
RA-20	RL-20					RR											03701027	0.00000	15.19200	PM 22/115/1
RA-20	RL-20					RR											03701028	0.00000	15.19000	PM 22/115/2
RA-20	RL-20					RR											03701032	0.00000	15.20000	PM 36/69/A
RA-20	RL-20					RR											03701033	0.00000	22.67000	PM 36/69/B
C	CL					C							PHLP				03701036	0.00000	100.75300	RS 24/144/1
R1	CL					C							PHLP				03701036	0.00000	100.75300	RS 24/144/1
R1	CL					C							PHLP				03701036	0.00000	100.75300	RS 24/144/1
TA	FR-160					AP											03701037	11.00000	0.00000	POR SEC 1 11 17
A	FR-160					AP											03701038	11.00000	0.00000	POR SEC 3 11 17
TA	FR-160					AP											03701038	11.00000	0.00000	POR SEC 3 11 17
A	FR-160					AP											03701039	11.00000	0.00000	POR SEC 3 11 17
TA	FR-160					AP											03701039	11.00000	0.00000	POR SEC 3 11 17
A	FR-160					NR											03701040	11.00000	0.00000	POR SEC 3 11 17
A	FR-160					NR											03701041	11.00000	0.00000	POR SEC 3 11 17
RA-160	FR-160					AP											03701042	11.00000	0.00000	POR SEC 2 11 17
TA	FR-160					AP											03701042	11.00000	0.00000	POR SEC 2 11 17
RA-160	FR-160					AP											03701043	11.00000	0.00000	POR SEC 2 11 17
TA	FR-160					AP											03701043	11.00000	0.00000	POR SEC 2 11 17
RA-160	FR-160					NR											03701044	11.00000	0.00000	POR SEC 2 11 17
RA-160	FR-160					NR											03701045	11.00000	0.00000	POR SEC 2 11 17
TA	FR-160					AP											03701046	11.00000	0.00000	POR SEC 1 11 17
TA	FR-160					AP											03701047	11.00000	7.59000	POR SEC 1 11 17
TA	FR-160					AP											03701048	11.00000	24.62000	POR SEC 1 11 17
RA-160	FR-160					AP											03701049	11.00000	38.25000	POR SEC 1 11 17
TA	FR-160					AP											03701049	11.00000	38.25000	POR SEC 1 11 17
RA-160	FR-160					AP											03701050	11.00000	40.38000	POR SEC 1 11 17
TA	FR-160					AP											03701050	11.00000	40.38000	POR SEC 1 11 17
RA-160	FR-160					AP											03701051	11.00000	0.00000	POR SEC 1 11 17
TA	FR-160					AP											03701051	11.00000	0.00000	POR SEC 1 11 17
RA-160	FR-160					NR											03701052	11.00000	0.00000	POR SEC 1 11 17
RA-160	FR-160					NR											03701053	11.00000	0.00000	POR SEC 1 11 17

RA-160	FR-160					NR											03701054	11.00000	0.00000	POR SEC 12 11 17
RA-160	FR-160					NR											03701055	11.00000	0.00000	POR SEC 12 11 17
RA-160	FR-160					NR											03701056	11.00000	0.00000	POR SEC 12 11 17
RA-160	FR-160					NR											03701057	11.00000	0.00000	POR SEC 12 11 17
RA-160	FR-160					NR											03701058	11.00000	0.00000	POR SEC 12 11 17
RA-160	FR-160					NR											03701059	11.00000	0.00000	POR SEC 11 11 17
RA-160	FR-160					NR											03701060	11.00000	0.00000	POR SEC 11 11 17
RA-160	FR-160					NR											03701061	11.00000	0.00000	POR SEC 11 11 17
RA-160	FR-160					NR											03701062	11.00000	0.00000	POR SEC 11 11 17
RA-160	FR-160					NR											03701063	11.00000	0.00000	POR SEC 10 11 17
RA-160	FR-160					NR											03701064	11.00000	0.00000	POR SEC 10 11 17
RA-160	FR-160					NR											03701065	11.00000	0.00000	POR SEC 10 11 17
RA-160	FR-160					NR											03701066	11.00000	0.00000	POR SEC 10 11 17
RA-160	FR-160					NR											03701067	11.00000	0.00000	POR SEC 10 11 17
RA-160	FR-160					NR											03701068	11.00000	0.00000	POR SEC 11 11 17
TA	FR-160					AP											03701069	11.00000	4.68000	POR SEC 1 11 17
RA-20	RL-20					RR											03701070	0.00000	36.54000	PM 36/69/REM
A	RF-H					TR											03702001	11.00000	694.00000	1314152223241117
RA-160	RF-H					TR											03702001	11.00000	694.00000	1314152223241117
RA-160	FR-160					NR											03702002	11.00000	0.00000	POR SEC 15 11 17
RA-160	FR-160					NR											03702003	11.00000	0.00000	POR SEC 15 11 17
RA-160	FR-160					NR											03702004	11.00000	0.00000	POR SEC 15 11 17
RA-160	FR-160					NR											03702005	11.00000	0.00000	POR SEC 15 11 17
A	FR-160					NR											03702006	11.00000	0.00000	POR SEC 14 11 17
A	FR-160					NR											03702007	11.00000	0.00000	POR SEC 14 11 17
A	FR-160					NR											03702008	11.00000	0.00000	POR SEC 13 11 17
A	FR-160					NR											03702009	11.00000	0.00000	POR SEC 13 11 17
TA	FR-160					NR											03702009	11.00000	0.00000	POR SEC 13 11 17
A	FR-160					AP											03702010	11.00000	0.00000	POR SEC 13 11 17
TA	FR-160					AP											03702010	11.00000	0.00000	POR SEC 13 11 17
A	FR-160					NR											03702011	11.00000	0.00000	POR SEC 13 11 17
TA	FR-160					NR											03702011	11.00000	0.00000	POR SEC 13 11 17
TA	FR-160					AP											03702012	11.00000	0.00000	POR SEC 24 11 17
TA	FR-160					AP											03702013	11.00000	0.00000	POR SEC 24 11 17
A	FR-160					NR											03702014	11.00000	0.00000	POR SEC 24 11 17
TA	FR-160					NR											03702014	11.00000	0.00000	POR SEC 24 11 17
A	FR-160					NR											03702015	11.00000	0.00000	POR SEC 24 11 17
TA	FR-160					NR											03702015	11.00000	0.00000	POR SEC 24 11 17
A	FR-160					NR											03702016	11.00000	0.00000	POR SEC 23 11 17
A	FR-160					NR											03702017	11.00000	0.00000	POR SEC 23 11 17
A	FR-160					NR											03702018	11.00000	0.00000	POR SEC 23 11 17
A	FR-160					NR											03702019	11.00000	0.00000	POR SEC 23 11 17
A	FR-160					NR											03702020	11.00000	0.00000	POR SEC 22 11 17
A	FR-160					NR											03702021	11.00000	0.00000	POR SEC 22 11 17
A	FR-160					NR											03702022	11.00000	0.00000	POR SEC 22 11 17
A	FR-160					NR											03702023	11.00000	0.00000	POR SEC 22 11 17

RE-10	RL-10					RR											03704001	0.00000	4.68000	SEC 1 & 2 11 17
RE-10	RL-10					RR											03704002	0.00000	4.88000	SEC 1 & 2 11 17
RE-10	RL-10					RR											03704003	0.00000	5.82000	S 1 2 & 11 11 17
RE-10	RL-10					RR											03704005	0.00000	1.33000	SEC 1 11 17
RE-10	RL-10					RR											03704006	0.00000	0.00000	POR SEC 1 11 17
RE-10	RL-10					RR											03704007	0.00000	15.00000	SEC 1 11 17
RE-10	RL-10					RR											03707017	0.00000	10.29000	SEC 1 11 17
RA-20	RL-20					RR											03708002	0.00000	22.20000	SEC 1 11 17
RE-10	RL-10					RR											03709002	0.00000	13.93000	SEC 1 11 17
C	CL					C							LN				03711007	11.00000	0.07000	SEC 1 11 17
R1	RL-10					RR											03711020	0.00000	12.44000	SEC 1 11 17
RE-10	RL-10					RR											03711020	0.00000	12.44000	SEC 1 11 17
RA-20	RL-10					RR											03712014	0.00000	8.76300	SEC 1 11 17
R20K	R1A					MDR							PHLP				03714019	0.00000	0.52000	SEC 11 11 17
R20K	R1A					MDR							PHLP				03714023	0.00000	0.94300	SEC 11 11 17
RA-160	FR-160					NR											03715001	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											03715002	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03715003	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											03715004	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03715005	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03715006	11.00000	0.00000	L 3
RA-160	FR-160					NR											03715007	11.00000	0.41000	LOT 2
RA-160	FR-160					NR											03715008	11.00000	0.63000	LOT 1
RA-160	RF-L					TR							PHLP				03715009	11.00000	0.00000	POR SEC 11 11 17
C	CC					C							PHLP				03718001	0.00000	5.25000	SEC 11 11 17
C	CL					C							PHLP				03718003	0.00000	0.44000	SEC 11 11 17
C	CL					C							PHLP				03718004	0.00000	0.50000	SEC 11 11 17
C	CL					C							PHLP				03718005	0.00000	0.46000	SEC 11 11 17
C	CL					C							PHLP				03718006	0.00000	0.46000	SEC 11 11 17
RA-160	FR-160					NR											03720001	11.00000	0.00000	LOT 107
RA-160	FR-160					NR											03720002	11.00000	0.00000	LOT 106
RA-160	FR-160					NR											03720003	11.00000	0.00000	LOT 105
RA-160	FR-160					NR											03720004	11.00000	0.00000	LOT 104
RA-160	FR-160					NR											03720005	11.00000	0.00000	LOT 103
RA-160	FR-160					NR											03720006	11.00000	0.00000	LOT 102
RA-160	FR-160					NR											03720007	11.00000	0.00000	L 101
RA-160	FR-160					NR											03720008	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											03720009	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03720010	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03720011	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03720012	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03723001	11.00000	0.00000	LOT 116
RA-160	FR-160					NR											03723002	11.00000	0.00000	LOT 115
RA-160	FR-160					NR											03723003	11.00000	0.00000	LOT 114
RA-160	FR-160					NR											03723004	11.00000	0.00000	LOT 113
RA-160	FR-160					NR											03723005	11.00000	0.00000	LOT 112

RA-160	FR-160					NR											03723006	11.00000	0.00000	LOT 111
RA-160	FR-160					NR											03723007	11.00000	0.00000	L 110
RA-160	FR-160					NR											03723008	11.00000	0.00000	LOT 109
RA-160	FR-160					NR											03723009	11.00000	0.00000	LOT 108
RA-160	FR-160					NR											03723010	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											03723011	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03723012	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											03723014	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03723015	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											03723016	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03723017	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											03723018	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											03723019	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											03724001	11.00000	0.00000	L 14
RA-160	FR-160					NR											03724002	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											03724003	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											03724004	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03724005	11.00000	0.14000	L 3
RA-160	FR-160					NR											03724006	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03724007	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03724008	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											03724009	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03724010	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											03724011	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											03724012	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											03724013	11.00000	0.23000	LOT 21
RA-160	FR-160					NR											03724014	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											03724015	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											03725001	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											03725002	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03725003	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03725004	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											03725005	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											03725006	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											03725007	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											03725008	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											03726001	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											03726002	11.00000	0.00000	LOT 15 - 46 MILE
RA-160	FR-160					NR											03726003	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											03726004	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											03726005	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											03726006	11.00000	0.00000	LOT 120
RA-160	FR-160					NR											03726007	11.00000	0.00000	LOT 119
RA-160	FR-160					NR											03726008	11.00000	0.00000	LOT 118
RA-160	FR-160					NR											03726009	11.00000	0.00000	LOT 117
RA-160	FR-160					NR											03726010	11.00000	0.00000	LOT 116

RA-160	FR-160					NR											03726011	11.00000	0.00000	LOT 115
RA-160	FR-160					NR											03726012	11.00000	0.00000	LOT 114
RA-160	FR-160					NR											03727001	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											03727002	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											03727004	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											03727005	11.00000	0.00000	LOT 21
RA-160	FR-160					NR											03727006	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											03727007	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											03727008	11.00000	0.00000	LOT 121
RA-160	FR-160					NR											03727009	11.00000	0.00000	LOT 122A
RA-160	FR-160					NR											03727010	11.00000	0.00000	LOT 123
RA-160	FR-160					NR											03727011	11.00000	0.00000	LOT 124
RA-160	FR-160					NR											03727012	11.00000	0.00000	LOT 125
RA-160	FR-160					NR											03727013	11.00000	0.00000	LOT 126
RA-160	FR-160					NR											03727014	11.00000	0.00000	LOT 127
RA-160	FR-160					NR											03727015	11.00000	0.00000	LOT 122
RA-160	FR-160					NR											03728001	11.00000	0.00000	LOT 33
RA-160	FR-160					NR											03728002	11.00000	0.00000	LOT 32
RA-160	FR-160					NR											03728003	11.00000	0.00000	LOT 31
RA-160	FR-160					NR											03728004	11.00000	0.00000	LOT 30
RA-160	FR-160					NR											03728005	11.00000	0.00000	L 29
RA-160	FR-160					NR											03728006	11.00000	0.00000	LOT 28
RA-160	FR-160					NR											03728007	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											03728008	11.00000	0.00000	LOT 26
RA-160	FR-160					NR											03728009	11.00000	0.00000	LOT 128
RA-160	FR-160					NR											03728010	11.00000	0.00000	LOT 129
RA-160	FR-160					NR											03728011	11.00000	0.00000	LOT 130
RA-160	FR-160					NR											03728012	11.00000	0.00000	LOT 131
RA-160	FR-160					NR											03728013	11.00000	0.00000	LOT 132
RA-160	FR-160					NR											03729001	11.00000	0.00000	LOT 37
RA-160	FR-160					NR											03729002	11.00000	0.00000	LOT 36
RA-160	FR-160					NR											03729003	11.00000	0.00000	LOT 35
RA-160	FR-160					NR											03729004	11.00000	0.00000	LOT 34
RA-160	FR-160					NR											03730001	11.00000	0.00000	LOT 29
RA-160	FR-160					NR											03730002	11.00000	0.00000	LOT 30
RA-160	FR-160					NR											03730003	11.00000	0.00000	LOT 31
RA-160	FR-160					NR											03730004	11.00000	0.00000	L 32
RA-160	FR-160					NR											03730005	11.00000	0.00000	LOT 33
RA-160	FR-160					NR											03730006	11.00000	0.29000	L 34
RA-160	FR-160					NR											03730007	11.00000	0.00000	LOT 35
RA-160	FR-160					NR											03730008	11.00000	0.00000	LOT 36
RA-160	FR-160					NR											03730009	11.00000	0.00000	LOT 37
RA-160	FR-160					NR											03730010	11.00000	0.40000	LOT 38
RA-160	FR-160					NR											03730011	11.00000	0.49000	LOT 39
RA-160	FR-160					NR											03731001	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											03731002	11.00000	0.00000	LOT 21

RA-160	FR-160					NR											03731003	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											03731004	11.00000	0.00000	L 23
RA-160	FR-160					NR											03731005	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											03731006	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											03731007	11.00000	0.00000	LOT 26
RA-160	FR-160					NR											03731008	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											03731009	11.00000	0.00000	LOT 28
RA-160	FR-160					NR											03732001	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											03732002	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03732003	11.00000	0.00000	L 11
RA-160	FR-160					NR											03732004	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03732005	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											03732006	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											03732007	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											03732008	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											03732009	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											03732010	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											03732011	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											03733001	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03733002	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03733003	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03733004	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03733005	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											03733006	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03733007	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											03734001	11.00000	0.00000	LOT 1A
RA-160	FR-160					NR											03735001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											03735002	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03735003	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03735004	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03735005	11.00000	0.00000	L 5
RA-160	FR-160					NR											03735006	11.00000	0.26000	L 6
RA-160	FR-160					NR											03735007	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03735008	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											03735009	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											03735010	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03735011	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											03735012	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03735013	11.00000	0.00000	SEC 15 11 17
RA-160	FR-160					NR											03735014	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											03735015	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											03735016	11.00000	0.00000	L 16
RA-160	FR-160					NR											03735017	11.00000	0.00000	L 17
RA-160	FR-160					NR											03735018	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											03735019	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											03735020	11.00000	0.00000	LOT 20

RA-160	FR-160					NR											03735021	11.00000	0.00000	LOT 21
RA-160	FR-160					NR											03735022	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											03735023	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											03735024	11.00000	0.00000	L 24
RA-160	FR-160					NR											03735025	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											03735026	11.00000	0.00000	LOT 26
R2A	R1A					HDR							PHLP				03738015	0.00000	0.38000	SEC 11 11 17
R2A	R1A					HDR							PHLP				03738016	0.00000	0.70000	RS 9/14 S111117
R2A	R1A					HDR							PHLP				03738025	0.00000	0.63000	SEC 11 11 17
R2A	R1A					HDR							PHLP				03738033	0.00000	1.13600	RS 25/41
R2A	R20K					NR							PHLP				03738034	2.00000	0.01000	SEC 11 11 17
R20K	R2A					MDR							PHLP				03740010	0.00000	1.26000	POR L1&E RS14-32
RA-160	FR-160					NR											03801001	11.00000	0.00000	IMP N RALSTON TR
A	FR-160					NR											03801002	11.00000	40.86000	POR SEC 6 11 17
A	FR-160					NR											03801003	11.00000	40.72000	POR SEC 6 11 17
A	FR-160					NR											03801004	11.00000	40.57000	POR SEC 6 11 17
A	FR-160					NR											03801005	11.00000	0.00000	POR SEC 6 11 17
A	FR-160					NR											03801006	11.00000	0.00000	POR SEC 6 11 17
A	FR-160					NR											03801007	1.00000	0.00000	POR SEC 6 11 17
A	FR-160					NR											03801008	11.00000	0.00000	POR SEC 6 11 17
A	FR-160					NR											03801009	11.00000	0.00000	POR SEC 5 11 17
A	FR-160					NR											03801010	11.00000	0.00000	POR SEC 5 11 17
A	FR-160					NR											03801011	11.00000	0.00000	POR SEC 5 11 17
A	FR-160					NR											03801012	11.00000	0.00000	POR SEC 5 11 17
A	FR-160					NR											03801013	11.00000	0.00000	POR SEC 4 11 17
A	FR-160					AP											03801014	11.00000	0.00000	POR SEC 4 11 17
TA	FR-160					AP											03801014	11.00000	0.00000	POR SEC 4 11 17
A	FR-160					NR											03801015	11.00000	0.00000	POR SEC 4 11 17
A	FR-160					NR											03801016	11.00000	0.00000	POR SEC 4 11 17
RA-160	FR-160					NR											03801021	11.00000	0.00000	POR SEC 8 11 17
RA-160	FR-160					NR											03801022	11.00000	0.00000	POR SEC 8 11 17
RA-160	FR-160					NR											03801023	11.00000	0.00000	POR SEC 8 11 17
RA-160	FR-160					NR											03801024	11.00000	0.00000	POR SEC 8 11 17
RA-160	FR-160					NR											03801025	11.00000	0.00000	POR SEC 7 11 17
RA-160	FR-160					NR											03801026	11.00000	0.00000	POR SEC 7 11 17
RA-160	FR-160					NR											03801027	11.00000	0.00000	POR SEC 7 11 17
RA-160	FR-160					NR											03801028	11.00000	0.00000	POR SEC 7 11 17
RA-160	FR-160					NR											03801029	11.00000	40.48000	POR SEC 7 11 17
RA-160	FR-160					NR											03801030	11.00000	40.44000	POR SEC 7 11 14
RA-160	FR-160					NR											03801031	11.00000	40.44000	POR SEC 7 11 17
RA-160	FR-160					NR											03801032	11.00000	40.36000	POR SEC 7 11 17
A	FR-160					NR											03801033	11.00000	41.01000	POR SEC 6 11 17
RA-160	FR-160					NR											03802012	11.00000	0.00000	SEC 17 11 17
RA-160	FR-160					NR											03802013	11.00000	0.00000	SEC 18 11 17
RA-160	FR-160					NR											03802014	11.00000	0.00000	SEC 16 11 17
RA-160	FR-160					NR											03802014	11.00000	0.00000	SEC 16 11 17

RA-160	FR-160					NR											03802015	11.00000	0.00000	SEC 19 11 17
RA-160	FR-160					NR											03802015	11.00000	0.00000	SEC 19 11 17
A	FR-160					NR											03802016	11.00000	0.00000	SEC 20 11 17
A	FR-160					NR											03802017	11.00000	0.00000	SEC 21 11 17
A	FR-160					NR											03803001	11.00000	39.30000	SEC 27 11 17
A	FR-160					NR											03803002	11.00000	40.68000	POR SEC 30 11 17
A	FR-160					NR											03803003	11.00000	40.45000	POR SEC 30 11 17
A	FR-160					NR											03803004	11.00000	40.22000	POR SEC 30 11 17
A	FR-160					NR											03803005	11.00000	18.92000	POR SEC 30 11 17
A	FR-160					NR											03803006	11.00000	19.10000	POR SEC 30 11 17
A	FR-160					NR											03803007	11.00000	19.30000	POR SEC 30 11 17
A	FR-160					NR											03803008	11.00000	19.50000	POR SEC 30 11 17
A	FR-160					NR											03803009	11.00000	0.00000	POR SEC 30 11 17
A	FR-160					NR											03803010	11.00000	0.00000	POR SEC 30 11 17
A	FR-160					NR											03803011	11.00000	0.00000	POR SEC 30 11 17
A	FR-160					NR											03803012	11.00000	0.00000	POR SEC 30 11 17
A	FR-160					NR											03803013	11.00000	0.00000	POR SEC 29 11 17
A	FR-160					NR											03803014	11.00000	0.00000	POR SEC 29 11 17
A	FR-160					NR											03803015	11.00000	0.00000	POR SEC 29 11 17
A	FR-160					NR											03803016	11.00000	0.00000	POR SEC 29 11 17
A	FR-160					NR											03803017	11.00000	19.95000	POR SEC 29 11 17
A	FR-160					NR											03803018	11.00000	19.95000	POR SEC 29 11 17
A	FR-160					NR											03803019	11.00000	19.85000	POR SEC 29 11 17
A	FR-160					NR											03803020	11.00000	19.65000	POR SEC 29 11 17
A	FR-160					NR											03803021	11.00000	0.00000	POR SEC 28 11 17
A	FR-160					NR											03803022	11.00000	0.00000	POR SEC 28 11 17
A	FR-160					NR											03803023	11.00000	0.00000	POR SEC 28 11 17
A	FR-160					NR											03803024	11.00000	0.00000	POR SEC 28 11 17
A	FR-160					NR											03803025	11.00000	19.82000	POR SEC 28 11 17
A	FR-160					NR											03803026	11.00000	19.82000	POR SEC 28 11 17
A	FR-160					NR											03803027	11.00000	19.87000	POR SEC 28 11 17
A	FR-160					NR											03803028	11.00000	19.97000	POR SEC 28 11 17
A	FR-160					NR											03803029	11.00000	0.00000	POR SEC 27 11 17
A	FR-160					NR											03803030	11.00000	0.00000	POR SEC 27 11 17
A	FR-160					NR											03803031	11.00000	0.00000	POR SEC 27 11 17
A	FR-160					NR											03803032	11.00000	0.00000	POR SEC 27 11 17
A	FR-160					NR											03803033	11.00000	19.54000	POR SEC 27 11 17
A	FR-160					NR											03803034	11.00000	19.76000	POR SEC 27 11 17
A	FR-160					NR											03803035	11.00000	0.00000	POR SEC 26 11 17
A	FR-160					NR											03803036	11.00000	0.00000	POR SEC 26 11 17
A	FR-160					NR											03803037	11.00000	0.00000	POR SEC 26 11 17
A	FR-160					NR											03803038	11.00000	0.00000	POR SEC 26 11 17
TA	FR-160					NR											03803038	11.00000	0.00000	POR SEC 26 11 17
A	FR-160					NR											03803039	11.00000	19.31000	POR SEC 26 11 17
TA	FR-160					NR											03803039	11.00000	19.31000	POR SEC 26 11 17
A	FR-160					NR											03803040	11.00000	19.36000	POR SEC 26 11 17

A	FR-160					NR											03803041	11.00000	19.42000	POR SEC 26 11 17
A	FR-160					NR											03803042	11.00000	19.47000	POR SEC 26 11 17
A	FR-160					NR											03803043	11.00000	0.00000	POR SEC 25 11 17
TA	FR-160					NR											03803043	11.00000	0.00000	POR SEC 25 11 17
TA	FR-160					AP											03803044	11.00000	0.00000	POR SEC 25 11 17
A	FR-160					NR											03803045	11.00000	0.00000	POR SEC 25 11 17
TA	FR-160					NR											03803045	11.00000	0.00000	POR SEC 25 11 17
TA	FR-160					AP											03803046	11.00000	0.00000	POR SEC 25 11 17
TA	FR-160					AP											03803047	11.00000	18.86000	POR SEC 25 11 17
TA	FR-160					NR											03803048	11.00000	18.98000	POR SEC 25 11 17
TA	FR-160					NR											03803049	11.00000	19.10000	POR SEC 25 11 17
TA	FR-160					NR											03803050	11.00000	19.22000	POR SEC 25 11 17
C	CL					C							MR				03805016	6.00000	0.89000	SEC 16 11 17
C	OS					OS							MR				03805017	11.00000	0.05000	SEC 16 11 17
RE-10	TC					NR											03805019	11.00000	4.92000	SEC 16 11 17
RE-5	OS					OS							MR				03805020	11.00000	0.56000	S 16 11 17
RE-10	FR-160					NR											03805028	0.00000	4.42000	SEC 16 11 17
C	CL					C							MR				03805029	0.00000	0.20000	SEC 16 11 17
C	OS					OS							MR				03805030	11.00000	0.13000	SEC 16 11 17
C	CL					C							MR				03805031	0.00000	0.50000	SEC 16 11 17
C	OS					OS							MR				03805032	11.00000	1.17000	SEC 16 11 17
RE-10	R1A					HDR							MR				03805033	0.00000	1.00000	PM 18/34/1
RE-10	R1A					HDR							MR				03805034	0.00000	1.00000	PM 18/34/2
RE-10	R1A					HDR							MR				03805035	0.00000	1.00000	PM 18/34/3
RE-10	R1A					HDR							MR				03805036	0.00000	3.23900	RS 32/41/1
RE-5	OS					OS							MR				03805038	11.00000	0.28000	SEC 16 11 17
RE-5	OS					OS							MR				03805039	11.00000	0.55000	SEC 16 11 17
RE-10	FR-160					NR											03805040	0.00000	17.23900	RS 32/41/2
RE-5	R1A					HDR							MR				03805041	0.00000	6.31000	SEC 16 11 17
C	CL					C							MR				03805042	0.00000	1.25300	SEC 16 11 17
RE-5	CC					C							MR				03805042	0.00000	1.25300	SEC 16 11 17
C	CL					C							MR				03805107	0.00000	0.27000	SEC 16 11 17
R1	FR-160					NR											03806004	0.00000	0.28000	SEC 16 11 17
R1	FR-160					NR											03806005	0.00000	0.27000	SEC 16 11 17
R1	FR-160					NR											03806006	0.00000	0.27000	SEC 16 11 17
R1	FR-160					NR											03806101	0.00000	0.54000	SEC 16 11 17
R1	FR-160					NR											03806102	0.00000	0.87000	SEC 16 11 17
R1	FR-160					NR											03806103	0.00000	0.89100	SEC 16 11 17
R1	FR-160					NR											03806104	0.00000	0.29000	R/S 21/146
R1	OS					OS							MR				03810130	11.00000	0.00000	L 13
R1	OS					OS							MR				03810132	11.00000	0.00000	L 14
R1	OS					OS							MR				03810158	11.00000	0.05000	POR LOT 11
R1	OS					OS							MR				03810160	11.00000	0.03000	POR LOT 10
R1	OS					OS							MR				03810164	11.00000	0.02000	L 9 & POR L 10
RA-160	FR-160					NR											03812001	11.00000	0.00000	LOT 42
RA-160	FR-160					NR											03812002	11.00000	0.00000	LOT 1

RA-160	FR-160					NR											03812003	11.00000	0.00000	L 2
RA-160	FR-160					NR											03812004	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03812005	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03812006	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03812007	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											03812008	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03812009	11.00000	0.00000	L 8
RA-160	FR-160					NR											03812010	11.00000	0.00000	LOT 39
RA-160	FR-160					NR											03813001	11.00000	0.27000	L 9
RA-160	FR-160					NR											03813002	11.00000	0.21000	L 13
RA-160	FR-160					NR											03813003	11.00000	0.29000	L 14
RA-160	FR-160					NR											03813004	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											03813005	11.00000	0.27000	L 16
RA-160	FR-160					NR											03813006	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											03813007	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											03813008	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											03814001	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											03814002	11.00000	0.00000	LOT 21
RA-160	FR-160					NR											03814003	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											03814004	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											03814005	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											03814006	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											03814007	11.00000	0.00000	LOT 26
RA-160	FR-160					NR											03814008	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											03814009	11.00000	0.00000	LOT 28
RA-160	FR-160					NR											03814010	11.00000	0.00000	LOT 29
RA-160	FR-160					NR											03814011	11.00000	0.00000	LOT 30
RA-160	FR-160					NR											03814012	11.00000	0.00000	LOT 31
RA-160	FR-160					NR											03814013	11.00000	0.00000	LOT 32
RA-160	FR-160					NR											03814014	11.00000	0.00000	LOT 33
RA-160	FR-160					NR											03814015	11.00000	0.00000	LOT 34
RA-160	FR-160					NR											03814016	11.00000	0.00000	LOT 35
RA-160	FR-160					NR											03814017	11.00000	0.00000	LOT 36
RA-160	FR-160					NR											03815001	11.00000	0.00000	LOT 44
RA-160	FR-160					NR											03815002	11.00000	0.00000	LOT 43
RA-160	FR-160					NR											03816001	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03816002	11.00000	0.00000	LOT 40
RA-160	FR-160					NR											03817001	11.00000	0.00000	LOT 38
RA-160	FR-160					NR											03817002	11.00000	0.31000	L 37
RA-160	FR-160					NR											03817003	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03817004	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											03817005	11.00000	0.25000	LOT 41
RA-160	FR-160					NR											03818001	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											03818002	11.00000	0.19000	L 13
RA-160	FR-160					NR											03818003	11.00000	0.21000	L 12
RA-160	FR-160					NR											03818004	11.00000	0.19000	L 11

RA-160	FR-160					NR											03818005	11.00000	0.20000	L 10
RA-160	FR-160					NR											03818006	11.00000	0.17000	L 1
RA-160	FR-160					NR											03818007	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03818008	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03818009	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03818010	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03818011	11.00000	0.48000	L 6
RA-160	FR-160					NR											03818012	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03818013	11.00000	0.43000	L 8
RA-160	FR-160					NR											03818014	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											03819001	11.00000	0.00000	LOT 40
RA-160	FR-160					NR											03819002	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											03819003	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03819004	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											03819005	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03819006	11.00000	0.37000	LOT 25
RA-160	FR-160					NR											03819007	11.00000	0.00000	LOT 26
RA-160	FR-160					NR											03819008	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											03819009	11.00000	0.28000	LOT 28
RA-160	FR-160					NR											03819010	11.00000	0.27000	LOT 29
RA-160	FR-160					NR											03820001	11.00000	0.00000	LOT 34
RA-160	FR-160					NR											03820002	11.00000	0.00000	LOT 33
RA-160	FR-160					NR											03820003	11.00000	0.00000	LOT 32
RA-160	FR-160					NR											03820004	11.00000	0.00000	LOT 31
RA-160	FR-160					NR											03820005	11.00000	0.00000	LOT 30
RA-160	FR-160					NR											03820006	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											03820007	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											03820008	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											03820009	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											03820010	11.00000	0.00000	LOT 39
RA-160	FR-160					NR											03820011	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											03820012	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											03820013	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											03820014	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											03820015	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											03820016	11.00000	0.00000	LOT 35
RA-160	FR-160					NR											03820017	11.00000	0.00000	LOT 36
RA-160	FR-160					NR											03820018	11.00000	0.00000	LOT 37
RA-160	FR-160					NR											03820019	11.00000	0.27000	LOT 38
RA-160	FR-160					NR											03821001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											03821002	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03821003	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03821004	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03821005	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03821006	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											03821007	11.00000	0.00000	LOT 7

RA-160	FR-160					NR											03821008	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											03821009	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											03821011	11.00000	1.28000	L 21
RA-160	FR-160					NR											03821012	11.00000	1.60000	LOT 22
RA-160	FR-160					NR											03822001	11.00000	0.00000	LOT 39
RA-160	FR-160					NR											03822002	11.00000	0.00000	LOT 40
RA-160	FR-160					NR											03822003	11.00000	0.00000	LOT 41
RA-160	FR-160					NR											03822004	11.00000	0.00000	LOT 42
RA-160	FR-160					NR											03822005	11.00000	0.00000	LOT 43
RA-160	FR-160					NR											03822006	11.00000	0.21000	L 44
RA-160	FR-160					NR											03822007	11.00000	0.00000	LOT 45
RA-160	FR-160					NR											03822008	11.00000	0.00000	LOT 46
RA-160	FR-160					NR											03822009	11.00000	0.00000	LOT 47
RA-160	FR-160					NR											03822010	11.00000	0.00000	LOT 48
RA-160	FR-160					NR											03822011	11.00000	0.00000	LOT 49
RA-160	FR-160					NR											03822012	11.00000	0.00000	LOT 50
RA-160	FR-160					NR											03823001	11.00000	0.00000	LOT 35
RA-160	FR-160					NR											03823002	11.00000	0.00000	LOT 34
RA-160	FR-160					NR											03823003	11.00000	0.26000	LOT 33
RA-160	FR-160					NR											03823004	11.00000	0.00000	LOT 32
RA-160	FR-160					NR											03823005	11.00000	0.00000	LOT 31
RA-160	FR-160					NR											03823006	11.00000	0.00000	LOT 30
RA-160	FR-160					NR											03823007	11.00000	0.26000	LOT 29
RA-160	FR-160					NR											03823008	11.00000	0.00000	LOT 28
RA-160	FR-160					NR											03823009	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											03824002	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											03824003	11.00000	0.22000	L 18
RA-160	FR-160					NR											03824004	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											03824005	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											03824006	11.00000	0.32000	LOT 21
RA-160	FR-160					NR											03824007	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											03824008	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											03824009	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											03824010	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											03824011	11.00000	0.00000	LOT 26
RA-160	FR-160					NR											03825001	11.00000	0.00000	LOT 36
RA-160	FR-160					NR											03825002	11.00000	0.00000	LOT 37
RA-160	FR-160					NR											03825003	11.00000	0.00000	LOT 38
RA-160	FR-160					NR											03825004	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											03825005	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03825006	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											03825007	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03825008	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											03825009	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											03825010	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											03825011	11.00000	0.00000	LOT 16

RA-160	FR-160					NR											03826001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											03826002	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03826003	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03826004	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03826005	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03826006	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											03826007	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03826008	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											03827001	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											03827002	11.00000	0.00000	LOT 21
RA-160	FR-160					NR											03827003	11.00000	0.00000	LOT 29
RA-160	FR-160					NR											03827004	11.00000	0.00000	LOT 28
RA-160	FR-160					NR											03827005	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											03827006	11.00000	0.00000	LOT 26
RA-160	FR-160					NR											03827007	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											03827008	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											03827009	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											03827010	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											03828001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											03828002	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03828003	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03828004	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03828005	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03828006	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											03828007	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03828008	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											03828009	11.00000	0.00000	LOT 9
RA-160	FR-160					NR											03828010	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03828011	11.00000	0.00000	LOT 11
RA-160	FR-160					NR											03828012	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03828013	11.00000	0.00000	LOT 13
RA-160	FR-160					NR											03828014	11.00000	0.00000	LOT 14
RA-160	FR-160					NR											03828015	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											03828016	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											03828017	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											03828018	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											03828019	11.00000	0.26000	LOT 19
RA-160	FR-160					NR											03829001	11.00000	0.00000	LOT 1
RA-160	FR-160					NR											03829002	11.00000	0.00000	LOT 2
RA-160	FR-160					NR											03829003	11.00000	0.00000	LOT 3
RA-160	FR-160					NR											03829004	11.00000	0.00000	LOT 4
RA-160	FR-160					NR											03829005	11.00000	0.00000	LOT 5
RA-160	FR-160					NR											03829006	11.00000	0.00000	LOT 6
RA-160	FR-160					NR											03829007	11.00000	0.00000	LOT 7
RA-160	FR-160					NR											03829008	11.00000	0.00000	LOT 8
RA-160	FR-160					NR											03829009	11.00000	0.00000	LOT 9

RA-160	FR-160					NR											03829010	11.00000	0.00000	LOT 10
RA-160	FR-160					NR											03829011	11.00000	0.27000	LOT 11
RA-160	FR-160					NR											03829012	11.00000	0.00000	LOT 12
RA-160	FR-160					NR											03829013	11.00000	0.37000	LOT 13
RA-160	FR-160					NR											03829014	11.00000	0.28000	LOT 14
RA-160	FR-160					NR											03830001	11.00000	0.00000	LOT 15
RA-160	FR-160					NR											03830002	11.00000	0.00000	LOT 16
RA-160	FR-160					NR											03830003	11.00000	0.00000	LOT 17
RA-160	FR-160					NR											03830004	11.00000	0.00000	LOT 18
RA-160	FR-160					NR											03830005	11.00000	0.00000	LOT 19
RA-160	FR-160					NR											03830006	11.00000	0.00000	LOT 20
RA-160	FR-160					NR											03830007	11.00000	0.00000	LOT 21
RA-160	FR-160					NR											03830008	11.00000	0.00000	LOT 22
RA-160	FR-160					NR											03830009	11.00000	0.00000	LOT 23
RA-160	FR-160					NR											03830010	11.00000	0.00000	LOT 24
RA-160	FR-160					NR											03830011	11.00000	0.00000	LOT 25
RA-160	FR-160					NR											03830012	11.00000	0.00000	LOT 26
RA-160	FR-160					NR											03830013	11.00000	0.00000	LOT 27
RA-160	FR-160					NR											03830014	11.00000	0.00000	LOT 28
RA-160	FR-160					NR											03830015	11.00000	0.00000	LOT 29
RA-160	FR-160					NR											03830016	11.00000	0.00000	LOT 30
RA-160	FR-160					NR											03830017	11.00000	0.00000	LOT 31
RA-160	FR-160					NR											03830018	11.00000	0.00000	LOT 32
RA-160	FR-160					NR											03830019	11.00000	0.00000	L 33
RA-160	FR-160					NR											03830020	11.00000	0.00000	LOT 34
RA-160	FR-160					NR											03830021	11.00000	0.00000	LOT 35
RA-160	FR-160					NR											03830022	11.00000	0.00000	LOT 36
RA-160	FR-160					NR											03832002	11.00000	0.00000	IMP ON CODY CRK
RA-160	FR-160					NR											03833001	11.00000	0.00000	LOT 51
RA-160	FR-160					NR											03833002	11.00000	0.00000	LOT 52
RA-160	FR-160					NR											03833003	11.00000	0.00000	LOT 53
RA-160	FR-160					NR											03833004	11.00000	0.00000	LOT 54
RA-160	FR-160					NR											03833005	11.00000	0.00000	LOT 55
R1	OS					OS							MR				03836130	11.00000	0.00000	L 30
RE-10	FR-160					NR											03839002	0.00000	51.66000	SEC 16 11 17
RE-5	R1A					HDR							MR				03839003	0.00000	7.51000	SEC 16 11 17
RE-5	R1A					HDR							MR				03839004	2.00000	0.05000	SEC 16 11 17 AW
RE-10	OS					HDR							STR				03840015	0.00000	14.46000	SEC 18 11 17
R1	CL					C							STR				03840016	0.00000	0.64400	REM RS 21/128
R1	CL					C							STR				03840017	11.00000	0.31000	TR 1 R/S 21/128
RE-10	FR-160					NR											03840019	0.00000	14.71000	RS 24/92/B
RE-10	FR-160					NR											03840020	0.00000	11.30000	SEC 18 11 17
C	CC					C							STR				03840026	0.00000	5.29900	SEC 18 11 17
C	CC					C							STR				03840026	0.00000	5.29900	SEC 18 11 17
C	CC					C							STR				03840027	0.00000	21.62000	SEC 18 11 17
C	CC					C							STR				03840027	0.00000	21.62000	SEC 18 11 17

RE-10	FR-160					C							STR				03840027	0.00000	21.62000	SEC 18 11 17
C	CC					C							STR				03840029	0.00000	3.09000	RS 19/94/1
C	FR-160					C							STR				03840029	0.00000	3.09000	RS 19/94/1
RE-10	FR-160					C							STR				03840029	0.00000	3.09000	RS 19/94/1
C	CC					C							STR				03841001	0.00000	1.40000	SEC 18 11 17
C	CL					C							STR				03841005	0.00000	0.42000	SEC 18 11 17
C	CL					C							STR				03841006	0.00000	0.50000	SEC 18 11 17
C	CL					C							STR				03841009	0.00000	0.03000	SEC 18 11 17
C	CL					C							STR				03841010	0.00000	0.36000	SEC 18 11 17
C	CL					C							STR				03841013	0.00000	0.16000	PM 34/120/A
C	CL					C							STR				03841014	0.00000	0.16000	PM 34/120/B
RA-160	FR-160					NR											03845001	11.00000	0.00000	CABIN #1
RA-160	FR-160					NR											03845002	11.00000	0.00000	CABIN #2
RA-160	FR-160					NR											03845003	11.00000	0.00000	CABIN #3
RA-160	FR-160					NR											03845004	11.00000	0.00000	CABIN #4
RA-160	FR-160					NR											03845005	11.00000	0.00000	CABIN #5
RA-160	FR-160					NR											03845006	11.00000	0.00000	CABIN #7
RA-160	FR-160					NR											03845007	11.00000	0.00000	CABIN #8
RA-160	FR-160					NR											03845008	11.00000	0.00000	CABIN #9
RA-160	FR-160					NR											03845009	11.00000	0.00000	CABIN #10
RA-160	FR-160					NR											03845010	11.00000	0.00000	CABIN #11
RA-160	FR-160					NR											03845011	11.00000	0.00000	CABIN #12
RA-160	FR-160					NR											03845012	11.00000	0.00000	CABIN #13
RA-160	FR-160					NR											03845013	11.00000	0.00000	CABIN #14
RA-160	FR-160					NR											03845014	11.00000	0.00000	CABIN #15
RA-160	FR-160					NR											03845015	11.00000	0.00000	CABIN #16
RA-160	FR-160					NR											03845016	11.00000	0.00000	CABIN #17
RA-160	FR-160					NR											03845017	11.00000	0.00000	CABIN #18
RA-160	FR-160					NR											03845018	11.00000	0.00000	CABIN #19
RA-160	FR-160					NR											03845019	11.00000	0.00000	CABIN #20
RA-160	FR-160					NR											03845020	11.00000	0.00000	CABIN #21
RA-160	FR-160					NR											03845021	11.00000	0.00000	CABIN #22
RA-160	FR-160					NR											03845022	11.00000	0.00000	CABIN #23
RA-160	FR-160					NR											03845023	11.00000	0.00000	CABIN #24
RA-160	FR-160					NR											03845024	11.00000	0.00000	CABIN #25
RA-160	FR-160					NR											03845025	11.00000	0.00000	CABIN #26
RA-160	FR-160					NR											03845026	11.00000	0.00000	CABIN #27
RA-160	FR-160					NR											03845027	11.00000	0.00000	CABIN #28
RA-160	FR-160					NR											03845028	11.00000	0.00000	CABIN #29
RA-160	FR-160					NR											03845029	11.00000	0.00000	CABIN #30
RA-160	FR-160					NR											03845030	11.00000	0.00000	CABIN #31
RA-160	FR-160					NR											03845031	11.00000	0.00000	CABIN #32
RA-160	FR-160					NR											03845032	11.00000	0.00000	CABIN #33
RA-160	FR-160					NR											03845033	11.00000	0.00000	LOT 34
RA-160	FR-160					NR											03845034	11.00000	0.00000	CABIN #35
RA-160	FR-160					NR											03845035	11.00000	0.00000	CABIN 36

RA-160	FR-160					NR											03845036	11.00000	0.00000	CABIN #37
RA-160	FR-160					NR											03845037	11.00000	0.00000	CABIN #42
RA-160	FR-160					NR											03845038	11.00000	0.00000	CABIN #43
RA-160	FR-160					NR											03845039	11.00000	0.00000	CABIN #44
RA-160	FR-160					NR											03845040	11.00000	0.00000	CABIN 46
RA-160	FR-160					NR											03845041	11.00000	0.00000	CABIN #47
RA-160	FR-160					NR											03845042	11.00000	0.00000	CABIN #48
RA-160	FR-160					NR											03845043	11.00000	0.00000	LOT #50
RA-160	FR-160					NR											03845044	11.00000	0.00000	CABIN #51
RA-160	FR-160					NR											03845045	11.00000	0.00000	CABIN #52
RA-160	FR-160					NR											03845046	11.00000	0.00000	CABIN #54
RA-160	FR-160					NR											03845047	11.00000	0.00000	CABIN #55
RA-160	FR-160					NR											03845048	11.00000	0.00000	CABIN #56
RA-160	FR-160					NR											03845049	11.00000	0.00000	CABIN #57
RA-160	FR-160					NR											03845050	11.00000	0.00000	CABIN #58
RA-160	FR-160					NR											03845051	11.00000	0.00000	CABIN #59
RA-160	FR-160					NR											03845052	11.00000	0.00000	CABIN #60
RA-160	FR-160					NR											03845053	11.00000	0.00000	CABIN #61
RA-160	FR-160					NR											03845054	11.00000	0.00000	CABIN #62
RA-160	FR-160					NR											03845055	11.00000	0.00000	CABIN #63
RA-160	FR-160					NR											03845056	11.00000	0.00000	CABIN #64
RA-160	FR-160					NR											03845057	11.00000	0.00000	CABIN #89
RA-160	FR-160					NR											03845058	11.00000	0.00000	CABIN #90
RA-160	FR-160					NR											03845059	11.00000	0.00000	CABIN #93
RA-160	FR-160					NR											03845060	11.00000	0.00000	CABIN 94
RA-160	FR-160					NR											03845061	11.00000	0.00000	CABIN #105
RA-160	FR-160					NR											03845062	11.00000	0.00000	CABIN #106
RA-160	FR-160					NR											03845063	11.00000	0.00000	CABIN #107
RA-160	FR-160					NR											03845064	11.00000	0.00000	CABIN #108
RA-160	FR-160					NR											03845065	11.00000	0.00000	LOT 109
RA-160	FR-160					NR											03845066	11.00000	0.00000	CABIN #110
RA-160	FR-160					NR											03845067	11.00000	0.00000	CABIN #111
RA-160	FR-160					NR											03845068	11.00000	0.00000	LOT 112
RA-160	FR-160					NR											03845069	11.00000	0.00000	CABIN #113
RA-160	FR-160					NR											03845070	11.00000	0.00000	LOT 114
RA-160	FR-160					NR											03845071	11.00000	0.28000	LOT 115
RA-160	FR-160					NR											03845072	11.00000	0.23000	LOT 116
RA-160	FR-160					NR											03845073	11.00000	0.00000	CABIN #6
A	FR-160					NR											03901002	11.00000	160.00000	SEC 5 10 17
A	FR-160					NR											03901003	11.00000	0.00000	POR SEC 6 10 17
A	FR-160					NR											03901004	11.00000	0.00000	POR SEC 5 10 17
A	FR-160					NR											03901005	11.00000	0.00000	POR SEC 6 10 17
A	FR-160					NR											03902001	11.00000	441.20000	SEC 3&4 10 17
A	FR-160					NR											03902001	11.00000	441.20000	SEC 3&4 10 17
TA	FR-160					NR											03902001	11.00000	441.20000	SEC 3&4 10 17
A	FR-160					NR											03902002	11.00000	360.00000	SEC 3&4 10 17

TA	FR-160					NR											03902002	11.00000	360.00000	SEC 3&4 10 17
A	FR-160					NR											03902003	11.00000	0.00000	POR S 3&4 10 17
TA	FR-160					NR											03902003	11.00000	0.00000	POR S 3&4 10 17
A	FR-160					NR											03902004	11.00000	0.00000	POR SEC 3 10 17
TA	FR-160					NR											03902004	11.00000	0.00000	POR SEC 3 10 17
A	FR-160					NR											03902005	11.00000	0.00000	POR SEC 3 10 17
TA	FR-160					NR											03902005	11.00000	0.00000	POR SEC 3 10 17
A	FR-160					NR											03902006	11.00000	0.00000	POR S 3&4 10 17
TA	FR-160					NR											03903001	11.00000	0.00000	SEC 2 10 11
A	FR-160					NR											03904002	11.00000	120.00000	SEC 9 10 17
A	FR-160					NR											03904003	0.00000	40.00000	SEC 16 10 17
A	FR-160					NR											03904004	11.00000	0.00000	POR SEC 7 10 17
A	FR-160					NR											03904005	11.00000	0.00000	SEC 8 10 17
A	FR-160					NR											03904006	11.00000	0.00000	POR SEC 9 10 17
A	FR-160					NR											03904007	11.00000	0.00000	SEC 18 10 17
A	FR-160					NR											03904008	11.00000	0.00000	SEC 17 10 17
A	FR-160					NR											03904009	11.00000	0.00000	POR SEC 16 10 17
TA	FR-160					NR											03905001	11.00000	6.80000	SEC 11 10 17
A	FR-160					NR											03905002	1.00000	0.00000	10 11 14&5 10 17
TA	FR-160					NR											03905002	1.00000	0.00000	10 11 14&5 10 17
A	FR-160					NR											03906003	11.00000	0.00000	SEC 19 10 17
A	FR-160					NR											03906004	11.00000	0.00000	POR SEC 20 10 17
A	FR-160					NR											03906005	11.00000	0.00000	POR SEC 30 10 17
A	FR-160					NR											03906006	11.00000	0.00000	POR SEC 29 10 17
A	FR-160					NR											03906007	2.00000	0.00000	SEC 20 10 12
A	FR-160					NR											03906007	2.00000	0.00000	SEC 20 10 12
TA	FR-160					NR											03907005	11.00000	47.27000	SEC 22 10 17
PD	RF-H					AP											03907011	0.00000	50.21000	RS 14/77 S221017
A	FR-160					NR											03907012	11.00000	0.00000	POR SEC 21 10 17
TA	FR-160					NR											03907013	11.00000	0.00000	POR SEC 22 10 17
TA	FR-160					NR											03907014	11.00000	0.00000	POR SEC 22 10 17
PD	RF-H					AP											03907015	0.00000	20.49000	SEC 22 10 17
RE-5	FR-160					NR											03908003	11.00000	0.00000	POR SEC 32 10 17
A	FR-160					NR											03908004	11.00000	0.00000	POR SEC 32 10 17
A	FR-160					NR											03908005	11.00000	0.00000	SEC 31 10 17
A	FR-160					NR											03908007	11.00000	23.31000	SEC 32 10 17
A	FR-160					NR											03908008	11.00000	0.00000	SEC 32 10 17
TA	FR-160					AP											03909001	11.00000	140.00000	SEC 5 10 18
TA	FR-160					AP											03909002	11.00000	0.00000	SEC 6 10 18
TA	FR-160					AP											03909003	11.00000	0.00000	POR SEC 5 10 18
TA	FR-160					AP											03909004	11.00000	0.00000	POR SEC 5 10 18
TA	FR-160					AP											03910001	11.00000	0.00000	POR SEC 4 10 18
TA	FR-160					AP											03910002	11.00000	0.00000	POR SEC 3 10 18
TA	FR-160					NR											03911001	11.00000	155.79000	SEC 7 10 18
TA	FR-160					AP											03911002	11.00000	13.00000	SEC 8 10 18
TA	FR-160					NR											03911003	11.00000	0.00000	POR SEC 7&8 8 10

TA	FR-160					NR											03911004	11.00000	0.00000	POR S 7&18 10 18
A	FR-160					NR											03916001	11.00000	0.00000	POR SEC 5 9 17
A	FR-160					NR											03916002	0.00000	10.10000	SEC 7 9 17
A	FR-160					NR											03916003	0.00000	1.40000	SEC 7 9 10 16
A	FR-160					NR											03916004	11.00000	0.00000	POR SEC 6 9 17
A	FR-160					NR											03916005	11.00000	0.00000	POR SEC 7&8 9 17
A	FR-160					NR											03917007	11.00000	985.38000	S6 10 16RS14-104
A	FR-160					NR											03917008	11.00000	935.43000	S5 10 16RS14-104
A	FR-160					NR											03917009	11.00000	1176.41000	S4 10 16RS14-104
A	FR-160					NR											03918001	11.00000	0.00000	SEC 3 10 16
A	FR-160					NR											03918002	11.00000	0.00000	SEC 2 10 16
A	FR-160					NR											03918003	11.00000	0.00000	SEC 1 10 16
A	FR-160					NR											03919005	11.00000	0.00000	S 7 10 16 RS13-6
A	FR-160					NR											03919006	11.00000	0.00000	S 7 10 16 RS13-6
A	FR-160					NR											03919007	11.00000	0.00000	S8 10 16 RS 13-8
A	FR-160					NR											03919008	11.00000	0.00000	S8 10 16 RS 13-8
A	FR-160					NR											03920003	11.00000	0.00000	10 10 16RS14-110
A	FR-160					NR											03920004	11.00000	0.00000	POR SEC 11 10 16
A	FR-160					NR											03920005	11.00000	0.00000	POR S11&12 10 16
A	FR-160					NR											03920006	11.00000	0.00000	POR 11 10 16
A	FR-160					NR											03920007	11.00000	0.00000	POR SEC 12 10 16
AE	LA-40					NR											03921008	0.00000	17.00000	SEC 20 10 16
A	FR-160					NR											03921029	11.00000	0.00000	17 10 16RS13-119
A	FR-160					NR											03921035	11.00000	0.00000	POR SEC 18 10 16
A	FR-160					NR											03921037	11.00000	0.00000	POR SEC 21 10 16
A	FR-160					NR											03921038	11.00000	0.00000	POR SEC 21 10 16
A	FR-160					NR											03922006	11.00000	160.00000	SW 1/4 23-10-16
A	FR-160					NR											03922007	11.00000	0.00000	POR SEC 15 10 16
A	FR-160					NR											03922008	11.00000	0.00000	SEC 14 10 16
A	FR-160					NR											03922009	11.00000	0.00000	SEC 13 10 6
A	FR-160					NR											03922010	11.00000	0.00000	SEC 22 10 16
A	FR-160					NR											03922011	11.00000	0.00000	POR SEC 23 10 16
A	FR-160					NR											03922012	11.00000	0.00000	POR SEC 23 10 16
A	FR-160					NR											03922013	11.00000	0.00000	POR SEC 24 10 16
A	FR-160					NR											03923009	11.00000	141.65000	S30 10 16RS13-27
A	FR-160					NR											03923010	11.00000	115.66000	S30 10 16RS13-27
A	FR-160					NR											03923011	11.00000	143.96000	S30 10 16RS13-27
A	FR-160					NR											03923012	11.00000	162.04000	S30 10 16RS13-27
A	FR-160					NR											03923013	11.00000	70.10000	S29 10 16RS13-27
A	FR-160					NR											03923014	11.00000	70.10000	S29 10 16RS13-27
A	FR-160					NR											03923015	11.00000	137.71000	S29 10 16RS13-27
A	FR-160					NR											03923016	11.00000	0.00000	S31 10 16RS12-49
A	FR-160					NR											03923017	11.00000	0.00000	S31 10 16RS12-49
A	FR-160					NR											03923018	11.00000	0.00000	S31 10 16RS13-27
A	FR-160					NR											03923019	11.00000	0.00000	S31 10 16RS12-49
A	FR-160					NR											03923020	11.00000	0.00000	S31 10 16RS12-49

A	FR-160					NR											03923021	11.00000	0.00000	33 10 16RS12-147
A	FR-160					NR											03923022	11.00000	0.00000	33 10 16RS12-147
A	FR-160					NR											03923023	11.00000	0.00000	POR SEC 29 10 16
A	FR-160					NR											03923024	11.00000	0.00000	SEC 28 10 16
A	FR-160					NR											03923025	11.00000	0.00000	SEC 32 10 16
A	FR-160					NR											03923026	11.00000	0.00000	POR SEC 33 10 16
A	FR-160					NR											03924001	11.00000	0.00000	POR SEC 27 10 16
A	FR-160					NR											03924002	11.00000	0.00000	POR SEC 27 10 16
A	FR-160					NR											03924003	11.00000	0.00000	POR SEC 26 10 16
A	FR-160					NR											03924004	11.00000	0.00000	POR SEC 26 10 16
A	FR-160					NR											03924005	11.00000	0.00000	POR SEC 25 10 16
A	FR-160					NR											03924006	11.00000	0.00000	POR 25 10 16
A	FR-160					NR											03924007	11.00000	0.00000	POR 34 10 16
A	FR-160					NR											03924008	11.00000	0.00000	SEC 35 10 16
A	FR-160					NR											03924009	11.00000	0.00000	SEC 36 10 16
A	FR-40					NR											03925001	0.00000	39.33000	RS 12/49 S6916
A	TPZ					NR											03925003	0.00000	250.96000	RS 5/102 S4&9916
A	FR-160					NR											03925008	11.00000	0.00000	S6 9 16 RS12-49
A	FR-160					NR											03925009	11.00000	0.00000	S6 9 16 RS12-49
A	FR-160					NR											03925010	11.00000	0.00000	S6 9 16 RS12-49
A	FR-160					NR											03925012	11.00000	0.00000	S6 9 16 RS12-49
A	FR-160					NR											03925013	11.00000	0.00000	S6 9 16 RS12-49
A	FR-160					NR											03925014	11.00000	0.00000	S5 9 16 RS12-147
A	FR-160					NR											03925015	11.00000	0.00000	S5 9 16 RS12-147
A	FR-160					NR											03925016	11.00000	0.00000	S5 9 16 RS12-147
A	FR-160					NR											03925017	11.00000	0.00000	S5 9 16 RS12-147
A	FR-160					NR											03925018	11.00000	0.00000	S5 9 16 RS12-147
A	FR-160					NR											03925019	11.00000	446.75000	S9 9 16 RS5-102
A	FR-160					NR											03925020	11.00000	464.80000	S4 9 16RS 5-102
A	FR-160					NR											03925021	11.00000	0.00000	POR 5 & 6 9 16
A	FR-160					NR											03925022	11.00000	0.00000	SEC 7 9 16
A	FR-160					NR											03925023	11.00000	0.00000	SEC 8 9 16
A	FR-160					NR											03925024	11.00000	0.00000	POR SEC 5 9 16
A	FR-160					NR											03926001	11.00000	120.00000	SEC 11 9 16
A	FR-160					NR											03926002	11.00000	0.00000	SEC 3 9 16
A	FR-160					NR											03926003	11.00000	0.00000	SEC 2 9 16
A	FR-160					NR											03926004	11.00000	0.00000	SEC 1 9 6
A	FR-160					NR											03926005	11.00000	0.00000	SEC 10 9 16
A	FR-160					NR											03926006	11.00000	0.00000	POR SEC 11 9 16
A	FR-160					NR											03926007	11.00000	0.00000	POR SEC 12 9 16
A	FR-160					NR											03927016	0.00000	65.09100	SEC 16 9 16
A	FR-160					NR											03927017	0.00000	0.41900	SEC 16 9 16
A	FR-160					NR											03927018	0.00000	1.50000	SEC 21 9 16
A	FR-160					NR											03927019	0.00000	21.51000	SEC 16 9 16
A	FR-160					NR											03927021	0.00000	2.29000	SEC 16 9 16
A	FR-160					NR											03927023	0.00000	42.86000	SEC 16 9 16

A	FR-160					NR											03927025	11.00000	2.47000	SEC 16 9 16
AE	RL-160					NR											03927026	11.00000	39.99000	S18 9 16 RS 13-2
A	FR-160					NR											03927027	11.00000	108.85000	S18 9 16 RS 13-2
A	FR-160					NR											03927028	11.00000	285.08000	S18 9 16 RS 13-2
A	FR-160					NR											03927029	11.00000	156.82000	S20 9 16RS 8-114
A	FR-160					NR											03927030	11.00000	160.57000	S20 9 16RS 8-114
A	FR-160					NR											03927031	11.00000	163.05000	S20 9 16 RS8-114
A	TPZ					NR											03927035	0.00000	81.87000	SEC 21 9 16
A	FR-160					NR											03927036	11.00000	0.00000	S 17 9 16
A	FR-160					NR											03927037	11.00000	0.00000	S 19 9 16
A	FR-160					NR											03927038	11.00000	0.00000	POR SEC 20 9 16
A	FR-160					NR											03927039	11.00000	0.00000	POR S 16&21 9 16
A	FR-160					NR											03928002	11.00000	39.05000	SEC 14 9 16
A	FR-160					NR											03928003	11.00000	0.00000	POR SEC 15 9 6
A	FR-160					NR											03928004	11.00000	0.00000	POR SEC 14 9 16
A	FR-160					NR											03928005	11.00000	0.00000	POR S 13&14 9 16
A	FR-160					NR											03929001	11.00000	0.00000	SE 1/4 30-09-16
A	FR-160					NR											03929002	11.00000	0.00000	NE 1/4 31-09-16
TPZ	FR-160					NR											03930002	0.00000	0.22000	SEC 20 9 16
TPZ	FR-160					NR											03930003	0.00000	0.18000	SEC 20 9 16
TPZ	FR-160					NR											03930004	0.00000	0.22000	SEC 20 9 16
TPZ	FR-160					NR											03930005	0.00000	0.22000	SEC 20 9 16
TPZ	FR-160					NR											03930006	0.00000	0.19000	SEC 20 9 16
TPZ	FR-160					NR											03930007	0.00000	0.21500	SEC 20 9 16
TPZ	FR-160					NR											03930008	0.00000	0.21500	SEC 20 9 16
TPZ	FR-160					NR											03930009	0.00000	0.00000	L 10 & POR L 11
TPZ	FR-160					NR											03930010	0.00000	0.00000	POR L 11
TPZ	FR-160					NR											03930011	0.00000	0.21500	SEC 20 9 16
PD	RF-H					AP											03932002	0.00000	1.26000	SEC 22 10 17
RA-20	RL-160					NR											04001101	0.00000	37.44000	SEC 6 8 13
RA-20	RL-160					NR											04001102	0.00000	8.75000	PM 48/1/13
RA-20	RL-160					NR											04001103	0.00000	8.73000	PM 48/1/14
RA-80	RL-160					NR											04001105	0.00000	40.09000	SEC 6 8 13
RA-40	RL-160					NR											04001107	0.00000	296.12000	PPM 48/1/15 ADM
RA-40	RL-160					NR											04001107	0.00000	296.12000	PPM 48/1/15 ADM
TPZ	FR-160					NR											04001107	0.00000	296.12000	PPM 48/1/15 ADM
RA-40	RL-160					NR											04001108	0.00000	79.89000	PM 48/1/16
RA-40	FR-40					NR											04001109	0.00000	8.00000	SEC 5 8 13
RA-20	RL-10					RR					PL						04001110	0.00000	14.74000	SEC 4 8 13
RA-20	RL-20					RR					PL						04001111	0.00000	12.89000	SEC 4 8 13
RA-40	RL-160					NR											04001115	0.00000	39.63000	PM 48/1/12
RA-20	RL-160					NR											04001119	0.00000	20.00000	SEC 7 8 13
RA-40	RL-160					NR											04001123	0.00000	16.38000	PM 48/1/17
RA-40	RL-160					NR											04001125	0.00000	139.89000	PM 48/1/18
RA-80	RL-160					NR											04001126	0.00000	185.00000	SEC 9 8 13
RA-80	RL-160					NR											04001127	0.00000	15.00000	SEC 9 8 13

RA-20	FR-40					NR											04001132	0.00000	0.00000	SEC 4&9 8 13
RA-20	FR-40					NR											04001132	0.00000	0.00000	SEC 4&9 8 13
RA-20	TPZ					NR											04001134	0.00000	0.00000	SEC 4 8 13
RA-20	TPZ					NR											04001134	0.00000	0.00000	SEC 4 8 13
RA-40	FR-160					NR											04001135	0.00000	0.00000	SEC 6 8 13
RA-40	FR-40					NR											04001136	0.00000	0.00000	SEC 6 8 13
A	TPZ					NR											04002003	0.00000	70.15000	RS 11/90 S1813
A	FR-160					NR											04002014	0.00000	20.00000	SEC 1 8 13
A	FR-160					NR											04002015	0.00000	20.00000	SEC 1 8 13
U	FR-160					NR											04002015	0.00000	20.00000	SEC 1 8 13
A	FR-160					NR											04002016	0.00000	20.00000	SEC 1 8 13
U	FR-160					NR											04002018	0.00000	20.00000	SEC 1 8 13
A	FR-160					NR											04002019	0.00000	10.00000	SEC 1 8 13
U	FR-160					NR											04002020	0.00000	10.00000	SEC 1 8 13
A	FR-160					NR											04002021	11.00000	313.87000	S 3 8 13RS13-139
A	FR-160					NR											04002022	11.00000	0.00000	SEC 2 8 13
A	FR-160					NR											04002023	11.00000	40.02000	POR RS 11 90
A	FR-160					NR											04002024	11.00000	640.00000	SEC 10 8 13
A	FR-160					NR											04002025	11.00000	373.28000	POR SEC 11 8 13
A	FR-160					NR											04002026	11.00000	0.00000	S12 8 13RS13-116
A	FR-160					NR											04002027	11.00000	40.14000	S1 8 13 RS 11-90
A	FR-160					NR											04002028	11.00000	109.13000	S1 8 13 RS11-90
A	FR-160					NR											04002029	11.00000	35.41000	S1 8 13 RS 11-90
A	FR-160					NR											04002030	11.00000	36.43000	S1 8 13 RS 11-90
A	FR-160					NR											04002031	11.00000	76.42000	S1 8 13 RS 11-90
A	FR-160					NR											04002032	11.00000	39.61000	S1 8 13 RS11-90
A	FR-160					NR											04002033	11.00000	0.00000	S11 8 13 RS8-107
A	FR-160					NR											04002034	11.00000	44.20000	S11 8 13 RS8-107
PA-20	FR-160					NR											04003022	0.00000	80.00000	SEC 20 & 21 8 13
RA-80	RL-160					NR											04003022	0.00000	80.00000	SEC 20 & 21 8 13
RA-20	TPZ					NR											04003034	0.00000	192.55000	RS 18/114 S18813
RA-40	FR-160					NR											04003037	11.00000	0.00000	POR SEC 18-8-13
RA-160	FR-160					NR											04003058	0.00000	160.00000	S 17&20 8 13
RA-80	TPZ					NR											04003072	0.00000	120.00000	SEC 21&22 8 13
RA-80	FR-160					NR											04004007	0.00000	158.32000	SEC 22 8 13
RA-20	RL-160					NR											04004015	0.00000	43.00000	SEC 14 & 23 8 13
A	FR-160					NR											04004032	11.00000	0.00000	S 15 & 22 8 13
A	FR-160					NR											04004033	11.00000	0.00000	S 14 & 23 8 13
A	FR-160					NR											04004034	11.00000	0.00000	SEC 13 & 24 8 13
A	FR-160					NR											04004035	11.00000	81.12000	S13 8 13RS13-116
PA-20	RL-160					NR											04005001	0.00000	174.51000	SEC 30 8 13
RA-80	RL-160					NR											04005001	0.00000	174.51000	SEC 30 8 13
PA-20	PA-40					NR											04005006	0.00000	80.00000	SEC 28 & 29 8 13
RA-80	PA-40					NR											04005006	0.00000	80.00000	SEC 28 & 29 8 13
RA-40	FR-40					NR											04005012	0.00000	40.00000	SEC 29 8 13 ADM
RA-80	FR-160					NR											04005015	0.00000	81.10000	SEC 31 8 13

RA-40	FR-40					NR											04005031	0.00000	40.00000	SEC 29 8 13 ADM
RA-80	FR-160					NR											04005033	0.00000	80.00000	SEC 29 & 30 8-13
RA-160	FR-160					NR											04005035	11.00000	80.00000	S 28 8 13
RA-160	FR-160					NR											04005053	0.00000	240.00000	SEC 21&28 8 13
RA-80	RL-160					NR											04006027	0.00000	160.00000	S 26 & 27 8 13
RA-40	FR-160					NR											04006028	11.00000	0.00000	POR SEC 26 8 13
A	FR-160					NR											04007042	0.00000	39.96000	PM 13/20/2
A	FR-160					NR											04007043	0.00000	40.01000	PM 13/20/3
A	FR-160					NR											04007044	0.00000	32.08000	PM 13/20/4
A	FR-160					NR											04007047	11.00000	0.00000	S4 5 & 6 8 14
A	FR-160					NR											04007048	11.00000	0.00000	S 7 8 & 9 8 14
A	FR-160					NR											04007049	11.00000	0.00000	S6 8 14 RS12-150
A	FR-160					NR											04008004	11.00000	0.00000	S12 8 14 RS 9-83
A	FR-160					NR											04008005	11.00000	0.00000	S 3 8 14 RS6-71
A	FR-160					NR											04008010	11.00000	0.00000	SEC 2 8 14
A	FR-160					NR											04008011	11.00000	0.00000	SEC 2 8 14
A	FR-160					NR											04008012	11.00000	0.00000	SEC 10 8 14
A	FR-160					NR											04008013	11.00000	0.00000	SEC 11 8 14
RA-20	RL-160					NR											04009009	0.00000	16.57000	SEC 19 8 14
RA-80	FR-160					NR											04009046	0.00000	80.00000	SEC 21 8 14
A	FR-160					NR											04009052	11.00000	0.00000	S16 17&18 8 14
RA-160	FR-160					NR											04009053	11.00000	97.63000	S18 8 14RS 11-73
A	FR-160					NR											04009054	11.00000	58.17000	S18 8 14 RS11-73
A	FR-160					NR											04009056	11.00000	76.39000	S18 8 14RS 11-73
A	FR-160					NR											04009057	11.00000	38.62000	S18 8 14 RS11-73
RA-80	RL-160					NR											04009059	0.00000	79.24500	SEC 16 8 14
RA-80	RL-160					NR											04009060	0.00000	72.75000	SEC 21 8 14
RA-80	RL-160					NR											04009061	0.00000	6.49300	RS 20/140/1
RA-40	RL-160					NR											04010033	0.00000	13.00000	SEC 14 8 14
RA-40	RL-160					NR											04010035	0.00000	40.00000	SEC 14 8 14
RA-40	RL-160					NR											04010037	0.00000	40.00000	SEC 14 8 14
RA-40	RL-160					NR											04010043	0.00000	40.00000	SEC 15 8 14
RA-40	FR-160					NR											04010044	0.00000	40.00000	SEC 14 8 14
RA-40	RL-160					NR											04010045	0.00000	68.35000	SEC 14 8 14
RA-40	FR-160					NR											04010046	0.00000	57.83000	SEC 14 8 14
A	FR-160					NR											04010047	11.00000	159.12000	S15 8 14 RS 9-83
A	FR-160					NR											04010048	11.00000	315.25000	S14 8 14 RS9-83
A	FR-160					NR											04010049	11.00000	0.00000	POR SEC 13 8 14
RA-20	RL-160					NR											04011001	0.00000	40.31000	SEC 30 8 14
A	FR-160					NR											04012008	11.00000	115.16000	S7 8 15 RS10-19
A	FR-160					NR											04012009	11.00000	39.96000	S7 10 19 RS10-19
A	FR-160					NR											04012010	11.00000	39.73000	S7 8 15 RS 10-19
A	FR-160					NR											04012011	11.00000	33.93000	S7 8 15 RS 10-19
A	FR-160					NR											04012012	11.00000	37.56000	S8 8 15 RS10-45
A	FR-160					NR											04012013	11.00000	0.00000	S 8 8 15 RS10-45
A	FR-160					NR											04012014	11.00000	150.58000	S8 8 15 RS 10-45

A	FR-160					NR											04012015	11.00000	77.77000	S9 8 15 RS 7-27
A	FR-160					NR											04012016	11.00000	233.42000	S9 8 15 RS 7-27
A	FR-160					NR											04012017	11.00000	0.00000	POR SEC 6 8 15
A	FR-160					NR											04012018	11.00000	0.00000	POR SEC 6 8 15
A	FR-160					NR											04012019	11.00000	0.00000	POR SEC 5 8 15
A	FR-160					NR											04012020	11.00000	0.00000	POR SEC 5 8 15
A	FR-160					NR											04012021	11.00000	0.00000	SEC 4 8 15
A	FR-160					NR											04012022	11.00000	0.00000	POR SEC 9 8 15
A	FR-160					NR											04012023	11.00000	40.88000	POR SEC 6 8 15
A	FR-160					NR											04012024	11.00000	40.64000	POR SEC 6 8 15
A	FR-160					NR											04012025	11.00000	40.40000	POR SEC 6 8 10
A	FR-160					NR											04012026	11.00000	46.21000	POR SEC 6 8 15
A	FR-160					NR											04012027	11.00000	46.15000	POR SEC 6 8 15
A	FR-160					NR											04012028	11.00000	46.25000	POR SEC 6 8 15
A	FR-160					NR											04012029	11.00000	0.00000	POR SEC 6 8 15
A	FR-160					NR											04012030	11.00000	0.00000	POR SEC 6 8 15
A	FR-160					NR											04012031	11.00000	0.00000	POR SEC 6 8 15
A	FR-160					NR											04012032	11.00000	0.00000	POR SEC 6 8 15
A	FR-160					NR											04012033	11.00000	0.00000	POR SEC 5 8 15
A	FR-160					NR											04012034	11.00000	0.00000	POR SEC 5 8 15
A	FR-160					NR											04012035	11.00000	0.00000	POR SEC 5 8 15
A	FR-160					NR											04012036	11.00000	0.00000	POR SEC 5 8 15
A	FR-160					NR											04012037	11.00000	41.69000	POR SEC 5 8 15
A	FR-160					NR											04012038	11.00000	41.41000	POR SEC 5 8 15
A	FR-160					NR											04012039	11.00000	41.14000	POR SEC 5 8 15
A	FR-160					NR											04012040	11.00000	0.00000	POR SEC 5 8 15
A	FR-160					NR											04012041	11.00000	0.00000	POR SEC 5 8 15
A	FR-160					NR											04012042	11.00000	41.92000	POR SEC 4 8 15
A	FR-160					NR											04012043	11.00000	41.98000	POR SEC 4 8 15
A	FR-160					NR											04012044	11.00000	42.02000	POR SEC 4 8 15
A	FR-160					NR											04012045	11.00000	42.08000	POR SEC 4 8 15
A	FR-160					NR											04012046	11.00000	0.00000	POR SEC 4 8 15
A	FR-160					NR											04012047	11.00000	0.00000	POR SEC 4 8 15
A	FR-160					NR											04012048	11.00000	0.00000	POR SEC 4 8 15
A	FR-160					NR											04013001	11.00000	0.00000	SEC 3 8 15
A	FR-160					NR											04013002	11.00000	0.00000	SEC 2 & 11 8 15
A	FR-160					NR											04013003	11.00000	0.00000	SEC 1 & 12 8 15
A	FR-160					NR											04013004	11.00000	0.00000	SEC 10 & 15 8 15
A	FR-160					NR											04013006	11.00000	40.14000	POR SEC 1 8 15
A	FR-160					NR											04013007	11.00000	40.41000	OIR SEC 1 8 15
A	FR-160					NR											04013008	11.00000	40.69000	POR SEC 1 8 15
A	FR-160					NR											04013009	11.00000	40.96000	POR SEC 1 8 15
A	FR-160					NR											04013010	11.00000	0.00000	POR SEC 1 8 15
A	FR-160					NR											04013011	11.00000	0.00000	POR SEC 1 8 15
A	FR-160					NR											04013012	11.00000	0.00000	POR SEC 1 8 15
A	FR-160					NR											04013013	11.00000	0.00000	POR SEC 12 8 15

A	FR-160					NR											04013014	11.00000	0.00000	POR SEC 12 8 15
A	FR-160					NR											04013015	11.00000	41.16000	POR SEC 2 8 15
A	FR-160					NR											04013016	11.00000	41.25000	POR SEC 2 8 15
A	FR-160					NR											04013017	11.00000	41.35000	POR SEC 2 8 15
A	FR-160					NR											04013018	11.00000	41.45000	POR SEC 2 8 15
A	FR-160					NR											04013019	11.00000	0.00000	POR SEC 2 8 15
A	FR-160					NR											04013020	11.00000	0.00000	POR SEC 2 8 15
A	FR-160					NR											04013021	11.00000	0.00000	POR SEC 2 8 15
A	FR-160					NR											04013022	11.00000	0.00000	POR SEC 11 8 15
A	FR-160					NR											04013023	11.00000	0.00000	POR SEC 11 8 15
A	FR-160					NR											04013024	11.00000	0.00000	POR SEC 11 8 15
A	FR-160					NR											04013025	11.00000	0.00000	POR SEC 11 8 15
A	FR-160					NR											04013026	11.00000	41.55000	POR SEC 3 8 15
A	FR-160					NR											04013027	11.00000	41.65000	POR SEC 3 8 15
A	FR-160					NR											04013028	11.00000	41.75000	POR SEC 3 8 15
A	FR-160					NR											04013029	11.00000	41.85000	POR SEC 3 8 15
A	FR-160					NR											04013030	11.00000	0.00000	POR SEC 3 8 15
A	FR-160					NR											04013031	11.00000	0.00000	POR SEC 3 8 15
A	FR-160					NR											04013032	11.00000	0.00000	POR SEC 10 8 15
A	FR-160					NR											04013033	11.00000	0.00000	POR SEC 10 8 15
A	FR-160					NR											04013034	11.00000	0.00000	POR SEC 10 8 15
A	FR-160					NR											04013035	11.00000	0.00000	POR SEC 15 8 15
A	FR-160					NR											04013036	11.00000	0.00000	POR SEC 15 8 15
A	FR-160					NR											04014002	11.00000	0.00000	S17 8 15 RS10-31
A	FR-160					NR											04014003	11.00000	230.27000	S16 8 15 RS 7-28
A	FR-160					NR											04014004	11.00000	0.00000	POR SEC 18 8 15
RA-20	RL-160					NR											04015001	0.00000	8.61000	SEC 5 8 13
RA-20	FR-160					NR											04015002	0.00000	0.00000	SEC5 913& 32 813
RA-20	RL-160					NR											04016001	0.00000	0.42000	SEC 5 8 13
RA-20	RL-160					NR											04016002	0.00000	0.45000	SEC 5 8 13
RE-10	RL-10					RR					PL						04016008	0.00000	7.09000	SEC 5 8 13
RE-10	RL-10					RR					PL						04016009	0.00000	8.00000	SEC 5 8 13
RE-10	RL-10					RR					PL						04016010	0.00000	2.78000	SEC 5 8 13
RE-10	RL-10					RR					PL						04016011	0.00000	1.00000	SEC 5 8 13
RA-20	RL-160					NR											04016013	0.00000	0.30000	SEC 4 & 5 8 13
RE-10	RL-10					RR					PL						04016014	0.00000	1.41000	SEC 5 8 13
RE-10	RL-10					RR					PL						04016015	0.00000	4.21000	SEC 5 8 13
RE-10	RL-10					RR					PL						04016016	0.00000	2.50000	SEC 5 8 13
RA-20	RL-160					NR											04016018	0.00000	0.28000	SEC 5 8 13
RE-10	RL-10					RR					PL						04016020	0.00000	2.02000	PM 45/5/1
RE-10	RL-10					RR					PL						04016021	0.00000	2.00000	PM 45/5/2
RA-20	FR-40					NR											04017004	0.00000	1.00000	SEC 4 8 13
RA-20	RL-160					NR											04017005	0.00000	1.00000	SEC 4 8 13
RA-20	FR-40					NR											04017007	0.00000	3.75000	SEC 4 8 13
RA-20	FR-40					NR											04017007	0.00000	3.75000	SEC 4 8 13
RA-20	FR-40					NR											04017007	0.00000	3.75000	SEC 4 8 13

RA-20	FR-40					NR											04017008	0.00000	0.25000	SEC 4 8 13
RA-20	FR-40					NR											04017008	0.00000	0.25000	SEC 4 8 13
RA-40	RL-160					NR											04019001	0.00000	41.27000	SEC 26 8 13
C	FR-160					NR											04020001	0.00000	2.00000	SEC 13 8 14
RE-10	FR-40					NR											04022003	0.00000	37.83000	SEC 5 8 13
RE-10	RL-10					RR					PL						04022006	0.00000	2.01000	SEC 5 8 13
RE-10	RL-10					RR					PL						04022007	0.00000	4.64000	SEC 5 8 13
C	CL					C					PL						04022008	0.00000	5.96000	SEC 5 8 13
RE-10	CC					C					PL						04022008	0.00000	5.96000	SEC 5 8 13
RE-10	RL-10					RR					PL						04022009	0.00000	1.18300	SEC 5 8 13
RE-10	RL-10					RR					PL						04022010	0.00000	1.11000	SEC 5 8 13
RE-10	RL-10					RR					PL						04023002	0.00000	3.00000	SEC 4 8 13
RE-10	RL-10					RR					PL						04023003	0.00000	2.33000	SEC 4 8 13
RE-10	RL-10					RR					PL						04023008	0.00000	2.00000	SEC 5 8 13
RE-10	RL-10					RR					PL						04023010	0.00000	1.26000	SEC 4 8 13
RE-10	RL-10					RR					PL						04023013	0.00000	2.83000	SEC 5 8 13
RE-10	RL-10					RR					PL						04023014	0.00000	2.30000	SEC 5 8 13
RE-10	RL-10					RR					PL						04023015	0.00000	4.10000	SEC 5 8 13
RE-10	RL-10					RR					PL						04023017	0.00000	1.92000	SEC 4 8 13
RE-10	RL-10					RR					PL						04023018	0.00000	1.00000	SEC 4 8 13
RA-20	RL-160					NR											04023024	0.00000	40.22700	SEC 4&5 8 13
RA-20	RL-160					NR											04023025	0.00000	61.00800	RS 18/39/1
RA-20	RL-160					NR											04023026	0.00000	40.05000	RS 18/39/2
U	RE-5					LDR					PL						04024001	0.00000	10.00000	SEC 8 8 14
U	RE-5					LDR					PL						04024008	0.00000	3.50000	SEC 8 8 14 ADM
U	RE-5					LDR					PL						04024009	0.00000	6.50000	SEC 8 8 14 ADM
U	RE-5					LDR					PL						04024014	0.00000	4.98000	RS 20/36/1
U	RE-5					LDR					PL						04024015	0.00000	5.00000	SEC 8 8 14
U	RE-5					LDR					PL						04024016	0.00000	5.00000	SEC 8 8 14
U	RE-5					LDR					PL						04024017	0.00000	5.00000	SEC 8 8 14
RA-20	RL-10					RR					PL						04025001	0.00000	10.00000	SEC 23 8 13
RA-20	RL-10					RR					PL						04025003	0.00000	5.00000	SEC 23 8 13
RA-20	RL-10					RR					PL						04025004	0.00000	5.00000	SEC 23 8 13
RA-20	RL-10					RR					PL						04025005	0.00000	5.00000	SEC 14 8 13
RA-20	RL-10					RR					PL						04025006	0.00000	5.00000	SEC 14 8 13
RA-20	RL-10					RR					PL						04025007	0.00000	5.00000	SEC 14 8 13
RA-20	RL-10					RR					PL						04025008	0.00000	5.00000	SEC 14 8 13
RA-20	RL-160					NR											04025009	0.00000	24.75000	SEC 23 8 13
RA-20	RL-20					RR					PL						04025014	0.00000	17.00000	SEC 14 8 13
RA-20	RL-10					RR					PL						04025015	0.00000	4.62000	SEC 14 & 23 8 13
RA-20	RL-10					RR					PL						04025016	0.00000	6.10000	SEC 14 & 23 8 13
RA-20	RL-160					NR											04025017	0.00000	12.53000	SEC 14 8 13
RA-20	RL-160					NR											04025019	0.00000	6.00000	SEC 14 8 13
RA-20	RL-160					NR											04025020	0.00000	3.00000	SEC 14 8 13
RA-20	RL-160					NR											04025021	0.00000	3.00000	SEC 14 8 13
RA-20	RL-20					RR					PL						04026001	0.00000	21.50000	SEC 3 8 13

RA-20	RL-10					RR					PL						04026005	0.00000	14.12000	SEC 3 8 13
RA-20	RL-160					NR											04026006	0.00000	14.49000	SEC 3 8 13
RA-20	RL-10					RR					PL						04026007	0.00000	13.07000	SEC 3 8 13
RA-20	RL-10					RR					PL						04026008	0.00000	11.28000	PM 2/38/4
RA-20	RL-10					RR					PL						04026009	0.00000	5.98000	SEC 3 8 13
RA-20	RL-10					RR					PL						04026010	0.00000	5.25000	SEC 3 8 13
RA-40	RL-160					NR											04027014	0.00000	31.92000	PM 46/56/5
RA-40	RL-160					NR											04027015	0.00000	31.02000	PM 46/56/6
RA-40	RL-160					NR											04027016	0.00000	37.78000	PM 46/56/7
RA-40	RL-160					NR											04027017	0.00000	8.32000	PM 46/56/8
RA-40	RL-160					NR											04027018	0.00000	42.10000	PM 46/56/9
RA-40	RL-160					NR											04027019	0.00000	67.40000	SEC 5 8 8 13
RE-10	RL-10					RR					PL						04027020	0.00000	5.00000	SEC 5 8 13
RE-10	RL-10					RR					PL						04027021	0.00000	5.00000	SEC 5 8 13
RE-10	RL-10					RR					PL						04027022	0.00000	10.00000	SEC 5 8 13
RE-10	RL-10					RR					PL						04027023	0.00000	10.61000	RS 22/120
RE-10	RL-10					RR					PL						04027024	0.00000	8.00000	SEC 5 8 13
RE-10	RL-10					RR					PL						04027025	0.00000	2.00000	SEC 5 8 13
U	FR-40					RR					PL						04029002	0.00000	2.00000	SEC 9 8 14
U	FR-40					RR					PL						04029010	0.00000	9.19000	POR RS 3/80
U	FR-40					RR					PL						04029011	0.00000	9.16000	POR RS 3/80
U	FR-40					RR					PL						04029012	0.00000	6.29000	RS 21/124/2
U	FR-40					RR					PL						04029014	0.00000	10.54000	RS 21/124/1
RA-20	RL-10					RR					PL						04030001	0.00000	5.20000	PM 6/6/A
RA-20	RL-10					RR					PL						04030002	0.00000	5.20000	PM 6/6/B
RA-20	RL-10					RR					PL						04030003	0.00000	5.20000	PM 6/6/C
RA-20	RL-10					RR					PL						04030004	0.00000	5.20000	PM 6/6/D
RA-20	RL-10					RR					PL						04030005	0.00000	5.10000	PM 6/7/A
RA-20	RL-10					RR					PL						04030006	0.00000	5.10000	PM 6/7/B
RA-20	RL-10					RR					PL						04030007	0.00000	5.20000	PM 6/7/C
RA-20	RL-10					RR					PL						04030008	0.00000	5.20000	PM 6/7/D
RA-80	FR-160					NR											04031006	0.00000	42.73000	PM 34/101/1
RA-80	RL-160					NR											04031007	0.00000	27.17000	PM 34/101/2
RA-80	FR-40					NR											04101101	0.00000	218.51000	SEC 6 9 13
RA-40	RL-40					NR											04101102	0.00000	49.79000	RS 17/34/1
RA-40	RL-160					NR											04101103	0.00000	40.01000	RS 17/34/2
RA-20	RL-20					RR					PL						04101104	0.00000	18.01300	RS 19/23/1
RA-20	RL-20					RR					PL						04101105	0.00000	20.00000	SEC 6 9 13
RA-40	RL-160					NR											04101106	0.00000	40.44000	RS 17/34/3
RA-20	RL-160					NR											04101107	0.00000	43.60000	RS 9/51 S6913
RA-40	FR-160					NR											04101108	11.00000	46.21000	L7 S6 9 13 15-76
RA-20	RL-160					NR											04101109	0.00000	42.00000	S 6&7 9 13
RA-20	RL-160					NR											04101110	0.00000	50.37000	SEC 7 9 13
RA-40	LA-40					NR											04101111	0.00000	50.29000	SEC 7 9 13
RA-160	FR-160					NR											04101112	11.00000	0.00000	S 1/2 S 7 9 13
RA-80	RL-160					NR											04101113	0.00000	40.00000	SEC 5 9 13

RA-160	FR-160					NR											04101115	11.00000	0.00000	SEC 5 9 13
RA-40	RL-160					NR											04101117	0.00000	47.34000	RS 12/47 S8913
RA-20	RL-160					NR											04101118	0.00000	42.26000	SEC 8 9 13
RA-40	RL-160					NR				MR							04101119	0.00000	9.91000	SEC 4 9 13
RA-160	FR-160					NR											04101122	11.00000	0.00000	SEC 4 9 13
RE-10	FR-160					NR											04101124	0.00000	40.00000	SEC 9 9 13
PA-20	FR-40					NR											04101126	0.00000	140.00000	SEC 9 9 13
PA-20	FR-40					NR											04101127	0.00000	80.00000	SEC 9 9 13
PA-20	PA-40					NR				MR							04101130	0.00000	48.26000	SEC 9 9 13
RA-20	FR-40					NR											04101132	0.00000	20.00000	SEC 9 9 13
RA-20	RL-160					NR											04101135	0.00000	40.52000	RS 19/22/3
RA-20	RL-160					NR											04101136	0.00000	40.22000	RS 19/22/1
RA-20	RL-160					NR											04101137	0.00000	40.58000	RS 19/22/2
RA-40	RL-160					NR											04101138	0.00000	32.59000	RS 12/47 S8913
RA-40	RL-160					NR											04101139	0.00000	37.45000	RS 12/47 S8913
RA-40	RL-160					NR											04102105	0.00000	40.00000	SEC 3 9 13
RA-40	FR-40					NR											04102106	0.00000	10.00000	SEC 3 9 13
RA-40	RL-160					NR											04102107	0.00000	5.00000	SEC 3 9 13
RA-40	RL-160					NR											04102108	0.00000	5.00000	SEC 3 9 13
RA-40	RL-160					NR											04102109	0.00000	5.02000	SEC 10 9 13
RA-40	RL-160					NR											04102110	0.00000	15.06000	SEC 10 9 13
RA-40	RL-160					NR											04102112	0.00000	10.00000	SEC 10 9 13
RA-40	RL-160					NR											04102117	0.00000	20.00000	SEC 11 9 13
RA-20	RL-160					NR											04102118	0.00000	20.00000	SEC 11 9 13
RA-20	RL-160					NR											04102119	0.00000	20.00000	SEC 11 9 13
RA-20	RL-160					NR											04102120	0.00000	20.00000	SEC 11 9 13
RA-20	RL-160					NR											04102122	0.00000	20.00000	SEC 11 9 13
RA-20	RL-160					NR											04102123	0.00000	20.00000	SEC 11 9 13
RA-20	RL-160					NR											04102124	0.00000	20.00000	SEC 11 9 13
RA-20	RL-160					NR											04102125	0.00000	20.00000	SEC 11 9 13
RA-20	RL-160					NR											04102127	0.00000	19.24000	RS 29/30/1
RA-20	RL-160					NR											04102129	0.00000	20.00000	SEC 11 9 13
A	FR-160					NR											04102130	11.00000	0.00000	SEC 3 9 13
RA-160	FR-160					NR											04102130	11.00000	0.00000	SEC 3 9 13
A	FR-160					NR											04102131	11.00000	0.00000	SEC 2 9 13
A	FR-160					NR											04102132	11.00000	0.00000	SEC 1 & 12 9 13
A	FR-160					NR											04102133	11.00000	0.00000	SE 1/4 S 11 9 13
A	FR-160					NR											04102134	0.00000	10.00000	PM 40/60/1
A	FR-160					NR											04102135	0.00000	10.00000	PM 40/60/2
A	FR-160					NR											04102136	0.00000	10.04000	PM 40/60/3
A	FR-160					NR											04102137	0.00000	8.77000	PM 40/60/4
RA-40	RL-160					NR											04103101	0.00000	149.28000	POR RS 15/99
RA-20	RL-160					NR											04103102	0.00000	20.00000	SEC 18 9 13
RE-10	RL-10					RR					PL						04103103	0.00000	10.00000	SEC 17 9 13
RA-20	RL-40					NR											04103104	0.00000	154.04000	PRS 9/34 & 15/99
RA-40	RL-40					NR											04103104	0.00000	154.04000	PRS 9/34 & 15/99

RE-10	RL-10					RR					PL						04103105	0.00000	10.00000	SEC 17 9 13
RA-20	LA-10					MDR							GF				04103107	0.00000	79.41000	SEC 16 9 13
RE-10	RL-160					NR											04103114	0.00000	29.96000	SEC 18 9 13
RE-10	RL-160					NR											04103115	0.00000	10.00000	SEC 18 9 13
RA-160	FR-160					NR											04103123	11.00000	136.35000	POR RS 15/99
A	FR-160					NR											04103124	11.00000	0.00000	19&20 9 13R17-97
A	FR-160					NR											04103125	11.00000	0.00000	SEC 21 9 13
RA-40	RL-160					NR											04103128	0.00000	42.00000	S 17 18&19 9 13
RA-40	RL-40					NR											04103129	0.00000	84.60000	SEC 19 9 13
RE-10	RL-160					NR											04103129	0.00000	84.60000	SEC 19 9 13
RE-10	RL-160					NR											04103132	0.00000	8.90000	RS 22/48/1
RA-40	RL-160					NR											04103138	0.00000	80.00000	SEC 17 9 13
RA-40	RL-160					NR											04103139	0.00000	80.00000	SEC 20 9 13
RE-10	RE-5					MDR							GF				04104042	0.00000	37.00000	SEC 15 9 13
A	FR-160					NR											04104043	0.00000	20.08000	RS 8/89 S13913
A	FR-160					NR											04104044	0.00000	20.08000	RS 8/89 S13913
A	FR-160					NR											04104049	11.00000	0.00000	14&23 9 13RS16-1
A	FR-160					NR											04104050	11.00000	0.00000	15&22 9 13RS16-1
A	FR-160					NR											04104051	11.00000	0.00000	13&24 9 13RS16-1
RA-40	FR-160					PF							GF				04104052	11.00000	41.48000	S 15 9 13RS 16-1
RA-40	RE-5					MDR							GF				04104053	0.00000	40.00000	SEC 15 9 13
RA-40	RE-5					MDR							GF				04104054	0.00000	40.00000	SEC 15 9 13
U	FR-160					NR											04105106	0.00000	40.14000	RS 10/9 S28913
A	FR-160					NR											04105135	11.00000	0.00000	POR SEC 29-9-13
A	FR-160					NR											04105135	11.00000	0.00000	POR SEC 29-9-13
A	FR-160					NR											04105136	11.00000	0.00000	SEC 28-9-13
A	FR-160					NR											04105140	11.00000	0.00000	SEC 30 & 31 9 13
RA-160	FR-160					NR											04105140	11.00000	0.00000	SEC 30 & 31 9 13
U	FR-160					NR											04105141	0.00000	51.00000	SEC 28 & 29 9 13
A	FR-160					NR											04106002	0.00000	160.00000	SEC 26&27 9 13
RF	FR-160					NR											04106002	0.00000	160.00000	SEC 26&27 9 13
RF	RF-L					NR											04106003	0.00000	520.00000	SEC 26&27 9 13
RF	RF-L					NR											04106004	0.00000	160.00000	S 25 26&35 9 13
RA-40	FR-160					NR											04106023	11.00000	40.00000	SEC 34 9 13
RA-40	RL-160					NR											04106027	0.00000	80.00000	SEC 27 9 13
A	FR-160					NR											04106029	11.00000	0.00000	SEC 34-9-13
A	FR-160					NR											04106030	11.00000	762.70000	S35 9 13RS13-139
A	FR-160					NR											04106031	11.00000	0.00000	SEC 36-9-13
A	FR-160					NR											04106032	11.00000	0.00000	SEC 25-9-13
A	FR-160					NR											04106033	11.00000	0.00000	POR SEC 27-9-13
RA-40	RL-160					NR											04106034	0.00000	40.39500	RS 17/146/1
RA-40	RL-160					NR											04106035	0.00000	40.39000	RS 17/146/2
A	FR-160					NR											04107011	11.00000	0.00000	SEC 6 9 14
A	FR-160					NR											04107012	11.00000	0.00000	SEC 5 9 14
A	FR-160					NR											04107013	11.00000	0.00000	SEC 4 9 14
A	FR-160					NR											04107014	11.00000	0.00000	SEC 7 9 14

A	FR-160					NR											04107015	11.00000	0.00000	SEC 8 9 14
A	FR-160					NR											04107016	11.00000	0.00000	SEC 9 9 14
A	FR-160					NR											04108002	11.00000	0.00000	SEC 3-9-14
A	FR-160					NR											04108003	11.00000	0.00000	SEC 2-9-14
A	FR-160					NR											04108004	11.00000	0.00000	SEC 1-9-14
A	FR-160					NR											04108005	11.00000	0.00000	SEC 10-9-14
A	FR-160					NR											04108006	11.00000	0.00000	SEC 11-9-14
A	FR-160					NR											04108007	11.00000	0.00000	SEC 12-9-14
A	FR-160					NR											04109015	0.00000	20.00000	RS 2/30/1
A	FR-160					NR											04109018	11.00000	0.00000	SEC 18-9-14
A	FR-160					NR											04109019	11.00000	0.00000	SEC 17-9-14
A	FR-160					NR											04109020	11.00000	0.00000	SEC 16-9-14
A	FR-160					NR											04109021	11.00000	0.00000	SEC 19-9-14
A	FR-160					NR											04109022	11.00000	0.00000	SEC 20-9-14
A	FR-160					NR											04109023	11.00000	0.00000	SEC 21-9-14
A	FR-160					NR											04110010	11.00000	0.00000	SEC 15-9-14
A	FR-160					NR											04110011	11.00000	0.00000	SEC 14 9 14
A	FR-160					NR											04110012	11.00000	0.00000	SEC 13 9 14
A	FR-160					NR											04110013	11.00000	0.00000	SEC 22 9 14
A	FR-160					NR											04110014	11.00000	0.00000	SEC 23 9 14
A	FR-160					NR											04110015	11.00000	0.00000	SEC 24 9 14
U	FR-160					NR											04111016	11.00000	140.51000	SEC 33 9 14
A	FR-160					NR											04111023	11.00000	0.00000	POR SEC 30 9 14
A	FR-160					NR											04111024	11.00000	0.00000	SEC 29 9 14
A	FR-160					NR											04111025	11.00000	0.00000	POR SEC 28 9 14
A	FR-160					NR											04111026	11.00000	0.00000	SEC 31 9 14
A	FR-160					NR											04111027	11.00000	0.00000	SEC 27 9 14
A	FR-160					NR											04111028	11.00000	0.00000	POR SEC 33 9 14
A	FR-160					NR											04112013	11.00000	0.00000	SEC 26 9 14
A	FR-160					NR											04112014	11.00000	0.00000	S27 9 14 RS 7-23
A	FR-160					NR											04112015	11.00000	0.00000	SEC 25 9 14
A	FR-160					NR											04112016	11.00000	0.00000	SEC 34 9 14
A	FR-160					NR											04112017	11.00000	0.00000	SEC 35 9 14
A	FR-160					NR											04112018	11.00000	0.00000	SEC 36 9 14
A	FR-160					NR											04113002	11.00000	280.00000	SEC 9 9 15
A	FR-160					NR											04113003	11.00000	0.00000	ON BLM S 8-9-15
A	FR-160					NR											04113004	11.00000	529.86000	SEC 7&8 9 15
A	FR-160					NR											04113005	11.00000	0.00000	SEC 6 9 15
A	FR-160					NR											04113006	11.00000	0.00000	SEC 5 9 15
A	FR-160					NR											04113007	11.00000	0.00000	SEC 4 9 15
A	FR-160					NR											04113008	11.00000	0.00000	POR SEC 7 9 15
A	FR-160					NR											04113009	11.00000	0.00000	POR SEC 7 9 15
A	FR-160					NR											04113010	11.00000	0.00000	POR SEC 8 9 15
A	FR-160					NR											04113011	11.00000	0.00000	POR SEC 9 9 15
A	FR-160					NR											04114010	11.00000	0.00000	S 1 9 15RS 7-26
A	FR-160					NR											04114011	11.00000	0.00000	S 1 9 15 RS7-26

A	FR-160					NR											04114012	11.00000	0.00000	SEC10&11&12 9 15
A	FR-160					NR											04114013	11.00000	0.00000	POR SEC 3 9 15
A	FR-160					NR											04114014	11.00000	0.00000	POR SEC 3 9 15
A	FR-160					NR											04114015	11.00000	0.00000	POR SEC 2 9 15
A	FR-160					NR											04114016	11.00000	0.00000	POR SEC 1 9 15
A	FR-160					NR											04115001	11.00000	160.00000	SEC 17 9 15
A	FR-160					NR											04115002	11.00000	640.00000	SEC 16 9 15
A	FR-160					NR											04115003	11.00000	0.00000	SEC 18 9 15
A	FR-160					NR											04115004	11.00000	0.00000	POR SEC 17 9 15
A	FR-160					NR											04115005	11.00000	0.00000	SEC 19 9 15
A	FR-160					NR											04115006	11.00000	0.00000	SEC 20 9 15
A	FR-160					NR											04115007	11.00000	0.00000	SEC 7 9 15
A	FR-160					NR											04116006	0.00000	9.97000	PM 1/164/A
A	FR-160					NR											04116007	0.00000	9.97000	PM 1/164/B
A	FR-160					NR											04116008	0.00000	9.97000	PM 1/164/C
A	FR-160					NR											04116011	0.00000	23.00000	PM 6/41/A
A	FR-160					NR											04116021	0.00000	54.58000	SEC 13 9 15
A	FR-160					NR											04116023	0.00000	12.39000	PM 29/57/1
A	FR-160					NR											04116024	11.00000	0.00000	SEC 15 & 22 9 15
A	FR-160					NR											04116025	11.00000	0.00000	SEC 14 & 23 9 15
A	FR-160					NR											04116026	11.00000	0.00000	SEC 13 & 24 9 15
A	FR-160					NR											04116027	11.00000	0.00000	POR SEC 13 9 15
A	FR-160					NR											04117001	11.00000	0.00000	SEC 30&31 9 15
A	FR-160					NR											04117002	11.00000	0.00000	POR S29&32 9 15
A	FR-160					NR											04117003	11.00000	0.00000	POR SEC 32 9 15
A	FR-160					NR											04117004	11.00000	0.00000	POR S 28&33 9 15
A	FR-160					NR											04117005	11.00000	0.00000	POR SEC 33 9 15
A	FR-160					NR											04118003	11.00000	0.00000	SEC 34 9 15
A	FR-160					NR											04118004	11.00000	0.00000	SEC 27 9 15
A	FR-160					NR											04118005	11.00000	0.00000	SEC 26 9 15
A	FR-160					NR											04118006	11.00000	0.00000	SEC 35 9 15
A	FR-160					NR											04118007	11.00000	0.00000	SEC 25 9 15
A	FR-160					NR											04119101	11.00000	0.00000	SEC 30 & 31 9 13
RA-160	FR-40					NR											04119101	11.00000	0.00000	SEC 30 & 31 9 13
RA-20	FR-160					NR											04119103	0.00000	0.00000	SEC 31 9 13
RA-20	RL-160					NR											04119104	0.00000	40.00000	SEC 31 9 13
RA-80	RL-160					NR											04119105	0.00000	33.41000	RS10-75S32 9 13
RA-80	FR-40					NR											04119106	0.00000	0.00000	SEC 32 9 13 ADM
A	FR-160					NR											04119107	11.00000	0.00000	POR SEC 32-9-13
RA-80	FR-160					NR											04119107	11.00000	0.00000	POR SEC 32-9-13
A	FR-160					NR											04119108	11.00000	0.00000	POR SEC 33-9-13
TPZ	FR-160					NR											04119109	0.00000	11.79000	33 9 13&DITCH RT
RA-20	FR-40					NR											04119112	0.00000	58.67000	SEC 33 9 13
RA-160	FR-160					NR											04119113	11.00000	0.00000	SEC 32 & 33 9 13
RA-20	RL-160					NR											04119114	0.00000	30.92000	SEC 32&33 9 13MR
RA-20	RL-160					NR											04119114	0.00000	30.92000	SEC 32&33 9 13MR

RA-20	FR-40					NR											04119116	0.00000	0.19000	SEC 32 9 13
RA-20	FR-40					NR											04119117	0.00000	0.00000	SEC 32 9 13
RA-20	RL-160					NR											04119118	0.00000	24.27000	SEC 32 9 13
RA-20	FR-40					NR											04119119	0.00000	69.13000	SEC 32 9 13
RA-80	FR-40					NR											04119119	0.00000	69.13000	SEC 32 9 13
RA-80	FR-40					NR											04119120	0.00000	0.00000	SEC 32 9 13 ADM
A	FR-160					NR											04119121	11.00000	0.00000	SEC 32&33-9-13
RA-160	FR-160					NR											04119121	11.00000	0.00000	SEC 32&33-9-13
RA-80	FR-160					NR											04119121	11.00000	0.00000	SEC 32&33-9-13
RA-20	RL-160					NR				MR							04120007	0.00000	5.31000	PM 2/55/B
RA-40	RL-160					NR											04120022	0.00000	80.04000	PM 50/133/3
TPZ	FR-160					NR											04120022	0.00000	80.04000	PM 50/133/3
RA-20	RL-10					RR					PL						04121001	0.00000	10.00000	SEC 17 9 13
RA-20	RL-160					NR											04121002	0.00000	74.95000	RS 9/34 S17913
RA-20	RL-10					RR					PL						04121003	0.00000	4.30000	SEC 17 9 13
RA-20	RL-160					NR											04121004	0.00000	60.00000	SEC 17 9 13
RE-5	RL-10					RR					PL						04121005	0.00000	8.67000	RS 9/34 S17913
RE-5	RL-10					RR					PL						04122001	0.00000	15.00000	RS 27/31
RE-5	RL-10					RR					PL						04122006	0.00000	5.84000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122007	0.00000	5.00000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122008	0.00000	5.41000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122009	0.00000	4.30000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122010	0.00000	4.15000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122011	0.00000	4.59000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122012	0.00000	5.00000	SEC 17 9 13
RA-20	RL-10					RR					PL						04122014	0.00000	15.94000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122015	0.00000	9.40000	SEC 17 9 13
RA-20	RL-10					RR					PL						04122016	0.00000	10.36000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122017	0.00000	5.65700	SEC 17 9 13
RA-40	RL-20					RR					PL						04122018	0.00000	7.00000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122019	0.00000	2.99000	PM 7/76/1
RA-40	RL-160					NR											04122020	0.00000	30.01000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122021	0.00000	1.10000	PM 15/72/A
RE-5	RL-10					RR					PL						04122022	0.00000	4.61000	PM 15/72/B
RE-5	RL-10					RR					PL						04122025	0.00000	5.21000	SEC 17 9 13
RE-5	RL-10					RR					PL						04122026	0.00000	26.60000	REM 22-43
RE-5	RL-10					RR					PL						04122027	0.00000	5.00000	PM 22/43/A
RE-5	RL-10					RR					PL						04122028	0.00000	5.00000	PM 22/43/B
RA-40	RL-20					RR					PL						04122030	0.00000	10.00000	PM 30/54/A
RA-40	RL-160					NR											04122031	0.00000	10.00000	PM 30/54/B
RA-40	RL-20					RR					PL						04122032	0.00000	8.31000	PM 30/54/C
RA-20	RL-160					NR											04129007	0.00000	20.00000	SEC 10 9 13
RE-5	R1A					HDR							GF				04129008	0.00000	2.44000	SEC 10 9 13
U	FR-160					NR											04132001	0.00000	0.41000	SEC 28 9 13
RE-10	RL-10					RR					PL						04133001	0.00000	1.60000	SEC 19 9 13
RE-10	RL-10					RR					PL						04133002	0.00000	0.50000	SEC 19 9 13

RE-10	RL-160					NR											04133005	0.00000	14.01000	SEC 19 9 13
RE-10	RL-10					RR					PL						04133011	0.00000	0.90000	SEC 19 9 13
RE-10	RL-160					NR											04133016	0.00000	22.94000	SEC 19 9 13
RE-10	RL-10					RR					PL						04133017	0.00000	4.13000	SEC 19 9 13
RE-10	RL-160					NR											04133042	0.00000	5.42000	SEC 18&19 9 13
RE-10	RL-160					NR											04133043	0.00000	5.96000	RS 9/113 S19913
RE-10	RL-10					RR					PL						04133057	0.00000	5.00000	PM 28/100/1
RE-10	RL-10					RR					PL						04133058	0.00000	5.02000	PM 28/100/2
RE-10	RL-10					RR					PL						04133059	0.00000	5.02000	PM 28/100/3
RE-10	RL-10					RR					PL						04133060	0.00000	6.73000	PM 28/100/4
RE-10	RL-10					RR					PL						04133063	0.00000	10.01000	PM 7/141/3
RE-10	RL-10					RR					PL						04133064	0.00000	16.57000	PM 7/141/4
RE-10	RL-160					NR											04133071	0.00000	34.89400	RS17-125
RE-10	RL-10					RR					PL						04133078	0.00000	10.01700	RS 30/136/1
RE-10	RL-10					RR					PL						04133079	0.00000	10.01700	RS 30/136/2
RE-10	RL-10					RR					PL						04136001	0.00000	9.24000	SEC 17 9 13
RE-10	RL-10					RR					PL						04136006	0.00000	8.67000	PM 3/141/A
RE-10	RL-10					RR					PL						04136008	0.00000	6.35000	PM 3/141/C
RE-10	RL-10					RR					PL						04136009	0.00000	2.16000	PM 8/64/1
RE-10	RL-10					RR					PL						04136010	0.00000	2.16000	PM 8/64/2 ADM
RE-10	RL-10					RR					PL						04136011	0.00000	3.21000	PM 8/64/3
RE-10	RL-10					RR					PL						04136013	0.00000	3.50000	PM 12/57/B
RE-10	RL-10					RR					PL						04136014	0.00000	3.30000	PM 12/57/C
RE-10	RL-10					RR					PL						04136015	0.00000	3.30000	PM 12/57/D
RE-10	RL-10					RR					PL						04136016	0.00000	5.00000	PM 19/42/1
RE-10	RL-10					RR					PL						04136017	0.00000	5.00000	PM 19/42/2
RE-10	RL-10					RR					PL						04136018	0.00000	5.00000	PM 19/42/3
RE-10	RL-10					RR					PL						04136023	0.00000	5.00000	PM 23/28/A
RE-10	RL-10					RR					PL						04136024	0.00000	5.00000	PM 23/28/B
RE-10	RL-10					RR					PL						04136025	0.00000	5.00000	PM 23/28/C
RE-10	RL-10					RR					PL						04136026	0.00000	14.98000	PM 23/28/D
RE-10	RL-10					RR					PL						04136027	0.00000	0.33000	RS 9/34 S17913
RA-20	RL-10					RR					PL						04136029	0.00000	5.04000	PM 32/29/1
RA-20	RL-10					RR					PL						04136030	0.00000	5.05000	PM 32/29/2
RA-20	RL-10					RR					PL						04136031	0.00000	5.04000	PM 32/29/3
RA-20	RL-10					RR					PL						04136032	0.00000	5.05000	PM 32/29/4
RE-5	RL-10					RR					PL						04137019	0.00000	5.11000	SEC 20 9 13
RE-5	RL-10					RR					PL						04137022	0.00000	10.72000	SEC 20 9 13
RE-5	RL-10					RR					PL						04137027	0.00000	5.00000	PM 4/78/1
RA-40	RL-160					NR											04137038	0.00000	58.61000	SEC 20 9 13
RA-40	RL-20					RR					PL						04137039	0.00000	10.00000	SEC 20 9 13
RA-40	RL-20					RR					PL						04137040	0.00000	10.00000	SEC 20 9 13
RE-10	RL-10					RR					PL						04137042	0.00000	11.18000	POR PAR 2 4-78
RE-10	RE-5					MDR							GF				04145008	0.00000	11.64000	SEC 15 9 13
C	CL					C							GF				04148306	0.00000	0.00000	L 135
R1	R3A					MDR							GF				04158212	0.00000	0.40000	PM 31/92/B

R1	R1A					HDR							GF				04168305	0.00000	1.02300	PM 49/22/2
RA-20	RL-160					NR											04174018	0.00000	47.46000	RS 9/25S19&30913
RA-20	RL-160					NR											04174020	0.00000	10.00000	RS 9/25 S30913
RA-20	RL-160					NR											04174021	0.00000	20.00000	RS 9/25 S19913
RA-20	RL-160					NR											04174022	0.00000	10.00000	RS 9/25 S30913
RA-20	RL-160					NR											04174023	0.00000	10.00000	PM 30/72/1
RA-20	RL-160					NR											04174024	0.00000	10.00000	PM 30/72/2
RA-20	RL-160					NR											04174026	0.00000	14.07000	PM 30/72/4
RA-20	RL-160					NR											04174027	0.00000	10.00000	R/S 21/147
RA-20	RL-160					NR											04174028	0.00000	10.00000	SEC 30 9 13
RA-20	RL-160					NR											04174029	0.00000	10.06000	SEC 19 9 13
RA-20	RL-160					NR											04174030	0.00000	10.00000	SEC 19 9 13
RA-20	RL-160					NR											04174031	0.00000	10.00000	PM 30/116/1
RA-20	RL-160					NR											04174032	0.00000	10.00000	PM 30/116/2
RA-20	RL-160					NR											04174033	0.00000	10.00000	PM 30/116/3
RA-20	RL-160					NR											04174034	0.00000	10.16000	PM 30/116/4
RA-20	RL-160					NR											04174035	0.00000	10.40000	PM 30/140/1
RA-20	RL-160					NR											04174036	0.00000	10.02000	PM 30/140/2
RA-20	RL-160					NR											04174037	0.00000	10.00000	PM 30/140/3
RA-20	RL-160					NR											04174038	0.00000	10.00000	PM 30/140/4
RA-20	RL-160					NR											04174039	0.00000	10.00000	PM 30/72/3
R1A	OS					OS							GF				04181101	2.00000	0.00000	COMMON AREA
RE-10	RL-10					RR					PL						04182002	0.00000	2.07000	PM 4/60/B
RE-10	RL-10					RR					PL						04182009	0.00000	8.52000	SEC 8 9 13
RE-10	RL-10					RR					PL						04182014	0.00000	20.00000	SEC 8 9 13
RE-10	RL-10					RR					PL						04182016	0.00000	3.68000	PM 4/60/C
RE-10	RL-10					RR					PL						04182018	0.00000	11.97000	SEC 8 9 13
RE-10	RL-10					RR					PL						04182019	0.00000	12.04000	SEC 8 9 13
RE-10	RL-10					RR					PL						04182020	0.00000	5.06000	SEC 8 9 13
RE-10	RL-10					RR					PL						04182021	0.00000	2.41000	PM 15/114/1
RE-10	RL-10					RR					PL						04182022	0.00000	2.41000	PM 15/114/2
RE-10	RL-10					RR					PL						04182023	0.00000	2.41000	PM 15/114/3
RE-10	RL-10					RR					PL						04182024	0.00000	2.41000	PM 15/114/4
RE-10	RL-10					RR					PL						04182025	0.00000	5.00000	PM 30/81/1
RE-10	RL-10					RR					PL						04182026	0.00000	8.15000	PM 30/81/2
RE-10	RL-10					RR					PL						04182027	0.00000	10.00000	PM 33/73/1
RE-10	RL-10					RR					PL						04182028	0.00000	10.00000	PM 33/73/2
RE-10	RL-10					RR					PL						04182029	0.00000	10.00000	PM 33/73/3
RE-10	RL-10					RR					PL						04182030	0.00000	10.00000	PM 33/73/4
RE-10	RL-10					RR					PL						04182031	0.00000	10.00000	PM 33/86/A
RE-10	RL-10					RR					PL						04182032	0.00000	10.00000	PM 33/86/B
RE-10	RL-10					RR					PL						04182033	0.00000	10.00000	PM 33/86/C
RE-10	RL-10					RR					PL						04182034	0.00000	10.00000	PM 33/86/D
RA-40	RE-5					MDR							GF				04183006	0.00000	3.74000	SEC 9 9 13
RA-40	FR-160					NR				MR							04183008	1.00000	0.31000	SEC 9 9 13 NV
RA-20	RL-160					NR											04183016	0.00000	11.12000	RS 20/27/1

RE-10	RE-5					MDR							GF				04184002	0.00000	3.13000	PM 8/111/2
RE-10	RE-5					MDR							GF				04184003	0.00000	3.40000	PM 8/111/3
RE-10	RE-5					MDR							GF				04184004	0.00000	3.71000	PM 8/111/4
RE-10	RL-10					RR				MF	PL						04184005	0.00000	10.00000	PM 7/146/B
RE-10	RL-10					RR					PL						04184006	0.00000	10.00000	PM 7/146/C
RA-20	RL-20					RR					PL						04184007	0.00000	20.80000	PM 7/146/D
RE-10	RE-5					MDR							GF				04184008	0.00000	3.34000	PM 9/100/A
RE-10	RE-5					MDR							GF				04184009	0.00000	3.33000	PM 9/100/B
RE-10	RE-5					MDR							GF				04184010	0.00000	3.32000	PM 9/100/C
RE-10	RL-10					RR					PL						04190001	0.00000	10.00000	PM 26/22/A
RE-10	RL-10					RR					PL						04190002	0.00000	10.00000	PM 26/22/B
RE-10	RL-10					RR					PL						04190003	0.00000	10.00000	PM 26/22/C
RE-10	RL-10					RR					PL						04190004	0.00000	10.00000	PM 26/22/D
RE-10	RL-10					RR					PL						04190005	0.00000	10.00000	PM 26/14/A
RE-10	RL-10					RR					PL						04190006	0.00000	10.00000	PM 26/14/B
RE-10	RL-10					RR					PL						04190007	0.00000	10.00000	PM 26/14/C
RE-10	RL-10					RR					PL						04190008	0.00000	10.00000	PM 26/14/D
RE-10	RL-10					RR					PL						04190017	0.00000	10.01000	PM 27/15/1
RE-10	RL-10					RR					PL						04190018	0.00000	10.01000	PM 27/15/2
RE-10	RL-10					RR					PL						04190019	0.00000	10.01000	PM 27/15/3
RE-10	RL-10					RR					PL						04190020	0.00000	10.01000	PM 27/15/4
RE-10	RL-10					RR					PL						04190023	0.00000	10.00000	PM 27/66/1
RE-10	RL-10					RR					PL						04190024	0.00000	10.00000	PM 27/66/2
RE-10	RL-10					RR					PL						04190025	0.00000	10.00000	PM 27/66/3
RE-10	RL-10					RR					PL						04190026	0.00000	10.40000	PM 27/66/4
RA-20	RL-20					RR					PL						04191001	0.00000	20.00000	PM 28/66/1
RA-20	RL-20					RR					PL						04191002	0.00000	20.00000	PM 28/66/2
RA-20	RL-20					RR					PL						04191003	0.00000	20.00000	PM 28/66/3
RA-20	RL-20					RR					PL						04191004	0.00000	20.00000	PM 28/66/4
RA-20	RL-20					RR					PL						04191005	0.00000	20.00000	PM 28/66/5
RA-20	RL-20					RR					PL						04191006	0.00000	20.00000	PM 28/66/6
RA-20	RL-20					RR					PL						04191007	0.00000	21.26000	PM 28/66/7
RA-20	RL-20					RR					PL						04191008	0.00000	20.18000	PM 28/66/8
RE-10	RL-20					RR					PL						04191008	0.00000	20.18000	PM 28/66/8
RA-20	RL-20					RR					PL						04191009	0.00000	20.00000	PM 28/66/9
RA-20	RL-20					RR					PL						04191010	0.00000	20.00000	PM 28/66/10
RA-20	RL-20					RR					PL						04191011	0.00000	20.00000	PM 28/66/11
AE	PA-20					RR					PL						04191012	0.00000	20.04000	PM 28/66/12
AE	PA-20					RR					PL						04191013	0.00000	20.00000	PM 28/66/13
AE	PA-20					RR					PL						04191014	0.00000	20.01000	PM 28/66/14
AE	LA-10					RR					PL						04191015	0.00000	20.37000	PM 28/66/15
RE-10	RL-10					RR					PL						04192101	0.00000	10.00000	L 1
RE-10	RL-10					RR					PL						04192102	0.00000	10.22000	L 2
RE-10	RL-10					RR					PL						04192103	0.00000	10.81000	L 3
RE-10	RL-10					RR					PL						04192104	0.00000	14.78000	L 4
RE-10	RL-10					RR					PL						04192105	0.00000	14.04000	L 5

RE-10	RL-10					RR					PL						04192106	0.00000	10.32000	L 6
RE-10	RL-10					RR					PL						04192107	0.00000	10.18000	L 7
RE-10	RL-10					RR					PL						04192108	0.00000	10.00000	L 8
RE-10	RL-10					RR					PL						04192201	0.00000	10.01000	L 9
RE-10	RL-10					RR					PL						04192202	0.00000	10.00000	L 10
RE-10	RL-10					RR					PL						04192203	0.00000	10.00000	L 11
RE-10	RL-10					RR					PL						04192204	0.00000	10.01000	L 12
RE-10	RL-10					RR					PL						04192205	0.00000	10.00000	L 13
RE-10	RL-10					RR					PL						04192206	0.00000	10.00000	L 14
RE-10	RL-10					RR					PL						04193101	0.00000	10.00000	L 15
RE-10	RL-10					RR					PL						04193102	0.00000	10.00000	L 16
RE-10	RL-10					RR					PL						04193103	0.00000	10.00000	L 17
RE-10	RL-10					RR					PL						04193104	0.00000	10.00000	L 18
RE-10	RL-10					RR					PL						04193105	0.00000	10.01000	L 19
RE-10	RL-10					RR					PL						04193106	0.00000	10.00000	L 20
RE-10	RL-10					RR					PL						04193107	0.00000	10.00000	L 21
RE-10	RL-10					RR					PL						04193108	0.00000	10.00000	L 22
RE-10	RL-10					RR					PL						04193109	0.00000	10.04000	L 23
RE-10	RL-10					RR					PL						04193110	0.00000	13.76000	L 24
RE-10	RL-10					RR					PL						04193111	0.00000	10.43000	L 32
RE-10	RL-10					RR					PL						04193112	0.00000	10.80000	L 33
RE-10	RL-10					RR					PL						04193113	0.00000	10.00000	L 30
RE-10	RL-10					RR					PL						04193114	0.00000	10.03000	L 29
RE-10	RL-10					RR					PL						04193115	0.00000	10.02000	L 28
RE-10	RL-10					RR					PL						04193116	0.00000	10.05000	L 27
RE-10	RL-10					RR					PL						04193117	0.00000	10.70000	L 26
RE-10	RL-10					RR					PL						04193118	0.00000	11.98000	L 25
RE-10	RL-10					RR					PL						04193201	0.00000	13.04000	L 31
RA-40	RE-5					MDR							GF				04195002	0.00000	4.79000	PPM 45/12/3 ADM
RA-20	RL-160					NR				MR							04195003	0.00000	10.00000	PM 45/12/1
RA-20	RL-160					NR				MR							04195004	0.00000	10.00000	PM 45/12/2
RA-20	RE-5					MDR							GF				04195005	0.00000	4.36000	PPM 45/12/3 ADM
RA-20	RL-160					NR				MR							04195006	0.00000	28.19000	PM 45/12/4
RA-40	RL-160					NR				MR							04195006	0.00000	28.19000	PM 45/12/4
RA-20	RL-160					NR				MR							04195007	0.00000	5.58000	PM 45/12/5
RA-40	RL-160					NR				MR							04195007	0.00000	5.58000	PM 45/12/5
RA-20	RL-160					NR				MR							04195008	0.00000	7.54000	PM 45/12/6
RA-40	RL-160					NR				MR							04195008	0.00000	7.54000	PM 45/12/6
RA-20	RL-160					NR				MR							04195009	0.00000	7.44000	PM 45/12/7
RA-20	RL-160					NR				MR							04195010	0.00000	20.00000	PM 45/12/8
RA-40	RL-160					NR				MR							04195010	0.00000	20.00000	PM 45/12/8
RA-20	RL-160					NR				MR							04195011	0.00000	10.00000	PM 45/12/9
RA-20	RL-160					NR				MR							04195012	0.00000	12.96000	PM 45/12/10
RA-40	RL-160					NR				MR							04195012	0.00000	12.96000	PM 45/12/10
RA-20	RL-160					NR				MR							04195013	0.00000	20.00000	PM 45/12/11
RA-20	RL-160					NR				MR							04195013	0.00000	20.00000	PM 45/12/11

RA-40	RL-160					NR				MR							04195013	0.00000	20.00000	PM 45/12/11
RA-20	FR-40					NR											04196008	0.00000	0.00000	SEC31 913& 6 813
RE-10	RE-5					MDR						CPP					04201103	0.00000	20.00000	SEC 6 10 13
RF	RF-L					NR											04201111	11.00000	26.00000	SEC 9 10 13
RF	RF-L					NR											04201116	11.00000	0.00000	POR SEC 9 10 13
RF	RF-L					NR											04201117	11.00000	15.20000	SEC 8 10 13
RF	RF-L					NR											04201118	11.00000	4.92000	SEC 8 10 13
RF	RF-L					NR											04201119	11.00000	20.60000	SEC 8 10 13
RA-20	RE-10					LDR						CPP					04201121	0.00000	40.00000	SEC 7 10 13
RF	RF-L					MDR											04201126	11.00000	2.19000	SEC 8 10 13
RA-80	FR-160					NR											04201128	11.00000	0.00000	POR SEC 9 10 13
R2A	R1A					MDR						CPP					04201135	0.00000	1.30000	PRS 20/145/8 ADM
R1	R1A					MDR						CPP					04201141	0.00000	0.62000	PRS 25/96/C ADM
RA-80	FR-160					NR											04201150	11.00000	40.00000	SEC 8 10 13
RA-80	RL-160					NR											04202109	0.00000	29.70000	RS 12/128 L 3
RA-80	RL-160					NR											04202110	0.00000	21.92000	RS 12/128 S21013
RA-80	RL-160					NR											04202111	0.00000	8.00000	SEC 2 10 13
RA-80	RL-160					NR											04202112	0.00000	20.88000	RS 12/128 S21013
RA-80	RL-160					NR											04202113	0.00000	20.19000	RS 12/128 S21013
RA-80	RL-160					NR											04202114	0.00000	20.42000	RS 12/128 S21013
RA-80	RL-160					NR											04202115	0.00000	20.87000	RS 12/128 S21013
A	TPZ					NR											04202118	0.00000	520.00000	SEC 11 &12 10 13
RA-80	RL-160					NR											04202119	0.00000	40.00000	SEC 12 10 13
TPZ	FR-160					NR											04202119	0.00000	40.00000	SEC 12 10 13
A	TPZ					NR											04202123	0.00000	160.00000	S 10 & 11 10 13
RF	RF-L					NR											04202124	11.00000	25.80000	SEC 10 10 13
RF	RF-L					NR											04202125	11.00000	80.00000	SEC 10 10 13
A	FR-160					NR											04202127	11.00000	0.00000	SEC 10&11 10 13
RA-20	FR-160					NR											04202127	11.00000	0.00000	SEC 10&11 10 13
RA-80	FR-160					NR											04202127	11.00000	0.00000	SEC 10&11 10 13
RA-80	FR-160					NR											04202127	11.00000	0.00000	SEC 10&11 10 13
RA-80	FR-160					NR											04202128	11.00000	0.00000	S 10 10 13
A	TPZ					NR											04202129	11.00000	0.00000	S 12 10 13
RA-80	TPZ					NR											04202129	11.00000	0.00000	S 12 10 13
RA-20	RF-L					NR											04203005	11.00000	650.72000	17 10 13RS16-126
RF	RF-L					NR											04203005	11.00000	650.72000	17 10 13RS16-126
RA-20	RE-10					LDR						CPP					04203013	0.00000	107.75000	SEC 18 10 13
RA-20	FR-160					NR											04203014	11.00000	83.63000	SEC 18 10 13
RF	FR-160					NR											04203014	11.00000	83.63000	SEC 18 10 13
RF	RF-L					NR											04203018	11.00000	3.00000	SEC 16 10 13
RA-20	RL-160					NR											04203023	0.00000	12.00000	SEC 21 10 13
RE-10	RL-10					RR					PL						04203039	0.00000	5.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203040	0.00000	5.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203043	0.00000	5.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203044	0.00000	5.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203045	0.00000	10.00000	SEC 19 10 13

RE-10	RL-10					RR					PL						04203046	0.00000	10.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203052	0.00000	10.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203057	0.00000	10.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203058	0.00000	10.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203059	0.00000	10.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203060	0.00000	10.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203061	0.00000	10.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203062	0.00000	10.00000	SEC 19 10 13
RE-10	RL-10					RR					PL						04203063	0.00000	10.23000	T/R 1 RS 22/63
RA-20	TPZ					NR											04203066	0.00000	229.73000	SEC 16 10 13
RE-10	RL-10					RR					PL						04203070	0.00000	20.00000	SEC 18 10 13
RE-10	FR-160					NR											04203076	0.00000	47.70000	RS 19/24/1
A	FR-160					NR											04203078	11.00000	0.00000	POR SEC 21 10 13
A	FR-160					NR											04203078	11.00000	0.00000	POR SEC 21 10 13
A	FR-160					NR											04203078	11.00000	0.00000	POR SEC 21 10 13
RA-20	FR-160					NR											04203078	11.00000	0.00000	POR SEC 21 10 13
RA-20	FR-160					NR											04203079	11.00000	0.00000	17 10 13RS16-126
RA-20	FR-160					NR											04203080	11.00000	0.00000	17 10 13RS16-126
RA-20	FR-160					NR											04203081	11.00000	0.00000	20 10 13RS16-126
RA-20	FR-160					NR											04203082	11.00000	155.98000	19 10 13RS16-127
RE-10	FR-160					NR											04203083	11.00000	129.28000	TR 4 RS 19-120
RE-10	FR-160					NR											04203084	11.00000	148.15000	TR 3 RS 19-120
RA-20	FR-160					NR											04203092	11.00000	0.00000	SEC 16 10 13
RA-80	FR-160					NR											04203092	11.00000	0.00000	SEC 16 10 13
RA-80	FR-160					NR											04203093	11.00000	0.00000	SEC 16 10 13
A	FR-40					NR											04204018	0.00000	2.00000	SEC 15 10 13
A	FR-160					NR											04204027	11.00000	25.21000	SEC 15 10 13
RA-20	FR-160					NR											04204027	11.00000	25.21000	SEC 15 10 13
RA-80	TPZ					NR											04204028	0.00000	123.27000	SEC 15 10 13
A	FR-160					NR											04204029	11.00000	14.73000	SEC 15 10 13
RA-20	FR-160					NR											04204029	11.00000	14.73000	SEC 15 10 13
U	FR-160					NR											04204047	0.00000	20.46000	RS 14/54 S231013
A	FR-160					NR											04204048	11.00000	40.25000	S13 10 13RS13-15
A	FR-160					NR											04204049	11.00000	0.00000	S13 10 13RS13-15
A	FR-160					NR											04204050	11.00000	0.00000	SEC 14&15 10 13
A	FR-160					NR											04204050	11.00000	0.00000	SEC 14&15 10 13
RA-20	FR-160					NR											04204050	11.00000	0.00000	SEC 14&15 10 13
A	FR-160					NR											04204051	11.00000	0.00000	SEC 22&23 10 13
RA-20	FR-160					NR											04204051	11.00000	0.00000	SEC 22&23 10 13
RA-20	FR-160					NR											04204051	11.00000	0.00000	SEC 22&23 10 13
RA-20	FR-160					NR											04204051	11.00000	0.00000	SEC 22&23 10 13
A	FR-160					NR											04204052	11.00000	0.00000	S14 10 13RS15-85
A	FR-160					NR											04204053	11.00000	0.00000	SEC 24 10 13
RA-80	FR-160					NR											04205002	0.00000	337.17000	SEC 31 10 13
RA-80	FR-160					NR											04205004	0.00000	428.76000	S 28 29&32 10 13
RA-80	FR-160					NR											04205004	0.00000	428.76000	S 28 29&32 10 13

RA-80	RL-160					NR											04205007	0.00000	147.30000	RS 9/8 S331013
U	FR-40					NR											04205011	0.00000	5.70000	RS10/136S331013
RA-20	FR-160					NR											04205019	11.00000	0.00000	POR SEC 29 10 13
RA-160	FR-160					NR											04205021	11.00000	0.00000	S32 10 13RS 6-62
RA-20	FR-160					NR											04205023	11.00000	0.00000	SEC 30 10 13
RA-20	FR-160					NR											04205025	11.00000	0.00000	POR SEC 28 10 13
RA-80	RL-160					NR											04206003	0.00000	160.00000	SEC 34 10 13
RA-80	RL-160					NR											04206004	0.00000	80.00000	SEC 35 10 13
A	FR-160					NR											04206014	11.00000	0.00000	SEC 26 10 13
A	FR-160					NR											04206015	11.00000	0.00000	POR SEC 27 10 13
A	FR-160					NR											04206016	11.00000	0.00000	SEC 25 10 13
A	FR-160					NR											04206017	11.00000	0.00000	SEC 34&35 10 13
A	FR-160					NR											04206018	11.00000	0.00000	SEC 36 10 13
A	FR-160					NR											04206020	11.00000	0.00000	SEC 34&35 10 13
U	FR-40					NR											04207007	0.00000	60.00000	SEC 7 10 14
A	FR-160					NR											04207034	11.00000	187.65000	S7 10 14RS12-39
A	FR-160					NR											04207035	11.00000	84.75000	S7 10 14 RS12-39
A	FR-160					NR											04207036	11.00000	80.37000	S8 10 14RS14-150
RA-160	FR-160					NR											04207037	11.00000	20.31000	S6 10 14RS14-150
RA-160	FR-160					NR											04207038	11.00000	0.00000	S4 10 14 RS12-61
A	FR-160					NR											04207039	11.00000	548.88000	S9 10 14 RS12-61
A	TPZ					NR											04208026	0.00000	283.02000	SEC 1 10 14
A	FR-160					NR											04208033	11.00000	79.07000	S12 10 14RS12-81
A	FR-160					NR											04208034	11.00000	0.00000	S12 10 14RS12-81
A	FR-160					NR											04208035	11.00000	78.62000	S2 10 14 RS12-61
RA-160	FR-160					NR											04208036	11.00000	0.00000	POR SEC 3 10 14
A	FR-160					NR											04208037	11.00000	0.00000	POR SEC 2 10 14
A	FR-160					NR											04208038	11.00000	0.00000	RS 32/70
A	FR-160					NR											04208039	11.00000	37.77000	RS 32/70/L 6
TPZ	FR-160					NR											04208039	11.00000	37.77000	RS 32/70/L 6
A	FR-160					NR											04208041	11.00000	0.00000	POR SEC 10 10 14
A	FR-160					NR											04208042	11.00000	0.00000	POR SEC 11 10 14
U	FR-160					NR											04209017	0.00000	35.12000	RS 13/14 S191014
A	FR-160					NR											04209033	11.00000	206.05000	S17 10 14RS12-39
A	FR-160					NR											04209034	11.00000	174.30000	S21 10 14RS11-46
A	FR-160					NR											04209035	11.00000	0.00000	S20 10 14RS11-50
A	FR-160					NR											04209036	11.00000	0.00000	S20 10 14RS11-50
A	FR-160					NR											04209037	11.00000	171.59000	S20 10 14RS11-50
A	FR-160					NR											04209038	11.00000	0.00000	POR SEC18 10 14
A	FR-160					NR											04209039	11.00000	0.00000	POR SEC 19 10 14
A	FR-160					NR											04209040	11.00000	0.00000	POR SEC 20 10 14
A	FR-160					NR											04209041	11.00000	0.00000	POR SEC 21 10 14
A	FR-40					NR											04210054	0.00000	40.00000	SEC 22 10 14
A	FR-160					NR											04210055	0.00000	41.91000	RS 12/86 S131014
A	FR-160					NR											04210056	11.00000	41.06000	S22 10 14RS 8-96
A	FR-160					NR											04210057	11.00000	81.88000	S 22 10 14RS8-96

A	FR-160					NR											04210058	11.00000	0.00000	S23 10 14 RS8-97
A	FR-160					NR											04210059	0.00000	38.83000	RS 8/112 S241014
A	FR-160					NR											04210060	11.00000	0.00000	S24 10 14RS8-112
A	FR-160					NR											04210061	0.00000	39.75000	15 10 14RS14-149
A	FR-160					NR											04211001	11.00000	0.00000	POR SEC 30 10 14
A	FR-160					NR											04211002	11.00000	0.00000	POR SEC 30 10 14
A	FR-160					NR											04211003	11.00000	0.00000	POR SEC 29 10 14
A	FR-160					NR											04211004	11.00000	0.00000	POR SEC 29 10 14
A	FR-160					NR											04211005	11.00000	0.00000	POR SEC 28 10 14
A	FR-160					NR											04211006	11.00000	0.00000	POR SEC 33 10 14
A	FR-160					NR											04211007	11.00000	0.00000	POR SEC 33 10 14
A	FR-160					NR											04211008	11.00000	0.00000	POR SEC 32 10 14
A	FR-160					NR											04211009	11.00000	0.00000	POR SEC 32 10 14
A	FR-160					NR											04211010	11.00000	0.00000	POR SEC 31 10 14
A	FR-160					NR											04212013	11.00000	128.27000	27 10 14RS13-114
A	FR-160					NR											04212014	11.00000	0.00000	POR S27&34 10 14
A	FR-160					NR											04212015	11.00000	0.00000	POR S26&35 10 14
A	FR-160					NR											04212016	11.00000	0.00000	POR SEC 25 10 14
A	FR-160					NR											04212017	11.00000	0.00000	POR S27&34 10 15
A	FR-160					NR											04212018	11.00000	0.00000	POR S26&35 10 14
A	FR-160					NR											04212019	11.00000	0.00000	POR S25&36 10 14
A	FR-160					NR											04213011	11.00000	0.00000	SEC 7&8 10 15
A	FR-160					NR											04213012	11.00000	0.00000	4 5 6 8 9RS17-46
A	FR-160					NR											04213013	11.00000	40.00000	SEC 7 10 15
A	FR-160					NR											04213014	11.00000	40.00000	SEC 7 10 15
A	FR-160					NR											04214007	11.00000	0.00000	S10 10 15 RS9-56
A	FR-160					NR											04214008	11.00000	0.00000	S11 10 15 RS9-56
A	FR-160					NR											04214009	11.00000	0.00000	S12 10 15 RS9-56
A	FR-160					NR											04214010	11.00000	0.00000	3&2 10 15RS17-46
A	FR-160					NR											04215003	11.00000	0.00000	S1 10 15RS14-104
A	FR-160					NR											04215004	11.00000	0.00000	S1 10 15RS14-104
A	FR-160					NR											04216010	11.00000	0.00000	S20 10 15 RS9-56
A	FR-160					NR											04216011	11.00000	0.00000	S21 10 15 RS9-56
A	FR-160					NR											04216012	11.00000	0.00000	S17 10 15 RS9-56
A	FR-160					NR											04216013	11.00000	0.00000	S19 10 15 RS 7-7
A	FR-160					NR											04216014	11.00000	43.00000	S19 10 15 RS7-7
A	FR-160					NR											04216015	11.00000	0.00000	S19 10 15 RS7-7
A	FR-160					NR											04216016	11.00000	0.00000	S18 10 15RS6-32
A	FR-160					NR											04217005	11.00000	0.00000	S15 10 15 RS9-56
A	FR-160					NR											04217006	11.00000	0.00000	S13 10 15RS9-56
A	FR-160					NR											04217007	11.00000	274.79000	S24 10 15 RS9-56
A	FR-160					NR											04217008	11.00000	0.00000	S13 10 15 RS9-56
A	FR-160					NR											04217009	11.00000	0.00000	S22 10 15RS 6-2
A	FR-160					NR											04217013	11.00000	0.00000	SEC 14 10 15
A	FR-160					NR											04217014	11.00000	0.00000	SEC 23 10 15
A	FR-160					NR											04218007	11.00000	21.32000	SEC 30 10 15

A	FR-160					NR											04218017	11.00000	292.09000	SEC 30 10 15
A	FR-160					NR											04218018	11.00000	44.52000	S30 10 15 RS8-1
A	FR-160					NR											04218019	11.00000	0.00000	S31 10 15 RS 8-5
A	FR-160					NR											04218020	11.00000	0.00000	S32 10 15RS7-127
A	FR-160					NR											04218021	11.00000	0.00000	S29 10 15RS7-147
A	FR-160					NR											04218022	11.00000	0.00000	S 33 10 15
A	FR-160					NR											04218023	11.00000	0.00000	POR SEC 30 10 15
A	FR-160					NR											04218024	11.00000	0.00000	POR SEC 30 10 15
A	FR-160					NR											04218025	11.00000	0.00000	POR SEC 28 10 15
A	FR-160					NR											04218026	11.00000	0.00000	POR SEC 33 10 15
RA-80	RL-160					NR											04220001	0.00000	3.00000	SEC 32 10 13
RA-80	RL-160					NR											04220004	0.00000	22.88000	PM 8/38/1
RA-80	RL-160					NR											04220005	0.00000	59.80000	S5 9 13&32 10 13
RA-80	RL-160					NR											04220006	0.00000	40.00000	SEC 32 10 13
RA-80	PA-40					NR											04220007	0.00000	40.00000	SEC 32 10 13
RF	RF-L					NR											04221001	11.00000	5.45000	SEC 9 10 13
RF	RF-L					NR											04221002	11.00000	2.08000	SEC 9 10 13
A	FR-160					NR											04222001	0.00000	1.63000	SEC 13 10 13
RA-40	RL-160					NR				MR							04224002	0.00000	10.00000	SEC 33 10 13
RA-40	RL-160					NR											04224004	0.00000	16.92000	SEC 33 10 13
AE	RL-160					NR											04225001	0.00000	5.12000	SEC 21 10 14
RE-10	RE-5					MDR						CPP					04228022	0.00000	10.06000	PM 12/41/2
R2A	R1A					MDR						CPP					04228028	0.00000	1.84000	PM 19/40/A
R2A	R1A					MDR						CPP					04228030	0.00000	1.92000	PM 19/40/C
R2A	R1A					MDR						CPP					04228032	0.00000	1.30000	PM 25/131/2
R2A	R1A					MDR						CPP					04228034	0.00000	1.12000	PM 25/143/B
R2A	R1A					MDR						CPP					04228037	0.00000	2.03000	PM 33/54/B
R2A	R1A					MDR						CPP					04228038	0.00000	2.00000	PM 25/135/A
R2A	R1A					MDR						CPP					04228039	0.00000	2.00000	PM 25/135/B
R2A	R1A					MDR						CPP					04228040	0.00000	1.75000	PM 25/135/C
R2A	R1A					MDR						CPP					04228041	0.00000	2.00000	PM 25/135/D
R1	R2A					MDR						CPP					04228042	0.00000	1.90000	PM 44/115/1
R1	R1A					MDR						CPP					04228043	0.00000	1.90000	PM 44/115/2
R1	R1A					MDR						CPP					04230055	11.00000	0.82200	R/S 24-42
R2A	R1A					MDR						CPP					04230056	0.00000	1.00000	PM 24/68/A
R2A	R1A					MDR						CPP					04230057	0.00000	1.00000	PM 24/68/B
R2A	R1A					MDR						CPP					04230058	0.00000	2.06000	PM 24/68/C
R2A	R1A					MDR						CPP					04230060	0.00000	1.05000	PM 24/69/A
R2A	R1A					MDR						CPP					04230061	0.00000	1.06000	PM 24/69/B
R2A	R1A					MDR						CPP					04230062	0.00000	1.53000	PM 24/69/C
R2A	R1A					MDR						CPP					04230063	0.00000	1.80000	PM 24/69/D
R2A	R1A					MDR						CPP					04230074	0.00000	2.01700	RS 16/50/2
R1	R1A					MDR						CPP					04231201	0.00000	0.00000	L 57
R1	R1A					MDR						CPP					04231202	0.00000	0.00000	L 58
R1	R1A					MDR						CPP					04231203	0.00000	0.00000	L 59
R2A	R1A					MDR						CPP					04233211	0.00000	0.43000	POR L 45

R2A	R1A					MDR					CPP					04233217	0.00000	0.60000	PM 29/137/A
RE-10	R3A					MDR					CPP					04244021	0.00000	2.82000	SEC 6 10 13
RE-10	RE-5					MDR					CPP					04244024	0.00000	5.77000	RS 26/69/1
OS	RE-5					MDR					CPP					04244026	0.00000	66.11000	SEC 6 10 13
RE-10	RE-5					MDR					CPP					04244027	0.00000	20.17000	RS 32/51/1
RE-10	RE-5					MDR					CPP					04244030	0.00000	10.11000	SEC 6 10 13
RE-10	R2A					MDR					CPP					04244032	0.00000	2.07000	SEC 6 10 13
RE-10	R2A					MDR					CPP					04244033	0.00000	2.26000	RS10/23 S61013
RE-10	RE-5					MDR					CPP					04244035	0.00000	10.11000	SEC 6 10 13
R1	R1A					MDR					CPP					04250004	0.00000	0.31000	SEC 8 10 13
R1	R1A					MDR					CPP					04250005	0.00000	0.23000	SEC 8 10 13
R1	R1A					MDR					CPP					04250006	0.00000	0.27000	SEC 8 10 13
R1	R1A					MDR					CPP					04250007	0.00000	0.17000	SEC 8 10 13
CP	CL					C					CPP					04250017	0.00000	0.35800	PM 11/66/1
CP	CL					C					CPP					04250018	0.00000	0.36900	PM 11/66/2
CP	CL					C					CPP					04250019	0.00000	0.68400	PM 11/66/3
R3A	R2A					MDR					CPP					04250036	0.00000	3.00000	PORPAR1&2PM7-10
R3A	R1A					HDR					CPP					04252112	0.00000	0.00000	RS 25/77
RA-80	FR-160					NR										04260003	11.00000	114.17000	SEC 8 10 13
R3A	R2A					MDR					CPP					04260010	0.00000	3.00000	PM 16/55/A
R3A	R2A					MDR					CPP					04260011	0.00000	3.00000	PM 16/55/B
R3A	R2A					MDR					CPP					04260012	0.00000	3.00000	PM 16/55/C
R3A	R2A					MDR					CPP					04260013	0.00000	3.00000	PM 16/55/D
R3A	R2A					MDR					CPP					04260015	0.00000	3.00000	PM 17/29/2
R3A	R2A					MDR					CPP					04260029	0.00000	3.00000	PM 30/59/B
R3A	R2A					MDR					CPP					04260030	0.00000	3.01000	PM 30/59/C
R3A	R2A					MDR					CPP					04260032	0.00000	3.00000	RS 10/138/2
R3A	R2A					MDR					CPP					04260034	0.00000	3.00000	PM 32/10/2
R3A	R1A					HDR					CPP					04263110	0.00000	3.51000	PM 33/63/1
R3A	R1A					HDR					CPP					04263111	0.00000	3.00000	PM 33/63/2
R3A	R1A					MDR					CPP					04263201	0.00000	1.54000	POR SEC 5 10 13
RE-10	RE-5					MDR					CPP					04269021	0.00000	10.06000	PM 33/13/1
RE-5	R3A					MDR					CPP					04269031	0.00000	5.06000	PM 46/74/1
RE-5	R3A					MDR					CPP					04269032	0.00000	5.00000	PM 46/74/2
R3A	R2A					MDR					CPP					04270006	0.00000	3.03000	PM 12/76/2
R3A	R2A					MDR					CPP					04270007	0.00000	3.02000	PM 12/76/3
R3A	R2A					MDR					CPP					04270027	0.00000	3.00000	PM 33/11/A
R3A	R2A					MDR					CPP					04271001	0.00000	3.00700	L 1
R3A	R2A					MDR					CPP					04271002	0.00000	3.02600	L 2
R3A	R2A					MDR					CPP					04271004	0.00000	3.05000	L 4
R3A	R2A					MDR					CPP					04271007	0.00000	3.01000	L 7
R3A	R2A					MDR					CPP					04271010	0.00000	3.01000	L 10
R3A	R2A					MDR					CPP					04271012	0.00000	3.09300	RS 27/109/1
R3A	R2A					MDR					CPP					04271014	0.00000	3.14000	L 14
R3A	R2A					MDR					CPP					04271019	0.00000	3.04600	RS 22/126/1
R3A	R2A					MDR					CPP					04272003	0.00000	3.01900	L 3

R3A	R2A					MDR						CPP					04272004	0.00000	3.03000	L 4
R3A	R2A					MDR						CPP					04272005	0.00000	3.03500	L 5
RE-10	TC			PD		AL											04301105	11.00000	9.16000	SEC 7 & 8 10 12
SA-10	TC					AL											04301105	11.00000	9.16000	SEC 7 & 8 10 12
RE-10	OS					OS											04301107	11.00000	24.96000	SEC 9 10 12
RE-10	RL-10					RR											04301108	0.00000	37.55000	SEC 9 10 12
RE-10	RL-10					RR											04301110	0.00000	10.00000	SEC 9 10 12
RE-10	RL-10					RR											04301111	0.00000	10.00000	SEC 9 10 12
RE-10	RL-10					RR											04301112	0.00000	10.00000	SEC 9 10 12
RE-10	RL-10					RR											04301113	0.00000	10.00000	SEC 9 10 12
RE-10	PA-10			PD		RR											04301118	0.00000	169.03000	POR 1RS20-100
SA-10	PA-10					RR											04301118	0.00000	169.03000	POR 1RS20-100
SA-10	PA-20					AL											04301125	0.00000	50.00400	PM 47/71/1
SA-10	PA-20					AL											04301125	0.00000	50.00400	PM 47/71/1
SA-10	PA-20					AL											04301132	0.00000	10.00000	PM 47/71/4
SA-10	PA-20					AL											04301133	0.00000	232.95800	PM 47/71/5
SA-10	PA-20					AL											04301134	0.00000	82.10900	PM 47/71/3
SA-10	PA-20					AL											04301135	0.00000	80.00000	PM 47/71/2
RE-10	RL-20			PD		AL											04301136	0.00000	45.60000	RS 26/62
RE-10	RL-20			PD		AL											04301137	0.00000	82.23000	POR TR1 RS20-100
SA-10	PA-20					AL											04301137	0.00000	82.23000	POR TR1 RS20-100
SA-10	PA-10					MDR						CPP					04301138	0.00000	43.16000	POR RS 28/51
SA-10	PA-10					MDR						CPP					04301138	0.00000	43.16000	POR RS 28/51
SA-10	I					I						CPP					04301139	0.00000	0.00000	SEC 7&8 10 12
C	CC				DS	C						CPP					04302013	0.00000	3.55000	RS 21/48/1
AE	PA-20					AL	A										04302014	0.00000	27.80000	SEC 6 & 7 10 12
C	PA-20				DS	AL	A										04302014	0.00000	27.80000	SEC 6 & 7 10 12
C	CC				DS	C						CPP					04302017	11.00000	1.96900	POR SEC 7 10 12
C	CC				DS	C						CPP					04302019	0.00000	3.61800	RS 26/147/1
C	CL				DS	C						CPP					04303002	0.00000	0.68400	TR1 RS26-13
C	CL				DS	C						CPP					04303004	0.00000	0.69000	SEC 7 10 12
C	CL				DS	C						CPP					04303007	0.00000	0.37000	SEC 7 10 12
C	CC				DS	C						CPP					04303010	0.00000	1.71300	SEC 7 10 12
SA-10	PA-20					AL	A										04303011	11.00000	0.00000	POR BLAKELEY RES
SA-10	PA-20					AL	A										04303012	11.00000	0.00000	POR BLAKELEY RES
C	RL-20				DS	AL	A										04303017	11.00000	0.78000	SEC 12 10 11
C	RL-20				DS	AL	A										04303019	11.00000	2.15000	S7 10 12&12 1011
SA-10	PA-20					AL	A										04303023	0.00000	4.80000	POR PAR 2 PM19-3
RE-10	RL-20					AL	A										04303027	0.00000	9.12000	PORPAR 1 PM 19-3
C	CC				DS	C						CPP					04303030	0.00000	2.10000	PM 33/51/A
C	CC				DS	C						CPP					04303032	0.00000	2.77000	PM 33/51/C
C	CC				DS	C						CPP					04303037	0.00000	3.87000	SEC 7 10 12
C	RL-20				DS	AL	A										04303038	11.00000	1.12000	SEC 7 10 12
TPZ	RE-10					MDR						CPP					04305004	0.00000	5.83000	SEC 6 10 12
SA-10	PA-20					AL	A										04307003	0.00000	5.00000	SEC 5 10 12
SA-10	PA-20					AL	A										04307005	0.00000	7.93000	SEC 6 10 12

SA-10	PA-20					AL	A										04307009	0.00000	0.79000	SEC 5 10 12
SA-10	PA-20					AL	A										04307010	0.00000	41.45000	SEC 5 10 12
SA-10	PA-20					AL	A										04307015	0.00000	13.03000	PM 16/61/3
SA-10	PA-20					AL	A										04307016	0.00000	10.16000	PM 16/61/4
RE-5	LA-10					RR	A										04307023	0.00000	10.00000	SEC 6 10 12
RE-5	LA-10					RR	A										04307024	0.00000	10.00000	SEC 6 10 12
SA-10	PA-20					AL	A										04307025	0.00000	10.00000	SEC 6 10 12
RE-5	RL-10					RR	A										04307026	0.00000	19.44000	SEC 6 10 12
SA-10	PA-10					RR	A										04307027	0.00000	12.78000	SEC 6 10 12
SA-10	PA-20					AL	A										04307038	0.00000	11.05000	RS 12/64/1
SA-10	PA-20					AL	A										04307039	0.00000	10.00000	RS 12/64/2
SA-10	PA-20					AL	A										04307040	0.00000	10.00000	RS 12/64/3
SA-10	PA-20					AL	A										04307041	0.00000	10.10000	RS 12/64/4
RE-5	R1A					MDR						CPP					04309017	0.00000	1.35000	RS 13/89 S71012
SA-10	PA-10					MDR						CPP					04312017	0.00000	10.00000	PM 15/91/1
R1	I					I						CPP					04312018	0.00000	0.04000	SEC 8 10 12
R1	I					I						CPP					04312019	0.00000	0.06000	SEC 8 10 12
R1	I					I						CPP					04312020	0.00000	0.15000	SEC 8 10 12
R1	I					I						CPP					04312021	0.00000	0.42000	SEC 8 10 12
R1	I					I						CPP					04312022	0.00000	0.50000	SEC 8 10 12
R1	I					I						CPP					04312023	0.00000	0.39000	SEC 8 10 12
R1	I					I						CPP					04312024	0.00000	0.10000	SEC 8 10 12
MP	RM					MFR						CPP					04313012	0.00000	4.00000	POR R/S 28/51
R1	I					I						CPP					04313019	0.00000	18.02000	POR R/S 28/51
SA-10	PA-20					AL	A										04317001	0.00000	11.42000	SEC 5 10 12
RE-5	RL-10					RR	A										04317004	0.00000	2.94000	SEC 5 10 12
SA-10	PA-20					AL	A										04317005	0.00000	10.08000	SEC 5 10 12
RE-5	RL-10					RR	A										04317008	0.00000	0.97000	SEC 5 10 12
RE-5	RL-10					RR	A										04317009	0.00000	0.97000	SEC 5 10 12
RE-5	RL-10					RR	A										04317010	11.00000	0.07000	SEC 5 10 12
RE-5	RL-10					RR	A										04317019	0.00000	1.40000	RS 13/40/1
RE-5	RL-10					RR	A										04317020	0.00000	0.83000	RS 13/40/2
RE-5	RL-10					RR	A										04317021	0.00000	3.70000	RS 13/40/3
RE-5	RL-10					RR	A										04317023	0.00000	7.99400	PM 34/102/A
RE-5	RL-10					RR	A										04317024	0.00000	5.42000	PM 34/102/B
I	R1A					MDR						CPP					04317028	0.00000	0.60000	SEC 5 10 12
SA-10	PA-20					AL	A										04317029	0.00000	27.57000	SEC 5 10 12
SA-10	PA-10					MDR						CPP					04317030	0.00000	3.87400	SEC 5 10 12
SA-10	PA-10					MDR						CPP					04317031	0.00000	10.72600	SEC 6 10 12
R1	R1A					MDR						CPP					04319009	0.00000	0.14000	SEC 8 10 12
R1	R1A					MDR						CPP					04319010	0.00000	2.00000	SEC 8 10 12
R3A	RL-10					RR	A										04320002	0.00000	7.82000	SEC 5 10 12
AE	PA-20					AL	A										04320003	0.00000	22.29000	SEC 5 10 12
SA-10	PA-20					AL	A										04320004	0.00000	1.00000	SEC 5 10 12
SA-10	PA-20					AL	A										04320008	0.00000	8.21800	RS 25/39/1
SA-10	PA-20					AL	A										04320009	0.00000	10.06300	PM 23/149/1

SA-10	PA-20					AL	A										04320010	0.00000	10.04000	PM 23/149/2
R1	RL-10					AL	A					CPP					04322115	0.00000	0.32000	SEC 8 10 12
C	CM				DS	C						CPP					04322201	0.00000	0.00000	L 1 B 1
C	CM				DS	C						CPP					04322202	0.00000	0.11500	L 2 B 1
C	CM				DS	C						CPP					04322205	0.00000	0.00000	L 6 B 1
C	CM				DS	C						CPP					04322206	0.00000	0.00000	L 7 B 1
C	CM				DS	C						CPP					04322207	0.00000	0.00000	L 8 B 1
C	CM				DS	C						CPP					04322208	0.00000	0.00000	L 9 B 1
C	CM				DS	C						CPP					04322209	0.00000	0.00000	L 10 B 1
C	CM				DS	C						CPP					04322218	0.00000	0.00000	POR SEC 8 10 12
C	CM				DS	C						CPP					04322220	0.00000	0.00000	POR L 4 B 1
C	CM				DS	C						CPP					04322221	0.00000	0.13200	RS 28/59/1
C	R1				DS	HDR						CPP					04322306	0.00000	0.00000	SEC 8 10 12
C	RM				DS	HDR						CPP					04322521	0.00000	0.13000	PM 37/143/A
C	RM				DS	HDR						CPP					04322522	0.00000	0.13200	PM 37/143/B
C	CM				DS	C						CPP					04322626	0.00000	0.00000	SEC 8 10 12
C	CM				DS	C						CPP					04322628	0.00000	1.75000	SEC 8 10 12
C	R1				DS	HDR						CPP					04322631	0.00000	0.00000	POR SEC 8 10 12
C	CM			PD	DS	C						CPP					04322632	0.00000	0.13800	PM 50/37/1
C	CM			PD	DS	C						CPP					04322633	0.00000	0.14300	PM 50/37/2
C	CM			PD	DS	C						CPP					04322634	0.00000	0.14000	PM 50/37/3
C	CM			PD	DS	C						CPP					04322635	0.00000	0.12500	PM 50/37/4
C	CM			PD	DS	C						CPP					04322636	0.00000	0.15600	PM 50/37/5
C	CM			PD	DS	C						CPP					04322637	11.00000	0.13300	PM 50/37/A
R3A	OS					OS						CPP					04323004	11.00000	5.69000	SEC 4 & 5 10 12
R3A	R1A					MDR						CPP					04323009	0.00000	0.95000	S 4 & 5 10 12
R3A	R1A					MDR						CPP					04323012	0.00000	0.74000	S 4 & 5 10 12
R3A	R1A					MDR						CPP					04323015	0.00000	1.20000	S 4 & 5 10 12
R3A	R1A					MDR						CPP					04323020	0.00000	0.47900	RS 25/130/2
R3A	R1A					MDR						CPP					04323022	0.00000	1.00000	SEC 5 10 12
R3A	R1A					MDR						CPP					04323023	0.00000	1.01000	PM 17/148/1
R3A	R1A					MDR						CPP					04323024	0.00000	0.93000	PM 17/148/2
R3A	R1A					MDR						CPP					04323025	0.00000	0.68000	PM 17/148/3
R3A	R1A					MDR						CPP					04323026	0.00000	1.10000	PM 17/148/4
R3A	R1A					MDR						CPP					04323034	0.00000	0.64000	RS 24/64
R3A	R1A					MDR						CPP					04323037	0.00000	0.47900	POR RS 25/130/1
R3A	R1A					MDR						CPP					04323038	0.00000	1.09600	SEC 5 10 12
R3A	RL-10					RR	A										04323039	0.00000	1.44000	RS 14/58
R3A	RL-10					RR	A										04323040	0.00000	3.54000	RS 24/26/1
RE-5	RL-10					RR	A										04323040	0.00000	3.54000	RS 24/26/1
R1A	RL-10					AL	A										04325120	0.00000	2.00000	SEC 8 10 12
R1A	OS					OS						CPP					04325122	11.00000	0.03000	SEC 8 10 12
R1A	RL-10					RR	A										04325136	0.00000	0.61800	RS 31/94/1
R3A	R1A					MDR						CPP					04326002	0.00000	1.50000	SEC 4 10 12
R3A	R1A					MDR						CPP					04326003	0.00000	1.00000	SEC 4 10 12
R3A	R1A					HDR						CPP					04326004	0.00000	0.71000	SEC 4 10 12

R3A	R1A					HDR						CPP					04326008	0.00000	0.37000	SEC 4 10 12
R3A	R1A					MDR						CPP					04326019	0.00000	1.83000	SEC 4 10 12
R3A	R1A					MDR						CPP					04326020	0.00000	0.71800	SEC 4 10 12
R3A	R1A					HDR						CPP					04326025	0.00000	0.75000	SEC 4 10 12
R3A	R1A					MDR						CPP					04326026	0.00000	0.94000	SEC 4 10 12
R3A	R1A					MDR						CPP					04326027	0.00000	1.03000	SEC 4 10 12
R3A	R1A					MDR						CPP					04326028	0.00000	0.85000	SEC 4 10 12
R3A	R1A					HDR						CPP					04326032	0.00000	0.39000	S 4 & 9 10 12
R3A	R1A					HDR						CPP					04326037	0.00000	0.57000	SEC 4 10 12
R3A	R1A					HDR						CPP					04326038	0.00000	0.58000	SEC 4 10 12
R3A	R1A					HDR						CPP					04326040	0.00000	0.67000	PM 1/152/2
R3A	R1A					HDR						CPP					04326041	0.00000	0.78000	PM 1/152/3
R3A	R1A					HDR						CPP					04326042	0.00000	0.51000	PM 2/83/A
R3A	R1A					HDR						CPP					04326043	0.00000	0.49000	PM 2/83/B
R3A	R1A					HDR						CPP					04326044	0.00000	0.82000	PM 3/58/A
R3A	R1A					HDR						CPP					04326045	0.00000	0.48700	PM 3/58/B
R3A	R2A					MDR						CPP					04326047	0.00000	2.56000	PM 15/33/2
R3A	R1A					MDR						CPP					04326051	0.00000	1.00000	PM 40/99/2
R3A	R2A					MDR						CPP					04326059	0.00000	2.23000	RS 18/93/1
R3A	R2A					MDR						CPP					04326060	0.00000	2.75000	RS 18/93/2
R3A	R1A					HDR						CPP					04326063	0.00000	0.87000	RS 20/47/2
R3A	R1A					MDR						CPP					04326066	0.00000	0.76600	RS 24/64
R3A	R1A					MDR						CPP					04327203	0.00000	0.93000	L 6
R3A	R1A					MDR						CPP					04327212	0.00000	1.94000	S 4 & 9 10 12
C	CL					C						CPP					04329021	0.00000	0.21000	SEC 4 10 12
C	R1A				DS	MDR						CPP					04329032	0.00000	1.25000	SEC 4 10 12
SA-10	PA-20					AL	A										04329033	0.00000	13.97000	SEC 4 10 12
C	CC				DS	C						CPP					04329053	0.00000	1.13000	PM 33/82/A
R2	RM				DS	MFR						CPP					04329054	0.00000	1.66000	PM 33/82/B
SA-10	PA-20					AL	A										04329059	0.00000	20.20000	RS 26/17/2
SA-10	PA-20					AL	A										04329060	0.00000	3.52000	RS 26/17/1
C	CC				DS	C						CPP					04333002	0.00000	1.80000	SEC 4 10 12
C	CL				DS	C						CPP					04333003	0.00000	0.36000	SEC 4 10 12
C	CL				DS	C						CPP					04333005	0.00000	0.40000	SEC 4 10 12
R1A	OS					OS						CPP					04333016	11.00000	0.03000	SEC 4 10 12
AE	PA-20					AL	A										04334004	0.00000	28.71000	4 10 12 32 11 12
SA-10	PA-20					AL	A										04334005	0.00000	11.26000	SEC 33 11 12
SA-10	PA-20					AL	A										04334007	0.00000	13.17700	PM 10/24/1
SA-10	PA-20					AL	A										04334019	0.00000	10.00000	PM 24/75/1
SA-10	PA-20					AL	A										04334021	0.00000	10.00000	PM 24/75/3
SA-10	PA-20					AL	A										04334024	0.00000	10.00000	PM 28/20/A
SA-10	PA-20					AL	A										04334028	0.00000	10.00000	PM 32/89/B
R1A	RL-10					RR	A										04334040	0.00000	1.34000	RS 13/131/2
SA-10	PA-20					AL	A										04334045	0.00000	10.00000	RS 16/48/2
SA-10	PA-20					AL	A										04334063	0.00000	10.00000	POR RS 29/42
SA-10	PA-20					AL	A										04334066	0.00000	3.33400	RS 29/72/2

SA-10	PA-20					AL	A										04334067	0.00000	20.89400	RS 29/72/1
C	CL				DS	C						CPP					04337006	0.00000	0.31000	SEC 4 10 12
C	CL				DS	C						CPP					04337007	0.00000	0.19000	SEC 4 10 12
C	CL				DS	C						CPP					04337015	0.00000	0.17000	SEC 4 10 12
C	CL				DS	C						CPP					04337017	0.00000	0.22000	RS 16/89/1
C	CL				DS	C						CPP					04337018	0.00000	0.41200	RS 16/89/2
C	CL				DS	C						CPP					04337019	0.00000	0.69000	SEC 4 10 12
RE-10	RE-5					MDR											04338006	0.00000	3.81000	SEC 4 10 12
RE-10	RE-5					MDR											04338020	0.00000	2.17000	SEC 4 10 12
C	CL				DS	C						CPP					04338022	0.00000	0.79900	RS 30/38/1
CG	R20K		DC		DS	HDR						CPP					04338023	0.00000	0.98000	SEC 4 10 12
C	CL				DS	C						CPP					04338024	0.00000	0.98000	SEC 4 10 12
RE-10	RL-10					RR											04339010	0.00000	4.19000	SEC 9 10 12
RE-10	RL-10					RR											04339017	0.00000	3.98000	SEC 9 10 12
RE-10	RL-10					RR											04339018	0.00000	1.00000	SEC 4 10 12
RE-10	RL-10					RR											04339026	0.00000	4.42000	SEC 4 10 12
C	CL				DS	C						CPP					04339035	0.00000	0.54000	S 3 & 4 10 12
R1A	CL					C						CPP					04339035	0.00000	0.54000	S 3 & 4 10 12
R1A	CL					C						CPP					04339035	0.00000	0.54000	S 3 & 4 10 12
RE-5	RL-10					RR	A										04342012	0.00000	3.06000	SEC 5 10 12
PA-20	R1A					MDR	A				PL						04342029	0.00000	0.68000	SEC 5 10 12
PA-20	R1A					MDR	A				PL						04342030	0.00000	0.79000	SEC 5 10 12
PA-20	R1A					MDR	A				PL						04342042	0.00000	1.52000	SEC 5 10 12
PA-20	R1A					MDR	A				PL						04342055	0.00000	1.00000	SEC 5 10 12
SA-10	PA-20					AL	A										04342056	0.00000	4.18700	SEC 5 10 12
SA-10	PA-20					AL	A										04342057	0.00000	18.34000	SEC 5 10 12
PA-20	R1A					MDR	A				PL						04342064	0.00000	0.61000	PM 49/141/1
PA-20	R1A					MDR	A				PL						04342065	0.00000	0.51000	PM 49/141/2
SA-10	PA-20					AL	A										04343002	0.00000	1.00000	SEC 5 10 12
AE	PA-20					AL	A										04343004	0.00000	23.30700	PM 18/113/2
SA-10	PA-20					AL	A										04343004	0.00000	23.30700	PM 18/113/2
AE	PA-20					AL	A										04343006	0.00000	20.16900	PM 18/113/3
RE-10	RL-20					AL	A										04343007	0.00000	20.03000	PM 18/113/1
RE-5	RL-10					RR	A										04344004	0.00000	5.03400	SEC 5 10 12
RE-5	RL-10					RR	A										04344005	0.00000	0.47000	SEC 5 10 12
RE-5	RL-10					AL	A										04344010	0.00000	0.04000	SEC 4 10 12
R3A	R1A					MDR						CPP					04344019	0.00000	2.00000	PM 7/11/A
RE-5	RL-10					AL	A										04344023	0.00000	0.16000	SEC 4 10 12
R3A	R1A					MDR						CPP					04344024	0.00000	0.37000	SEC 4 10 12
R3A	R1A					MDR						CPP					04344027	0.00000	0.15000	SEC 4 10 12
RE-5	RL-10					RR	A										04344034	0.00000	10.07000	PM 16/101/B
RE-5	RL-10					RR	A										04344039	0.00000	5.24000	PM 20/115/2
RE-5	RL-10					RR	A										04344040	0.00000	5.00000	PM 26/121/1
RE-5	RL-10					RR	A										04344041	0.00000	5.00000	PM 26/121/2
RE-5	RL-10					RR	A										04344057	0.00000	5.00000	RS 20/89/1
SA-10	PA-20					AL	A										04344059	0.00000	2.02000	PM 47/140/1

SA-10	PA-20					AL	A										04344060	0.00000	15.29000	PM 47/140/2
SA-10	PA-20					AL	A										04344061	0.00000	2.07500	PM 47/140/3
R3A	RL-10					AL	A										04344063	0.00000	4.82900	RS 26/99/1
SA-10	PA-20					AL	A										04344063	0.00000	4.82900	RS 26/99/1
SA-10	PA-20					AL	A										04344064	0.00000	5.29600	RS 26/99/2
R3A	R2A					MDR						CPP					04344065	0.00000	3.09100	PM 30/80/A
RE-5	RL-10					RR	A										04344066	0.00000	5.00000	SEC 5 10 12
RE-10	RL-10					RR											04345001	0.00000	10.00000	SEC 9 10 12
RE-10	RL-10					RR											04345002	0.00000	20.00000	SEC 9 10 12
RE-10	RL-10					RR											04345003	0.00000	9.90000	RS 6/27
RE-10	RL-10					RR											04345004	0.00000	6.17800	RS 29/141/1
RE-10	RL-10					RR											04345005	0.00000	10.00000	PM 27/18/1
RE-10	RL-10					RR											04345006	0.00000	17.22000	PM 27/18/2
SA-10	PA-20					AL	A										04347003	0.00000	2.64000	SEC 4 10 12
SA-10	PA-20					AL	A										04347005	0.00000	1.82000	SEC 4 10 12
SA-10	PA-20					AL	A										04347014	0.00000	3.15000	SEC 4 10 12
SA-10	PA-20					AL	A										04347015	0.00000	2.17000	SEC 4 10 12
SA-10	PA-20					AL	A										04347017	0.00000	0.41000	SEC 4 10 12
SA-10	PA-20					AL	A										04347019	0.00000	1.03000	SEC 4 10 12
R3A	R1A					MDR						CPP					04347020	0.00000	0.82000	SEC 4 10 12
SA-10	PA-20					AL	A										04347021	0.00000	15.60000	SEC 4 10 12
RE-5	RL-10					AL	A										04347022	0.00000	0.25000	SEC 4 10 12
SA-10	PA-20					AL	A										04347025	0.00000	3.13500	SEC 4 10 12
SA-10	PA-20					AL	A										04347026	0.00000	0.27000	SEC 4 10 12
SA-10	PA-20					AL	A										04347027	0.00000	0.95000	SEC 4 10 12
SA-10	PA-20					AL	A										04347029	0.00000	0.19000	SEC 4 10 12
RE-5	RL-10					AL	A										04347030	0.00000	0.59000	SEC 4 10 12
SA-10	PA-20					AL	A										04347039	0.00000	6.33900	SEC 4 10 12
SA-10	PA-20					AL	A										04347041	0.00000	0.58000	SEC 4 10 12
SA-10	PA-10					PF											04348016	11.00000	8.47000	SEC 8 10 12
SA-10	PA-10					MDR						CPP					04348017	0.00000	11.02000	SEC 8 10 12
AE	PA-20					AL	A										04348022	0.00000	21.33000	SEC 8 10 12
AE	PA-20					AL	A										04348022	0.00000	21.33000	SEC 8 10 12
R1	RL-10					AL	A										04348022	0.00000	21.33000	SEC 8 10 12
AE	PA-20					AL	A										04348023	0.00000	22.08000	SEC 8 10 12
AE	PA-20					AL	A										04348023	0.00000	22.08000	SEC 8 10 12
R1	RL-10					AL	A										04348023	0.00000	22.08000	SEC 8 10 12
AE	PA-20					AL	A										04348030	0.00000	28.72000	SEC 8 10 12
AE	PA-20					AL	A										04348030	0.00000	28.72000	SEC 8 10 12
SA-10	PA-20					AL	A										04348030	0.00000	28.72000	SEC 8 10 12
PA-20	OS					OS	A										04348032	11.00000	8.93000	SEC 8 10 12
SA-10	PA-20					AL											04348033	0.00000	0.00000	REM P/M 14-9
SA-10	PA-20					AL											04348034	0.00000	13.79000	PM 14/9/2
SA-10	PA-20					AL											04348035	0.00000	10.52700	PM 14/9/1
SA-10	PA-20					AL											04348039	0.00000	11.75700	PM 37/81/A
SA-10	PA-20					AL											04348040	0.00000	11.50000	PM 37/81/B

SA-10	PA-20					AL											04348041	0.00000	10.00000	PM 37/81/C
RE-10	PA-10					PF											04348044	11.00000	22.00000	1 17-100&8 10 12
SA-10	PA-10					PF											04348044	11.00000	22.00000	1 17-100&8 10 12
SA-10	PA-20					AL											04348046	0.00000	30.51000	SEC 8 10 12
SA-10	PA-20					AL											04348047	0.00000	16.00000	SEC 8 10 12
PA-20	OS					OS	A										04349007	11.00000	4.02000	SEC 9 10 12
R1A	OS					OS						CPP					04349008	11.00000	0.00000	SEC 9 10 12
PA-20	OS					OS											04349009	11.00000	0.00000	SEC 9 10 12
RE-10	RL-10					RR											04352002	0.00000	2.00000	SEC 9 10 12
RE-10	RL-10					RR											04352006	0.00000	0.96000	SEC 9 10 12
RE-10	RL-10					RR											04352008	0.00000	2.58000	SEC 9 10 12
RA-20	RL-10					RR											04352011	0.00000	1.50000	SEC 9 10 12 ADM
RE-10	RL-10					RR											04352012	0.00000	15.16000	SEC 9 10 12 ADM
RA-20	RL-10					RR											04352013	0.00000	4.94000	SEC 9 10 12 ADM
RE-10	RL-10					RR											04352019	0.00000	10.00000	SEC 9 10 12
RE-10	RL-10					RR											04352025	0.00000	15.92000	SEC 9 10 12
RE-10	RL-10					RR											04352026	0.00000	0.75000	SEC 9 10 12
RE-10	RL-10					RR											04352027	0.00000	0.72000	SEC 9 10 12
RE-10	RL-10					RR											04352028	0.00000	2.23000	SEC 9 10 12
RE-10	RL-10					RR											04352030	0.00000	5.00000	SEC 9 10 12
RA-20	RL-20					RR											04352036	0.00000	14.75000	PPM 33/123/2 ADM
RE-10	RL-10					RR											04352038	0.00000	5.40000	SEC 9 10 12
RE-10	RL-10					RR											04352039	0.00000	5.28000	SEC 9 10 12
RE-10	RL-10					RR											04352040	0.00000	4.98000	SEC 9 10 12
RE-10	RL-10					RR											04352041	0.00000	10.30000	SEC 9 10 12 ADM
RE-10	RL-10					RR											04352044	0.00000	10.00000	SEC 9 10 12
RE-10	RL-10					RR											04352045	0.00000	10.00000	SEC 9 10 12
RE-10	RL-10					RR											04352046	0.00000	10.00000	PM 33/123/1
RE-10	RL-10					RR											04352047	0.00000	13.19000	PPM 33/123/2 ADM
RA-20	RL-20					RR											04352048	0.00000	20.00000	SEC 9 10 12
RE-10	RL-10					RR											04352053	0.00000	4.89000	RS 15/81/A
RE-10	RL-10					RR											04352063	0.00000	11.51000	SEC 9 10 12
RE-10	RL-10					RR											04352065	0.00000	10.11000	PM 41/91/2
RA-20	RL-10					RR											04352074	0.00000	10.00000	SEC 9 10 12
RE-10	RL-10					RR											04352074	0.00000	10.00000	SEC 9 10 12
RE-10	RL-10					RR											04352075	0.00000	4.12000	SEC 9 10 12
RE-10	RL-10					RR											04352078	0.00000	4.92400	PM 47/16/1
RE-10	RL-10					RR											04352079	0.00000	4.90900	PM 47/16/2
RE-10	RL-10					RR											04352084	0.00000	10.01000	POR PM 41/91/4
RE-10	RL-10					RR											04352085	0.00000	10.73700	POR RS 19/127/2
RA-20	RE-10					LDR											04352087	0.00000	41.94800	PM 49/42/A
RE-10	RL-10					LDR											04352087	0.00000	41.94800	PM 49/42/A
RE-10	RL-10					RR											04354002	0.00000	20.41800	PM 8/140/2
RE-10	RL-10					RR											04354016	0.00000	10.06000	SEC 17 10 12
RE-10	RL-10					RR											04354017	0.00000	10.06000	SEC 17 10 12
RE-10	RL-10					RR											04354018	0.00000	10.01000	PM 38/47/A

RE-10	RL-10					RR											04354019	0.00000	10.54300	PM 38/47/B
RE-10	RL-10					RR											04354020	0.00000	12.11000	PM 18/11/A
RE-10	RL-10					RR											04354021	0.00000	12.46000	PM 18/11/B
RE-10	RL-10					RR											04354023	0.00000	10.00000	PM 40/92/1
RE-10	RL-10					RR											04354024	0.00000	10.08500	PM 40/92/2
RE-10	RL-10					RR											04354025	0.00000	10.04000	PM 43/46/1
RE-10	RL-10					RR											04354026	0.00000	10.04000	PM 43/46/2
RE-10	RL-10					RR											04354027	0.00000	20.21600	PM 8/140/6
SA-10	PA-20					AL	A										04355026	0.00000	10.79200	RS 13/48/2
SA-10	PA-20					AL	A										04355041	0.00000	10.63000	PM 32/57/D
SA-10	PA-20					AL	A										04355043	0.00000	10.01000	PM 33/23/1
SA-10	PA-20					AL	A										04355044	0.00000	11.05700	PM 33/23/2
SA-10	PA-20					AL	A										04355052	0.00000	10.01000	RS 13/68/A
SA-10	PA-20					AL	A										04355053	0.00000	10.01000	RS 13/68/B
C	CC				DS	C						CPP					04355062	0.00000	2.38000	PM 37/114/A
SA-10	PA-20					AL	A										04355063	11.00000	0.00000	SEC 7 10 12
SA-10	CPO					C						CPP					04355064	0.00000	6.51000	SEC 6 10 12
SA-10	PA-20					AL	A										04355066	0.00000	10.01000	PM 32/57/A
SA-10	PA-20					AL	A										04355067	0.00000	10.01000	PM 32/57/B
SA-10	PA-20					AL	A										04355068	0.00000	10.03000	PM 32/57/C
RE-5	RL-10					RR	A										04356002	0.00000	5.00000	L 2
RE-5	RL-10					RR	A										04356003	0.00000	5.00100	L 3
RE-5	RL-10					RR	A										04356004	0.00000	5.00000	L 4
RE-5	RL-10					RR	A										04356007	0.00000	5.00000	RS 20/89/2
RE-10	RL-10					RR											04358001	0.00000	8.51900	PM 30/42/1
RE-10	RL-10					RR											04358002	0.00000	10.00100	PM 30/42/2
RE-10	RL-10					RR											04358003	0.00000	10.00100	PM 30/42/3
RE-10	RL-10					RR											04358004	0.00000	10.00000	PM 30/42/4
R3A	R2A					MDR						CPP					04359015	0.00000	3.00000	PM 47/42/C
SA-10	PA-20					AL											04602201	0.00000	52.77000	SEC 3 9 11
RA-20	LA-40					NR											04602202	0.00000	125.68000	SEC 1 & 2 9 11
RE-5	LA-40					NR											04602202	0.00000	125.68000	SEC 1 & 2 9 11
RA-20	RL-40					NR											04602204	0.00000	144.00000	SEC 1 9 11
RE-10	RL-40					NR											04602205	0.00000	10.00000	RS 11/127/1
RE-10	RL-40					NR											04602206	0.00000	14.50000	RS 22/52/1
RE-10	RL-40					NR											04602207	0.00000	10.01000	PM 42/23/2
RE-10	RL-40					NR											04602208	0.00000	19.23000	RS 22/52/2
RE-10	RL-40					NR											04602209	0.00000	11.00000	PM 42/23/3
RA-20	RL-40					NR											04602210	0.00000	15.00000	RS 11/127/2
RE-10	RL-40					NR											04602210	0.00000	15.00000	RS 11/127/2
RA-20	LA-20					AL											04602211	0.00000	71.33000	SEC 1 & 12 9 11
RE-10	RL-20					AL											04602211	0.00000	71.33000	SEC 1 & 12 9 11
RA-20	RL-40					NR											04602212	0.00000	12.91000	RS 11/127/3
RE-10	RL-40					NR											04602212	0.00000	12.91000	RS 11/127/3
RA-20	RL-40					NR											04602213	0.00000	147.10000	SEC 12 9 11
RE-10	RL-40					NR											04602213	0.00000	147.10000	SEC 12 9 11

RE-10	RL-40					NR											04602214	0.00000	39.97000	SEC 1 9 11
RA-20	OS					NR											04602215	11.00000	55.99000	PRS 15/55/1 ADM
RA-20	OS					LDR			IBC								04602216	11.00000	5.00000	PRS 15/55/1 ADM
RA-40	OS					LDR			IBC								04602216	11.00000	5.00000	PRS 15/55/1 ADM
RA-20	LA-40					NR											04602217	0.00000	21.21000	SEC 12 9 11
RA-40	LA-40					NR											04602217	0.00000	21.21000	SEC 12 9 11
RA-20	RL-40					NR											04602218	0.00000	16.00000	PRS 13/56/3 ADM
RA-80	RL-40					NR											04602219	0.00000	59.70000	PRS 13/56/3 ADM
RA-20	OS					OS											04602220	11.00000	0.00000	POR SEC 12 9 11
RA-20	RL-40					NR											04602221	0.00000	195.00000	SEC 2 & 11 9 11
RA-80	RL-80					NR											04602224	0.00000	5.00000	SEC 11 9 11
RA-20	RL-40					NR											04602225	0.00000	28.33000	PRS 13/56/1 ADM
RA-80	RL-80					NR											04602226	0.00000	10.43000	PRS 13/56/1 ADM
RA-80	RL-40					NR											04602227	0.00000	38.72000	RS 13/56/2
RA-80	RL-40					NR											04602228	0.00000	40.00000	RS 8/101 S11129
RA-80	RL-80					NR											04602242	0.00000	10.27000	SEC 10 9 11
RA-80	RL-80					NR											04602243	0.00000	10.27000	RS 23-94
RA-80	RL-80					NR											04602244	0.00000	10.27000	SEC 10 9 11
RA-20	RL-40					NR											04602246	0.00000	74.00000	SEC 10 9 11
RE-10	RL-10					RR											04602249	0.00000	22.61000	PM 41/35/2
RE-10	RL-10					RR											04602250	0.00000	32.88000	RS 22/119
RA-40	RL-40					NR											04602251	0.00000	37.75000	POR SEC 10 9 11
RA-40	RL-40					NR											04602252	0.00000	69.90000	POR RS 11/37/B
RA-40	RL-40					NR											04602253	0.00000	82.36000	POR RS 11/37/B
PA-20	PA-40					NR											04602254	0.00000	40.00000	SEC 10 9 11
RE-10	RL-10					RR											04602257	0.00000	15.02000	RS 25/90/2
RA-40	LA-40					NR											04602259	0.00000	42.64800	POR RS 11/37/A
RA-40	RL-40					NR											04602260	11.00000	80.36200	RS29/121/1&11/37
RA-20	RL-20					RR											04603201	0.00000	20.00000	SEC 18 9 11
RA-20	RL-20					RR											04603202	0.00000	20.62000	RS 23-88
RA-20	OS					OS											04603204	11.00000	0.00000	POR 18&19 9 11
RA-20	OS					OS											04603204	11.00000	0.00000	POR 18&19 9 11
RA-20	RL-40					NR											04603205	0.00000	40.00000	RS 19/71/1
RA-20	LA-40					NR											04603206	0.00000	40.84000	RS 17/107/1
RA-20	RL-40					NR											04603207	0.00000	40.00000	SEC 18 9 11
RA-20	RL-40					NR											04603209	0.00000	40.01000	RS 19/121 S18911
RE-10	RL-10					RR											04603210	0.00000	10.11000	RS 19/121 S18911
RE-10	RL-10					RR											04603211	0.00000	10.00000	PM 40/90/3
RE-10	RL-10					RR											04603212	0.00000	10.00000	PM 40/90/2
RA-20	RL-20					RR											04603213	0.00000	20.00000	SEC 18 9 11
RA-20	RL-20					RR											04603214	0.00000	20.00000	SEC 18 9 11
RE-10	RL-10					RR	A										04603215	0.00000	10.32000	PM 40/90/4
AE	PA-20					AL	A										04603217	0.00000	170.43000	SEC 17 9 11
RE-10	RL-20					AL	A										04603218	0.00000	20.00000	PM 41/45/1
RE-10	RL-20					AL	A										04603219	0.00000	10.00000	PM 41/45/2
RE-10	RL-20					AL	A										04603220	0.00000	41.48000	PM 41/45/3

RA-20	RL-40					NR											04603221	0.00000	88.82000	RS 11/129/2
RA-20	LA-20					RR	A										04603222	0.00000	10.00100	PM 19/1/A
RE-5	RL-10					RR	A										04603222	0.00000	10.00100	PM 19/1/A
RA-20	LA-20					RR	A										04603223	0.00000	10.00100	PM 19/1/B
RA-20	RL-40					NR											04603224	0.00000	15.00000	PM 19/1/C
RE-5	RL-40					NR											04603224	0.00000	15.00000	PM 19/1/C
RA-20	RL-40					NR											04603225	0.00000	24.62000	PM 19/1/D
RA-20	RL-40					NR											04603226	11.00000	100.00000	SEC 16 9 11
RA-20	LA-40					NR											04603227	0.00000	160.00000	SEC 16 9 11
RA-20	RL-40					NR											04603228	11.00000	15.00000	SEC 16 9 11
RA-20	RL-40					NR											04603229	11.00000	60.00000	SEC 16 9 11
RA-20	RL-40					NR											04603230	0.00000	14.00000	SEC 16 9 11
RA-40	RL-40					NR											04603231	0.00000	20.00000	SEC 16 9 11
RA-40	RL-40					NR											04603232	0.00000	20.00000	SEC 16 9 11
RA-40	RL-40					NR											04603233	0.00000	25.00000	SEC 16 9 11
RA-40	RL-40					NR											04603235	0.00000	6.00000	SEC 16 9 11
RA-20	OS					OS											04603237	11.00000	0.00000	POR SEC 20 9 11
AE	LA-40					NR			IBC								04603238	0.00000	40.00000	SEC 20 9 11 ADM
RA-40	LA-40					NR			IBC								04603239	0.00000	40.00000	SEC 20 9 11
RA-40	LA-40					NR											04603240	0.00000	40.00000	SEC 20 9 11
OS	LA-40					NR											04603241	0.00000	80.00000	SEC 20 9 11
RA-20	LA-40					NR											04603241	0.00000	80.00000	SEC 20 9 11
RA-20	RL-40					NR											04603242	0.00000	21.02000	PM 41/113/2
RA-20	RL-40					NR											04603243	0.00000	20.00000	PM 41/113/1
RA-20	OS					OS											04603245	11.00000	0.00000	POR 19&20 9 11
RA-20	RL-40					NR											04603246	0.00000	51.13000	SEC 19 9 11
RA-20	RL-40					NR											04603248	0.00000	42.68000	PM 46/97/1
RA-20	RL-40					NR											04603249	0.00000	40.52000	PM 46/97/2
RE-10	RL-40					NR											04603249	0.00000	40.52000	PM 46/97/2
RA-20	OS					OS											04603250	11.00000	0.00000	POR SEC 20 9 11
AE	AG-40					AL											04603251	0.00000	40.00000	SEC 18 9 11
RA-20	LA-40					NR											04604101	0.00000	47.33000	SEC 15 9 11
PA-20	RL-80					RR											04604104	0.00000	80.00000	SEC 14 & 15 9 11
RA-80	RL-80					RR											04604104	0.00000	80.00000	SEC 14 & 15 9 11
RA-20	RL-20					RR											04604107	0.00000	44.80000	PM 27/88/A
RA-20	RL-10					RR											04604108	0.00000	5.01000	PM 25/82/1
RA-20	RL-10					RR											04604109	0.00000	5.02000	PM 25/82/2
RA-20	RL-10					RR											04604110	0.00000	5.02000	PM 25/82/3
RA-20	RL-10					RR											04604111	0.00000	5.02000	PM 25/82/4
RA-20	RL-10					RR											04604112	0.00000	5.02000	POR PAR 2 19-125
RA-20	RL-10					RR											04604113	0.00000	7.07000	POR PAR 2 19-125
RA-20	RL-10					RR			IBC								04604114	0.00000	4.98000	SEC 13 9 11
RA-20	RL-10					RR			IBC								04604115	0.00000	5.62000	SEC 13 9 11
AE	PA-20					RR			IBC								04604117	0.00000	24.50100	RS 28/37/1
RA-20	PA-20					RR											04604119	0.00000	20.03000	PM 7/80/A
RA-20	RL-20					RR			IBC								04604120	0.00000	14.62000	PM 7/80/B

RA-20	RL-10					RR			IBC								04604122	0.00000	15.70000	SEC 14 9 11
RA-20	LA-10					RR			IBC								04604123	0.00000	10.30000	SEC 14 9 11
RA-20	RL-20					RR			IBC								04604124	0.00000	13.93000	SEC 14 9 11
RA-20	LA-10					RR			IBC								04604125	0.00000	12.30000	SEC 14 9 11
RA-20	RL-20					RR			IBC								04604126	0.00000	22.15000	SEC 14 9 11
RE-10	RL-10					RR			IBC								04604129	0.00000	7.06300	PM 24/110/3
RE-10	RL-10					RR			IBC								04604130	0.00000	10.00000	PM 24/110/2
RE-10	RL-10					RR			IBC								04604131	0.00000	10.00000	PM 24/110/1
RA-80	RL-10					RR											04604135	0.00000	10.08000	PM 31/107/A
RA-80	RL-10					RR											04604136	0.00000	10.01000	PM 31/107/B
RA-80	RL-10					RR											04604137	0.00000	10.19300	PM 31/107/C
RA-80	RL-10					RR											04604138	0.00000	10.01000	PM 31/107/D
RA-80	RL-10					RR											04604139	0.00000	10.01000	PM 31/97/A
RA-80	LA-10					RR											04604140	0.00000	10.01000	PM 31/97/B
RA-80	RL-10					RR											04604141	0.00000	10.21000	PM 31/97/C
RA-80	RL-10					RR											04604142	0.00000	10.01000	PM 31/97/D
RA-80	RL-80					NR											04604143	0.00000	20.00000	SEC 15 9 11
RA-80	LA-40					NR											04604144	0.00000	20.00000	SEC 15 9 11
RA-80	LA-40					NR											04604145	0.00000	20.00000	SEC 15 9 11
RA-80	LA-40					NR											04604146	0.00000	20.00000	SEC 15 9 11
RA-80	LA-40					NR											04604147	0.00000	32.67000	SEC 15 9 11
SA-10	PA-10					RR			IBC								04604165	0.00000	20.76000	PM 39/119/1
SA-10	PA-10					RR			IBC								04604166	0.00000	10.44000	PM 39/119/2
SA-10	PA-10					RR											04604167	0.00000	50.31000	PM 39/119/3
RE-10	RL-10					RR			IBC								04604168	0.00000	10.00000	
RE-10	RL-10					RR			IBC								04604169	0.00000	15.00000	
RE-10	RL-10					RR			IBC								04604170	0.00000	10.98000	PM 40/129/3
RE-10	RL-10					RR			IBC								04604171	0.00000	10.00100	PM 41/16/1
RE-10	RL-10					RR			IBC								04604172	0.00000	10.00100	PM 41/16/2
RE-10	RL-10					RR			IBC								04604173	0.00000	10.00100	PM 41/16/3
RE-10	RL-10					RR			IBC								04604174	0.00000	10.00100	PM 41/16/4
RA-20	RL-20					RR											04604176	0.00000	75.37000	SEC 13 & 14 9 11
RE-10	RL-10					RR			IBC								04604177	0.00000	10.00000	PM 42/14/1
RE-10	RL-10					RR			IBC								04604178	0.00000	10.00000	PM 42/14/2
RE-10	RL-10					RR			IBC								04604179	0.00000	10.00000	PM 42/14/3
RE-10	RL-10					RR			IBC								04604180	0.00000	10.00000	PM 42/14/4
RA-20	RL-20					RR											04604181	0.00000	40.00000	SEC 13 9 11
RA-20	RL-20					RR											04604182	0.00000	40.75900	SEC 13 9 11
RA-40	RL-40					NR											04604183	0.00000	39.83000	SEC 15 9 11
RA-40	RL-40					RR											04604184	0.00000	39.83000	SEC 15 9 11
RA-20	RL-10					RR			IBC								04604191	0.00000	5.40000	RS 23-84
RA-80	RL-10					RR			IBC								04605201	0.00000	20.00000	RS 10/114/1
RA-80	RL-10					RR			IBC								04605202	0.00000	20.00000	RS 10/114/3
RA-80	RL-10					RR			IBC								04605203	0.00000	20.00000	RS 10/114/2
RA-80	RL-10					RR			IBC								04605204	0.00000	20.00000	RS 10/114/4
RA-80	RL-10					RR			IBC								04605205	0.00000	20.01000	RS 18/134/1

RA-80	RL-10					RR			IBC								04605206	0.00000	6.00000	SEC 30 9 11
RA-80	RL-10					RR			IBC								04605207	0.00000	19.35000	SEC 30 9 11
RA-80	RL-10					RR			IBC								04605208	0.00000	20.07000	RS 18/134/2
RA-80	RL-10					RR			IBC								04605209	0.00000	1.00000	SEC 30 9 11
RA-80	RL-10					RR			IBC								04605210	0.00000	5.00000	SEC 30 9 11
RA-80	RL-10					RR			IBC								04605211	0.00000	21.70000	SEC 30 9 11
RA-80	LA-10					RR			IBC								04605212	0.00000	37.82100	PM 45/119/3
RA-40	RL-40					NR											04605213	11.00000	38.00000	SEC 30 9 11
RA-20	RL-40					NR											04605214	11.00000	2.00000	SEC 30 9 11
RA-80	RL-10					RR			IBC								04605215	0.00000	20.15000	PM 45/119/2
RA-80	RL-10					RR			IBC								04605216	0.00000	20.01200	PM 45/119/1
RA-40	LA-40					NR											04605217	0.00000	40.00000	SEC 29 9 11
RA-40	LA-40					NR											04605218	0.00000	40.00000	SEC 29 9 11
RA-40	LA-40					NR											04605219	0.00000	40.00000	SEC 29 9 11
AE	RL-40					NR			IBC								04605220	0.00000	76.39000	SEC 29 9 11
RE-10	RL-10					RR			IBC								04605221	0.00000	13.88000	SEC 29 9 11
RA-40	RL-40					RR											04605225	0.00000	40.00000	SEC 29 9 11
RA-40	RL-40					RR			IBC								04605226	0.00000	40.00000	SEC 29 9 11
RA-40	LA-10					RR			IBC								04605227	0.00000	40.00000	SEC 29 9 11
RA-40	RL-40					RR											04605228	0.00000	41.76000	RS 11/41 S29911
RA-40	LA-40					NR											04605230	0.00000	40.00000	SEC 28 9 11
RE-10	RL-10					RR											04605231	0.00000	10.00000	PM 20/1/A
RE-10	RL-10					RR											04605232	0.00000	10.00000	PM 20/1/B
RE-10	LA-10					RR											04605233	0.00000	9.60000	PM 20/1/C
RE-10	LA-10					RR											04605234	0.00000	10.00000	PM 20/1/D
RA-40	LA-40					NR											04605235	0.00000	40.00000	SEC 28 9 11
RA-40	LA-40					NR											04605236	0.00000	40.00000	SEC 28 9 11
RA-80	RL-80					RR											04605237	0.00000	0.00000	SEC 32 9 11
RA-80	RL-80					RR											04605238	0.00000	40.00000	SEC 32 9 11
RA-80	RL-80					RR											04605239	0.00000	40.00000	SEC 32 9 11
RA-80	RL-80					RR											04605240	0.00000	40.00000	SEC 32 9 11
RA-40	RL-40					RR											04605241	0.00000	40.00000	SEC 32 9 11
RA-40	RL-40					NR											04605242	0.00000	40.00000	SEC 32 9 11
RA-40	RL-10					RR											04605243	0.00000	20.00000	SEC 32 9 11
RA-40	RL-40					NR											04605244	0.00000	20.51000	POR SEC 32 9 11
RA-40	RL-40					NR											04605245	0.00000	32.62000	SEC 32 9 11 ADM
RA-40	RL-40					NR											04605246	0.00000	9.00000	SEC 32 9 11 ADM
RA-40	RL-40					NR											04605246	0.00000	9.00000	SEC 32 9 11 ADM
RA-40	RL-40					NR											04605247	0.00000	40.00000	SEC 33 9 11
RA-40	RL-40					NR											04605248	0.00000	40.00000	SEC 33 9 11
AE	RL-40					NR											04605249	11.00000	0.00000	SEC 32 9 11DITCH
RA-40	RL-40					NR											04605249	11.00000	0.00000	SEC 32 9 11DITCH
RA-80	RL-80					NR											04605249	11.00000	0.00000	SEC 32 9 11DITCH
RA-40	RL-40					NR											04605250	0.00000	40.00000	SEC 33 9 11
RA-40	LA-40					NR											04605251	0.00000	40.00000	SEC 33 9 11
RA-20	RL-20					RR											04605252	0.00000	42.92000	RS 12/28 S31911

RE-10	RL-10					RR			IBC								04605253	0.00000	20.00000	SEC 31 9 11
RA-20	RL-20					RR			IBC								04605254	0.00000	20.00000	SEC 31 9 11
RA-20	RL-20					RR											04605255	0.00000	40.00000	SEC 31 9 11
RA-20	RL-20					RR											04605256	0.00000	18.03800	PM 12/118/A
RA-20	RL-10					RR											04605257	0.00000	10.01600	PM 12/118/B
RA-20	RL-10					RR											04605258	0.00000	10.02000	PM 12/118/C
RA-80	RL-80					RR											04605259	0.00000	40.00000	S 32 9 11
RA-80	RL-80					RR											04605260	0.00000	40.00000	SEC 32 9 11
RA-80	RL-40					NR											04605261	0.00000	40.00000	S 32 9 11
RA-80	RL-80					NR											04605262	0.00000	40.00000	S 32 9 11
RA-80	RL-80					NR											04605263	0.00000	40.00000	SEC 32 9 11
AE	PA-20					AL	A										04605266	0.00000	455.00000	SEC 33 9 11
AE	PA-20					AL	A										04605266	0.00000	455.00000	SEC 33 9 11
RA-20	LA-10					RR											04605267	0.00000	9.82000	SEC 6 8 11
RA-20	RL-20					RR											04605268	0.00000	20.13000	RS 8/31 S6811
RA-20	RL-10					RR											04605269	0.00000	10.00000	SEC 6 8 11
RA-80	RL-80					NR											04605274	0.00000	40.00000	SEC 32 9 11
RA-80	RL-40					NR											04605275	0.00000	80.00000	SEC 32 9 11 ADM
RA-80	RL-40					NR											04605275	0.00000	80.00000	SEC 32 9 11 ADM
RA-20	LA-20					AL	A										04606107	0.00000	41.46000	RS 13/3/2
AE	AG-40					AL	A										04606113	0.00000	20.00000	SEC 35 9 11
RA-20	LA-20					AL	A										04606116	0.00000	4.20000	SEC 35 9 11
RA-20	LA-20					AL	A										04606117	0.00000	235.80000	SEC 35 & 36 9 11
RA-20	LA-20					AL	A										04606119	0.00000	10.09000	SEC 35 9 11
RA-20	LA-20					AL	A										04606120	0.00000	40.00000	SEC 36 9 11
RE-5	RL-10					AL	A										04606121	0.00000	29.61000	SEC 36 9 11
RE-5	LA-10					RR	A										04606122	0.00000	10.39000	SEC 36 9 11
RE-10	RE-5					MDR							GC				04606126	0.00000	20.00000	SEC 25 9 11
AE	PA-20					AL	A										04606127	0.00000	41.64000	SEC 25 9 11
AP	PA-20					AL	A										04606137	0.00000	35.22000	RS 11/14
RE-10	RL-20					AL	A										04606138	0.00000	5.00000	RS 11/14
RA-20	LA-20					AL	A										04606145	0.00000	41.63000	RS 11/25/B
RA-20	LA-20					AL	A										04606147	0.00000	20.00000	POR RS 11/25/A
RA-20	LA-20					AL	A										04606148	0.00000	20.00000	POR RS 11/25/A
RA-20	LA-20					AL	A										04606149	0.00000	20.94000	PM 2/2/1
RA-20	LA-20					AL	A										04606150	0.00000	21.20000	PM 2/2/2
RA-20	LA-20					AL	A										04606152	0.00000	20.58000	PM 2/2/3
RA-20	LA-20					AL	A										04606153	0.00000	20.84000	PM 2/2/4
RA-20	RL-40					NR											04606154	0.00000	40.26000	RS 11/25/C
RA-40	LA-40					NR											04606159	0.00000	40.00000	SEC 27 9 11
AE	AG-40					AL	A										04606163	0.00000	40.00000	NW1/4NW1/4S3591
AE	AG-40					AL	A										04606164	0.00000	160.00000	P S 35 9 11
AE	AG-40					AL	A										04606170	0.00000	31.74600	RS 23/119/1
AE	AG-40					AL	A										04606171	0.00000	132.13900	RS 23/119/2
AE	AG-40					AL	A										04606172	0.00000	32.66000	POR SEC 35 9 11
AE	AG-40					AL	A										04606174	0.00000	10.38200	PM 47/88/1

AE	AG-40					AL	A										04606175	0.00000	20.06100	PM 47/88/2
AE	AG-40					AL	A										04606176	0.00000	132.22800	PM 47/88/3
RA-40	PA-40					AL	A										04606179	0.00000	160.00000	SEC 26 9 11
RA-20	LA-20					AL	A										04606182	0.00000	72.00000	PM 49/125/1
RE-10	RL-10					RR											04607102	0.00000	10.00000	POR PM 17/131/A
RE-10	RL-10					RR											04607103	0.00000	10.00000	POR PM 17/131/A
RA-20	LA-10					RR											04607104	0.00000	20.00000	PM 17/131/B
RA-20	RL-10					RR											04607105	0.00000	13.26000	PM 17/131/C
RA-20	LA-10					RR											04607106	0.00000	24.92000	PM 17/131/D
RA-80	RL-40					NR											04607107	0.00000	318.97000	SEC 6 8 11
RA-40	LA-10					RR											04607108	0.00000	37.75000	RS 15/93/1
RA-40	RL-40					NR											04607109	0.00000	37.81000	RS 15/93/2
RA-80	LA-40					NR											04607110	0.00000	40.00000	SEC 5 8 11
RA-80	LA-40					NR											04607111	0.00000	139.51000	SEC 5 8 11
RA-80	LA-40					NR											04607112	0.00000	160.00000	SEC 5 8 11
RA-40	LA-40					NR											04607113	0.00000	40.46000	SEC 5 8 11
RA-40	RL-40					NR											04607114	0.00000	40.63000	SEC 5 8 11
RA-80	RL-40					NR											04607115	0.00000	64.13000	SEC 5 8 11
RA-80	RL-80					NR											04607116	0.00000	23.79000	SEC 5 8 11
RA-80	RL-40					NR											04607118	0.00000	80.97000	SEC 5 8 11 ADM
AE	PA-20					AL											04607121	0.00000	81.44000	SEC 4 8 11
AE	PA-20					AL	A										04607122	0.00000	160.84000	RS 23/42/1
RA-40	PA-40					AL	A										04607122	0.00000	160.84000	RS 23/42/1
AE	PA-20					AL											04607127	0.00000	217.68000	RS 23/139/1
RA-80	RL-80					NR											04607130	0.00000	11.24000	SEC 7 8 11
RA-40	RL-40					NR											04607132	0.00000	83.19600	RS 15/93/3
RA-40	LA-40					NR											04607133	0.00000	41.00000	RS 16/13/C
RA-40	LA-40					NR											04607134	0.00000	41.01000	RS 16/13/B
RA-40	LA-40					NR											04607135	0.00000	41.04400	RS 16/13/A
AE	PA-20					AL											04607140	0.00000	166.83000	PM 47/95/6
RA-40	LA-40					AL											04607140	0.00000	166.83000	PM 47/95/6
AE	PA-20					AL											04607141	0.00000	127.20000	PM 47/95/7
RA-40	LA-40					AL											04607141	0.00000	127.20000	PM 47/95/7
AE	LA-40					NR											04607143	0.00000	242.41000	PM 47/135/1
AE	PA-20					AL	A										04607144	0.00000	105.18000	PM 47/135/2
AE	RL-40					NR											04607145	0.00000	140.05000	PM 47/135/8
AE	LA-40					NR											04607146	0.00000	90.18000	PM 47/135/9
AE	LA-40					NR											04607147	0.00000	20.05000	PM 47/135/10
AE	LA-40					NR											04607148	0.00000	0.00000	PM 47/135/11
RA-40	RL-40					RR											04607149	0.00000	74.98000	RS 28/29/2
RA-40	RL-40					RR											04607150	0.00000	37.10000	RS 28/29/1
AE	PA-20					AL											04607152	0.00000	80.22000	RS 31/62/1
AE	PA-20					AL											04607153	0.00000	129.12000	RS 31/62/2
RA-20	LA-20					AL	A										04608102	0.00000	58.70000	SEC 2 8 11
AE	PA-20					AL	A										04608105	0.00000	163.63000	SEC 3 8 11
AE	PA-20					AL	A										04608120	0.00000	80.40000	RS 10/133 S2811

RA-20	LA-20					AL	A										04608122	0.00000	3.00000	SEC 2 8 11
RA-20	LA-20					AL	A										04608123	0.00000	20.00000	SEC 2 8 11
RA-20	LA-20					RR	A										04608125	0.00000	30.09000	PM 20/134/C
RE-10	RL-20					AL	A										04608131	0.00000	40.00000	SEC 11 8 11
I	RL-20					AL	A										04608132	0.00000	34.52000	SEC 11 8 11
RE-10	RL-20					AL	A										04608132	0.00000	34.52000	SEC 11 8 11
RE-10	RL-20					AL	A										04608133	0.00000	2.72000	SEC 11 8 11
C	RL-20					AL	A										04608134	0.00000	30.23000	SEC 11 & 12 8 11
RA-20	LA-20					AL	A										04608134	0.00000	30.23000	SEC 11 & 12 8 11
RA-20	LA-20					AL	A										04608136	0.00000	40.00000	SEC 12 8 11
RE-10	LA-10					RR	A										04608140	0.00000	12.45000	PM 40/76/1
RE-10	RL-10					RR	A										04608141	0.00000	12.44700	PM 40/76/2
AE	PA-20					RR	A										04608142	0.00000	10.06000	PM 40/76/3 ADM
RE-10	RL-10					RR	A										04608154	11.00000	1.06000	SEC 11 8 11
AE	AG-40					AL	A										04608157	0.00000	41.62400	RS 25/122
AE	AG-40					AL	A										04608158	0.00000	40.00000	SEC 2 8 11
AE	AG-40					AL	A										04608159	0.00000	10.00800	RS 22/25/1
AE	AG-40					AL	A										04608160	0.00000	140.15200	SEC 2 8 11
RE-10	RL-10					RR	A										04608162	0.00000	10.47000	PM 46/132/1
RE-10	LA-10					RR	A										04608163	0.00000	10.12000	PM 46/132/2
RE-10	RL-10					RR	A										04608164	0.00000	11.11000	PM 46/132/3
RA-20	LA-20					AL	A										04608166	0.00000	41.41000	RS 3/88/2 3 & 4
RA-20	LA-20					AL	A										04608167	0.00000	39.74000	RS 3/88/1
RA-20	LA-20					AL	A										04608178	0.00000	70.43000	RS 25/73
RA-40	LA-40					NR											04609053	0.00000	21.36000	SEC 15 8 11
AE	PA-20					AL	A										04609077	11.00000	0.11700	RS 26-60
AE	AG-40					AL											04609078	0.00000	69.19300	POR S 13&14 8 11
AE	AG-40					AL											04609078	0.00000	69.19300	POR S 13&14 8 11
AE	PA-20					AL	A										04609079	11.00000	0.66800	RS26-60
AE	PA-20					AL	A										04609080	0.00000	153.93200	POR SEC 13 8 11
AE	RL-40					NR											04609081	11.00000	0.14800	RS26-60
AE	RL-40					NR											04609082	0.00000	2.35200	POR SEC 13 8 11
RE-10	RL-10					RR											04610022	0.00000	3.00000	SEC 4 9 11
RE-10	RL-10					RR											04610024	0.00000	5.80000	SEC 5 9 11
RE-10	RL-10					RR											04610034	0.00000	3.45000	SEC 4 9 11
RE-10	RL-10					RR											04610037	0.00000	9.62000	SEC 4 9 11
RE-10	RL-10					RR											04610042	0.00000	6.26000	SEC 4 9 11
RE-10	RL-10					RR											04610043	0.00000	19.90000	SEC 4 9 11
RE-10	RL-10					RR											04610045	0.00000	4.89000	RS 13/16/1
R2A	RE-5					LDR					PL						04610054	0.00000	3.33000	PM 37/46/A
R2A	RE-5					LDR					PL						04610055	0.00000	2.09000	PM 37/46/B
RE-10	RL-10					RR											04610057	0.00000	67.60000	SEC 5 9 11
RE-10	RL-10					RR											04610058	0.00000	10.39100	RS 30/1/1
RE-5	RL-10					RR	A										04612002	0.00000	3.00000	SEC 17 9 11
RE-5	RL-10					RR	A										04612003	0.00000	3.78000	SEC 17 9 11
RE-5	RL-10					RR	A										04612005	0.00000	5.00000	SEC 17 9 11

RE-5	RL-10					RR	A										04612006	0.00000	6.32000	SEC 17 9 11
RE-5	RL-10					RR	A										04612008	0.00000	1.17000	SEC 17 9 11
RE-5	RL-10					RR	A										04612009	0.00000	3.15000	SEC 17 9 11
RE-5	LA-10					RR	A										04612010	0.00000	22.45500	RS 32/116/1
RA-20	LA-40					NR											04612011	0.00000	20.00000	SEC 17 9 11
RE-5	LA-40					NR											04612011	0.00000	20.00000	SEC 17 9 11
RE-5	RL-10					RR	A										04612013	0.00000	6.45000	SEC 17 9 11
RE-5	RL-10					RR	A										04612017	0.00000	2.47000	SEC 8 & 17 9 11
RE-5	RL-10					RR	A										04612018	0.00000	1.50000	SEC 8 & 17 9 11
RE-5	RL-10					RR	A										04612021	0.00000	7.86000	SEC 17 9 11
RE-5	RL-10					RR	A										04612024	0.00000	2.00000	SEC 17 9 11
RE-5	LA-10					RR	A										04612031	0.00000	10.31000	SEC 17 9 11
RE-5	RL-10					RR	A										04612034	0.00000	2.30000	PM 18/141/A
RE-5	RL-10					RR	A										04612035	0.00000	2.35400	PM 18/141/B
RE-5	RL-10					RR	A										04612036	0.00000	2.30000	PM 18/141/C
RE-5	RL-10					RR	A										04612037	0.00000	2.30000	PM 18/141/D
RE-5	RL-10					RR	A										04612038	0.00000	1.69000	PM 19/52/1
RE-5	RL-10					RR	A										04612039	0.00000	2.00000	PM 19/52/2
RE-5	RL-10					RR	A										04612040	0.00000	4.99000	PM 19/54/A
RE-5	RL-10					RR	A										04612041	0.00000	1.96000	PM 19/54/B
RE-5	RL-10					RR	A										04612042	0.00000	2.80000	PM 19/54/C
RE-5	RL-10					RR	A										04612043	0.00000	2.30000	PM 19/55/A
RE-5	RL-10					RR	A										04612044	0.00000	2.50000	PM 19/55/B
RE-5	RL-10					RR	A										04612045	0.00000	2.40000	PM 19/55/C
RE-5	RL-10					RR	A										04612046	0.00000	2.40000	PM 19/55/D
RE-5	RL-10					RR	A										04612047	0.00000	8.05000	PM 19/56/A
RE-5	RL-10					RR	A										04612048	0.00000	2.62000	PM 19/56/B
RE-5	RL-10					RR	A										04612053	0.00000	5.02000	SEC 17 9 11
RE-5	RL-10					RR	A										04612054	0.00000	1.01000	SEC 17 9 11
RE-5	RF-L					OS			IBC								04613002	0.00000	0.00000	BCH&IS TO CL RIV
C	CC					C							MA				04618012	0.00000	1.65000	SEC 11 8 11
C	CC					C							MA				04618017	0.00000	1.80100	SEC 11 8 11
C	CL					C							MA				04618018	0.00000	0.63000	SEC 11 8 11
C	CC					C							MA				04618019	0.00000	5.38000	PM 14/98/A
C	CC					C							MA				04618020	0.00000	4.50000	PM 14/98/B
C	CC					C							MA				04618021	0.00000	4.26000	PM 14/98/C
C	CC					C							MA				04618022	0.00000	4.52000	PM 24/124/A
C	CC					C							MA				04618023	0.00000	4.51000	PM 24/124/B
C	CC					C							MA				04618024	0.00000	5.02000	PM 24/124/C
C	CC					C							MA				04618025	0.00000	5.02000	PM 24/124/D
C	PA-20					AL	A										04618032	0.00000	22.41000	PM 28/112/B
RE-10	PA-20					AL	A										04618032	0.00000	22.41000	PM 28/112/B
C	CC					C							MA				04618034	0.00000	1.50000	SEC 11 8 11
C	CC					C							MA				04618035	0.00000	14.85000	SEC 11 8 11
C	CL					C							MA				04618036	0.00000	0.41000	SEC 11 8 11
C	CC					C							MA				04618038	0.00000	2.76600	PM 31/150/1

RE-5	RL-10					RR	A										04618039	0.00000	10.20300	PM 33/78/A
RE-5	RL-10					RR	A										04618041	0.00000	17.86000	PM 33/78/C
RE-5	RL-10					RR	A										04618042	0.00000	5.01000	PM 39/31/1
RE-5	RL-10					RR	A										04618043	0.00000	5.00000	PM 39/31/2
RA-20	RL-40					NR											04620001	0.00000	0.92400	RS 21/123/1
RA-20	RL-40					NR											04620002	0.00000	1.60000	POR SEC 24 8 11
RA-20	RL-40					NR											04620003	0.00000	2.58000	POR SEC 24 8 11
RA-20	RL-40					NR											04620009	0.00000	5.00000	RS 15/120/2
RA-20	RL-40					NR											04620012	0.00000	12.52000	SEC 13 8 11
RA-20	RL-40					NR											04620013	0.00000	34.81000	RS 15/120/1
RA-20	LA-40					NR											04620015	0.00000	9.60000	SEC 13 8 11
RA-20	RL-40					NR											04620016	0.00000	10.09000	SEC 13 8 11
RA-20	LA-40					NR											04620017	0.00000	10.10000	PM 2/79/R
RE-10	LA-10					RR	A										04620019	0.00000	20.48000	PM 4/155/B
RE-10	RL-10					RR	A										04620022	0.00000	5.13000	PM 6/12/1
RE-10	RL-10					RR	A										04620023	0.00000	5.13000	PM 6/12/2
RE-10	RL-10					RR	A										04620024	0.00000	5.13000	PM 6/12/3
RE-10	RL-10					RR	A										04620025	0.00000	5.13000	PM 6/12/4
RE-10	RL-40					NR											04620026	0.00000	5.13000	PM 6/11/1
RE-10	RL-40					NR											04620027	0.00000	5.13000	PM 6/11/2
RE-10	RL-40					NR											04620028	0.00000	5.13000	PM 6/11/3
RE-10	RL-40					NR											04620029	0.00000	5.13000	PM 6/11/4
RA-20	RL-40					NR											04620031	0.00000	37.24000	PM 8/73/2
RA-20	RL-40					NR											04620032	0.00000	8.49000	SEC 24 8 11
RA-20	LA-40					NR											04620033	0.00000	27.23000	PM 8/94/A
RA-20	RL-40					NR											04620034	0.00000	5.31000	PM 8/94/B
RE-10	RL-10					RR	A										04620035	0.00000	10.24000	PM 9/126/1
RE-10	LA-10					RR	A										04620036	0.00000	10.24000	PM 9/126/2
RA-20	RL-40					NR											04620037	0.00000	10.72000	PM 15/28/A
RA-20	RL-40					NR											04620038	0.00000	13.49000	PM 15/28/B
RE-10	RL-40					NR											04621006	0.00000	10.07000	PM 49/38/1
RE-10	RL-40					NR											04621007	0.00000	5.24400	PPM 49/38/2 ADM
RE-10	RL-10					RR											04623001	0.00000	7.70000	SEC 5 9 11
RE-10	RL-10					RR											04623006	0.00000	12.34000	SEC 5 9 11
RE-10	RL-10					RR											04623009	0.00000	18.62000	SEC 5 9 11
RE-10	RL-10					RR											04623015	0.00000	5.70000	SEC 5 9 11
RE-10	RL-10					RR											04623020	0.00000	20.92000	RS 31/15/1
RE-10	RL-10					RR											04623028	0.00000	8.90000	PM 10/35/1
RE-10	RL-10					RR											04623029	0.00000	10.00000	PM 10/35/2
RE-10	RL-10					RR											04623030	0.00000	0.88000	SEC 5 9 11
RE-10	RL-10					RR											04623031	0.00000	12.55000	SEC 5 9 11
RE-10	RL-10					RR											04623033	0.00000	9.19000	SEC 5 9 11
RE-10	RL-10					RR											04623034	0.00000	12.99000	SEC 5 9 11
RE-10	RL-10					RR											04623035	0.00000	14.46000	PM 20/86/1
RE-10	RL-10					RR											04623036	0.00000	10.00000	PM 20/86/2
RE-10	RL-10					RR	A										04623037	0.00000	4.10000	RS 9/49 S5911

RE-10	RL-10					RR											04623044	0.00000	9.28000	RS 9/132 S5911
RE-10	RL-10					RR											04623045	0.00000	9.25000	RS 9/132 S5911
RE-10	RL-10					RR											04623051	0.00000	10.35000	RS 23/114/2
RE-10	RL-10					RR											04623052	0.00000	8.31000	RS 23/114/1
RE-10	RL-10					RR	A										04624006	0.00000	4.80000	PM 32/68/1
RE-10	RL-10					RR	A										04624007	0.00000	6.87000	PM 32/68/2
RE-10	RL-10					RR	A										04624008	0.00000	4.79000	PM 32/68/3
RE-5	RL-10					AL	A										04625015	0.00000	25.00000	PM 6/1/2
RE-5	RL-10					RR	A										04625021	0.00000	10.24000	PM 18/145/2
RE-10	RL-10					RR											04625022	0.00000	12.49000	PM 24/128/1
RE-10	RL-10					RR											04625023	0.00000	11.24000	PM 24/128/2
RE-10	RL-10					RR											04625024	0.00000	10.00000	PM 24/128/3
RE-10	RE-5					LDR											04625037	0.00000	4.99000	PM 35/2/A
RE-10	RL-10					RR											04625039	0.00000	20.71000	POR PM 24/128/4
RE-10	RL-10					RR											04626016	0.00000	6.90000	RS 16/139/1
RE-10	RL-10					RR											04626021	0.00000	4.60000	SEC 2 9 11
RE-10	RL-10					RR											04626022	0.00000	5.34000	SEC 2 9 11
RE-10	RL-10					RR											04626023	0.00000	6.64000	SEC 2 9 11
RE-10	RL-10					RR											04626024	0.00000	1.49000	SEC 2 9 11
RE-10	RL-10					RR											04626032	0.00000	4.92000	SEC 2 9 11
RE-10	RL-10					RR											04626037	0.00000	10.00000	PM 1/158/A
RE-10	RL-10					RR											04626049	0.00000	2.01000	RS 27/118/1
RE-10	RL-10					RR											04626055	0.00000	3.43000	PM 18/133/1
RE-10	RL-10					RR											04626056	0.00000	2.20000	PM 18/133/2
RE-10	RL-10					RR											04626057	0.00000	1.69000	PM 18/133/3
RE-10	RL-10					RR											04626058	0.00000	10.21000	SEC 2 9 11
RE-10	RL-10					RR											04626059	0.00000	4.88000	SEC 2 9 11
RE-10	RL-10					RR											04626066	0.00000	10.54500	SEC 3 9 11
RE-10	RL-10					RR											04626070	0.00000	1.72000	PM 43/73/2
RE-10	RL-10					RR											04626071	0.00000	1.26000	PM 43/73/3
RE-10	RL-10					RR											04626072	0.00000	3.50000	PM 43/73/4
RE-10	RL-10					RR											04626081	0.00000	5.20500	RS 24/93/1
AE	RL-40					NR											04627008	0.00000	22.53000	SEC 1 9 11
PA-30	PA-20					AL	A										04627016	0.00000	60.30000	PM 39/125/1
AE	PA-20					AL											04627017	0.00000	41.10000	PM 39/125/2
PA-30	PA-20					AL	A										04627018	0.00000	20.10000	PM 39/125/3
RE-10	RL-40					NR											04627022	0.00000	14.98800	POR SEC 1 9 11
PA-30	RL-40					NR											04627023	0.00000	2.50300	RS 25/14/1
RA-20	RL-40					NR											04627023	0.00000	2.50300	RS 25/14/1
RE-10	RL-20					AL	A										04627026	0.00000	40.00100	PM 50/68/1
PA-30	PA-20					AL	A										04627027	0.00000	50.45600	PM 50/68/2
RE-10	RL-20					AL	A										04627027	0.00000	50.45600	PM 50/68/2
RE-10	RL-20					AL	A										04627027	0.00000	50.45600	PM 50/68/2
RE-10	RL-10					RR											04628011	0.00000	6.30000	SEC 2 9 11
RE-10	RL-10					RR											04628012	0.00000	4.73000	SEC 2 9 11
RE-10	RL-10					RR											04628013	0.00000	5.13000	SEC 2 9 11

RE-10	RL-10					RR											04628014	0.00000	5.40000	SEC 2 9 11
RA-20	RL-40					NR											04628015	0.00000	45.10000	SEC 2 9 11
RE-10	RL-10					RR											04628020	0.00000	20.89000	SEC 2 9 11
RE-10	RL-10					RR											04628023	0.00000	6.16000	SEC 2 9 11
RE-10	RL-10					RR											04628028	0.00000	9.66000	PM 1/52/A
RE-10	RL-10					RR											04628029	0.00000	19.34000	PM 1/52/B
RE-10	RL-10					RR											04628031	0.00000	18.41000	PM 6/8/1
RE-10	RL-10					RR											04628041	0.00000	19.88000	SEC 2 9 11
RA-20	RL-40					NR											04628042	0.00000	64.01000	SEC 2 9 11
RE-10	RL-10					RR											04628044	0.00000	1.03000	2 PM 6-8&S2 9 11
RE-10	RL-10					RR			IBC								04629112	0.00000	12.05000	RS 1/132/1
RE-10	RL-10					RR			IBC								04629116	0.00000	15.14000	RS 1/132/3
RE-10	RL-10					RR			IBC								04629118	0.00000	11.43000	RS 1/132/4
RE-10	RL-10					RR			IBC								04629120	0.00000	14.43600	PM 18/41/2
RE-10	RL-10					RR			IBC								04629139	0.00000	11.01000	PM 12/101/2
RE-10	RL-10					RR			IBC								04629140	0.00000	10.01000	PM 12/101/1
RE-10	RL-10					RR			IBC								04629145	0.00000	15.07000	PM 18/54/4
RE-10	RL-10					RR			IBC								04629146	0.00000	10.12000	PM 18/54/3
RE-10	RL-10					RR			IBC								04629147	0.00000	10.02000	PM 18/54/2
RE-10	RL-10					RR			IBC								04629148	0.00000	5.01000	PM 18/54/1
RE-10	RL-10					RR			IBC								04629149	0.00000	6.40000	PM 20/17/1
RE-10	RL-10					RR			IBC								04629150	0.00000	5.01000	PM 20/17/2
RE-10	RL-10					RR			IBC								04629151	0.00000	10.01000	PM 20/17/3
RE-10	RL-10					RR			IBC								04629152	0.00000	10.00500	PM 20/17/4
RE-10	RL-10					RR			IBC								04629159	0.00000	10.00600	PM 49/55/1
RE-10	RL-10					RR			IBC								04629160	0.00000	10.05800	PM 49/55/2
RE-10	RL-40					NR											04630010	0.00000	10.62000	RS 1/135/1A
RA-20	RL-20					RR			IBC								04631112	0.00000	53.17000	RS 17/14/1
RA-20	RL-20					RR			IBC								04631113	0.00000	50.19000	RS 17/14/2
RA-20	RL-20					RR			IBC								04631114	0.00000	45.10000	RS 17/14/3
RE-10	RL-10					RR			IBC								04631116	0.00000	20.01000	PM 33/30/2
RE-10	RL-10					RR			IBC								04631117	0.00000	20.06000	PM 33/30/1
RA-20	RL-20					RR			IBC								04631118	0.00000	42.88000	RS 12/130/1
RE-10	RL-10					RR			IBC								04631119	0.00000	16.29000	SEC 30 9 11
RE-10	RL-10					RR			IBC								04631121	0.00000	12.01300	PM 42/131/1
RE-10	RL-10					RR			IBC								04631122	0.00000	10.00100	PM 42/131/2
RE-10	RL-10					RR			IBC								04631123	0.00000	17.42000	RS 12/130/2
RE-10	RL-10					RR			IBC								04631124	0.00000	10.01000	PM 32/32/C
RE-10	RL-10					RR			IBC								04631125	0.00000	10.00000	PM 33/66/2
RE-10	RL-10					RR			IBC								04631126	0.00000	15.87000	PM 33/66/1
RE-10	RL-10					RR			IBC								04631128	0.00000	18.79000	SEC 31 9 11
RA-20	LA-10					RR			IBC								04631177	0.00000	20.10400	PM 46/9/1
RA-20	RL-20					RR			IBC								04631178	0.00000	20.42300	PM 46/9/2
RE-10	RL-10					RR	A										04632004	0.00000	1.00000	SEC 13 8 11
RE-10	RL-10					RR	A										04632006	0.00000	2.00000	SEC 13 8 11
RE-10	RL-10					RR	A										04632007	0.00000	0.25000	SEC 13 8 11

RE-10	RL-10					RR	A										04632008	0.00000	2.50000	SEC 13 8 11
RE-10	RL-10					RR	A										04632009	0.00000	0.75000	SEC 13 8 11
RE-10	RL-10					RR	A										04632010	0.00000	2.89000	SEC 13 8 11
RE-10	RL-20					AL	A										04632012	0.00000	38.28000	SEC 13 8 11
RE-10	RL-20					AL	A										04632013	0.00000	5.00000	SEC 13 8 11
RE-10	RL-20					AL	A										04632014	0.00000	35.00000	SEC 13 8 11
RE-10	RL-10					RR	A										04632017	0.00000	6.70000	SEC 13 8 11
RE-10	RL-10					RR	A										04632018	0.00000	7.77000	SEC 13 8 11
RE-10	RL-20					AL	A										04632021	0.00000	10.81000	PM 2/1/A
RE-10	RL-20					AL	A										04632022	0.00000	10.47900	PM 2/1/B
RE-10	RL-20					AL	A										04632023	0.00000	5.78000	PM 2/1/C
RE-5	RL-10					RR	A										04632025	0.00000	9.42000	RS 12/7/2
RA-20	LA-20					AL	A										04632036	11.00000	0.11300	RS26-60
RA-20	LA-20					AL	A										04632037	0.00000	20.28700	POR SEC 13 8 11
RE-5	RL-10					RR	A										04632039	0.00000	4.92100	POR SEC 13 8 11
RE-5	RL-10					RR	A										04632040	11.00000	0.07900	RS26-60
RE-10	RL-10					RR	A										04633001	0.00000	2.93000	SEC 8 9 11
RE-10	RL-10					RR	A										04633002	0.00000	4.59000	SEC 8 9 11
RE-10	RL-10					RR	A										04633003	0.00000	3.38000	SEC 8 9 11
RE-10	RL-10					RR	A										04633004	0.00000	15.91000	SEC 8 9 11
RE-10	LA-10					RR	A										04633007	0.00000	10.00000	SEC 9 9 11
RE-10	LA-10					RR	A										04633011	0.00000	10.00000	SEC 9 9 11
RE-10	RL-10					RR	A										04633020	0.00000	11.09000	PM 17/77/B
RE-10	RL-10					RR	A										04633026	0.00000	6.37000	POR PM 17/77/A
RE-5	RL-10					RR	A										04633031	0.00000	8.56000	POR PM 18/52/A
RE-5	RL-10					RR	A										04633032	0.00000	7.21000	POR PM 18/52/A
RE-10	LA-10					RR	A										04633035	0.00000	10.00000	PM 40/130/1
RE-10	RL-10					RR	A										04633036	0.00000	10.00000	PM 40/130/2
RE-10	RL-10					RR	A										04633037	0.00000	8.60000	PM 40/130/3
RE-10	RL-10					RR	A										04633038	0.00000	10.00000	PM 40/130/4
RE-10	RL-10					RR	A										04633039	0.00000	10.00000	PM 41/10/1
RE-10	LA-10					RR	A										04633040	0.00000	10.00300	PM 41/10/2
RE-10	RL-10					RR	A										04633047	0.00000	2.18400	RS 17/42/B
RE-10	RL-10					RR	A										04633048	0.00000	5.81000	RS 17/42/A
RE-10	RL-10					RR	A										04633051	0.00000	10.01200	PM 20/91/A
RE-10	RL-10					RR	A										04633052	0.00000	4.73000	SEC 4 9 11
RE-10	RL-10					RR	A										04633053	0.00000	12.17000	PM 20/91/B
RE-10	RL-10					RR	A										04633056	0.00000	5.58000	PM 24/43/1
RE-10	RL-10					RR	A										04633057	0.00000	5.37000	PM 24/43/2
RE-10	LA-10					RR	A										04633058	0.00000	19.82000	SEC 5 9 11
RE-10	LA-10					RR	A										04633060	0.00000	12.97000	PM 50/109/1
RE-10	RL-10					RR	A										04633061	0.00000	8.07100	PM 50/109/2
RE-10	RL-10					RR	A										04634002	0.00000	10.00000	SEC 9 9 11
RE-10	RL-10					RR	A										04634003	0.00000	10.00000	SEC 9 9 11
RE-10	RL-10					RR	A										04634006	0.00000	10.30000	RS 17/9
RE-10	RL-10					RR	A										04634007	0.00000	10.00000	SEC 9 9 11

RE-5	RL-10					RR	A										04634016	0.00000	3.31000	SEC 8 9 11
RE-5	RL-10					RR	A										04634019	0.00000	5.19000	PM 11/103/C
RE-5	RL-10					RR	A										04634020	0.00000	3.09000	PM 11/103/D
RE-5	RL-10					RR	A										04634022	0.00000	1.02000	PM 16/42/1
RE-5	RL-10					RR	A										04634023	0.00000	1.00000	PM 16/42/2
RE-5	RL-10					RR	A										04634024	0.00000	1.00100	PM 16/42/3
RE-5	RL-10					RR	A										04634025	0.00000	1.00000	PM 16/42/4
RE-5	RL-10					RR	A										04634028	0.00000	6.40000	PM 11/103/A
RE-5	RL-10					RR	A										04634029	0.00000	5.32000	PM 11/103/B
RE-5	RL-10					RR	A										04634030	0.00000	7.48000	SEC 8 9 11
RE-5	RL-10					RR	A										04634031	0.00000	5.09000	SEC 8 9 11
RE-5	RL-10					RR	A										04634032	0.00000	3.40000	POR RS 23/142
RE-5	RL-10					RR	A										04634033	0.00000	5.37000	POR RS 23/142
RE-5	RL-10					RR	A										04634034	0.00000	5.00000	SEC 8 9 11
AE	PA-20					AL	A										04635001	0.00000	2.10000	SEC 8 9 11
RE-10	RL-10					RR											04635008	0.00000	36.73000	SEC 7 & 8 9 11
RE-5	RL-10					AL	A										04635010	0.00000	89.96000	SEC 8 9 11
RE-10	RL-10					RR											04635014	0.00000	20.00000	POR RS 7/114
RE-10	RL-10					RR											04635015	0.00000	30.00000	SEC 7 9 11
RE-10	RL-10					RR											04635016	0.00000	10.22000	SEC 7 9 11
RE-10	RL-10					RR											04635017	0.00000	10.05000	SEC 7 9 11
RE-10	RL-10					RR											04635018	0.00000	13.03000	POR RS 11/3
RE-10	RL-10					RR											04635020	0.00000	20.00000	POR RS 11/3
RE-10	RL-10					RR											04635021	0.00000	10.00000	SEC 7 9 11
RE-10	RL-10					RR											04635022	0.00000	10.00000	SEC 7 9 11
AE	PA-20					AL	A										04635023	0.00000	77.71000	SEC 8 9 11
AE	PA-20					AL	A										04635024	0.00000	40.00000	SEC 8 9 11
AE	PA-20					AL	A										04635025	0.00000	40.00000	SEC 8 9 11
RE-10	RL-10					RR			IBC								04636108	0.00000	10.00000	SEC 22 9 11
RE-10	RL-10					RR			IBC								04636109	0.00000	10.00000	SEC 22 9 11
RE-10	RL-10					RR			IBC								04636143	0.00000	10.00000	SEC 22 9 11
RA-40	RL-40					RR			IBC								04636144	0.00000	30.00000	SEC 22 9 11
RA-40	LA-10					RR			IBC								04636145	0.00000	20.00000	SEC 22 9 11
RE-10	RL-10					RR			IBC								04636146	0.00000	9.91000	SEC 22 9 11
RE-10	RL-10					RR			IBC								04636147	0.00000	5.09000	RS 9/101/1
RE-10	RL-10					RR			IBC								04636148	0.00000	10.09000	SEC 22 9 11
RE-10	RL-10					RR			IBC								04636149	0.00000	5.41000	PM 30/75/B
RE-10	RL-10					RR			IBC								04636150	0.00000	10.00000	SEC 22 9 11
RE-10	RL-10					RR			IBC								04636151	0.00000	6.50000	PM 30/75/A
RE-10	RL-10					RR			IBC								04636152	0.00000	9.42000	PM 30/75/C
RE-10	RL-10					RR			IBC								04636153	0.00000	8.17000	PM 30/75/D
RE-10	RL-10					RR			IBC								04636154	0.00000	5.00000	RS 9/101/2
RE-10	RL-10					RR			IBC								04636155	0.00000	5.02000	SEC 22 9 11
RE-10	RL-10					RR			IBC								04636156	0.00000	5.02000	SEC 22 9 11
RA-20	RL-40					NR											04636157	0.00000	20.33000	RS 18/106/2
RA-20	LA-10					RR			IBC								04636158	0.00000	20.37000	RS 18/106/1

RE-10	RL-10					RR			IBC								04636159	0.00000	10.44000	PM 8/13/D
RE-10	RL-10					RR			IBC								04636160	0.00000	10.06000	PM 8/13/B
RE-10	RL-10					RR			IBC								04636161	0.00000	5.11600	PM 30/39/1
RE-10	RL-10					RR			IBC								04636162	0.00000	5.25000	PM 30/39/2
RE-10	RL-40					NR											04637010	0.00000	9.47000	PPM 13/115/A ADM
RE-10	RL-40					NR											04637030	0.00000	25.01000	PM 12/86/D
RE-10	RL-10					RR	A										04637031	0.00000	28.67000	PPM 13/115/A ADM
RE-10	RL-10					RR	A		IBC								04637032	0.00000	11.48000	PM 13/115/B
RE-10	RL-10					RR	A		IBC								04637033	0.00000	10.05000	PM 13/115/C
RE-10	RL-20					AL	A										04637034	0.00000	27.96000	PM 13/115/D
RE-10	RL-10					RR			IBC								04637036	0.00000	7.27000	PM 22/106/2
RE-10	RL-10					RR			IBC								04637039	0.00000	26.33000	PM 26/138/A
RE-5	RL-10					RR			IBC								04637040	0.00000	4.49000	PM 26/138/B
RE-5	RL-10					RR			IBC								04637041	0.00000	6.03000	PM 26/138/C
RE-5	RF-L					OS			IBC								04637042	0.00000	5.90000	PM 26/138/D
RE-10	RL-10					RR			IBC								04637051	0.00000	12.00400	PM 29/5/A
RE-10	RL-10					RR			IBC								04637052	0.00000	10.00000	PM 29/5/B
RE-10	RL-10					RR			IBC								04638021	0.00000	10.00000	SEC 14 & 23 9 11
RE-10	RL-10					RR			IBC								04638022	0.00000	10.00000	SEC 14 9 11
RE-10	RL-10					RR			IBC								04638023	0.00000	10.00000	SEC 14 9 11
RE-10	RL-10					RR			IBC								04638024	0.00000	10.00000	SEC 14 9 11
RE-10	RL-10					RR			IBC								04638044	0.00000	10.00000	PM 4/2/1
RE-10	RL-10					RR			IBC								04638045	0.00000	10.00000	PM 4/2/2
RE-10	RL-10					RR			IBC								04638048	0.00000	3.91000	PM 3/37/1
RE-10	RL-10					RR			IBC								04638049	0.00000	1.38000	PM 3/37/2
RE-10	RL-10					RR			IBC								04638050	0.00000	4.71000	PM 3/37/3
RE-10	RL-10					RR			IBC								04638060	0.00000	10.00000	PM 10/82/1
RE-10	RL-10					RR			IBC								04638061	0.00000	10.00000	PM 10/82/2
RE-10	RL-10					RR			IBC								04638062	0.00000	10.00000	PM 10/82/3
RE-10	RL-10					RR			IBC								04638063	0.00000	10.00000	PM 10/82/4
RE-10	RL-10					RR			IBC								04638064	0.00000	10.00000	PM 17/74/A
RE-10	RL-10					RR			IBC								04638065	0.00000	10.00000	PM 17/74/B
RE-5	RL-10					RR			IBC								04638074	0.00000	10.00000	SEC 23 9 11
RE-10	RL-10					RR			IBC								04638075	0.00000	10.02000	PM 45/138/1
RE-10	RL-10					RR			IBC								04638076	0.00000	10.00000	PM 45/138/2
RE-10	RL-10					RR			IBC								04638077	0.00000	10.00000	PM 45/138/3
RE-10	RL-10					RR			IBC								04638078	0.00000	10.00000	PM 45/138/4
RE-10	RL-10					RR			IBC								04640007	0.00000	10.00000	PM 3/167/A
RE-10	RL-10					RR			IBC								04640009	0.00000	10.00000	PM 3/167/C
RE-10	RL-10					RR			IBC								04640010	0.00000	10.00000	PM 3/167/D
RE-10	RL-10					RR			IBC								04640011	0.00000	21.36000	PM 13/7/A
RE-10	RL-10					RR			IBC								04640012	0.00000	8.64000	PM 13/7/B
RE-5	RL-10					RR			IBC								04640013	0.00000	10.00000	PM 13/7/C
RE-10	RL-10					RR			IBC								04640014	0.00000	10.00000	PM 14/57/A
RE-10	RL-10					RR			IBC								04640015	0.00000	10.01000	PM 14/57/B
RE-10	RL-10					RR			IBC								04640016	0.00000	10.01000	PM 14/57/C

RE-10	RL-10					RR			IBC								04640017	0.00000	10.01000	PM 14/57/D
RE-10	RL-10					RR			IBC								04640018	0.00000	10.00000	PM 14/75/A
RE-10	RL-10					RR			IBC								04640019	0.00000	10.00000	PM 14/75/B
RE-10	RL-10					RR			IBC								04640020	0.00000	10.02000	PM 14/75/C
RE-10	RL-10					RR			IBC								04640023	0.00000	5.00200	PM 20/120/B
RE-10	RL-10					RR			IBC								04640030	0.00000	5.00000	PM 25/31/1
RE-10	RL-10					RR			IBC								04640031	0.00000	5.00000	PM 25/31/2
RE-10	RL-10					RR			IBC								04640038	0.00000	10.02000	PM 26/76/4
RE-10	RL-10					RR			IBC								04640039	0.00000	5.04000	PM 30/44/1
RE-10	RL-10					RR			IBC								04640040	0.00000	5.00000	PM 30/44/2
RE-10	RL-10					RR			IBC								04641024	0.00000	12.88000	PM 6/159/D
RA-40	RL-40					RR											04642024	0.00000	80.00000	POR RS 4/141
RE-10	RL-10					RR			IBC								04642026	0.00000	6.50000	PM 27/133/2
RE-10	RL-10					RR			IBC								04642028	0.00000	5.00000	PM 28/24/A
RE-10	RL-10					RR			IBC								04642029	0.00000	5.00000	PM 28/24/B
RE-10	PA-20					RR			IBC								04642040	0.00000	5.00000	PM 29/124/A
RE-10	RL-10					RR			IBC								04642044	0.00000	10.00000	PM 43/4/1
RE-10	RL-10					RR			IBC								04642045	0.00000	10.00000	PM 43/4/2
RE-10	RL-10					RR			IBC								04642046	0.00000	10.00000	PM 43/4/3
RE-10	RL-10					RR			IBC								04642047	0.00000	10.00400	PM 43/4/4
RE-10	RL-10					RR			IBC								04642048	0.00000	25.66600	PM 27/133/1
RE-10	RL-10					RR	A										04643102	0.00000	13.50000	SEC 24 9 11
RE-5	RL-10					RR			IBC								04643121	0.00000	9.95000	PM 12/6/A
RE-5	RL-10					RR			IBC								04643122	0.00000	6.61000	SEC 23 9 11
RE-10	RL-20					AL	A										04643132	0.00000	25.06000	SEC 23 & 24 9 11
R1	RL-10					RR			IBC								04643148	0.00000	6.59000	SEC 23 9 11
RE-10	RL-10					RR	A										04643156	0.00000	13.50000	SEC 24 9 11
RE-10	LA-10					RR	A										04643157	0.00000	13.48000	RS 30/144/1
RE-10	RL-10					RR	A										04644008	0.00000	14.15000	SEC 26 9 11
RE-10	LA-10					RR	A										04644010	0.00000	11.97000	RS 23/128/1
RE-10	RL-10					RR	A										04644011	0.00000	10.00000	SEC 26 9 11
RA-20	LA-20					AL	A										04644012	0.00000	15.16000	SEC 35 9 11
RE-5	RL-10					RR	A										04644013	0.00000	12.14000	SEC 35 9 11
RA-20	LA-20					AL	A										04644014	0.00000	11.79000	SEC 35 9 11
RE-5	LA-10					RR	A										04644017	0.00000	9.86900	PM 3/1/3
RE-5	LA-10					RR	A										04644018	0.00000	9.90000	PM 3/1/4
RE-10	LA-10					RR	A										04644019	0.00000	10.02000	PM 4/106/1
RE-10	LA-10					RR	A										04644020	0.00000	10.01500	PM 4/106/2
RE-10	RL-10					RR	A										04644021	0.00000	10.01000	PM 5/30/1
RE-10	RL-10					RR	A										04644022	0.00000	10.01000	PM 5/30/2
RE-10	RL-10					RR	A										04644023	0.00000	10.01000	PM 5/30/3
RE-10	RL-10					RR	A										04644024	0.00000	10.01500	PM 5/21/1
RE-10	RL-10					RR	A										04644025	0.00000	10.01500	PM 5/21/2
RE-10	RL-10					RR	A										04644026	0.00000	10.02000	PM 5/21/3
RE-10	RL-10					RR	A										04644027	0.00000	10.02000	PM 5/21/4
RE-10	LA-10					RR	A										04644035	0.00000	10.00000	PM 19/26/A

RE-10	RL-10					RR	A										04644036	0.00000	10.00000	PM 19/26/B
RE-10	LA-10					RR	A										04644037	0.00000	10.01000	PM 19/26/C
RE-10	RL-10					RR	A										04644038	0.00000	10.41000	PM 19/26/D
RE-10	RL-10					RR	A										04644039	0.00000	10.00000	PM 19/27/A
RE-10	RL-10					RR	A										04644040	0.00000	10.00000	PM 19/27/B
RE-10	LA-10					RR	A										04644041	0.00000	11.59000	PM 19/27/C
RE-10	RL-10					RR	A										04644043	0.00000	10.00000	PM 19/28/A
RE-10	RL-10					RR	A										04644044	0.00000	10.00000	PM 19/28/B
RE-10	RL-10					RR	A										04644045	0.00000	10.00000	PM 19/28/C
RE-10	RL-10					RR	A										04644047	0.00000	10.00000	POR PAR D 19-27
RE-10	LA-10					RR	A										04644048	0.00000	0.00000	POR PAR D 19-27
RE-10	LA-10					RR	A										04644049	0.00000	10.45000	PM 25/95/1
RE-10	RL-10					RR	A										04644050	0.00000	11.38000	PM 25/95/2
RE-10	LA-10					RR	A										04644051	0.00000	10.00000	RS 26/51/1
RE-10	RL-10					RR	A										04644052	0.00000	10.01000	RS 8/93/2
RE-10	LA-10					RR	A										04644053	0.00000	18.47800	RS 26/51/2
RE-10	RL-10					RR	A										04644054	0.00000	10.01000	RS 8/93/1
RE-5	RL-10					RR	A										04644056	0.00000	5.00000	PM 32/112/A
RE-5	RL-10					RR	A										04644057	0.00000	5.00000	PM 32/112/B
RE-5	RL-10					RR	A										04644058	0.00000	5.00000	PM 32/112/C
RE-5	RL-10					RR	A										04644059	0.00000	4.78000	PM 32/112/D
RE-10	RL-10					RR											04646001	0.00000	2.50000	PM 5/68/A
RE-10	RL-10					RR											04646011	0.00000	2.33000	PM 4/43/A
RE-10	RL-10					RR											04646012	0.00000	5.44000	PM 4/43/B
RE-10	RL-10					RR											04646013	0.00000	7.20000	PM 4/43/C
RE-10	RL-10					RR											04646014	0.00000	7.62000	PM 4/43/D
RE-10	RL-10					RR											04646022	0.00000	0.50000	PPM 5/102/A ADM
RE-10	RL-10					RR											04646023	0.00000	2.05000	PPM 5/102/A ADM
RE-10	RL-10					RR											04646029	0.00000	17.71000	PM 5/72/A
RE-10	RL-10					RR											04646031	0.00000	21.60000	PM 6/154/1
RE-10	RL-10					RR											04646037	0.00000	6.71000	PM 9/80/A
RE-10	RL-10					RR											04646038	0.00000	10.01000	PM 9/80/B
RE-10	RL-10					RR											04646039	0.00000	9.66000	PM 9/80/C
RE-10	RL-10					RR											04646043	0.00000	8.96000	PPM 12/12/1 ADM
RE-10	RL-10					RR											04646044	0.00000	7.15000	PPM 12/12/1 ADM
RE-10	RL-10					RR											04646046	0.00000	10.56000	PM 12/12/3
RE-10	RL-10					RR											04646050	0.00000	10.14000	SEC 4 9 11
RE-10	RL-10					RR											04646051	0.00000	4.55000	SEC 4 9 11
RE-10	RL-10					RR											04646053	0.00000	10.81000	PM 19/146/1
RE-10	RL-10					RR											04646054	0.00000	10.82000	PM 19/146/2
RE-10	RL-10					RR											04646055	0.00000	10.00000	PM 19/146/3
RE-10	RL-10					RR											04646057	0.00000	10.08000	RS 31/136
RE-10	RL-10					RR											04646059	0.00000	14.99400	POR PAR D 9-80
RE-10	RL-10					RR											04646061	0.00000	10.79000	PM 12/12/2
RE-10	RL-10					RR											04649007	0.00000	5.63000	PM 9/147/A
RE-10	RL-10					RR											04649010	0.00000	4.37000	PM 9/149/1

RE-10	RL-10					RR											04649011	0.00000	10.48000	PM 9/149/2
RE-10	RL-10					RR											04649012	0.00000	6.11000	PM 9/149/3
RE-10	RL-10					RR											04649013	0.00000	10.07000	PM 9/149/4
RE-10	RL-10					RR											04649015	0.00000	2.01000	PM 9/150/2
RE-10	RL-10					RR											04649016	0.00000	2.49000	PM 9/150/3
RE-10	RL-10					RR											04649020	0.00000	9.06400	PM 10/2/3
RE-10	RL-10					RR											04649021	0.00000	9.05800	PM 10/2/4
RE-10	RL-10					RR											04649022	0.00000	10.83000	PM 12/4/1
RE-10	RL-10					RR											04649023	0.00000	10.03000	PM 12/4/2
RE-10	RL-10					RR											04649025	0.00000	27.20000	PM 12/4/4
RE-10	RL-10					RR											04649026	0.00000	8.08000	PORPAR 2 PM 10/2
RE-10	RL-10					RR											04649028	0.00000	10.08000	SEC 3 9 11
RE-10	RL-10					RR											04649030	0.00000	10.58000	SEC 4 9 11
RE-10	RL-10					RR											04649031	0.00000	10.30000	SEC 4 9 11
RE-10	RL-10					RR											04649033	0.00000	2.35800	PM 45/107/1
RE-10	RL-10					RR											04649034	0.00000	3.79200	PM 45/107/2
RE-10	RL-10					RR											04650009	0.00000	14.87000	PM 15/43/1
RE-10	RL-10					RR											04650015	0.00000	10.00000	PM 19/11/A
RE-10	RL-10					RR											04650018	0.00000	11.62000	PM 20/3/2
RE-10	RL-10					RR											04650024	0.00000	17.45000	PM 22/9/1
RA-20	RL-10					RR											04650030	0.00000	15.00000	PM 22/85/1
RE-10	RL-10					RR											04650030	0.00000	15.00000	PM 22/85/1
RE-10	RL-10					RR											04650031	0.00000	15.00000	PM 22/85/2
RA-20	RL-10					RR											04650032	0.00000	10.00000	PM 22/85/3
RE-10	RL-10					RR											04650032	0.00000	10.00000	PM 22/85/3
RA-20	RL-40					NR											04650033	0.00000	20.50000	PM 22/85/4
RE-10	RL-40					NR											04650033	0.00000	20.50000	PM 22/85/4
RE-10	RL-40					NR											04650033	0.00000	20.50000	PM 22/85/4
RE-10	RL-10					RR	A										04650034	0.00000	9.56000	POR PM 18/49/A
RE-10	RL-10					RR	A										04650036	0.00000	9.59000	POR PM 18/49/B
RA-20	LA-40					NR											04650038	0.00000	30.24000	PM 24/62/1
RA-20	RL-40					NR											04650039	0.00000	10.02000	PM 24/62/2
RA-20	RL-40					NR											04650040	0.00000	10.20000	PM 24/62/3
RA-20	RL-40					NR											04650041	0.00000	10.35000	PM 24/62/4
RE-10	RL-10					RR											04650042	0.00000	10.04100	PM 26/18/A
RE-10	RL-10					RR											04650043	0.00000	10.04000	PM 26/18/B
RE-10	RL-10					RR											04650044	0.00000	12.66000	PM 26/52/A
RE-10	RL-10					RR											04650046	0.00000	10.06500	PM 26/70/A
RE-10	RL-10					RR											04650047	0.00000	10.01000	PM 26/70/B
RE-10	RL-10					RR											04650048	0.00000	10.14000	PM 29/95/2
RE-10	RL-10					RR											04650050	0.00000	22.49000	PM 29/95/1
RE-10	RL-10					RR											04650051	0.00000	10.40000	PORPAR B PM26-52
RE-10	RL-10					RR											04650053	0.00000	29.64000	POR4 20-3&B26-52
RE-10	RL-10					RR											04650054	0.00000	10.08800	PM 15/43/2
RE-5	RL-10					RR											04651015	0.00000	10.50000	PM 21/99/A
RE-10	RL-10					RR											04651018	0.00000	14.16000	PM 21/99/D

RE-5	RL-10					RR											04651018	0.00000	14.16000	PM 21/99/D
RE-10	RL-10					RR											04651019	0.00000	10.01500	PM 24/97/A
RE-10	RL-10					RR											04651022	0.00000	10.05000	PM 25/79/B
RE-10	RL-10					RR											04651023	0.00000	10.03000	PM 25/79/C
RE-10	RL-10					RR											04651024	0.00000	10.00000	PM 26/68/A
RE-10	RL-10					RR											04651025	0.00000	10.00000	PM 26/68/B
RE-10	RL-10					RR											04651026	0.00000	10.00000	PM 29/85/A
RE-10	RL-10					RR											04651029	0.00000	10.01000	POR PM 12/29/4
RE-10	RL-10					RR											04651030	0.00000	5.04600	PM 10/146/1
RE-10	RL-10					RR											04651031	0.00000	10.41000	PM 10/146/2
RE-10	RL-10					RR											04651032	0.00000	5.00000	POR PM 20/26/B
RE-10	RL-10					RR											04651033	0.00000	20.00000	PM 20/26/A
RE-10	RL-10					RR											04651034	0.00000	13.17000	POR PM 20/26/B
RE-10	RL-10					RR											04651035	0.00000	10.47600	PM 10/146/4
RE-10	RL-10					RR											04651036	0.00000	11.54900	PM 10/146/3
RE-10	RL-10					RR											04651040	0.00000	10.56000	POR PM 12/29/4
RE-10	RL-10					RR											04651043	0.00000	11.27600	PM 38/68/C
RE-10	RE-5					LDR											04651051	0.00000	10.10000	RS 17/12/1
RE-10	RL-10					RR											04651057	0.00000	10.01300	RS 17/73/1
RE-10	RL-10					RR											04651058	0.00000	10.22000	PM 43/48/1
RE-10	RL-10					RR											04651059	0.00000	11.21000	PM 43/48/2
RE-10	RL-10					RR											04651060	0.00000	10.21200	RS 25/90/1
RE-10	RL-10					RR											04651065	0.00000	10.04700	RS 31/74/1
RE-10	RL-10					RR											04651066	0.00000	10.00600	RS 31/74/2
RE-10	RL-10					RR	A										04652003	0.00000	10.00000	SEC 36 9 11
RE-10	LA-10					RR	A										04652005	0.00000	10.06000	PM 12/96/2
RE-10	RL-10					RR	A										04652006	0.00000	11.29000	PM 12/96/3
RE-10	RL-10					RR	A										04652007	0.00000	10.06000	PM 12/96/4
RE-10	RL-10					RR	A										04652009	0.00000	10.16000	PM 12/133/2
RE-10	RL-10					RR	A										04652010	0.00000	10.02000	PM 12/133/3
RE-10	RL-10					RR	A										04652011	0.00000	10.03000	PM 12/133/4
RE-10	RL-10					RR	A										04652012	0.00000	10.80000	PM 14/96/A
RE-10	RL-10					RR	A										04652013	0.00000	10.22000	PM 14/96/B
RE-10	RL-10					RR	A										04652014	0.00000	10.02000	PM 14/96/C
RE-10	RL-10					RR	A										04652015	0.00000	10.15000	PM 14/96/D
RE-10	LA-10					RR	A										04652016	0.00000	10.13000	PM 14/97/A
RE-10	RL-10					RR	A										04652017	0.00000	10.26000	PM 14/97/B
RE-10	RL-10					RR	A										04652019	0.00000	10.52000	PM 14/97/D
RE-5	RL-10					RR	A										04652021	0.00000	5.00000	PM 26/106/2
RE-5	RL-10					RR	A										04652023	0.00000	7.12000	SEC 25 9 11
RE-10	RL-20					AL	A										04652024	0.00000	30.41000	RS 9/108/2
RE-10	RL-20					AL	A										04652025	0.00000	10.00000	RS 9/108/1
RE-5	RL-10					RR	A										04652026	0.00000	5.00000	PM 30/77/A
RE-5	RL-10					RR	A										04652027	0.00000	5.19000	SEC 25 9 11
C	CL					C	A				PL						04652028	0.00000	0.25000	SEC 25 9 11
RE-5	RL-10					RR	A										04652030	0.00000	2.50000	SEC 25 9 11

RE-5	RL-10					RR	A										04652032	0.00000	1.76000	SEC 25 9 11
RE-5	RL-10					RR	A										04652033	0.00000	2.37000	SEC 26 9 11
RE-5	RL-10					RR	A										04652034	0.00000	2.50000	SEC 26 & 35 9 11
RE-10	LA-10					RR	A										04652035	0.00000	12.00000	PM 14/97/C
RE-5	RL-10					RR	A										04652036	0.00000	5.00000	PM 41/25/1
RE-5	RL-10					RR	A										04652037	0.00000	5.08000	PM 41/25/2
RE-5	RL-10					RR	A										04652038	0.00000	7.29000	PM 41/25/3
RE-5	RL-10					RR	A										04652042	0.00000	5.32700	PM 45/67/1
RE-5	RL-10					RR	A										04652043	0.00000	4.88000	PM 45/67/2
RE-5	RL-10					RR	A										04652044	0.00000	10.39200	PM 45/67/3
RE-5	RL-10					RR	A										04652045	0.00000	5.08100	PM 45/67/4
RE-10	RL-10					RR											04653006	0.00000	10.01000	PM 16/16/1
RE-10	RL-10					RR											04653007	0.00000	15.37000	PM 16/16/2
RE-10	RL-10					RR											04653008	0.00000	15.00000	PM 16/16/3
RE-10	RL-10					RR											04653009	0.00000	21.34300	PM 16/16/4
RE-10	RL-10					RR											04653010	0.00000	11.00000	PM 18/90/1
RE-10	RL-10					RR											04653011	0.00000	11.00000	PM 18/90/2
RE-10	RL-10					RR											04653012	0.00000	11.00000	PM 18/90/3
RA-20	RL-20					RR											04653016	0.00000	20.82100	PM 24/46/1
RA-20	RL-20					RR											04653017	0.00000	20.48000	PM 24/46/2
RA-20	LA-40					NR											04653018	0.00000	19.82000	PM 24/46/3
RE-10	RL-10					RR											04653019	0.00000	10.00000	PM 30/14/1
RE-10	RL-10					RR											04653020	0.00000	9.41000	PM 30/14/2
RE-10	RL-10					RR											04653021	0.00000	10.00000	PM 30/14/3
RE-10	RL-10					RR											04653022	0.00000	10.00000	PM 30/14/4
RE-10	RL-10					RR											04653023	0.00000	12.00000	PM 31/24/A
RE-10	RL-10					RR											04653024	0.00000	10.07000	PM 31/24/B
RE-10	RL-10					RR											04653025	0.00000	13.95000	PM 31/24/C
RE-10	RL-10					RR											04653026	0.00000	10.06000	PM 31/24/D
RA-20	RL-40					NR											04653030	0.00000	35.00000	SEC 10 9 11 ADM
RA-80	RL-80					NR											04653032	0.00000	29.00000	SEC 10 9 11 ADM
RA-80	RL-80					NR											04653033	0.00000	5.00000	SEC 10 9 11 ADM
RA-20	RL-40					NR											04653034	0.00000	91.00000	SEC 10 9 11 ADM
RA-20	RL-40					NR											04653035	0.00000	12.28200	PM 28/106/A
RA-20	LA-40					NR											04653036	0.00000	12.25400	PM 28/106/B
RA-20	LA-40					NR											04653037	0.00000	11.87600	PPM 28/106/C ADM
RA-20	RL-40					NR											04653038	0.00000	12.27200	PM 28/106/D
RA-80	LA-40					NR											04653039	0.00000	10.00000	PPM 28/106/C ADM
RA-20	LA-20					NR											04654003	0.00000	35.00000	RS 14/111/1
RA-20	LA-40					NR											04654005	0.00000	76.58000	RS 14/111/2
RE-10	RL-10					RR	A										04655001	0.00000	10.00000	L 10
RE-10	RL-10					RR	A										04655002	0.00000	10.00100	L 9
RE-10	RL-10					RR	A										04655003	0.00000	10.32000	L 8
RE-10	RL-10					RR	A										04655004	0.00000	10.00000	L 7
RE-10	LA-10					RR	A										04655005	0.00000	10.00000	L 6
RE-10	RL-10					RR	A										04655006	0.00000	10.00000	L 4

RE-10	RL-10					RR	A										04655007	0.00000	10.00000	L 5
RE-10	RL-10					RR	A										04655008	0.00000	10.00000	L 3
RE-10	RL-10					RR	A										04655009	0.00000	10.00000	L 2
RE-10	RL-10					RR	A										04655010	0.00000	10.55000	L 11
RE-10	LA-10					RR	A										04655011	0.00000	10.00000	L 13
RE-10	LA-10					RR	A										04655012	0.00000	10.00000	L 14
RE-10	RL-10					RR	A										04655013	0.00000	10.00000	L 15
RE-10	RL-10					RR	A										04655014	0.00000	10.00000	L 16
RE-10	RL-10					RR	A										04655017	0.00000	10.00000	L 1
RE-10	RL-10					RR	A										04655018	0.00000	10.00000	L 12
RE-10	RL-10					RR	A										04655019	0.00000	10.00000	L 19
RE-10	LA-10					RR	A										04655020	0.00000	10.00100	L 24
RE-10	RL-10					RR	A										04655021	11.00000	10.00000	LOT 23
RE-10	RL-10					RR	A										04655023	0.00000	10.00100	L 20
RE-10	RL-10					RR	A										04655024	0.00000	10.00000	L 21
RE-10	RL-10					RR	A										04655026	0.00000	10.00000	PM 25/19/A
RE-10	RL-10					RR	A										04655027	0.00000	10.00000	PM 25/19/B
RE-10	RL-10					RR	A										04655028	11.00000	11.27000	POR L 22
RE-10	RL-10					RR	A										04655029	11.00000	4.44000	POR L 22
RA-20	RL-20					RR			IBC								04657001	0.00000	14.88000	PM 22/79/1
RA-20	RL-10					RR			IBC								04657002	0.00000	10.00000	PM 22/79/2
RA-20	RL-10					RR			IBC								04657003	0.00000	10.00000	PM 22/79/3
RA-20	LA-10					RR			IBC								04657004	0.00000	10.00000	PM 22/79/4
RA-20	RL-20					RR			IBC								04657007	0.00000	30.01000	PM 23/104/1
RA-20	RL-10					RR			IBC								04657008	0.00000	10.06000	PM 23/104/2
RA-20	LA-10					RR			IBC								04657009	0.00000	10.01000	PM 23/104/3
RA-20	LA-10					RR			IBC								04657010	0.00000	10.01000	PM 23/104/4
RA-20	LA-10					RR			IBC								04657011	0.00000	10.00000	PM 25/13/1
RA-20	RL-10					RR			IBC								04657012	0.00000	10.00000	PM 25/13/2
RA-20	LA-10					RR			IBC								04657013	0.00000	10.00000	PM 25/13/3
RA-20	LA-10					RR			IBC								04657014	0.00000	30.08000	PM 25/13/4
RA-20	RL-20					RR			IBC								04657015	0.00000	16.05000	PM 28/6/1
RA-20	RL-10					RR			IBC								04657016	0.00000	10.01000	PM 28/6/2
RA-20	RL-10					RR			IBC								04657017	0.00000	10.00000	PM 28/6/3
RA-20	RL-10					RR			IBC								04657018	0.00000	12.25000	PM 28/87/1
RA-20	RL-10					RR			IBC								04657019	0.00000	12.27000	PM 28/87/2
RA-20	RL-10					RR			IBC								04657020	0.00000	12.25000	PM 28/87/3
RA-40	RL-40					NR											04657021	0.00000	38.52000	SEC 21 9 11
RA-20	RL-10					RR			IBC								04657022	0.00000	10.40000	PM 20/142/A
RA-20	RL-10					RR			IBC								04657023	0.00000	10.15000	PM 20/142/B
RA-20	RL-10					RR			IBC								04657024	0.00000	10.11700	PM 20/142/C
RA-20	LA-10					RR			IBC								04657025	0.00000	12.00000	PM 20/142/D
RA-20	RL-10					RR			IBC								04657026	0.00000	10.70000	PM 19/12/C
RA-20	RL-10					RR			IBC								04657027	0.00000	11.16000	PM 19/12/B
RA-20	RL-10					RR			IBC								04657028	0.00000	10.00000	PM 19/12/A
RA-20	RL-10					RR			IBC								04657029	0.00000	10.00000	PM 17/39/A

RA-20	LA-10					RR			IBC								04657030	0.00000	10.00000	PM 17/39/B
RA-20	RL-10					RR			IBC								04657031	0.00000	10.00000	PM 17/39/C
RA-20	RL-10					RR			IBC								04657032	0.00000	10.06000	PM 21/54/3
RA-20	LA-10					RR			IBC								04657033	0.00000	10.00000	PM 21/54/4
RA-20	LA-10					RR			IBC								04657034	0.00000	10.02000	PM 21/54/2
RA-20	LA-10					RR			IBC								04657035	0.00000	10.00000	PM 21/54/1
RA-20	RL-40					NR											04658004	1.00000	1.38000	S 16 9 11 RDWAY
RA-40	RL-40					NR											04658004	1.00000	1.38000	S 16 9 11 RDWAY
RA-20	RL-40					NR											04658007	0.00000	22.06000	PM 31/76/2
RA-40	RL-40					NR											04658009	0.00000	10.11000	PM 31/76/3
RA-40	RL-40					NR											04658010	0.00000	21.37000	PM 31/76/4
RA-40	LA-40					NR											04658013	0.00000	55.21500	POR SEC 16 9 11
RA-20	RL-40					NR											04658014	0.00000	12.38000	PPM 31/76/1
RA-20	RL-40					NR											04658014	0.00000	12.38000	PPM 31/76/1
RE-10	RL-10					RR			IBC								04659001	0.00000	5.05300	PPM 24/39/A ADM
RE-10	RL-10					RR			IBC								04659002	0.00000	4.62000	PPM 24/39/B ADM
RE-10	RL-10					RR			IBC								04659003	0.00000	4.05000	PPM 24/39/C ADM
RE-10	RL-10					RR			IBC								04659004	0.00000	3.51900	PPM 24/39/D ADM
RE-10	RL-10					RR			IBC								04659005	0.00000	9.95000	PPM 24/39/A ADM
RE-10	RL-10					RR			IBC								04659006	0.00000	10.38400	PPM 24/39/B ADM
RE-10	RL-10					RR			IBC								04659007	0.00000	10.96000	PPM 24/39/C ADM
RE-10	RL-10					RR			IBC								04659008	0.00000	8.64100	PPM 24/39/D ADM
RA-40	LA-10					RR			IBC								04659011	0.00000	10.92000	RS 9/140/A
RA-40	RL-10					RR			IBC								04659012	0.00000	10.77000	RS 9/140/B
RA-40	LA-10					RR			IBC								04659013	0.00000	10.44000	RS 9/140/D
RA-40	RL-10					RR			IBC								04659014	0.00000	10.61000	RS 9/140/C
RA-40	LA-10					RR			IBC								04659015	0.00000	30.25000	PM 30/98/1
RA-40	RL-10					RR			IBC								04659017	0.00000	10.12000	PM 30/98/3
RA-40	RL-10					RR			IBC								04659018	0.00000	15.27800	PM 30/98/4
RA-40	RL-10					RR			IBC								04659019	0.00000	16.13000	PM 30/144/1
RA-40	RL-10					RR			IBC								04659020	0.00000	10.48000	PM 30/144/2
RA-40	RL-40					NR			IBC								04659022	0.00000	31.22000	PM 30/144/4
RA-40	RL-10					RR			IBC								04659027	0.00000	10.25200	RS 13/71/B
RA-40	RL-10					RR			IBC								04659028	0.00000	10.05000	RS 13/71/A
RA-40	RL-40					NR											04660001	0.00000	40.00000	SEC 29 9 11
RA-40	LA-40					NR											04660002	0.00000	40.00000	SEC 30 9 11
RE-10	RL-10					RR	A										04661001	0.00000	5.00000	PM 25/144/D
RE-5	RL-10					RR	A										04661020	0.00000	10.01000	PM 41/12/1
RE-5	LA-10					RR	A										04661021	0.00000	10.23000	PM 41/12/2
RE-10	RL-20					AL	A										04661022	0.00000	10.00000	RS 20/143/2
RE-10	RL-20					AL	A										04661024	0.00000	13.30000	RS 20/143/1
RA-20	LA-10					RR			IBC								04662004	0.00000	20.00000	RS 15/95/1
RA-20	LA-40					NR											04662006	0.00000	40.01000	POR R/S 24-8
RA-40	LA-40					NR											04662006	0.00000	40.01000	POR R/S 24-8
RA-20	RL-40					LDR											04662007	0.00000	46.18000	RS 24/8
RA-40	RL-40					LDR											04662007	0.00000	46.18000	RS 24/8

RE-5	RL-40					LDR											04662007	0.00000	46.18000	RS 24/8
RE-10	RL-10					RR	A										04663007	0.00000	10.00000	PM 30/65/1
RE-10	RL-10					RR	A										04663008	0.00000	9.81000	PM 30/65/2
RE-10	RL-10					RR	A										04663012	0.00000	9.87000	RS 17/54/3
RE-10	RL-10					RR	A										04663013	0.00000	10.00000	RS 17/54/4
RE-10	RL-10					RR	A										04663015	0.00000	9.87000	RS 17/54/2
RE-10	RL-10					RR	A										04663028	0.00000	10.00000	PM 34/136/C
RE-10	LA-10					RR	A										04663029	0.00000	10.00000	PM 34/136/D
RE-10	RL-10					RR	A										04663032	0.00000	9.35000	POR PAR 4PM30-65
RE-10	RL-10					RR	A										04663034	0.00000	9.39000	POR PAR 3PM30-65
RE-10	LA-10					RR	A										04663036	0.00000	10.02000	PM 37/89/1
RE-10	RL-10					RR	A										04663037	0.00000	10.00000	PM 37/89/2
RA-20	RL-10					RR											04663049	0.00000	10.53000	PM 38/99/1
RA-20	LA-20					RR	A										04663050	0.00000	10.36000	PM 38/99/2
RE-10	RL-10					RR	A										04663050	0.00000	10.36000	PM 38/99/2
RE-10	RL-10					RR	A										04663051	0.00000	10.00000	RS 17/54/1
RE-10	RL-10					RR	A										04663054	0.00000	10.40000	PM 46/66/1
RE-10	LA-10					RR	A										04663055	0.00000	10.00000	PM 46/66/2
RA-40	RL-40					NR											04664008	0.00000	20.00000	SEC 19 9 11 ADM
RA-20	RL-40					NR											04664010	0.00000	20.00000	SEC 19 9 11 ADM
RA-20	RL-40					NR											04664015	0.00000	32.00000	SEC 19 9 11 ADM
RA-40	RL-40					NR											04664018	0.00000	8.00000	SEC 19 9 11 ADM
RA-20	RL-40					NR											04664020	0.00000	20.93000	RS 11/16 S19911
RA-20	RL-40					NR											04664021	0.00000	21.05000	RS 11/16 S19911
RA-20	RL-40					NR											04664022	0.00000	15.22000	POR RS 11/16 ADM
RA-20	RL-40					NR											04664023	0.00000	5.00000	POR RS 11/16 ADM
RA-40	RL-40					NR											04664024	0.00000	5.00000	POR RS 11/16 ADM
RA-40	RL-40					NR											04664025	0.00000	15.48000	POR RS 11/16 ADM
RA-20	RL-40					NR											04664028	0.00000	13.00000	SEC 19 9 11 ADM
RA-20	RL-40					NR											04664029	0.00000	17.00000	SEC 19 9 11 ADM
RA-40	RL-40					NR											04664030	0.00000	7.00000	SEC 19 9 11 ADM
RA-40	RL-40					NR											04664031	0.00000	3.00000	SEC 19 9 11 ADM
RA-20	LA-40					NR											04664038	0.00000	21.04000	RS 15/15/2
RA-20	RL-40					NR											04664039	0.00000	21.03400	RS 15/15/1
RA-20	RL-40					NR											04664040	0.00000	20.00000	PM 42/116/1
RA-20	RL-40					NR											04664041	0.00000	20.48300	PM 42/116/2
RA-20	LA-20					RR	A										04666001	0.00000	13.42000	PM 29/84/1
RA-20	LA-20					RR	A										04666002	0.00000	10.20000	PM 29/84/2
RA-20	LA-10					RR	A										04666003	0.00000	10.14000	PM 29/84/3
RA-40	RL-10					RR			IBC								04667001	0.00000	10.39000	PM 29/119/1
RA-40	RL-10					RR			IBC								04667002	0.00000	10.41000	PM 29/119/2
RA-40	RL-10					RR			IBC								04667003	0.00000	10.43000	PM 29/119/3
RA-40	RL-10					RR			IBC								04667004	0.00000	10.45000	PM 29/119/4
RA-80	RL-80					NR											04668001	0.00000	25.25000	RS 10/61 SEC7811
RA-80	RL-80					NR											04668012	0.00000	20.00000	RS 17/74 S7811
RA-80	RL-80					NR											04668013	0.00000	20.00000	RS 17/74 S7811

RA-80	RL-80					NR											04668014	0.00000	20.00000	RS 17/74 S7811
RA-80	RL-80					NR											04668015	0.00000	20.00000	RS 17/74 S7811
RA-80	RL-80					NR											04668016	0.00000	20.00000	RS 17/74 S7811
RA-80	RL-80					NR											04668017	0.00000	20.00000	RS 17/74 S7811
RA-80	RL-40					NR											04668018	0.00000	40.09000	RS 26/3/1
RE-10	RL-10					RR	A										04669001	0.00000	10.00000	L 1
RE-10	RL-10					RR	A										04669002	0.00000	10.03000	L 2
RE-10	RL-10					RR	A										04669003	0.00000	10.00000	L 3
RE-10	RL-10					RR	A										04669004	0.00000	10.03000	L 4
RE-10	RL-10					RR	A										04669005	0.00000	10.00000	L 5
RE-10	RL-10					RR	A										04669006	0.00000	11.62000	L 6
RE-10	RL-10					RR	A										04669007	0.00000	10.00000	L 7
RE-10	RL-10					RR	A										04669008	0.00000	10.00000	L 8
RE-10	LA-10					RR	A										04669009	0.00000	10.42000	L 9
RE-10	LA-10					RR	A										04669010	0.00000	13.78000	L 10
RE-10	RL-10					RR	A										04669011	0.00000	11.30000	L 11
RE-10	RL-10					RR	A										04669012	0.00000	12.04000	L 12
RE-10	RL-10					RR	A										04669013	0.00000	12.99000	L 13
RE-10	RL-10					RR	A										04669014	0.00000	14.58000	L 14
RE-10	RL-10					RR	A										04669015	0.00000	14.53000	L 15
RE-10	LA-10					RR	A										04669016	0.00000	12.16000	L 16
RE-10	RL-10					RR	A										04669017	0.00000	12.85000	L 17
RE-10	RL-10					RR	A										04669018	0.00000	10.00000	L 18
RE-10	RL-10					RR	A										04669019	0.00000	10.00000	L 19
RE-10	LA-10					RR	A										04669020	0.00000	11.90000	L 20
RE-10	RL-10					RR	A										04669021	0.00000	10.00000	L 21
RE-10	RL-10					RR	A										04669022	0.00000	17.60000	L 22
RE-10	RL-10					RR	A										04669023	0.00000	10.88000	L 23
RE-10	RL-10					RR	A										04669024	0.00000	13.24000	L 24
RE-10	LA-10					RR	A										04669025	0.00000	15.05000	L 25
RE-10	RL-10					RR	A										04669026	0.00000	14.93000	L 26
RE-10	RL-10					RR	A										04669027	0.00000	10.31000	L 27
RE-10	RL-10					RR	A										04669028	0.00000	0.33000	ILLEGAL PAR
RE-10	RL-10					RR	A										04670002	0.00000	10.00000	L 28
RE-10	RL-10					RR	A										04670003	0.00000	10.03000	L 29
RE-10	RL-10					RR	A										04670004	0.00000	10.30000	L 30
RE-10	RL-10					RR	A										04670005	0.00000	10.01000	L 31
RE-10	LA-10					RR	A										04670006	0.00000	10.01000	L 32
RE-10	RL-10					RR	A										04670007	0.00000	11.58000	L 33
RE-10	RL-10					RR	A										04670008	0.00000	12.24000	L 34
RE-10	RL-10					RR	A										04670009	0.00000	10.00000	L 35
RE-10	RL-10					RR	A										04670010	0.00000	10.01000	L 36
RE-10	RL-10					RR	A										04670011	0.00000	10.00000	L 37
RE-10	LA-10					RR	A										04670012	0.00000	12.33000	L 38
RE-10	RL-10					RR	A										04670013	0.00000	10.37000	L 39
RE-10	LA-10					RR	A										04670014	0.00000	10.00000	L 40

RE-10	RL-10					RR	A										04670015	0.00000	10.02000	L 41
RE-10	RL-10					RR	A										04670016	0.00000	10.18000	L 42
RE-10	LA-10					RR	A										04670017	0.00000	10.11000	L 43
RE-10	RL-10					RR	A										04670021	0.00000	10.06000	L 47
RE-10	RL-10					RR	A										04670022	0.00000	11.16000	L 48
RE-10	RL-10					RR	A										04670023	0.00000	10.62000	L 49
RE-10	RL-10					RR	A										04670024	0.00000	10.69000	L 50
RE-10	RL-10					RR	A										04670025	0.00000	10.95000	L 66
RE-10	RL-10					RR	A										04671001	0.00000	10.44000	L 51
RE-10	RL-10					RR	A										04671002	0.00000	12.46000	L 52
RE-10	LA-10					RR	A										04671003	0.00000	10.06000	L 53
RE-10	LA-10					RR	A										04671004	0.00000	10.10000	L 54
RE-10	RL-10					RR	A										04671005	0.00000	11.06000	L 55
RE-10	RL-10					RR	A										04671006	0.00000	10.00000	L 56
RE-10	RL-10					RR	A										04671007	0.00000	10.00000	L 57
RE-10	RL-10					RR	A										04671008	0.00000	10.00000	L 58
RE-10	RL-10					RR	A										04671009	0.00000	10.12000	L 59
RE-10	RL-10					RR	A										04671010	0.00000	11.57000	L 60
RE-10	RL-10					RR	A										04671011	0.00000	10.29000	L 61
RE-10	RL-10					RR	A										04671012	0.00000	12.44000	L 62
RE-10	RL-10					RR	A										04671013	0.00000	10.23000	L 63
RE-10	RL-10					RR	A										04671014	0.00000	12.89000	L 64
RE-10	RL-10					RR	A										04671015	0.00000	12.91000	L 65
RE-10	RL-10					RR	A										04671016	0.00000	19.49000	L 67
AP	LA-20					RR	A										04671017	0.00000	46.53000	L 68
RE-10	RL-10					RR	A										04671018	0.00000	10.00000	L 69
RE-10	RL-10					RR	A										04671019	0.00000	13.59000	L 70
RE-10	RL-10					RR	A										04671020	0.00000	11.47000	L 71
RE-10	RL-10					RR	A										04671021	0.00000	29.56000	L 72
RE-10	RL-10					RR	A										04671022	0.00000	12.95000	L 73
RE-10	RL-20					AL	A										04671023	0.00000	10.29000	L 74
RE-10	RL-20					AL	A										04672002	0.00000	20.59000	L 75
RE-10	RL-20					AL	A										04672003	0.00000	45.51000	L 76
RE-10	RL-20					AL	A										04672004	0.00000	32.96000	L 77
RE-10	RL-20					AL	A										04672005	0.00000	27.32000	L 78
RE-10	RL-20					AL	A										04672006	0.00000	22.24000	L 79
RE-10	RL-20					AL	A										04672007	0.00000	123.48000	L 80
RE-10	RL-20					AL	A										04672008	0.00000	16.03000	L 81
RE-10	RL-20					AL	A										04672009	0.00000	42.95000	L 82
RE-10	RL-20					AL	A										04672010	0.00000	35.25000	L 83
RE-10	RL-20					AL	A										04672011	0.00000	70.85000	L 84
RE-10	RL-20					AL	A										04672012	0.00000	18.73000	L 85
RE-10	RL-20					AL	A										04672013	0.00000	18.00000	L 86
RE-10	RL-20					AL	A										04672014	0.00000	25.00000	L 87
RE-10	LA-10					RR	A										04672015	0.00000	13.42000	L 88
RE-10	RL-10					RR	A										04672016	0.00000	10.17000	L 89

RE-10	RL-10					RR	A										04672018	0.00000	10.61000	L 90
RE-5	R3A					MDR			IBC		PL						04673003	0.00000	5.00000	L 3
AE	AG-40					NR											04674001	0.00000	160.00000	S21 27 28 9 11
AE	AG-40					AL	A										04674002	0.00000	160.00000	SEC 27 9 11
AE	AG-40					AL	A										04674003	0.00000	160.00000	SEC 27 & 34 9 11
AE	AG-40					AL	A										04674004	0.00000	160.00000	SEC 34 9 11
RE-10	RL-10					RR	A										04678012	0.00000	10.10000	PM 27/46/1
RE-10	RL-10					RR	A										04678013	0.00000	10.02000	PM 27/46/2
RE-10	RL-10					RR	A										04678014	0.00000	10.06000	RS 28/78/1
RE-10	RL-10					RR	A										04678015	0.00000	10.01700	RS 28/78/2
RE-5	RL-10					RR	A		IBC								04680001	0.00000	10.89000	SEC 24 9 11
RE-10	LA-10					RR	A		IBC								04680002	0.00000	51.78000	SEC 24 9 11
RE-5	LA-10					RR	A		IBC								04680003	0.00000	10.34000	SEC 24 9 11
RE-5	RL-10					RR	A		IBC								04680004	0.00000	9.84000	SEC 24 9 11
RA-20	OS					OS											04681001	11.00000	0.00000	SEC 6 9 11 ADM
RE-10	RL-10					RR											04681002	0.00000	83.07000	POR RS 8/79
RE-10	RL-10					RR											04681003	0.00000	45.22000	POR RS 8/79
RE-10	RL-10					RR											04681004	0.00000	10.00000	POR RS 8/79
RE-10	RL-10					RR											04681005	0.00000	11.73000	POR RS 8/79
RE-10	RL-10					RR											04681006	0.00000	11.80000	POR RS 8/79
RE-10	RL-10					RR											04681007	0.00000	5.22000	PM 25/78/1
RE-10	RL-10					RR											04681008	0.00000	5.49000	PM 25/78/2
RE-10	RL-10					RR											04681009	0.00000	5.36000	PM 25/78/3
RE-10	RL-10					RR											04681010	0.00000	5.00000	PM 25/78/4
RE-10	RL-10					RR											04681011	0.00000	54.70000	SEC 6 9 11
RE-10	RL-10					RR											04681012	0.00000	48.11000	SEC 5 9 11
RE-10	RL-10					RR											04681013	0.00000	40.00000	SEC 5 9 11
RE-10	RL-10					RR											04681014	0.00000	27.54000	SEC 5 9 11
RE-10	RL-10					RR											04681015	0.00000	20.00000	SEC 5 9 11
RE-10	RL-10					RR											04681016	0.00000	40.00000	SEC 5 9 11
RA-20	OS					OS											04681017	11.00000	0.00000	SEC 6&7 9 11 ADM
RE-10	RL-10					RR											04681018	0.00000	80.00000	SEC 5 & 6 9 11
RE-10	RL-10					RR	A										04681019	0.00000	13.95000	RS 9/122 S5911
RE-10	LA-10					RR	A										04681020	0.00000	10.00000	SEC 5 9 11
RE-10	RL-10					RR	A										04681021	0.00000	10.00000	SEC 5 9 11
RE-10	LA-10					RR	A										04681022	0.00000	9.70900	RS 27/78
RA-20	RL-20					RR											04682001	0.00000	73.75000	SEC 6 & 7 9 11
RA-20	LA-10					RR											04682002	0.00000	52.45000	RS 10/21 S7911
RA-20	OS					OS											04682003	11.00000	0.00000	L 3&48 SEC7 9 11
RA-20	RL-20					RR											04682004	0.00000	81.75000	RS 20/114/1
AE	AG-40					AL											04682006	0.00000	40.00000	SEC 7 9 11
AE	PA-20					AL	A										04682007	0.00000	80.00000	SEC 8 9 11
AE	PA-20					AL	A										04682008	0.00000	30.73000	SEC 8 9 11
RE-5	RL-10					AL	A										04682009	0.00000	44.70000	SEC 8 9 11
AP	LA-20					AL	A										04682010	0.00000	43.50000	SEC 8 9 11
RA-20	LA-20					AL	A										04682011	0.00000	25.00000	SEC 8 9 11

RA-20	LA-20					AL	A										04682012	0.00000	40.00000	SEC 9 9 11 ADM
RA-20	LA-20					AL	A										04682013	0.00000	40.00000	SEC 9 9 11 ADM
RA-20	LA-20					AL	A										04682014	0.00000	160.00000	SEC 8 & 9 9 11
RE-5	RL-10					AL	A										04682014	0.00000	160.00000	SEC 8 & 9 9 11
RE-10	RL-10					RR	A										04682015	0.00000	10.00000	SEC 9 9 11
RE-10	RL-10					RR	A										04682016	0.00000	10.30000	SEC 9 9 11
RE-10	LA-10					RR	A										04682017	0.00000	10.00000	POR SEC 9 9 11
RE-10	RL-10					RR	A										04682018	0.00000	10.00000	POR SEC 9 9 11
AE	AG-40					AL											04682021	0.00000	120.00000	SEC 7 & 18 9 11
AE	AG-40					AL											04682022	0.00000	40.00000	SEC 7 9 11
AE	AG-40					AL											04682023	0.00000	40.00000	SEC 7 9 11
AE	LA-10					RR			IBC								04683001	0.00000	34.95400	RS 29/48/1 ADM
AE	LA-10					RR											04683002	0.00000	20.00000	RS 29/46/1
AE	RL-10					RR											04683003	0.00000	179.10000	SEC 21 & 28 9 11
AE	RL-10					RR			IBC								04683004	0.00000	8.00000	SEC 28 9 11
C	R1					HDR	A				PL						04684001	0.00000	0.32700	L 1
C	R1					HDR	A				PL						04684002	0.00000	0.31400	L 2
MP	R1					HDR	A				PL						04684002	0.00000	0.31400	L 2
C	R1					HDR	A				PL						04684003	0.00000	0.23200	L 3
MP	R1					HDR	A				PL						04684004	0.00000	0.25200	L 4
C	R1					HDR	A				PL						04684005	0.00000	0.23600	L 5
MP	R1					HDR	A				PL						04684005	0.00000	0.23600	L 5
MP	R1					HDR	A				PL						04684006	0.00000	0.31200	L 45
MP	R1					HDR	A				PL						04684007	0.00000	0.18400	L 7
MP	R1					HDR	A				PL						04684008	0.00000	0.15900	L 9
MP	R1					HDR	A				PL						04684009	0.00000	0.30200	L 6
C	R1					HDR	A				PL						04684010	0.00000	0.21300	L 8
MP	R1					HDR	A				PL						04684010	0.00000	0.21300	L 8
C	R1					HDR	A				PL						04684011	0.00000	0.18300	L 10
C	R1					HDR	A				PL						04684012	0.00000	0.21800	L 11
MP	R1					HDR	A				PL						04684012	0.00000	0.21800	L 11
C	R1					HDR	A				PL						04684013	0.00000	0.17200	L 12
C	R1					HDR	A				PL						04684014	0.00000	0.20000	L 13
MP	R1					HDR	A				PL						04684015	0.00000	0.25000	L 14
MP	R1					HDR	A				PL						04684016	0.00000	0.00000	L 15
MP	R1					HDR	A				PL						04684017	0.00000	0.19000	L 16
MP	R1					HDR	A				PL						04684018	0.00000	0.31000	L 17
MP	R1					HDR	A				PL						04684019	0.00000	0.18000	L 18
MP	R1					HDR	A				PL						04684020	0.00000	0.22000	L 19
MP	R1					HDR	A				PL						04684021	0.00000	0.18000	L 20
MP	R1					HDR	A				PL						04684022	0.00000	0.18500	L 21
MP	R1					HDR	A				PL						04684023	0.00000	0.36600	L 22
MP	R1					HDR	A				PL						04684024	0.00000	0.22000	L 23
MP	R1					HDR	A				PL						04684025	0.00000	0.21500	L 24
MP	R1					HDR	A				PL						04684026	0.00000	0.31400	L 25
MP	R1					HDR	A				PL						04684027	0.00000	0.19000	L 26

MP	R1					HDR	A				PL						04684028	0.00000	0.24000	L 27
MP	R1					HDR	A				PL						04684029	0.00000	0.14000	L 28
MP	R1					HDR	A				PL						04684030	0.00000	0.14500	L 29
MP	R1					HDR	A				PL						04684031	0.00000	0.17200	L 30
MP	R1					HDR	A				PL						04684033	0.00000	0.24200	L 32
MP	R1					HDR	A				PL						04684034	0.00000	0.34700	L 33
MP	R1					HDR	A				PL						04684035	0.00000	0.27400	L 34
MP	R1					HDR	A				PL						04684036	0.00000	0.20900	L 35
MP	R1					HDR	A				PL						04684037	0.00000	0.35300	L 36
MP	R1					HDR	A				PL						04684038	0.00000	0.20000	L 37
MP	R1					HDR	A				PL						04684039	0.00000	0.16100	L 38
MP	R1					HDR	A				PL						04684040	0.00000	0.15600	L 39
MP	R1					HDR	A				PL						04684041	0.00000	0.14200	L 40
MP	R1					HDR	A				PL						04684042	0.00000	0.15700	L 41
MP	R1					HDR	A				PL						04684043	0.00000	0.25600	L 42
MP	R1					HDR	A				PL						04684044	0.00000	0.31800	L 43
MP	R1					HDR	A				PL						04684045	0.00000	0.42700	L 44
MP	R1					HDR	A				PL						04684047	0.00000	0.50000	L A
MP	R1					HDR	A				PL						04684048	0.00000	0.31400	L B
MP	R1					HDR	A				PL						04684049	0.00000	0.27600	L C
MP	R1					HDR	A				PL						04684050	0.00000	0.33500	L D
MP	R1					HDR	A				PL						04684051	0.00000	0.21000	L E
MP	R1					HDR	A				PL						04684052	0.00000	0.26300	L F
MP	R1					HDR	A				PL						04684053	0.00000	0.30900	L G
MP	R1					HDR	A				PL						04684053	0.00000	0.30900	L G
MP	R1					HDR	A				PL						04684054	0.00000	0.97900	L H
C	CL					C	A				PL						04684055	0.00000	0.61500	L J
C	CC					C	A				PL						04684056	2.00000	11.26000	L O AW
MP	CC					C	A				PL						04684056	2.00000	11.26000	L O AW
MP	R1					HDR	A				PL						04684057	0.00000	0.00000	L X
MP	R1					HDR	A				PL						04684057	0.00000	0.00000	L X
MP	R1					HDR	A				PL						04684057	0.00000	0.00000	L X
C	R1					HDR	A				PL						04684058	0.00000	0.00000	L XX
C	R1					HDR	A				PL						04684058	0.00000	0.00000	L XX
MP	R1					HDR	A				PL						04684058	0.00000	0.00000	L XX
MP	R1					HDR	A				PL						04684058	0.00000	0.00000	L XX
MP	R1					HDR	A				PL						04684058	0.00000	0.00000	L XX
MP	R1					HDR	A				PL						04684058	0.00000	0.00000	L XX
C	CL					C	A				PL						04684059	0.00000	0.00000	L R1
MP	CC					C	A				PL						04684059	0.00000	0.00000	L R1
C	R1					HDR	A				PL						04684060	2.00000	0.00000	L R2 AW
MP	R1					HDR	A				PL						04684060	2.00000	0.00000	L R2 AW
MP	R1					HDR	A				PL						04684060	2.00000	0.00000	L R2 AW
MP	R1					HDR	A				PL						04684061	0.00000	0.00000	L R3
C	CL					C	A				PL						04684062	2.00000	0.00000	L R4 AW
MP	R1					HDR	A				PL						04684063	2.00000	0.00000	L R5 AW

C	R1					HDR	A				PL						04684064	2.00000	0.00000	L R6 AW
MP	R1					HDR	A				PL						04684064	2.00000	0.00000	L R6 AW
MP	R1					HDR	A				PL						04684065	2.00000	0.00000	L R7 AW
MP	R1					HDR	A				PL						04684066	2.00000	0.00000	L R8 AW
MP	R1					HDR	A				PL						04684067	0.00000	0.00000	L R9
MP	R1					HDR	A				PL						04684068	0.00000	0.00000	L R10
C	CC					C	A				PL						04684069	0.00000	3.06100	SEC 25 9 11
MP	CL					C	A				PL						04684069	0.00000	3.06100	SEC 25 9 11
MP	R1					HDR	A				PL						04684070	0.00000	0.32000	L 1A
MP	R1					HDR	A				PL						04684071	0.00000	0.14000	L 31
AE	PA-20					AL	A										04801024	0.00000	40.00000	PM 44/129/1
AE	PA-20					AL	A										04801024	0.00000	40.00000	PM 44/129/1
SA-10	PA-20					AL	A										04801024	0.00000	40.00000	PM 44/129/1
AE	PA-20					AL	A										04801031	0.00000	261.23600	PM 48/77/1
SA-10	PA-20					AL	A										04801031	0.00000	261.23600	PM 48/77/1
AE	PA-20					AL	A										04801032	0.00000	118.52900	PM 48/77/2
SA-10	PA-20					AL	A										04801032	0.00000	118.52900	PM 48/77/2
RE-10	RL-20					AL	A										04802024	0.00000	1.43000	RS 18/48 S331111
RE-10	RL-20					AL	A										04802026	0.00000	2.50000	SEC 33 11 11
SA-10	PA-20					AL	A										04802028	0.00000	17.80000	SEC 33 11 11
RE-10	RL-20					AL	A										04802029	0.00000	17.98000	SEC 33 11 11
RE-10	RL-20					AL	A										04802035	2.00000	0.70000	SEC 3 10 11
RE-10	RL-20					AL	A										04802042	0.00000	15.00000	SEC 33 11 11
RE-10	RL-20					AL	A										04802047	0.00000	17.89000	SEC 33 11 11
RE-10	RL-20					AL	A										04802047	0.00000	17.89000	SEC 33 11 11
RE-10	RL-20					AL	A										04802049	2.00000	1.11000	SEC 33 11 11
RE-10	RL-20					AL	A										04802050	0.00000	21.79000	SEC 33 11 11
RE-10	RL-20					AL	A										04802051	0.00000	10.80000	RS 22/73
RE-10	RL-20					AL	A										04802051	0.00000	10.80000	RS 22/73
RE-10	RL-20					AL	A										04802053	0.00000	10.99300	RS 25/63/D
RE-10	RL-20					AL	A										04802055	0.00000	15.16400	PM 45/70/1
RE-10	RL-20					AL	A										04802056	0.00000	8.53900	PM 45/70/2
SA-10	R1A					MDI	A				PL						04804007	0.00000	1.00000	SEC 3 10 11
SA-10	R1A					MDI	A				PL						04804008	0.00000	1.62000	SEC 3 10 11
SA-10	R1A					MDI	A				PL						04804009	0.00000	1.58000	SEC 3 10 11
SA-10	PA-20					AL	A										04804012	0.00000	0.33000	S 3&10 10 11
SA-10	PA-20					AL	A										04804016	0.00000	1.20000	POR SEC 4 10 11
SA-10	PA-20					AL	A										04804016	0.00000	1.20000	POR SEC 4 10 11
SA-10	PA-20					AL	A										04804017	0.00000	13.03000	POR RS 22/47/1
SA-10	PA-20					AL	A										04804017	0.00000	13.03000	POR RS 22/47/1
AE	PA-20					AL	A										04804019	0.00000	20.00000	PM 47/78/1
AE	PA-20					AL	A										04804020	0.00000	20.00000	PM 47/78/2
AE	PA-20					AL	A										04804021	0.00000	105.32000	PM 47/78/3
SA-10	PA-20					AL	A										04805011	0.00000	11.00000	PM 15/7/1
SA-10	PA-20					AL	A										04805014	0.00000	10.01000	PM 15/7/4
SA-10	PA-20					AL	A										04805015	0.00000	20.85000	PM 19/31/A

SA-10	PA-20					AL	A										04805017	0.00000	12.09000	PM 19/31/B
SA-10	PA-20					AL	A										04805020	0.00000	15.66000	RS 9/29 S31011
PA-20	OS					OS	A										04805021	11.00000	21.45000	SEC 3 10 11
SA-10	PA-20					AL	A										04805028	0.00000	78.60300	POR PM 36/58/REM
SA-10	PA-20					AL	A										04805029	0.00000	0.00000	PPM 50/89/1 ADM
RE-5	RL-10					AL	A										04805030	0.00000	0.00000	PPM 50/89/2 ADM
SA-10	PA-20					AL	A										04805030	0.00000	0.00000	PPM 50/89/2 ADM
SA-10	PA-20					AL	A										04805031	0.00000	0.00000	PPM 50/89/1 ADM
SA-10	PA-20					AL	A										04805032	0.00000	0.00000	PPM 50/89/2 ADM
SA-10	OS					OS	A										04806009	11.00000	1.53000	SEC 2 10 11
AE	PA-20					AL	A										04806034	0.00000	2.57000	SEC 2 10 11
AE	OS					OS	A										04806035	11.00000	54.23000	SEC 2 10 11
PA-20	OS					OS	A										04806035	11.00000	54.23000	SEC 2 10 11
SA-10	PA-20					AL	A										04806049	0.00000	2.88000	SEC 2 10 11
SA-10	PA-20					AL	A										04806057	0.00000	1.10000	SEC 2 10 11
AE	PA-20					AL	A										04806059	0.00000	24.14000	PM 33/92/1
AE	PA-20					AL	A										04806060	0.00000	32.19000	PM 33/92/2
SA-10	PA-20					AL	A										04806068	0.00000	10.00500	RS 23/109/1
AE	PA-20					AL	A										04806071	0.00000	39.27000	POR SEC 2 10 11
SA-10	PA-20					AL	A										04806078	0.00000	27.62600	RS 25/44/1
SA-10	PA-20					AL	A										04806079	0.00000	1.17000	RS 25/44/2
AE	PA-20					AL	A										04806081	0.00000	9.88300	PM 48/36/1
SA-10	PA-20					AL	A										04806082	0.00000	2.53200	PM 48/36/2
AE	PA-20					AL	A										04806083	0.00000	1.28500	SEC 2 10 11
SA-10	PA-20					AL	A										04806083	0.00000	1.28500	SEC 2 10 11
SA-10	PA-20					AL	A										04808009	0.00000	1.56600	SEC 1 10 11
PA-20	OS					OS	A										04808012	11.00000	20.00000	SEC 2 10 11
SA-10	PA-20					AL	A										04808014	0.00000	1.47000	SEC 1 & 12 10 11
SA-10	PA-20					AL	A										04808025	0.00000	27.27000	SEC 2 10 11
SA-10	PA-20					AL	A										04808029	0.00000	10.00000	PM 29/148/A
AE	PA-20					AL	A										04808034	0.00000	18.36000	PM 32/108/C
SA-10	PA-20					AL	A										04808035	0.00000	10.04800	PM 33/80/1
SA-10	PA-20					AL	A										04808036	0.00000	16.05000	PM 33/80/2
SA-10	PA-20					AL	A										04808037	0.00000	3.49000	PM 38/101/1
SA-10	PA-20					AL	A										04808039	1.00000	0.00000	S35 11 11 RDWAY
AE	PA-20					AL	A										04808050	0.00000	12.00000	RS 16/59/1
AE	PA-20					AL	A										04808053	0.00000	40.07000	RS 16/109/1
AE	PA-20					AL	A										04808055	0.00000	20.00000	RS 16/34/1
SA-10	PA-20					AL	A										04808057	0.00000	14.37000	RS 20/99/1
SA-10	PA-20					AL	A										04808059	0.00000	13.00000	B&POR C PM29-148
AE	PA-20					AL	A										04808062	0.00000	43.36000	POR R/S 23-23
SA-10	PA-20					AL	A										04808062	0.00000	43.36000	POR R/S 23-23
SA-10	PA-20					AL	A										04808063	0.00000	1.14600	1&12 10 11RS2323
AE	PA-20					AL	A										04809004	0.00000	52.24000	PM 2/80/A
SA-10	PA-20					AL	A										04809011	0.00000	20.20000	PM 50/4/1
SA-10	PA-20					AL	A										04809012	0.00000	22.10900	PM 50/4/2

SA-10	PA-20					AL	A										04809013	0.00000	21.22200	PM 50/4/3
RE-5	R1A					HDR						PVIL					04811002	0.00000	5.00000	SEC 10 10 11
PA-20	OS					OS	A										04811005	11.00000	81.74000	SEC 10&11 10 11
PA-20	OS					OS	A										04811008	11.00000	14.29000	S 11 10 11RS5-65
R2A	RE-5					LDR											04812101	0.00000	9.03000	SEC 11 10 11 ADM
R2A	RE-5					LDR											04812105	0.00000	20.04000	SEC 11 10 11 ADM
R2A	RE-5					LDR			IBC								04812108	0.00000	7.05000	SEC 11 10 11
R2A	RE-5					LDR			IBC								04812112	0.00000	9.84000	SEC 11 10 11
R2A	RE-5					LDR			IBC								04812113	0.00000	5.00000	SEC 11 10 11
R2A	RE-5					LDR											04812124	0.00000	2.08000	PM 38/67/B
R2A	RE-5					LDR											04812125	0.00000	2.00000	PM 38/67/C
R2A	RE-5					LDR											04812126	0.00000	1.51000	PPM 38/67/D ADM
R2A	RE-5					LDR											04812127	0.00000	0.49000	PPM 38/67/D ADM
R2A	RE-5					LDR											04812132	0.00000	1.51000	PPM 38/66/D ADM
R2A	RE-5					LDR											04812133	0.00000	0.00000	PPM 38/66/D ADM
R2A	RE-5					LDR			IBC								04812143	0.00000	10.00000	PM 32/26/A
R2A	RE-5					LDR											04812160	0.00000	2.00000	PM 41/18/1
R2A	RE-5					LDR											04812161	0.00000	2.02000	PM 41/18/2
R2A	RE-5					LDR			IBC								04812164	0.00000	12.64000	RS 22/139/1
R2A	RE-5					LDR			IBC								04812165	0.00000	10.61000	PRS 22/139/2 ADM
R2A	RE-5					LDR			IBC								04812166	0.00000	2.57000	PRS 22/139/2 ADM
R2A	RE-5					LDR			IBC								04812167	0.00000	4.50000	RS 22/139/3
R2A	RE-5					LDR											04812168	0.00000	11.07700	PRS 29/26/1 ADM
R1A	RE-5					LDR											04812171	0.00000	13.52800	PRS 29/26/3 ADM
R2A	RE-5					LDR											04812171	0.00000	13.52800	PRS 29/26/3 ADM
MP	RE-5					HDR						PVIL					04812173	0.00000	13.20000	RS 29/26/2
R2A	RE-5					HDR						PVIL					04812173	0.00000	13.20000	RS 29/26/2
R2A	RE-5					HDR						PVIL					04812173	0.00000	13.20000	RS 29/26/2
SA-10	PA-20					AL	A										04816004	11.00000	0.00000	POR BLAKELEY RES
SA-10	PA-20					AL	A										04816013	0.00000	4.23000	SEC 12 10 11
AE	PA-20					AL	A										04816023	0.00000	31.11000	SEC 12 10 11
SA-10	PA-20					AL	A										04816023	0.00000	31.11000	SEC 12 10 11
SA-10	PA-20					AL	A										04816029	0.00000	2.22000	SEC 11 10 11
R3A	RL-10					AL	A										04816039	0.00000	10.00000	PM 41/70/1
SA-10	PA-20					AL	A										04816039	0.00000	10.00000	PM 41/70/1
SA-10	PA-20					AL	A										04816040	0.00000	84.06000	REM P/M 41-70
SA-10	PA-20					AL	A										04816042	0.00000	21.32600	POR SEC 2 10 11
AE	PA-20					AL	A										04816044	0.00000	10.01100	RS 48/77/A
SA-10	PA-20					AL	A										04816044	0.00000	10.01100	RS 48/77/A
C	TC		DC		DS	C					PL						04818006	11.00000	0.31000	SEC 12 10 11
I	TC					HDR						PVIL					04821036	11.00000	3.61000	RS 23/136/1
RE-5	TC					HDR						PVIL					04821036	11.00000	3.61000	RS 23/136/1
SA-10	TC					HDR						PVIL					04821036	11.00000	3.61000	RS 23/136/1
I	TC					I						PVIL					04821037	11.00000	1.64000	RS 23/136/2
SA-10	PA-20					AL	A										04822003	0.00000	37.67000	SEC 9 & 10 10 11
RE-5	R3A					MDR						PVIL					04822004	0.00000	3.48000	SEC 10 10 11

RE-5	RL-10					AL	A										04822005	0.00000	7.25400	RS 32/115/2
RE-5	RL-10					AL	A										04822005	0.00000	7.25400	RS 32/115/2
RE-5	R1A					MDR						PVIL					04822006	0.00000	0.61000	SEC 9 & 10 10 11
RE-5	R1A					MDR						PVIL					04822007	0.00000	0.23400	RS 32/115/1
I	TC					HDR						PVIL					04822008	11.00000	0.55000	SEC 10 10 11
RE-5	TC					MDR						PVIL					04822009	11.00000	1.65000	SEC 10 10 11
C	CC		DC		DS	C						PVIL					04824014	0.00000	1.81000	SEC 10 10 11
C	CL		DC		DS	C						PVIL					04824015	0.00000	0.97000	SEC 10 10 11
C	CL		DC		DS	C						PVIL					04824016	0.00000	0.57000	RS 31/109/1
C	CL		DC		DS	C						PVIL					04824017	0.00000	0.21000	SEC 10 10 11
C	CL		DC		DS	C						PVIL					04824023	0.00000	0.43000	SEC 10 10 11
R1	CL					C						PVIL					04824023	0.00000	0.43000	SEC 10 10 11
RE-5	OS					OS						PVIL					04827006	11.00000	0.08000	SEC 10 10 11
RE-5	R1A					MDR						PVIL					04827017	0.00000	1.26000	SEC 10 10 11
RE-5	R3A					MDR						PVIL					04827019	0.00000	4.25000	SEC 10 10 11
RE-5	R2A					MDR						PVIL					04827022	0.00000	2.23000	SEC 10 10 11
RE-5	R3A					MDR						PVIL					04827023	0.00000	4.16000	SEC 10 10 11
RE-5	R1A					MDR						PVIL					04827026	0.00000	0.34000	SEC 10 10 11
RE-5	R1A					MDR						PVIL					04827028	0.00000	1.13000	SEC 10 10 11
RE-5	R1A					MDR						PVIL					04827029	0.00000	1.00300	SEC 10 10 11
RE-5	R1A					MDR						PVIL					04827030	0.00000	1.01000	SEC 10 10 11
RE-5	R1A					MDR						PVIL					04827031	0.00000	1.03000	SEC 10 10 11
RE-5	TC					HDR						PVIL					04827034	11.00000	7.03000	POR SEC 10 10 11
RE-5	TC					HDR						PVIL					04827036	11.00000	0.70000	POR SEC 10 10 11
RE-5	R1A					HDR						PVIL					04827037	0.00000	25.83000	POR SEC 10 10 11
RE-5	R1A					MDR						PVIL					04827038	11.00000	0.04000	POR SEC 10 10 11
RE-5	R3A					MDR						PVIL					04827039	0.00000	5.10600	POR SEC 10 10 11
MP	R1					HDR						PVIL					04828014	0.00000	1.84000	SEC 11 10 11
MP	RM					MFR						PVIL					04828015	0.00000	3.57000	S 10&11 10 11
MP	R1					HDR						PVIL					04828025	0.00000	4.74000	PM 2/40/1
MP	R1					HDR						PVIL					04828026	0.00000	2.59000	PM 2/40/2
RE-5	R1A					MDR						PVIL					04828032	11.00000	0.03000	POR SEC 10 10 11
C	CL		DC		DS	C						PVIL					04829004	11.00000	0.00000	SEC 10 10 11
R1	R1A					MDR						PVIL					04829006	0.00000	1.07000	SEC 10 10 11
C	CL				DS	C						PVIL					04829012	0.00000	0.25000	PM 22/131/2
C	CL				DS	C						PVIL					04829014	0.00000	0.32000	SEC 10 10 11
R1	R1A					MDR						PVIL					04829015	0.00000	0.74200	RS 29/95/1
C	CL		DC		DS	C						PVIL					04829016	0.00000	0.52000	SEC 10 10 11
C	CC		DC		DS	C						PVIL					04829017	0.00000	3.06000	RS 27/65
R1	R1A					MDR						PVIL					04829018	0.00000	1.58000	SEC 10 10 11
R1	OS					OS						PVIL					04829024	11.00000	3.51000	SEC 10 10 11
R1	OS					OS						PVIL					04829025	11.00000	1.96000	SEC 10 10 11
RE-5	R1A					MDR						PVIL					04829027	0.00000	1.47000	PM 34/83/B
RE-5	PVILLE					AP						PVIL			PVIL		04829041	11.00000	0.02100	PRS 14/73
RE-5	PVILLE					AP						PVIL			PVIL		04829042	0.00000	0.00000	PRS 14/73
RE-5	PVILLE					AP						PVIL			PVIL		04829043	11.00000	1.96200	POR RS 14/73

RE-5	PVILLE					AP						PVIL			PVIL		04829044	0.00000	1.90100	POR RS 14/73
C	CL		DC		DS	C						PVIL					04829045	11.00000	0.01600	SEC 10 10 11
C	CL		DC		DS	C						PVIL					04829046	0.00000	0.15400	SEC 10 10 11
CG	OS				DS	OS						PVIL					04833001	11.00000	0.36000	SEC 10 10 11
C	OS		DC			OS						PVIL					04833020	11.00000	2.95000	SEC 10 10 11
RE-5	OS					OS						PVIL					04833020	11.00000	2.95000	SEC 10 10 11
C	R2A		DC			MDR						PVIL					04833034	0.00000	12.36300	PM 44/62/1
RE-5	R3A					MDR						PVIL					04833035	0.00000	5.00000	PM 44/62/2
C	CL		DC			C						PVIL					04834008	0.00000	0.23000	SEC 10 10 11
MP	R1					HDR						PVIL					04834011	0.00000	2.00000	SEC 10 10 11
MP	R1					HDR						PVIL					04834013	0.00000	6.57000	SEC 10 10 11
RE-5	R3A					MDR						PVIL					04834015	0.00000	5.01000	PM 34/99/B
RE-5	R1A					MDR						PVIL					04835017	0.00000	0.40800	SEC 10 10 11
RE-5	RM					MFR						PVIL					04835024	0.00000	0.43000	SEC 10 10 11
RE-5	R3A					MDR						PVIL					04835029	0.00000	4.00000	SEC 10 10 11
RE-5	R1A					MDR						PVIL					04835030	0.00000	0.93000	SEC 10 10 11
C	RM		DC			MFR						PVIL					04835040	0.00000	0.28000	PM 21/108/2
C	RM		DC			MFR						PVIL					04835041	0.00000	0.28000	PM 21/108/3
RE-5	R2A					MDR						PVIL					04835047	0.00000	2.08000	SEC 10 10 11
RE-5	R1A					MDR						PVIL					04835049	0.00000	0.79000	PM 37/78/1
RE-5	R1A					MDR						PVIL					04835050	0.00000	0.54000	PM 37/78/2
C	RM		DC			MFR						PVIL					04835054	0.00000	0.05600	POR PM 21/108/1
C	RM		DC			MFR						PVIL					04835055	0.00000	0.23100	POR PM 21/108/1
C	CL		DC			C						PVIL					04836002	0.00000	0.49000	SEC 10 10 11
C	CL		DC			C						PVIL					04836007	0.00000	1.86000	SEC 10 10 11
RE-5	CC					C						PVIL					04836007	0.00000	1.86000	SEC 10 10 11
C	R1A		DC			MDR						PVIL					04836008	0.00000	3.50000	SEC 10 10 11
RE-5	R2A					MDR						PVIL					04836008	0.00000	3.50000	SEC 10 10 11
RE-5	R2A					MDR						PVIL					04836010	0.00000	2.00000	SEC 10 10 11
C	CL		DC			C						PVIL					04836012	0.00000	0.51000	SEC 10 10 11
C	CL		DC			C						PVIL					04836013	0.00000	1.23000	SEC 10 10 11
RE-5	CL					C						PVIL					04836013	0.00000	1.23000	SEC 10 10 11
R3A	RE-5					LDR			IBC								04839015	0.00000	6.04000	PM 18/89/B
R3A	RE-5					LDR			IBC								04839016	0.00000	6.01000	PM 18/89/C
R3A	RE-5					LDR			IBC								04839017	0.00000	7.84000	PM 18/89/D
R3A	RE-5					LDR			IBC								04839018	0.00000	5.00000	RS 13/77 S111011
R3A	RE-5					LDR			IBC								04839019	0.00000	5.00000	RS 16/45/1
R3A	RE-5					LDR			IBC								04839020	0.00000	5.01000	RS 28/105
R3A	RE-5					LDR			IBC								04839021	0.00000	5.00000	POR PM 18/89/A
R3A	RE-5					LDR											04839022	0.00000	2.75000	SEC 11 10 11
R3A	RE-5					LDR											04839024	0.00000	1.26500	RS 29/57/1
R2A	RE-5					LDR			IBC								04840102	0.00000	4.92000	POR L 5
R2A	RE-5					LDR			IBC								04840103	0.00000	5.00000	POR L 5
R2A	RE-5					LDR			IBC								04840109	0.00000	5.02000	POR L 6
R2A	RE-5					LDR			IBC								04840111	0.00000	21.26000	POR LT 3A SUNYVL
R2A	RE-5					LDR			IBC								04840113	0.00000	0.84000	SEC 11 10 11

R2A	RE-5					LDR			IBC								04840114	0.00000	1.42600	POR L 7
R2A	RE-5					LDR			IBC								04840115	0.00000	1.42600	POR L 7
R2A	RE-5					LDR			IBC								04840116	0.00000	2.18800	POR L 7
R2A	RE-5					LDR											04840123	0.00000	6.56000	SEC 11 10 11
RE-10	RE-5					LDR											04840123	0.00000	6.56000	SEC 11 10 11
R2A	RE-5					LDR			IBC								04840124	0.00000	2.00000	PM 41/4/1
R2A	RE-5					LDR			IBC								04840125	0.00000	2.00400	PM 41/4/2
R2A	RE-5					LDR			IBC								04840126	0.00000	5.85900	PM 41/4/3
R2A	RE-5					LDR			IBC								04840130	0.00000	5.01000	PM 50/5/A
R2A	RE-5					LDR			IBC								04840131	0.00000	5.01000	PM 50/5/B
C	RL-10				DS	RR											04841007	0.00000	1.10000	POR SEC 12 10 11
RE-10	RL-10					RR			IBC								04842017	0.00000	6.75000	SEC 13 10 11
R2A	R1A					HDR					PL						04842025	0.00000	4.59000	SEC 12 10 11
R3A	RE-5					LDR			IBC								04842037	0.00000	3.33000	PPM 36/5/B ADM
RE-10	RL-10					RR			IBC								04842038	0.00000	10.43100	PM 23/67/4
RE-10	RL-10					RR			IBC								04842041	0.00000	15.00000	PM 28/55/C
RE-10	RL-10					RR			IBC								04842050	0.00000	5.00000	PM 35/120/1
RE-10	RL-10					RR			IBC								04842051	0.00000	5.05300	PM 35/120/2
RE-10	RL-10					RR			IBC								04842052	0.00000	5.01100	PM 35/120/3
RE-10	RL-10					RR			IBC								04842053	0.00000	5.55800	PM 35/120/4
R3A	RE-5					LDR			IBC								04842054	0.00000	5.20000	PM 36/5/A
R3A	RE-5					LDR			IBC								04842055	0.00000	1.67000	PPM 36/5/B ADM
R2A	RE-5					LDR			IBC								04842057	0.00000	2.24000	PM 36/27/B
R2A	RE-5					LDR			IBC								04842058	0.00000	2.04000	PM 36/27/C
R2A	RE-5					LDR			IBC								04842063	0.00000	10.94000	PM 46/59/1
R2A	RE-5					LDR			IBC								04842064	0.00000	2.15900	PM 46/59/2
C	CL		DC		DS	C					PL						04847105	0.00000	0.89500	SEC 12 10 11
C	CL		DC		DS	C					PL						04847106	0.00000	0.51500	SEC 12 10 11
R1	TC					LDR											04847119	11.00000	13.64000	S7 10 12&12 1011
R2A	TC					LDR											04847119	11.00000	13.64000	S7 10 12&12 1011
RE-10	TC					LDR											04847119	11.00000	13.64000	S7 10 12&12 1011
RE-10	RL-10					RR			IBC								04847120	0.00000	16.30300	PM 41/14/2
RE-10	RL-10					RR			IBC								04847121	0.00000	10.15000	PM 41/14/3
RE-10	RL-10					RR			IBC								04847122	0.00000	10.02100	PM 41/14/4
C	R20K				DS	HDR					PL						04847125	0.00000	1.93000	PM 28/134/B
C	CC				DS	C					PL						04847128	0.00000	3.75000	PM 28/134/A
C	CL				DS	C					PL						04847129	0.00000	1.97000	SEC 7 10 12
C	CC				DS	C					PL						04847131	0.00000	1.61000	SEC 12 10 11
R1	RF-L					OS											04847151	0.00000	39.62400	RS 22/95
R1	RF-L					OS											04847151	0.00000	39.62400	RS 22/95
R1	RF-L					OS											04847151	0.00000	39.62400	RS 22/95
C	CC		DC		DS	C					PL						04847156	0.00000	0.00000	POR SEC 12 10 11
C	CL				DS	C					PL						04851001	0.00000	0.59000	SEC 12 10 11
C	CL				DS	C					PL						04851007	0.00000	0.59000	SEC 12 10 11
SA-10	PA-20					AL	A										04852001	0.00000	9.10000	PRS 6/18/1 ADM
SA-10	PA-20					AL	A										04852003	0.00000	8.08000	PRS 6/18/1 ADM

PA-20	OS					OS	A										04852015	11.00000	4.84000	PRS 6/120/1
R2A	RE-5					LDR											04852016	0.00000	3.25000	RS 13/12
R2A	RE-5					LDR											04852018	0.00000	0.27000	RS 13/12
R2A	RE-5					LDR					PL						04852019	0.00000	5.00000	RS 13/12
R2A	RE-5					LDR											04852020	0.00000	1.36000	PRS 6/18/4
R2A	RE-5					LDR											04852021	0.00000	7.54000	PRS 6/18/4
R2A	RE-5					LDR											04852029	0.00000	3.55000	RS 14/117/A
C	CC		DC		DS	C											04852031	0.00000	6.02000	RS 14/117/B
R2A	CC					C											04852031	0.00000	6.02000	RS 14/117/B
CG	TC		DC		DS	LDR											04852032	11.00000	12.41000	SEC 10&11 10 11
R2A	TC					LDR											04852032	11.00000	12.41000	SEC 10&11 10 11
C	CC		DC		DS	C					PL						04856207	0.00000	2.00300	PM 45/61/2
C	CC		DC		DS	C					PL						04856210	0.00000	1.52000	PM 47/17/1
C	CL		DC		DS	C					PL						04861001	0.00000	1.00200	L 1
R20K	R1					C					PL						04861005	0.00000	0.45900	L 5
R20K	R1					C					PL						04861006	0.00000	0.45900	L 6
R20K	R1					C					PL						04861007	0.00000	0.45900	L 7
SA-10	PA-20					AL	A										04901034	0.00000	5.28000	SEC 4 & 5 10 11
SA-10	RE-5					MDR					PL						04901035	0.00000	2.08000	SEC 4 & 5 10 11
SA-10	PA-20					AL					PL						04901046	0.00000	6.72000	4 10 11 32 11 11
SA-10	RE-5					MDR					PL						04901074	0.00000	1.24300	POR SEC 4 10 11
SA-10	RE-5					MDR					PL						04901075	0.00000	1.41700	POR SEC 4 10 11
SA-10	RE-5					MDR					PL						04902059	0.00000	3.79600	SEC 4 10 11
SA-10	RE-5					MDR					PL						04903008	0.00000	2.50000	SEC 32 11 11
SA-10	PA-20					AL	A										04903013	0.00000	10.00000	PM 9/91/1
SA-10	PA-20					AL	A										04903014	0.00000	10.98000	PM 9/91/2
SA-10	PA-20					AL	A										04903015	0.00000	13.19000	PM 9/91/3
SA-10	PA-20					AL	A										04903016	0.00000	10.78000	PM 9/148/1
SA-10	PA-20					AL	A										04903017	0.00000	10.78000	PM 9/148/2
SA-10	PA-20					AL	A										04903018	0.00000	10.77500	PM 9/148/3
SA-10	PA-20					AL	A										04903020	0.00000	10.00000	PM 25/66/2
SA-10	PA-20					AL											04903022	0.00000	25.65000	POR PAR 1PM25-66
SA-10	PA-20					AL	A										04903023	0.00000	23.71000	RS 14/2/1
RE-10	RL-20					AL	A										04904001	0.00000	10.38000	SEC 33 11 11
SA-10	PA-20					AL	A										04904007	0.00000	10.43800	PM 44/21/2
SA-10	PA-20					AL	A										04904010	0.00000	10.00000	RS 21/104/1
SA-10	PA-20					AL	A										04905012	0.00000	0.33000	SEC 5 10 11
SA-10	PA-20					AL	A										04905013	0.00000	9.79000	SEC 8 & 9 10 11
SA-10	PA-20					AL	A										04905014	0.00000	7.11000	SEC 4 10 11
SA-10	PA-20					AL	A										04905017	0.00000	10.04000	PM 32/107/B
SA-10	PA-20					AL	A										04905018	0.00000	11.28000	RS 14/2/2
SA-10	PA-20					AL	A										04906004	0.00000	14.06000	SEC 4 10 11
SA-10	PA-10					MDR						PVIL					04906005	0.00000	2.27000	SEC 4 10 11
SA-10	PA-20					AL	A										04906006	0.00000	29.50000	SEC 4 10 11
SA-10	PA-20					AL	A										04906008	0.00000	11.04000	SEC 4 10 11
RE-5	R2A					MDR						PVIL					04907122	0.00000	2.34000	PM 4/138/1

RE-5	R2A					MDR						PVIL					04907123	0.00000	2.42000	PM 4/138/2
RE-5	R3A					MDR						PVIL					04907124	0.00000	4.65000	PM 4/138/3
RE-5	R1A					MDR						PVIL					04907125	0.00000	2.00700	PM 12/150/A
RE-5	R2A					MDR						PVIL					04907126	0.00000	2.01000	PM 12/150/B
RE-5	R2A					MDR						PVIL					04907127	0.00000	2.20000	PM 12/150/C
RE-5	R2A					MDR						PVIL					04907129	0.00000	2.20000	PM 8/79/B
RE-5	R3A					MDR						PVIL					04907139	0.00000	5.00000	SEC 9 10 11
RE-5	R3A					MDR						PVIL					04908005	0.00000	5.01000	PM 27/106/2
SA-10	PA-20					AL	A										04908006	0.00000	29.76000	PM 23/55/2
SA-10	PA-20					AL	A										04908009	0.00000	7.87000	SEC 4 10 11
SA-10	PA-20					AL	A										04908010	0.00000	1.75000	SEC 3 10 11
SA-10	PA-20					AL	A										04908011	0.00000	3.75000	PPM 35/129/1 ADM
SA-10	PA-20					AL	A										04908013	0.00000	20.40000	PPM 16/7/D ADM
SA-10	PA-20					AL	A										04908014	0.00000	0.39000	PPM 16/7/D ADM
SA-10	PA-20					AL	A										04908015	0.00000	6.66000	PPM 35/129/1 ADM
SA-10	PA-20					AL	A										04908016	0.00000	10.42000	PM 35/129/2
SA-10	PA-20					AL	A										04908027	0.00000	15.00000	RS 21/18/1
SA-10	PA-20					AL	A										04908028	0.00000	10.00100	RS 21/18/2
RE-5	R2A					MDR						PVIL					04911003	0.00000	2.35000	SEC 9 10 11
RE-5	R3A					MDR						PVIL					04911016	0.00000	5.01000	PM 2/69/2
RE-5	PVILLE					AP						PVIL			PVIL		04911031	0.00000	0.60000	S 9 & 10 10 11
RE-5	R3A					MDR						PVIL					04911035	0.00000	5.00000	RS 18/78/1
SA-10	PA-20					AL	A										04938001	0.00000	20.00000	L 1
SA-10	PA-20					AL	A										04938002	0.00000	20.00000	L 2
SA-10	PA-20					AL	A										04938003	0.00000	20.00000	L 3
SA-10	PA-20					AL	A										04938004	0.00000	20.00000	L 4
R1A	RL-10					AL	A										04938007	11.00000	1.36400	LOT A
SA-10	PA-20					AL	A										04938007	11.00000	1.36400	LOT A
SA-10	PA-20					AL	A										04938007	11.00000	1.36400	LOT A
SA-10	PA-20					AL	A										04938010	0.00000	21.61000	LT 6 & POR LT 5
SA-10	PA-20					AL	A										04938013	0.00000	10.59000	RS 27/25/2
SA-10	PA-20					AL	A										04938014	0.00000	20.00000	RS 27/25/1
AE	RL-10					RR											05001001	0.00000	20.59000	SEC 6 10 11
AE	RF-L					OS											05001016	0.00000	102.78000	SEC 6 7 10 11
AE	RF-L					OS											05001016	0.00000	102.78000	SEC 6 7 10 11
AE	RF-L					OS											05001016	0.00000	102.78000	SEC 6 7 10 11
RA-20	RF-L					OS											05001016	0.00000	102.78000	SEC 6 7 10 11
RA-20	RF-L					OS											05001016	0.00000	102.78000	SEC 6 7 10 11
RA-20	RF-L					OS											05001016	0.00000	102.78000	SEC 6 7 10 11
RA-20	RF-L					OS											05001016	0.00000	102.78000	SEC 6 7 10 11
RA-20	RF-L					OS											05001016	0.00000	102.78000	SEC 6 7 10 11
RA-20	RF-L					OS											05001016	0.00000	102.78000	SEC 6 7 10 11
RA-20	RE-10					RR											05001029	11.00000	0.00000	POR SEC 6 10 11
AE	RE-10					RR											05001030	11.00000	0.00000	POR SEC 6 10 11
OS	RE-10					RR											05001030	11.00000	0.00000	POR SEC 6 10 11
OS	RE-10					RR											05001030	11.00000	0.00000	POR SEC 6 10 11

OS	RL-20					RR										05001033	0.00000	25.29000	SEC 6 10 11
R2A	RL-10					RR										05001033	0.00000	25.29000	SEC 6 10 11
RA-20	RL-20					RR										05001033	0.00000	25.29000	SEC 6 10 11
RA-20	RL-10					RR			MR							05002008	0.00000	10.24000	S 6 & 7 10 11
RA-20	RL-20					RR			MR							05002014	0.00000	18.43000	RS 19/123/3
RA-20	LA-10					RR			MR							05002015	0.00000	16.74000	RS 19/123/2
RA-20	RL-10					RR										05002036	0.00000	1.78000	RS 3/104 S61011
RA-20	LA-10					RR			MR							05002038	0.00000	17.90000	RS 19/123/1
AE	RL-10					RR										05002039	0.00000	97.92700	SEC 6 10 11 ADM
AE	RL-10					RR										05002039	0.00000	97.92700	SEC 6 10 11 ADM
OS	RL-20					RR										05002039	0.00000	97.92700	SEC 6 10 11 ADM
RA-20	RL-10					RR										05002039	0.00000	97.92700	SEC 6 10 11 ADM
RA-20	PVILLE					AP					PVIL			PVIL		05002041	0.00000	1.84100	SEC 6 10 11 ADM
RA-20	RE-10					RR			MR							05002042	11.00000	0.00000	POR SEC 6 10 11
R1	R1A					MDR					PVIL					05007004	0.00000	0.75000	SEC 7 10 11
RA-20	RL-10					RR										05007013	0.00000	9.03000	SEC 1 10 10
R1	R1A					MDR					PVIL					05007022	0.00000	1.04000	PM 2/92/A
R1	R1A					MDR					PVIL					05007024	0.00000	2.00000	PM 2/92/C
R1	R1A					MDR					PVIL					05007025	0.00000	1.04000	PM 2/92/D
R1	R1A					MDR					PVIL					05007030	0.00000	1.32000	PM 9/127/A
R1	R1A					MDR					PVIL					05007031	0.00000	1.31000	PM 9/127/B
R1	R1A					MDR					PVIL					05007032	0.00000	1.48000	PM 9/127/C
R1	R1A					MDR					PVIL					05007033	0.00000	1.04000	PM 9/127/D
R1	R1A					MDR					PVIL					05007037	0.00000	1.96000	RS 15/51/2
R1	R1A					MDR					PVIL					05007038	0.00000	2.14000	6 10 11&1 RS16-7
R1	R1A					MDR					PVIL					05007039	0.00000	2.00000	PM 41/73/1
R1	R1A					MDR					PVIL					05007040	0.00000	2.00000	PM 41/73/2
RA-20	RL-20					RR										05007043	0.00000	27.54000	SEC 6 10 11
RA-20	R3A					MDR					PVIL					05008005	11.00000	4.53000	SEC 7 10 11
RA-20	OS					OS										05008006	11.00000	0.36000	SEC 7 10 11
RA-20	RL-10					RR										05008009	0.00000	7.39100	SEC 7 10 11
RA-20	PVILLE					AP					PVIL			PVIL		05008010	11.00000	0.07000	SEC 7 10 11
RA-20	RL-10					RR										05008011	0.00000	6.78000	RS 28/117/1
R1	R1A					MDR					PVIL					05009002	0.00000	1.00000	SEC 7 10 11
R1	R1A					MDR					PVIL					05009011	0.00000	1.82000	SEC 7 10 11
R1	R1A					MDR					PVIL					05009012	0.00000	0.84000	SEC 7 10 11
R1	R1A					MDR					PVIL					05009017	0.00000	0.22500	SEC 7 10 11
R1	R1A					MDR					PVIL					05009018	0.00000	1.46000	SEC 7 10 11
R1	R1A					MDR					PVIL					05009020	0.00000	0.52800	SEC 7 10 11
R1	R1A					MDR					PVIL					05009033	0.00000	1.16600	PM 49/15/1
R1	R1A					MDR					PVIL					05009034	0.00000	0.64200	PM 49/15/2
R1	R1A					MDR					PVIL					05009035	0.00000	0.64200	PM 49/15/3
R1	PVILLE					AP					PVIL			PVIL		05009036	11.00000	0.00000	RS 28/140
R2A	PVILLE					AP					PVIL			PVIL		05009036	11.00000	0.00000	RS 28/140
RA-20	PVILLE					AP					PVIL			PVIL		05009036	11.00000	0.00000	RS 28/140
RE-5	R2A					MDR					PVIL					05021015	0.00000	2.26000	PM 2/90/A

C	CC					C						PVIL					05021018	0.00000	2.09000	RS 30/92
RE-5	R1A					MDR						PVIL					05021019	0.00000	1.00100	POR PAR C 2-90
RE-5	R1A					MDR						PVIL					05021020	0.00000	1.00000	POR PAR C 2-90
PVILLE	TC					AP						PVIL			PVIL		05021032	11.00000	0.00000	POR SEC 7 10 11
RA-20	RL-10					RR											05022003	0.00000	5.91000	SEC 6 10 11
RA-20	RL-10					RR											05022004	0.00000	1.00000	SEC 6 10 11
RA-20	RL-10					RR											05022007	0.00000	3.79000	SEC 6 10 11
RA-20	RL-10					RR											05022008	0.00000	9.77000	SEC 6 10 11
RE-10	RL-10					RR											05022012	0.00000	13.50000	SEC 5 10 11
RE-10	RL-10					RR											05022014	0.00000	3.01000	PM 10/79/1
RE-10	RL-10					RR											05022015	0.00000	4.97000	PM 10/79/2
RE-10	RL-10					RR											05022016	0.00000	5.26000	PM 10/79/3
RE-10	RL-10					RR											05022017	0.00000	8.48000	PM 10/79/4
RE-10	RE-5					MDR					PL						05022018	0.00000	4.26000	PM 16/130/1
RE-10	RE-5					MDR					PL						05024101	0.00000	1.08000	SEC 5 10 11
RE-10	RE-5					MDR					PL						05024102	1.00000	1.47000	ROAD S 5 10 11
RE-10	RE-5					MDR					PL						05024103	0.00000	4.70000	SEC 5 10 11
R1	R1A					HDR						PVIL					05025025	0.00000	0.76000	SEC 5 10 11
RE-5	R1A					HDR						PVIL					05025025	0.00000	0.76000	SEC 5 10 11
SA-10	PA-20					AL	A										05029011	0.00000	23.29000	PM 27/22/A
SA-10	PA-20					AL	A										05029012	0.00000	20.20000	PM 27/22/B
R3A	R1A					HDR						PVIL					05029014	11.00000	2.11000	TR 2 R/S 27-111
SA-10	PA-20					AL	A										05029023	0.00000	16.78000	PM 50/106/1
SA-10	PA-20					AL	A										05029024	0.00000	21.80000	PM 50/106/2
R3A	R1A					HDR	A					PVIL					05029025	0.00000	3.29000	PM 50/106/3
R1	R1A					HDR						PVIL					05029026	0.00000	3.37000	PM 50/106/4
R3A	R1A					HDR						PVIL					05029026	0.00000	3.37000	PM 50/106/4
R2A	PVILLE					AP						PVIL			PVIL		05030031	0.00000	0.69900	PM 43/111/1
R1	PVILLE					AP						PVIL			PVIL		04265501	0.00000	0.00000	
RA-20	RL-10					RR											05045226	0.00000	0.37000	SEC 7 10 11
RA-20	PVILLE					AP						PVIL			PVIL		05045228	0.00000	0.25000	SEC 7 10 11
RA-20	RL-10					RR											05047001	0.00000	2.03000	SEC 7 10 11
RA-20	RL-10					RR											05047006	0.00000	4.07000	SEC 7 10 11
AE	RL-10					RR				MR							05048001	0.00000	5.96000	PM 5/97/A
RA-20	RL-10					RR				MR							05048001	0.00000	5.96000	PM 5/97/A
RA-20	RL-10					RR				MR							05048006	0.00000	3.72000	PM 20/64/2
RA-20	RL-10					RR				MR							05048009	0.00000	2.56000	POR PM 20/64/1
RA-20	RL-10					RR				MR							05048010	0.00000	0.46900	POR PM 20/64/1
RA-20	RL-10					RR				MR							05048015	0.00000	5.84700	RS 25/1
RA-20	RL-10					RR				MR							05048016	0.00000	5.08600	RS 25/1
PVILLE	R1A					MDR					PL						05050034	0.00000	1.23000	SEC 5 10 11
PVILLE	R1A					MDR					PL						05050034	0.00000	1.23000	SEC 5 10 11
RE-5	R1A					MDR					PL						05050034	0.00000	1.23000	SEC 5 10 11
RE-5	R1A					MDR					PL						05050034	0.00000	1.23000	SEC 5 10 11
SA-10	PA-20					AL	A										05051003	0.00000	2.48000	PM 26/39/3
SA-10	PA-20					AL	A										05051004	0.00000	14.48000	PM 26/39/2

SA-10	RE-5					MDR					PL						05051005	11.00000	0.22000	SEC 5 10 11
SA-10	PA-20					AL	A										05051011	0.00000	12.66000	PM 26/39/1
RE-10	RL-20					AL			IBC								05101102	0.00000	6.75000	SEC 16 10 11
RA-20	LA-20					AL			IBC								05101103	0.00000	5.49000	S 16 & 21 10 11
RA-20	LA-20					AL			IBC								05101105	0.00000	23.76000	S 16 & 21 10 11
RE-5	OS					OS										TH	05101109	11.00000	40.00000	SEC 20 10 11
RE-5	OS					OS										TH	05101110	11.00000	53.33000	SEC 20 10 11
RE-5	OS					OS										TH	05101111	11.00000	20.00000	SEC 20 10 11
RA-20	LA-20					AL			IBC								05101120	0.00000	18.38000	SEC 20 10 11
RA-20	LA-20					AL			IBC								05101120	0.00000	18.38000	SEC 20 10 11
RA-20	OS					AL											05101121	11.00000	16.02000	SEC 20 10 11
RA-20	LA-20					AL			IBC	MR							05101122	0.00000	12.02000	SEC 20 10 11
RA-20	OS					OS										TH	05101123	11.00000	7.98000	SEC 20 10 11
RE-10	TC					LDR			IBC								05101125	11.00000	0.00000	S 18&19 10 11
RE-5	TC					LDR			IBC								05101125	11.00000	0.00000	S 18&19 10 11
RE-10	TC					I						EDDS					05101126	11.00000	0.00000	SEC 19 10 11
RE-10	TC					I						EDDS					05101126	11.00000	0.00000	SEC 19 10 11
RE-5	TC					I						EDDS					05101126	11.00000	0.00000	SEC 19 10 11
RE-5	TC					I						EDDS					05101126	11.00000	0.00000	SEC 19 10 11
RA-20	OS					AL											05101127	11.00000	20.63000	SEC 21 10 11
RE-5	R3A					MDR						PVIL					05102027	0.00000	4.21000	SEC 18 10 11
RE-10	R2A					MDR						PVIL					05103006	0.00000	2.60000	SEC 18 10 11
RE-10	R1A					MDR						PVIL					05103042	11.00000	0.45000	SEC 18-10-11
RE-10	RE-5					MDR						PVIL					05103043	0.00000	14.37000	SEC 18 10 11
RE-10	R1A					MDR						PVIL					05103044	11.00000	0.48000	SEC 18-10-11
RE-10	RE-5					MDR						PVIL					05103056	0.00000	6.00000	PM 26/101/1
RE-10	RE-5					MDR						PVIL					05103057	0.00000	5.00000	PM 26/101/2
RE-10	R3A					MDR						PVIL					05103058	0.00000	5.21000	PM 26/101/3
RE-5	R2A					MDR						PVIL					05106004	0.00000	2.58000	SEC 18 10 11
RE-5	R1A					MDR						PVIL					05106008	0.00000	1.08000	PM 9/12/A
RE-5	R1A					MDR						PVIL					05106009	0.00000	1.00000	PM 9/12/B
R2A	PVILLE					AP						PVIL			PVIL		05106016	0.00000	10.08000	SEC 18 10 11
RE-5	R1A					MDR						PVIL					05106017	0.00000	1.00000	PM 9/12/C
RE-10	R1A					MDR						PVIL					05106018	0.00000	0.05000	SEC 18 10 11
RE-10	RE-5					MDR						PVIL					05106019	0.00000	13.33000	SEC 18 10 11
RE-10	R3A					MDR						PVIL					05106020	0.00000	4.86000	RS 15/109/1
RE-5	R2A					MDR						PVIL					05106021	0.00000	2.47000	RS 15/109/2
RE-5	R2A					MDR						PVIL					05107022	0.00000	2.74000	SEC 18 10 11
RE-5	R3A					MDR						PVIL					05107024	0.00000	5.00000	PM 33/15/A
R1A	RE-5					LDR			IBC								05111023	0.00000	0.00000	SEC 17 10 11
RE-10	RE-5					LDR			IBC								05111023	0.00000	0.00000	SEC 17 10 11
RE-10	RE-5					LDR			IBC								05114007	0.00000	2.50000	SEC 19 10 11
RE-10	PVILLE					AP						PVIL			PVIL		05117007	0.00000	0.33000	SEC 16 10 11
R1A	RE-5					LDR			IBC								05117020	0.00000	1.57000	SEC 16 10 11
R1A	RE-5					LDR			IBC								05117029	0.00000	6.97100	RS 13/24/1
R1	R1A					MDR						PVIL					05117030	0.00000	0.34000	PM 34/134/A

R1	R1A					MDR					PVIL					05117031	0.00000	0.32000	PM 34/134/B
R1	R1A					MDR					PVIL					05117032	0.00000	0.27000	PM 34/134/C
R1	R1A					LDR										05117056	0.00000	0.47000	RS 25/6/B
RE-10	R1A					LDR										05117056	0.00000	0.47000	RS 25/6/B
RE-10	R2A					MDR					PVIL					05118011	0.00000	2.64600	RS 29/33/1
RE-10	R1A					MDR					PVIL					05118022	0.00000	1.00000	PM 49/35/1
RE-10	RE-5					MDR					PVIL					05118023	0.00000	12.62900	PM 49/35/2
RE-10	R1A					MDR					PVIL					05118024	0.00000	0.00000	SEC 18 10 11
RE-10	R1A					MDR					PVIL					05118025	0.00000	0.04700	SEC 18 10 11
RE-5	R1A					MDR					PVIL					05119009	0.00000	1.00000	PM 2/118/A
RE-5	R1A					MDR					PVIL					05119010	0.00000	1.00000	PM 2/118/B
RE-5	R1A					MDR					PVIL					05119011	0.00000	1.00000	PM 2/118/C
RE-5	R1A					MDR					PVIL					05119013	0.00000	1.00000	PM 3/93/1
RE-5	R1A					MDR					PVIL					05119014	0.00000	1.37000	PM 3/93/2
RE-5	R1A					MDR					PVIL					05119017	0.00000	1.23000	PM 19/106/3
RE-5	R1A					MDR					PVIL					05119018	0.00000	1.21000	PM 19/106/4
RE-5	R1A					MDR					PVIL					05119019	0.00000	1.00000	PM 27/6/A
RE-5	R1A					MDR					PVIL					05119020	0.00000	1.00000	PM 27/6/B
RE-5	R2A					MDR					PVIL					05119021	0.00000	2.41000	PM 28/99/A
RE-5	R1A					MDR					PVIL					05119022	0.00000	1.00000	PM 28/99/B
RE-10	RE-5					LDR		IBC								05121001	0.00000	1.98000	SEC 20 10 11 ADM
RE-10	RE-5					LDR		IBC								05121001	0.00000	1.98000	SEC 20 10 11 ADM
RE-10	RE-5					LDR		IBC								05121001	0.00000	1.98000	SEC 20 10 11 ADM
RE-10	RE-5					LDR		IBC								05121005	0.00000	7.52000	SEC 20 10 11 ADM
RE-10	R3A					MDR					EDDS					05122002	0.00000	3.43000	SEC 19 10 11
RE-5	R1A					MDR					EDDS					05122010	0.00000	1.00000	SEC 19 10 11
RE-5	R1A					MDR					EDDS					05122011	0.00000	1.10000	SEC 19 10 11
RE-10	R1A					MDR					EDDS					05122012	0.00000	1.04000	SEC 19 10 11
RE-5	R1A					MDR					EDDS					05122013	0.00000	0.37000	SEC 19 10 11
RE-10	I					I					EDDS					05122014	0.00000	12.11000	SEC 19 10 11
RE-5	I					I					EDDS					05122015	0.00000	0.32000	SEC 19 10 11
RE-5	I					I					EDDS					05122016	0.00000	0.37000	SEC 19 10 11
RE-10	I					I					EDDS					05122017	0.00000	1.79000	SEC 19 10 11
RE-5	I					I					EDDS					05122019	0.00000	0.51000	RS 19/101/1
RE-10	RE-5					LDR		IBC								05123034	0.00000	5.83900	PM 49/120/B
RE-10	RE-5					LDR		IBC								05123035	0.00000	5.00600	PM 49/120/C
RE-10	RF-L					OS									TH	05124004	0.00000	4.89000	SEC 19 10 11
RE-5	RF-L					OS									TH	05124019	0.00000	5.00600	PM 40/16/3
C	CL		DC			C					EDDS					05125006	0.00000	0.50000	SEC 19 10 11
C	CL		DC			C					EDDS					05125007	0.00000	0.38000	SEC 19 10 11
C	CL		DC			C					EDDS					05125008	0.00000	0.13000	SEC 19 10 11
R1A	PVILLE					AP					PVIL			PVIL		05130076	0.00000	0.00000	SEC 18 10 11
RE-5	R1A					MDR					PVIL					05131142	0.00000	1.20000	SEC 18 10 11
RE-5	R1A					MDR					PVIL					05132009	0.00000	1.10000	SEC 18 10 11
RE-10	RE-5					MDR					PVIL					05135009	0.00000	5.20000	PM 5/3/A
RE-10	RE-5					MDR					PVIL					05135010	0.00000	6.09000	PM 5/3/B

R1A	PVILLE					AP						PVIL			PVIL		05136005	11.00000	0.00000	POR SEC 17 10 11
RE-10	R1A					MDR						PVIL					05136019	0.00000	1.19300	PM 27/100/D
R1A	RE-5					LDR			IBC								05136023	0.00000	4.11300	SEC 7 10 11
RE-5	OS					OS										TH	05142002	11.00000	4.08000	SEC 20 10 11
RE-5	OS					OS										TH	05142003	11.00000	2.13000	SEC 20 10 11
RE-5	OS					OS										TH	05142006	11.00000	17.12000	SEC 20 10 11
RE-5	RF-L					OS										TH	05142009	0.00000	3.53000	SEC 20 10 11
RE-5	OS					OS										TH	05142010	11.00000	4.08000	SEC 20 10 11
RE-5	OS					OS										TH	05142011	11.00000	1.65000	SEC 20 10 11
RA-20	OS					OS										TH	05142012	11.00000	5.54000	SEC 20 10 11
RE-10	OS					OS										TH	05142012	11.00000	5.54000	SEC 20 10 11
RE-10	RF-L					OS										TH	05142013	0.00000	2.00000	SEC 20 10 11
RE-5	OS					OS										TH	05142014	11.00000	5.01700	PAR 1 P/M 31-144
RE-5	OS					OS										TH	05142015	11.00000	5.82000	PAR 2 P/M 31-144
RE-5	OS					OS										TH	05142016	11.00000	5.44000	PAR 3 P/M 31-144
RE-10	RF-L					OS										TH	05142020	0.00000	12.05000	SEC 20 10 11
RE-10	RF-L					OS										TH	05142021	0.00000	7.00000	SEC 19 10 11
RE-10	RF-L					OS										TH	05142022	0.00000	6.20000	SEC 19 10 11
RE-5	RF-L					OS										TH	05142023	0.00000	1.50000	SEC 20 10 11
RE-5	OS					OS										TH	05142025	11.00000	5.57000	SEC 20 10 11
RE-5	OS					OS										TH	05142026	11.00000	15.07000	SEC 20 10 11
RE-5	OS					OS										TH	05142027	11.00000	15.65000	SEC 20 10 11
RE-5	OS					OS										TH	05142029	11.00000	0.31000	SEC 20 10 11
RE-10	RF-L					OS										TH	05142030	0.00000	0.00000	SEC 20 10 11
RE-5	OS					OS										TH	05142032	11.00000	0.19000	SEC 20 10 11
RE-5	RF-L					OS										TH	05142035	0.00000	2.74000	RS 32/136/1
RE-5	RF-L					OS										TH	05142036	0.00000	6.54000	SEC 20 10 11
RE-5	RF-L					OS										TH	05142036	0.00000	6.54000	SEC 20 10 11
RE-10	OS					OS			IBC								05143003	11.00000	3.74000	SEC 17 10 11
RA-20	LA-20					AL			IBC								05143005	0.00000	24.76000	SEC 20 10 11
RA-20	LA-20					AL			IBC								05143006	0.00000	10.87000	SEC 17 10 11
RA-20	LA-20					AL			IBC								05143008	0.00000	7.58000	SEC 17 10 11
RA-20	LA-20					AL			IBC								05143008	0.00000	7.58000	SEC 17 10 11
RA-20	LA-20					AL			IBC								05143013	0.00000	21.81000	SEC 16 10 11
RA-20	LA-20					AL			IBC								05143016	0.00000	131.31000	SEC 20&21 10 11
RA-20	OS					OS										TH	05143017	11.00000	11.00000	SEC 21 10 11
AE	PA-20					AL			IBC								05143018	0.00000	6.57000	SEC 17 10 11 ADM
AE	PA-20					AL			IBC								05143020	0.00000	33.06000	SEC 17 10 11 ADM
AE	PA-20					AL			IBC								05143022	0.00000	2.90000	SEC 16 10 11
AE	PA-20					AL			IBC								05143025	0.00000	0.00000	SEC 17 10 11
AE	PA-20					AL			IBC								05143027	0.00000	76.00000	SEC 17 10 11
RA-20	LA-20					AL			IBC								05143027	0.00000	76.00000	SEC 17 10 11
AE	PA-20					AL			IBC								05143028	0.00000	43.97000	SEC 16&17 10 11
RE-10	R2A					MDR						PVIL					05144145	0.00000	2.40000	RS 9/55/1
RE-5	R3A					MDR						PVIL					05144149	0.00000	5.00100	PM 33/10/C
RE-10	R3A					MDR						PVIL					05144162	0.00000	4.04000	SEC 16 10 11

RE-5	OS					OS										TH	05145011	11.00000	16.50000	SEC 21&22 10 11
RE-10	OS					OS										TH	05145012	11.00000	20.00000	SEC 22 10 11
RE-10	OS					OS										TH	05145014	11.00000	8.50000	SEC 21 10 11
RE-5	OS					OS										TH	05145017	11.00000	15.00000	SEC 21&22 10 11
RE-10	OS					OS										TH	05145019	11.00000	2.45000	SEC 21 10 11
RE-5	OS					OS										TH	05145020	11.00000	5.69000	SEC 21 10 11
RE-5	OS					OS										TH	05145021	11.00000	12.55000	SEC 21 10 11
RE-5	OS					OS										TH	05145022	11.00000	9.13000	SEC 21 10 11
RE-10	OS					OS										TH	05145024	11.00000	24.31000	SEC 21 10 11
RE-10	OS					OS										TH	05145027	11.00000	15.00000	SEC 21 10 11
RE-10	OS					OS										TH	05145028	11.00000	15.00000	SEC 21 10 11
RE-10	OS					OS										TH	05145029	11.00000	35.87000	SEC 21 10 11
RE-10	RF-L					OS											05145030	0.00000	16.67000	SEC 21 10 11
RE-5	RF-L					OS										TH	05145031	0.00000	3.33000	SEC 21 10 11
RE-10	RL-10					RR											05145032	0.00000	40.00000	SEC 22 10 11
RE-10	I					I						EDDS					05146101	0.00000	12.51000	SEC 19 10 11
RE-10	I					I						EDDS					05146102	0.00000	5.01000	SEC 19 10 11
RE-5	R1A					MDR						EDDS					05146118	0.00000	1.00000	POR PM 18/36/3
RE-5	R1A					MDR						EDDS					05146122	0.00000	2.00000	POR PM 18/36/3
RE-5	R1A					MDR						EDDS					05146126	0.00000	2.01000	PM 24/141/1
RE-5	R1A					MDR						EDDS					05146127	0.00000	2.07000	PM 24/141/2
RE-5	R1A					MDR						EDDS					05146128	0.00000	2.00000	PM 24/141/3
RE-5	R2A					MDR						EDDS					05146129	0.00000	2.00000	PM 24/141/4
RE-5	R3A					MDR						EDDS					05146130	0.00000	3.31000	PM 17/60/B
R2	RM		DC			MFR						EDDS					05146137	0.00000	5.21000	PM 25/46/D
RE-5	R2A					MDR						EDDS					05146138	0.00000	2.52000	PM 32/5/A
RE-5	R2A					MDR						EDDS					05146140	0.00000	2.74000	PM 32/5/B
PF	R1					HDR						EDDS					05146154	0.00000	15.27200	PM32&36 RS20/113
R2	RE-5			PD		MDR						EDDS					05146159	0.00000	10.72000	RS 23/64/1
RE-5	R3A					MDR						EDDS					05146159	0.00000	10.72000	RS 23/64/1
R2	RM			PD		MFR						EDDS					05146160	0.00000	4.65000	RS 23/64/2
RE-5	RF-L					OS										TH	05148105	0.00000	3.90700	RS 21/59/1
RE-5	OS					OS										TH	05148106	11.00000	3.86000	SEC 21 10 11
RE-5	OS					OS										TH	05148107	11.00000	3.84000	SEC 21 10 11
RE-5	RF-L					OS										TH	05148108	0.00000	5.06000	RS 16/131/1
RE-5	OS					OS										TH	05148112	11.00000	1.53000	SEC 21 10 11
RE-5	OS					OS										TH	05148113	11.00000	1.53000	SEC 21 10 11
RE-5	RF-L					OS										TH	05148121	0.00000	4.19000	SEC 21 10 11
RE-5	OS					OS										TH	05148137	11.00000	1.22000	PAR B P/M 3-129
RA-20	OS					OS										TH	05148163	11.00000	4.00000	SEC 21 10 11
RE-5	OS					LDR											05148164	11.00000	75.30000	SEC 21 10 11
RE-5	RF-L					OS										TH	05148177	0.00000	2.48700	PM 48/150/A
RE-5	RF-L					OS										TH	05148178	0.00000	1.38500	PM 48/150/B
RA-20	OS					OS										TH	05149001	11.00000	94.00000	SEC 20 10 11
RE-5	OS					OS										TH	05149001	11.00000	94.00000	SEC 20 10 11
RE-5	OS					OS										TH	05149001	11.00000	94.00000	SEC 20 10 11

RE-5	OS					OS										TH	05149001	11.00000	94.00000	SEC 20 10 11
RE-5	OS					OS										TH	05149001	11.00000	94.00000	SEC 20 10 11
RE-5	OS					OS										TH	05149001	11.00000	94.00000	SEC 20 10 11
RA-20	OS					OS										TH	05149002	11.00000	76.00000	SEC 20&21 10 11
RE-10	OS					OS										TH	05149002	11.00000	76.00000	SEC 20&21 10 11
RE-5	OS					OS										TH	05149002	11.00000	76.00000	SEC 20&21 10 11
RE-5	OS					OS										TH	05149003	11.00000	18.00000	SEC 21 10 11
RE-5	R1A					MDR						PVIL					05153003	0.00000	1.53000	PM 20/147/1
RE-5	R1A					MDR						PVIL					05153008	0.00000	1.87000	PM 20/147/2
RE-5	R2A					MDR						PVIL					05153018	0.00000	2.20000	PM 31/14/A
RE-5	R2A					MDR						PVIL					05153019	0.00000	2.83000	PM 30/121/A
RE-5	R3A					MDR						PVIL					05153022	0.00000	3.11000	SEC 18 10 11
RE-5	R2A					MDR						PVIL					05153023	0.00000	2.94000	PM 12/136/A
RE-5	R1A					MDR						PVIL					05153024	0.00000	1.24000	PM 12/136/B
RE-5	R2A					MDR						PVIL					05153025	0.00000	2.35000	PM 7/35/2
RE-5	R2A					MDR						PVIL					05153026	0.00000	2.47000	SEC 18 10 11
RE-5	R1A					MDR						PVIL					05153027	0.00000	1.37000	SEC 18 10 11
RE-5	R2A					MDR						PVIL					05153028	0.00000	2.18000	SEC 18 10 11
RE-5	R2A					MDR						PVIL					05153030	0.00000	2.44000	PM 30/122/A
R2	RM					MFR						EDDS					05154101	0.00000	0.90500	L 1
R2	RM					MFR						EDDS					05154102	0.00000	0.55000	L 2
R2	RM					MFR						EDDS					05154103	0.00000	0.48000	L 3
R2	RM					MFR						EDDS					05154107	0.00000	0.41000	L 7
R2	RM					MFR						EDDS					05154108	0.00000	0.40000	L 8
R2	RM					MFR						EDDS					05154109	0.00000	0.38000	L 9
R2	RM					MFR						EDDS					05154110	0.00000	0.37000	L 10
R2	RM					MFR						EDDS					05154111	0.00000	0.54000	L 11
C	CM		DC			C						EDDS					05154201	0.00000	1.72000	L 12
R2	RM					MFR						EDDS					05154202	0.00000	0.51000	L 13
RM	CM					C						EDDS					05154207	0.00000	0.46800	L 18
R2	RM					MFR						EDDS					05154208	0.00000	0.84000	PM 32/47/A
R2	RM					MFR						EDDS					05154209	0.00000	0.74100	PM 33/35/A
RE-5	OS					OS										TH	05155024	11.00000	6.18000	PAR 1 P/M 31-137
RE-5	RF-L					OS										TH	05155025	0.00000	5.13000	PM 31/137/2
RE-5	RF-L					OS										TH	05155026	0.00000	5.00000	PM 31/137/3
CPO	CC			PD		C						EDDS					05155047	0.00000	13.14300	PPM36/119&32/6
PF	R1					HDR						EDDS					05155047	0.00000	13.14300	PPM36/119&32/6
RE-5	R1A					HDR						EDDS					05155053	0.00000	6.60000	POR36 31RS22-37
RE-5	R1A					HDR						EDDS					05155054	0.00000	10.02000	PM 35/45/4+
RE-5	RF-L					OS											05155055	0.00000	5.09000	RS 30/57/1
RE-5	RF-L					OS										TH	05155056	0.00000	5.06000	RS 30/57/2
R2	RM			PD		MFR						EDDS					05165001	0.00000	0.00000	L 3A
R2	RM			PD		MFR						EDDS					05165002	0.00000	0.00000	L 3B
R2	RM			PD		MFR						EDDS					05165003	0.00000	0.00000	L 4A
R2	RM			PD		MFR						EDDS					05165004	0.00000	0.00000	L 4B
R2	RM			PD		MFR						EDDS					05165005	0.00000	0.00000	L 5A

R2	RM			PD		MFR					EDDS					05165006	0.00000	0.00000	L 5B
R2	RM			PD		MFR					EDDS					05165007	0.00000	0.00000	L 6A
R2	RM			PD		MFR					EDDS					05165008	0.00000	0.00000	L 6B
R2	RM			PD		MFR					EDDS					05165009	0.00000	0.00000	L 7A
R2	RM			PD		MFR					EDDS					05165010	0.00000	0.00000	L 7B
R2	RM			PD		MFR					EDDS					05165011	2.00000	0.00000	LOT C AW
R2	RM			PD		MFR					EDDS					05165016	2.00000	0.00000	LOT A AW
R2	RM			PD		MFR					EDDS					05165020	2.00000	0.00000	L B AW
R2	RM			PD		MFR					EDDS					05167001	0.00000	0.00000	L 1A
R2	RM			PD		MFR					EDDS					05167002	0.00000	0.00000	L 1B
R2	RM			PD		MFR					EDDS					05167003	0.00000	0.00000	L 2A
R2	RM			PD		MFR					EDDS					05167004	0.00000	0.00000	L 2B
R2	RM			PD		MFR					EDDS					05167005	0.00000	0.00000	L 2C
R2	RM			PD		MFR					EDDS					05167006	0.00000	0.00000	L 8A
R2	RM			PD		MFR					EDDS					05167007	0.00000	0.00000	L 8B
R2	RM			PD		MFR					EDDS					05167008	0.00000	0.00000	L 9A
R2	RM			PD		MFR					EDDS					05167009	0.00000	0.00000	L 9B
R2	RM			PD		MFR					EDDS					05167022	0.00000	0.00000	L 15A
R2	RM			PD		MFR					EDDS					05167023	0.00000	0.00000	L 15B
R2	RM			PD		MFR					EDDS					05167024	0.00000	0.00000	L 16A
R2	RM			PD		MFR					EDDS					05167025	0.00000	0.00000	L 16B
R2	RM			PD		MFR					EDDS					05167026	0.00000	0.00000	L 17A
R2	RM			PD		MFR					EDDS					05167027	0.00000	0.00000	L 17B
R2	RM			PD		MFR					EDDS					05167028	0.00000	0.00000	L 18A
R2	RM			PD		MFR					EDDS					05167029	0.00000	0.00000	L 18B
R2	RM			PD		MFR					EDDS					05167030	0.00000	0.00000	L 19A
R2	RM			PD		MFR					EDDS					05167031	0.00000	0.00000	L 19B
R2	RM			PD		MFR					EDDS					05167032	0.00000	0.00000	L 22B
R2	RM			PD		MFR					EDDS					05167033	0.00000	0.00000	L 22A
R2	RM			PD		MFR					EDDS					05167034	0.00000	0.00000	L 21B
R2	RM			PD		MFR					EDDS					05167035	0.00000	0.00000	L 21A
R2	RM			PD		MFR					EDDS					05167039	0.00000	0.07000	PM 47/129/1
R2	RM			PD		MFR					EDDS					05167040	0.00000	0.07000	PM 47/129/2
R2	RM			PD		MFR					EDDS					05167046	0.00000	0.00000	RS 26/101/3
R2	RM			PD		MFR					EDDS					05167047	0.00000	0.07800	RS 26/101/1
R2	RM			PD		MFR					EDDS					05167048	0.00000	0.04400	RS 26/101/2
R2	RM			PD		MFR					EDDS					05167049	0.00000	0.06800	RS 26/101/4
R2	RM			PD		MFR					EDDS					05167051	0.00000	0.10100	PM 48/81/1A
R2	RM			PD		MFR					EDDS					05167052	0.00000	0.04400	PM 48/81/1B
R2	RM			PD		MFR					EDDS					05167053	0.00000	0.06200	PM 48/81/2A
R2	RM			PD		MFR					EDDS					05167054	0.00000	0.04700	PM 48/81/2B
R2	RM			PD		MFR					EDDS					05167055	0.00000	0.18700	PM 48/81/2C
R2	RM			PD		MFR					EDDS					05167056	0.00000	0.07800	PM 48/81/3A
R2	RM			PD		MFR					EDDS					05167057	0.00000	0.06100	PM 48/81/3B
R2	RM			PD		MFR					EDDS					05167058	0.00000	0.08900	PM 48/81/4A
R2	RM			PD		MFR					EDDS					05169001	0.00000	0.06700	L 23A

R2	RM			PD		MFR					EDDS					05169002	0.00000	0.06400	L 23B
R2	RM			PD		MFR					EDDS					05169003	0.00000	0.06200	L 24A
R2	RM			PD		MFR					EDDS					05169004	0.00000	0.06200	L 24B
R2	RM			PD		MFR					EDDS					05169005	0.00000	0.06900	L 25A
R2	RM			PD		MFR					EDDS					05169006	0.00000	0.05800	L 25B
R2	RM			PD		MFR					EDDS					05169007	0.00000	0.06000	L 26A
R2	RM			PD		MFR					EDDS					05169008	0.00000	0.06200	L 26B
R2	RM			PD		MFR					EDDS					05169009	0.00000	0.06200	L 27A
R2	RM			PD		MFR					EDDS					05169010	0.00000	0.06200	L 27B
R2	RM			PD		MFR					EDDS					05169011	0.00000	0.05800	L 28A
R2	RM			PD		MFR					EDDS					05169012	0.00000	0.08900	L 28B
R2	RM			PD		MFR					EDDS					05169013	0.00000	0.08400	L 29A
R2	RM			PD		MFR					EDDS					05169014	0.00000	0.05100	L 29B
R2	RM			PD		MFR					EDDS					05169015	0.00000	0.05500	L 30A
R2	RM			PD		MFR					EDDS					05169016	0.00000	0.10100	L 30B
R2	RM			PD		MFR					EDDS					05169017	0.00000	0.08300	L 31A
R2	RM			PD		MFR					EDDS					05169018	0.00000	0.06600	L 31B
R2	RM			PD		MFR					EDDS					05169019	0.00000	0.15400	L 31C
R2	RM			PD		MFR					EDDS					05169020	0.00000	0.07300	L 32A
R2	RM			PD		MFR					EDDS					05169021	0.00000	0.05900	L 32B
R2	RM			PD		MFR					EDDS					05169022	0.00000	0.05500	L 33A
R2	RM			PD		MFR					EDDS					05169023	0.00000	0.10700	L 33B
R2	RM			PD		MFR					EDDS					05169024	0.00000	0.08400	L 34A
R2	RM			PD		MFR					EDDS					05169025	0.00000	0.05300	L 34B
R2	RM			PD		MFR					EDDS					05169026	0.00000	0.05700	L 34C
R2	RM			PD		MFR					EDDS					05169027	0.00000	0.05800	L 35A
R2	RM			PD		MFR					EDDS					05169028	0.00000	0.06200	L 35B
R2	RM			PD		MFR					EDDS					05169029	0.00000	0.06500	L 36A
R2	RM			PD		MFR					EDDS					05169030	0.00000	0.07100	L 36B
R2	RM			PD		MFR					EDDS					05169031	0.00000	0.07600	L 37A
R2	RM			PD		MFR					EDDS					05169032	0.00000	0.05400	L 37B
R2	RM			PD		MFR					EDDS					05169033	0.00000	0.09700	L 37C
R2	RM			PD		MFR					EDDS					05169034	2.00000	0.40500	LOT A AW
R2	RM			PD		MFR					EDDS					05169035	2.00000	0.30500	LOT B AW
R2	RM			PD		MFR					EDDS					05171001	0.00000	0.00000	U 1
R2	RM			PD		MFR					EDDS					05171002	0.00000	0.00000	U 2
R2	RM			PD		MFR					EDDS					05171003	0.00000	0.00000	U 3
R2	RM			PD		MFR					EDDS					05171004	0.00000	0.00000	U 4
R2	RM			PD		MFR					EDDS					05171005	0.00000	0.00000	U 5
R2	RM			PD		MFR					EDDS					05171006	0.00000	0.00000	U 6
R2	RM			PD		MFR					EDDS					05171007	0.00000	0.00000	U 7
R2	RM			PD		MFR					EDDS					05171008	0.00000	0.00000	U 8
R2	RM			PD		MFR					EDDS					05171009	2.00000	0.94100	L A AW
R1A	RM					MFR					EDDS					05432121	0.00000	1.31000	POR L 2 B 4
MP	RM					MFR					EDDS					05432146	0.00000	0.00000	POR B 4
MP	RM					MFR					EDDS					05432147	0.00000	20.96000	S 24 & 25 10 10

MP	RM					MFR						EDDS					05432148	0.00000	0.50000	S 24&25 10 10 &
MP	RM					MFR						EDDS					05432150	0.00000	0.86000	SEC 24 10 10
I	CG					C						EDDS					05432151	0.00000	0.55000	SEC 24 10 10
I	CPO					C						EDDS					05432156	0.00000	9.00000	PAR D 12-81 & LT
R20K	RM					MFR						EDDS					05433109	0.00000	0.00000	POR L 1 B 3
R20K	RM					MFR						EDDS					05433119	0.00000	0.30300	POR L 1 B 3
R20K	RM					MFR						EDDS					05433121	0.00000	0.69700	POR L 1 B 3
R2	RM			PD		MFR						EDDS					05433202	0.00000	0.45000	POR L 2 BLK 2
R20K	RM					MFR						EDDS					05433206	0.00000	0.00000	POR L 2 B 2
R20K	RM					MFR						EDDS					05434104	0.00000	0.00000	POR L 1 B 3
R20K	RM					MFR						EDDS					05434106	0.00000	0.68300	POR L 1 B 3
R20K	RM					MFR						EDDS					05434202	0.00000	0.28000	POR L 1 & 2 B 2
C	CC		DC			C						EDDS					05434215	0.00000	2.57700	PM 45/141/1
C	CC		DC			C						EDDS					05434220	0.00000	2.09100	POR PM 45/141/3
C	CC		DC			C						EDDS					05434223	0.00000	7.33000	POR PM 45/141/2
C	CM		DC			C						EDDS					05434226	11.00000	0.19200	RS 29/19/8&POR4
C	CM		DC			C						EDDS					05434229	11.00000	0.03700	RS 29/19/6
C	CM		DC			C						EDDS					05434231	11.00000	0.10800	RS 29/19/7
C	CM		DC			C						EDDS					05434232	11.00000	2.71200	RS 29/19/1-5
CP	CM					C						EDDS					05434232	11.00000	2.71200	RS 29/19/1-5
C	CM		DC			C						EDDS					05434236	0.00000	2.39900	PM 50/39/2
C	CM		DC			C						EDDS					05434237	0.00000	0.98300	PM 50/119/A
C	CM		DC			C						EDDS					05434238	0.00000	0.63200	PM 50/119/B
C	CM		DC			C						EDDS					05435133	11.00000	0.06500	RS 29/19/9
C	CM		DC			C						EDDS					05435135	0.00000	0.89000	PM 49/58/1
C	CM		DC			C						EDDS					05435136	0.00000	1.22000	PM 49/58/2
C	CM		DC			C						EDDS					05435137	0.00000	2.42000	PM 49/58/REM
R1A	CM					C						EDDS					05435137	0.00000	2.42000	PM 49/58/REM
C	CM		DC			C						EDDS					05435138	2.00000	0.24200	POR OLD HWY49 AW
C	CC		DC			C						EDDS					05436102	0.00000	1.36000	L 3 B 4
R20K	RM					MFR						EDDS					05436105	0.00000	0.17000	POR L 1 B 4
R1A	RM					MFR						EDDS					05436106	0.00000	3.74000	PM 14/104/A
C	CC		DC			C						EDDS					05436108	0.00000	2.25000	PM 27/143/1
R1A	CC					C						EDDS					05436108	0.00000	2.25000	PM 27/143/1
C	CC		DC			C						EDDS					05436109	0.00000	1.15000	PM 27/143/2
C	CC		DC			C						EDDS					05436110	0.00000	1.43000	PM 27/143/3
C	RM		DC			MFR						EDDS					05436111	0.00000	1.18000	PM 27/143/4
R1	RM					MFR						EDDS					05437103	0.00000	0.00000	L 6 B 4
R1	RM					MFR						EDDS					05437104	0.00000	0.00000	POR L 5 B 4
CP	CM					C						EDDS					05437105	0.00000	0.00000	POR L 5 B 4
MP	RM					MFR						EDDS					05437109	0.00000	0.00000	POR L 15 B 4
R1	RM					MFR						EDDS					05437116	0.00000	0.00000	POR B 4
R1A	CM					C						EDDS					05437117	11.00000	1.50000	BLOCK 4
R1A	CM					C						EDDS					05437118	11.00000	1.69000	SEC 25 10 10
CP	CM					C						EDDS					05437119	0.00000	2.91000	RS 17/136/1
CP	CM					C						EDDS					05437120	0.00000	0.15200	POR LOT 5

CP	CM					C						EDDS					05437201	11.00000	0.00000	PRS 26/115/1 ADM
CP	CM					C						EDDS					05437202	11.00000	0.00000	PRS 26/115/1 ADM
CP	CM					C						EDDS					05437203	0.00000	0.00000	L 5 & 6 B 7
CP	CM					C						EDDS					05437204	0.00000	0.00000	POR L 3 B 7
R20K	RM					MFR						EDDS					05438106	0.00000	0.23600	POR L 2 B 5
R20K	RM					MFR						EDDS					05438108	0.00000	0.00000	POR L 2 B 5
R20K	RM					MFR						EDDS					05438112	0.00000	0.00000	POR L 1 & 2 B 5
R20K	RM					MFR						EDDS					05438113	0.00000	0.34600	RS 29/112/1
R20K	RM					MFR						EDDS					05438121	0.00000	0.18000	RS 23/1/3
R20K	RM					MFR						EDDS					05438122	0.00000	0.00000	POR B 5 & N ST
R20K	RM					MFR						EDDS					05438123	0.00000	0.00000	POR B 5 & N ST
R20K	RM					MFR						EDDS					05438128	0.00000	0.00000	POR B 6 & N ST
R20K	RM					MFR						EDDS					05438129	0.00000	0.00000	POR L 2 B 5
R20K	RM					MFR						EDDS					05438131	0.00000	0.00000	POR L 2 B 5
CP	CM					C						EDDS					05438404	0.00000	0.00000	L 1 2 3 B 9
CP	CM					C						EDDS					05438501	0.00000	0.00000	L 1 & 2 B 10
CP	CM					C						EDDS					05438603	0.00000	0.00000	POR L 2 3&4 B 14
CP	CM					C						EDDS					05438604	0.00000	0.20600	POR L 1 & 2 B 14
R1	RM					MFR						EDDS					05438610	0.00000	0.00000	POR L 5 8 9 B 14
R1	RM					MFR						EDDS					05438613	0.00000	2.04000	POR B 14
R1	RM					MFR						EDDS					05438614	0.00000	0.00000	POR L 4 B 14
CP	CM					C						EDDS					05438616	0.00000	0.19600	RS 11/115
CP	CM					C						EDDS					05438617	0.00000	0.00000	POR B 14
R1	RM					MFR						EDDS					05438618	0.00000	0.00000	POR L 589 B 14
R1	RM					MFR						EDDS					05438619	0.00000	0.00000	POR L 589 B 14
R1	CM					C						EDDS					05438620	0.00000	0.24700	RS 28/25/2
R1	CM					C						EDDS					05438623	0.00000	0.14000	RS 29/5/A
CP	CM					C						EDDS					05438624	0.00000	0.45100	POR L 1-4 B 14
CP	CM					C						EDDS					05438701	0.00000	0.00000	POR L 8 & 9 B 13
R1	RM					MFR						EDDS					05438703	0.00000	0.00000	POR L 8 & 9 B 13
R1	RM					MFR						EDDS					05438705	0.00000	0.49100	RS 28/125/1
CP	CM					C						EDDS					05438717	0.00000	1.54000	POR L 8 & 9 B 13
R1	CM					C						EDDS					05438717	0.00000	1.54000	POR L 8 & 9 B 13
CP	CM					C						EDDS					05438718	0.00000	0.22400	POR L 8 & L9 B13
R20K	RM					MFR						EDDS					05439101	11.00000	0.71000	POR L2 14&15 B 2
R20K	RM					MFR						EDDS					05439103	0.00000	0.00000	L 16 POR L 13 B2
R20K	RM					MFR						EDDS					05439104	0.00000	0.50000	POR L 14 B 2
R20K	RM					MFR						EDDS					05439107	0.00000	0.00000	POR L 13 B 2
R20K	RM					MFR						EDDS					05439108	0.00000	0.00000	POR L 14 B 2
CP	CM					C						EDDS					05439110	0.00000	1.29000	POR L 9 B 2
CP	CM					C						EDDS					05439111	0.00000	0.00000	POR L 11 & 12 B2
CP	CM					C						EDDS					05439114	0.00000	0.00000	POR L 11 & 12 B2
CP	CM					C						EDDS					05439118	0.00000	0.00000	POR L 11 & 12 B2
CP	CM					C						EDDS					05439119	0.00000	0.26100	RS 21/118/1
R20K	RM					MFR						EDDS					05439120	0.00000	0.40000	POR B 2 L 14
R20K	RM					MFR						EDDS					05439122	0.00000	1.60000	POR B 2 L 14

CP	CM					C						EDDS					05439123	0.00000	0.50000	POR LOT 10
CP	RM					MFR						EDDS					05439125	0.00000	0.58000	RS 15/108/1
R20K	RM					MFR						EDDS					05439125	0.00000	0.58000	RS 15/108/1
CP	CM					C						EDDS					05439127	0.00000	0.52900	POR L 7 8 & 9 B2
C	CM		DC			C						EDDS					05440205	0.00000	0.00000	L 2
R2	CM		DC			C						EDDS					05440206	0.00000	0.00000	L 4 & 5
R2	RM		DC			MFR						EDDS					05440209	2.00000	0.00000	LOT 6
R2	CM		DC			C						EDDS					05440210	0.00000	1.02200	L 3
C	RM		DC			MFR						EDDS					05440218	0.00000	0.00000	POR
C	CM		DC			C						EDDS					05440233	2.00000	0.42000	B 13
C	CM		DC			C						EDDS					05440237	0.00000	0.81600	POR L 15 17 B 13
C	CM					C						EDDS					05440239	0.00000	0.34000	POR L 1
C	CM		DC			C						EDDS					05440240	0.00000	2.34200	L 13 & 14 B 13
C	CM		DC			C						EDDS					05440241	0.00000	0.26000	L 1
C	CM		DC			C						EDDS					05440242	0.00000	0.25000	L 1
C	CM		DC			C						EDDS					05440243	0.00000	0.18400	PM 2/145/A
C	CM		DC			C						EDDS					05440244	0.00000	0.21800	PM 2/145/B
R2	CM		DC			C						EDDS					05440245	0.00000	0.00000	POR L 15 B 13
C	CM		DC			C						EDDS					05440246	0.00000	0.00000	POR L 15 B 13
C	CM					C						EDDS					05440247	0.00000	0.57100	L 1
C	CM					C						EDDS					05440249	0.00000	2.68000	PM 50/81/1
C	CM		DC			C						EDDS					05440250	0.00000	0.48000	PM 50/81/2
C	CM					C						EDDS					05440251	0.00000	0.61000	PM 50/81/3
C	CM		DC			C						EDDS					05440251	0.00000	0.61000	PM 50/81/3
C	CM		DC			C						EDDS					05440252	0.00000	0.69000	PM 50/81/4
CP	CM					C						EDDS					05441113	0.00000	0.29000	POR L 1 & 4 B 13
CP	CM					C						EDDS					05441120	0.00000	0.20600	POR BL 13
CP	CM					C						EDDS					05441122	0.00000	0.20000	PM 23/115/2
CP	CM					C						EDDS					05441128	0.00000	0.29000	PM 23/115/1
CP	CM					C						EDDS					05441140	0.00000	0.44200	PM 31/120/A
CP	CM					C						EDDS					05441141	11.00000	0.28000	PAR B P/M 31-120
CP	CM					C						EDDS					05441142	0.00000	0.18000	PM 31/120/C
CP	CM					C						EDDS					05441146	0.00000	0.64600	POR PM 31/129/A
CP	CM					C						EDDS					05441147	11.00000	0.03400	RS 29/19/10
CP	CM					C						EDDS					05441149	0.00000	0.57800	PM 50/113/1
CP	CM					C						EDDS					05441150	0.00000	0.69600	PM 50/113/2
CP	CM					C						EDDS					05441151	0.00000	1.09300	PM 50/113/3
CP	CM					C						EDDS					05441152	0.00000	1.11200	PM 50/113/4
CP	CM					C						EDDS					05442201	11.00000	0.00000	POR L 3 B 12
CP	CM					C						EDDS					05442202	0.00000	0.00000	POR L 3 B 12
R1	RM					MFR						EDDS					05442221	0.00000	0.00000	POR L 2 B 12
CP	CM					C						EDDS					05442228	0.00000	0.20600	POR L 2 B 12
R1	RM					MFR						EDDS					05442230	0.00000	0.00000	POR L 2 B 12
R1	RM					MFR						EDDS					05442231	0.00000	0.00000	POR L 2 B 12
R1	RM					MFR						EDDS					05442232	0.00000	0.50400	POR L 1 B 12
R1	RM					MFR						EDDS					05442236	0.00000	0.00000	POR L 1 B 12

R1	RM					MFR					EDDS					05442237	0.00000	0.00000	POR L 1 B 12
R1	RM					MFR					EDDS					05442240	0.00000	0.00000	POR L 3 B 12
R1	RM					MFR					EDDS					05442241	0.00000	0.59200	POR L 3 B 12
R1	RM					MFR					EDDS					05442242	0.00000	0.00000	POR L 3 B 12
R1	RM					MFR					EDDS					05442246	0.00000	0.00000	POR 1 & 2 B 12
R1	RM					MFR					EDDS					05442247	0.00000	0.00000	POR L 2 B 12
R1	RM					MFR					EDDS					05442251	0.00000	0.00000	POR L 1 B 12
CP	CM					C					EDDS					05442253	0.00000	0.00000	POR L 2 B 12
CP	CM					C					EDDS					05442256	1.00000	0.00000	ROAD
R1	CM					C					EDDS					05442256	1.00000	0.00000	ROAD
R1	RM					MFR					EDDS					05442257	0.00000	0.29200	RS 28/53/1
R2	RM					MFR					EDDS					05442259	0.00000	0.00000	POR L 1 B 12
CP	CM					C					EDDS					05442261	1.00000	0.00000	POR BLOCK 11 12
CP	CM					C					EDDS					05442262	0.00000	0.00000	POR B 11 & 12
CP	CM					C					EDDS					05442263	0.00000	0.46000	B 11 & 12
CP	CM					C					EDDS					05442265	0.00000	0.15000	SEC 30 10 11
C	CM		DC			C					EDDS					05442274	2.00000	0.09100	POR L 2 B 11 AW
CP	CM					C					EDDS					05442275	0.00000	2.04100	RS 6/24
R1	CM					C					EDDS					05442275	0.00000	2.04100	RS 6/24
R1	RM					MFR					EDDS					05443112	0.00000	0.00000	POR L 10 B 13
R2	RM		DC			MFR					EDDS					05443113	0.00000	0.00000	POR L 10 B 13
C	CM		DC			C					EDDS					05443114	0.00000	5.71000	SEC 25 10 10
R2	CM		DC			C					EDDS					05443114	0.00000	5.71000	SEC 25 10 10
R2	RM		DC			MFR					EDDS					05443119	0.00000	1.80000	PM 32/132/A
R2	RM		DC			MFR					EDDS					05443120	0.00000	0.77000	PM 32/132/B
R1	RM					MFR					EDDS					05443122	0.00000	2.22000	PM 50/31/1
R2	RM		DC			MFR					EDDS					05443122	0.00000	2.22000	PM 50/31/1
R1	RM					MFR					EDDS					05443123	0.00000	2.00000	PM 50/31/2
R2	RM					MFR					EDDS					05447001	0.00000	0.00000	L 1
R2	RM					MFR					EDDS					05447002	0.00000	0.00000	L 2
R2	RM					MFR					EDDS					05447003	0.00000	0.00000	L 3
R2	RM					MFR					EDDS					05447004	0.00000	0.00000	L 4
R2	RM					MFR					EDDS					05447005	0.00000	0.00000	L 5
R2	RM					MFR					EDDS					05447006	0.00000	0.00000	L 6
R2	RM					MFR					EDDS					05447007	0.00000	0.00000	L 7
R2	RM					MFR					EDDS					05447008	0.00000	0.00000	L 8
R2	RM					MFR					EDDS					05447009	2.00000	0.00000	COMMON AREA
R2	RM					MFR					EDDS					05448001	0.00000	0.00000	L 12
R2	RM					MFR					EDDS					05448002	0.00000	0.00000	L 11
R2	RM					MFR					EDDS					05448003	0.00000	0.00000	L 10
R2	RM					MFR					EDDS					05448004	0.00000	0.00000	L 9
R2	RM					MFR					EDDS					05448005	0.00000	0.00000	L 13
R2	RM					MFR					EDDS					05448006	0.00000	0.00000	L 14
R2	RM					MFR					EDDS					05448007	0.00000	0.00000	L 15
R2	RM					MFR					EDDS					05448008	0.00000	0.00000	L 16
R2	RM					MFR					EDDS					05448009	0.00000	0.00000	L 20

R2	RM					MFR						EDDS					05448010	0.00000	0.00000	L 19
R2	RM					MFR						EDDS					05448011	0.00000	0.00000	L 18
R2	RM					MFR						EDDS					05448012	0.00000	0.00000	L 17
R2	RM					MFR						EDDS					05448013	0.00000	0.00000	L 21
R2	RM					MFR						EDDS					05448014	0.00000	0.00000	L 22
R2	RM					MFR						EDDS					05448015	0.00000	0.00000	L 23
R2	RM					MFR						EDDS					05448016	0.00000	0.00000	L 24
R2	RM					MFR						EDDS					05448017	0.00000	0.00000	L 32
R2	RM					MFR						EDDS					05448018	0.00000	0.00000	L 31
R2	RM					MFR						EDDS					05448019	0.00000	0.00000	L 30
R2	RM					MFR						EDDS					05448020	0.00000	0.00000	L 29
R2	RM					MFR						EDDS					05448021	0.00000	0.00000	L 28
R2	RM					MFR						EDDS					05448022	0.00000	0.00000	L 27
R2	RM					MFR						EDDS					05448023	0.00000	0.00000	L 26
R2	RM					MFR						EDDS					05448024	0.00000	0.00000	L 25
R2	RM					MFR						EDDS					05448025	2.00000	0.00000	LOT B
R20K	CM					C						EDDS					05449002	0.00000	0.60000	RS 22/134/2
CP	CM					C						EDDS					05449003	0.00000	0.52000	RS 22/134/3
R20K	RM					MFR						EDDS					05449006	0.00000	0.21000	RS 23/1/2
CP	CM					C						EDDS					05449008	0.00000	0.28000	RS 23/1/4
CP	CM					C						EDDS					05449009	0.00000	0.16000	RS 23/1/5
R20K	CM					C						EDDS					05449014	0.00000	1.11000	RS22/134/1&POR 5
CP	CM					C						EDDS					05449015	0.00000	0.94000	RS22/134/4&POR 7
R20K	CM					C						EDDS					05449015	0.00000	0.94000	RS22/134/4&POR 7
R20K	CM					C						EDDS					05449016	0.00000	0.53000	RS 23/1/1
RE-10	RL-10					RR			IBC								06001102	0.00000	20.00000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06001103	0.00000	5.94000	RS 19/102/1
RE-10	RL-10					RR			IBC								06001105	0.00000	10.00000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06001106	0.00000	10.00000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06001109	0.00000	37.36000	SEC 17 12 10
RE-5	RL-10					RR			IBC								06001113	1.00000	2.07000	ROADWAY
RE-10	RL-10					RR	A		IBC	MR							06001114	0.00000	10.13000	RS 9/148
RE-10	RL-10					RR	A		IBC								06001115	0.00000	14.38000	SEC 17 12 10
RE-10	RL-10					RR	A			MR							06001117	0.00000	16.49000	S 20 & 21 12 10
RE-10	LA-10					RR	A		IBC	MR							06001118	0.00000	21.63000	SEC 21 12 10
RE-10	RL-10					RR	A		IBC	MR							06001120	0.00000	18.17000	RS 9/20 S211210
RE-10	RL-10					RR											06001122	0.00000	5.00000	SEC 19 12 10
RE-10	RL-10					RR											06001123	0.00000	4.95000	SEC 19 12 10
RE-10	RL-10					RR				MR							06001124	0.00000	0.63000	SEC 19 12 10
RE-10	RL-10					RR											06001125	0.00000	2.05000	SEC 19 12 10
RE-10	RL-10					RR											06001126	0.00000	39.90000	SEC 19 12 10
AE	RL-10					RR											06001127	0.00000	253.30000	SEC 19 12 10
AE	RL-10					RR											06001128	0.00000	94.00000	SEC 19 12 10
RE-5	RL-10					RR			IBC								06001130	0.00000	7.69000	SEC 17 12 10
RE-10	RL-10					RR			IBC								06001131	0.00000	10.00000	PM 33/40/1
RE-10	RL-10					RR			IBC								06001132	0.00000	9.31000	PM 33/40/2

RE-5	RL-10					RR			IBC								06001133	0.00000	33.17000	PM 34/79/A
RE-5	RL-10					RR			IBC								06001134	0.00000	5.00000	PM 34/79/B
RE-5	RE-10					RR			IBC								06001136	11.00000	0.00000	POR SEC 17 12 10
RE-10	RL-20					AL	A										06001137	11.00000	0.00000	S 20 & 21 12 10
RE-10	RL-20					AL	A										06001137	11.00000	0.00000	S 20 & 21 12 10
RE-10	RL-10					RR											06001141	0.00000	3.19000	L 38 S 19 12 10
RE-10	LA-10					RR	A		IBC	MR							06001144	0.00000	20.45000	RS 9/67 S211210
RE-10	RL-20					AL	A										06001148	11.00000	0.97600	SEC 21 12 10
RE-10	RL-20					AL	A										06001148	11.00000	0.97600	SEC 21 12 10
RE-10	RL-20					AL	A										06001151	0.00000	79.67800	RS 29/7/1
RE-10	RL-20					AL	A										06001151	0.00000	79.67800	RS 29/7/1
RA-20	RL-40					NR											06002101	0.00000	40.00000	SEC 13 12 10
RE-10	RL-20					AL	A										06002103	0.00000	27.56000	RS 19/32/1
RE-10	RL-20					AL	A			MR							06002104	0.00000	27.06000	SEC 15 12 10
RE-10	RL-20					AL	A										06002105	0.00000	20.25000	SEC 15 12 10
RE-10	RL-20					AL	A			MR							06002106	0.00000	11.98000	SEC 15 12 10
RE-10	RL-20					AL	A			MR							06002108	0.00000	7.64000	SEC 15 12 10
RE-10	RL-20					AL	A										06002109	0.00000	20.06000	RS 15/71 S221210
RE-10	RL-20					AL	A			MR							06002110	0.00000	34.63000	SEC 22 12 10
RE-10	RL-20					AL	A										06002112	11.00000	5.00000	SEC 22 12 10
RE-10	RL-10					RR											06002114	0.00000	20.00000	SEC 23 12 10
RE-10	RL-10					RR											06002116	0.00000	15.00000	SEC 23 12 10
RE-10	RL-10					RR											06002117	0.00000	5.00000	SEC 23 12 10
RE-10	RL-10					RR											06002118	0.00000	5.00000	SEC 23 12 10
RE-10	LA-10					RR	A										06002121	0.00000	10.00000	SEC 24 12 10
RE-10	RL-10					RR	A										06002122	0.00000	10.00000	SEC 24 12 10
RE-10	RL-10					RR	A										06002123	0.00000	10.47000	SEC 23 12 10
RE-10	RL-10					RR	A										06002124	0.00000	9.33000	SEC 23 12 10
RE-10	RL-10					RR	A										06002125	0.00000	10.00000	SEC 23 12 10
RE-10	RL-10					RR	A										06002126	0.00000	10.50000	SEC 23 12 10
RE-10	RL-20					AL	A										06002127	0.00000	78.07000	RS 14/65 S221210
RE-10	RL-20					AL	A										06002128	0.00000	0.80000	RS 14/65 S221210
RE-10	RL-20					AL	A										06002134	0.00000	17.00000	SEC 15 12 10
RE-10	OS					OS							GT				06002137	11.00000	0.00000	POR 20&21 12 10
RE-10	RL-40					NR											06002138	11.00000	430.09000	S24 12 10RS14-84
RE-10	OS					OS	A										06002139	11.00000	0.00000	POR SEC 22 12 10
RE-10	OS					OS	A										06002139	11.00000	0.00000	POR SEC 22 12 10
RE-10	OS					OS	A										06002140	11.00000	0.00000	POR SEC 15 12 10
RE-10	OS					OS	A										06002140	11.00000	0.00000	POR SEC 15 12 10
RE-10	RL-10					RR	A										06002141	0.00000	10.00000	PM 36/46/A
AE	PA-40					NR											06002146	0.00000	39.44000	RS 17/135/1
AE	PA-40					NR											06002147	0.00000	38.61900	RS 17/135/2
AE	PA-40					NR											06002148	0.00000	38.37000	RS 17/135/3
AE	PA-40					NR											06002149	0.00000	38.37100	RS 17/135/4
RE-10	RL-20					AL	A										06002152	0.00000	40.00000	SEC 15 12 10
RE-10	RL-20					AL	A			MR							06002153	0.00000	40.00000	SEC 15 12 10

MR	RL-10					RR											06002154	0.00000	10.00000	RS 20/19/2
RE-10	RL-20					AL	A										06002157	0.00000	40.27600	PM 44/127/1
MR	RL-10					RR											06002159	0.00000	16.00000	POR R/S 20-19
RE-10	RL-20					AL	A										06002162	0.00000	47.12600	RS 25/129
RE-5	RL-10					AL	A										06002162	0.00000	47.12600	RS 25/129
AE	RL-10					LDR											06003101	0.00000	93.19000	SEC 30 12 10
AE	RL-10					LDR											06003103	0.00000	160.00000	SEC 30 12 10
RE-10	RL-10					RR			IBC								06003105	0.00000	5.58100	RS 14/76/1
RE-10	RL-10					RR			IBC								06003106	0.00000	16.75100	RS 14/76/2
RE-10	RL-20					AL	A		IBC								06003108	0.00000	40.00000	SEC 29 12 10
RE-10	RL-10					RR	A		IBC								06003110	0.00000	10.00000	SEC 29 12 10
RE-10	RL-10					RR	A		IBC								06003111	0.00000	10.00000	RS 22/53 S291210
RE-10	RL-10					RR	A		IBC								06003112	0.00000	5.00000	SEC 29 12 10
RE-10	RL-10					RR	A		IBC								06003113	0.00000	5.00000	SEC 29 12 10
RE-10	RL-10					RR	A										06003118	0.00000	10.00000	SEC 28 12 10
AE	RL-10					LDR			IBC								06003121	0.00000	37.49000	SEC 32 12 10
AE	RL-10					LDR			IBC								06003121	0.00000	37.49000	SEC 32 12 10
RE-10	RL-10					RR			IBC								06003122	0.00000	15.00000	SEC 32 12 10
AE	RL-10					LDR											06003128	0.00000	175.29000	SEC 31 12 10 ADM
RE-5	RL-10					RR	A		IBC	MR							06003130	0.00000	10.00000	RS 11/146/1
RE-5	RL-10					RR	A		IBC	MR							06003132	0.00000	5.00000	RS 11/146/2
RE-10	RL-20					AL	A										06003133	11.00000	0.00000	SEC 28&29 12 10
RE-10	RL-20					AL	A										06003133	11.00000	0.00000	SEC 28&29 12 10
AE	RL-10					LDR											06003136	0.00000	120.00000	P SEC30&32 12 10
AE	RL-10					LDR											06003136	0.00000	120.00000	P SEC30&32 12 10
AE	RL-10					LDR											06003137	0.00000	20.00000	POR SEC 32 12 10
AE	RL-10					LDR											06003138	0.00000	140.00000	POR SEC 32 12 10
AE	RL-10					LDR											06003139	0.00000	150.00000	POR SEC 29 12 10
AE	RL-10					LDR											06003140	0.00000	165.00000	POR SEC 29 12 10
RE-10	RL-10					LDR											06003140	0.00000	165.00000	POR SEC 29 12 10
RE-10	RL-10					LDR											06003140	0.00000	165.00000	POR SEC 29 12 10
AE	RL-10					LDR											06003141	0.00000	105.00000	POR SEC 32 12 10
RE-10	RL-10					RR	A		IBC	MR							06003142	11.00000	0.00000	POR SEC 28 12 10
RE-10	RL-10					RR	A			MR							06003143	0.00000	13.89000	POR SEC 28 12 10
RE-5	RL-10					RR	A			MR							06003143	0.00000	13.89000	POR SEC 28 12 10
RE-5	RL-10					AL	A			MR							06003144	0.00000	20.42200	RS 27/125/2
RE-5	RL-10					AL	A			MR							06003145	0.00000	4.84000	RS 27/125/1
AE	RL-10					LDR											06003146	0.00000	143.80000	SEC 30 12 10
AE	RL-10					LDR											06003147	0.00000	80.00000	SEC 30 12 10 ADM
AE	RL-10					LDR											06003148	0.00000	80.00000	SEC 30 12 10 ADM
AE	RL-10					LDR											06003151	0.00000	48.34700	SEC 30 12 10
AE	PA-20					AL											06003153	0.00000	77.00000	SEC 32 12 10
AE	PA-20					AL											06003154	0.00000	65.00000	SEC 32 12 10
AE	RL-10					LDR											06003155	0.00000	175.50000	SEC 31 12 10 ADM
AE	RL-10					LDR											06003156	0.00000	320.00000	SEC 31 12 10 ADM
RE-10	RL-20					AL	A		IBC								06003158	0.00000	38.04300	PM 50/92/1

RE-10	RL-20					AL	A		IBC								06003159	0.00000	9.99700	PM 50/92/2
RE-10	RL-20					AL	A		IBC								06004101	0.00000	20.00000	SEC 27 12 10
RE-10	RL-40					NR											06004102	0.00000	320.00000	SEC 25 12 10
RE-10	RL-20					AL	A		IBC								06004103	0.00000	73.19000	SEC 35 12 10
RE-10	RL-10					RR	A		IBC								06004104	0.00000	1.97000	SEC 35 12 10
RE-10	LA-10					RR	A		IBC								06004105	0.00000	20.00000	SEC 35 12 10
RE-10	RL-10					RR	A		IBC								06004106	0.00000	14.71000	SEC 35 12 10
RE-10	RL-10					RR	A		IBC	MR							06004107	0.00000	2.42000	RS 32/130/1
RE-10	RL-10					RR	A		IBC	MR							06004108	0.00000	15.00000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR							06004109	0.00000	22.50000	SEC 34 12 10
C	CC					C			IBC	MR	PL						06005008	0.00000	1.40000	SEC 17 12 10
RE-10	RL-10					RR			IBC	MR							06005013	0.00000	3.98000	SEC 17 12 10
RE-10	RL-10					RR			IBC								06005028	0.00000	10.00000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06005029	0.00000	10.00000	SEC 18 12 11
RE-10	RL-10					RR			IBC								06005030	0.00000	8.80000	RS 17/68/1
RE-10	RL-10					RR			IBC								06005031	0.00000	10.00000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06005032	0.00000	10.00000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06005033	0.00000	10.00800	PM 7/97/1
RE-10	RL-10					RR			IBC								06005034	0.00000	10.00000	PM 7/97/2
RE-10	RL-10					RR			IBC								06005035	0.00000	3.64000	PM 7/97/3
RE-10	RL-10					RR			IBC								06005036	0.00000	3.64000	PM 7/97/4
RE-10	RL-10					RR			IBC								06005038	0.00000	4.20000	PM 10/7/1
RE-10	RL-10					RR			IBC								06005039	0.00000	4.20400	PM 10/7/2
RE-10	RL-10					RR			IBC								06005040	0.00000	10.10000	PM 10/7/3
RE-10	RL-10					RR			IBC								06005041	0.00000	10.00000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06005042	0.00000	4.60000	PM 6/99/1
RE-10	RL-10					RR			IBC								06005043	0.00000	2.90000	PM 6/99/2
RE-10	RL-10					RR			IBC								06005044	0.00000	1.76000	PM 6/99/3
RE-10	RL-10					RR			IBC								06005045	0.00000	1.71600	PM 5/139/A
RE-10	RL-10					RR			IBC								06005046	0.00000	3.34000	PM 5/139/B
RE-10	RL-10					RR			IBC								06005047	0.00000	1.75900	PM 5/139/C
RE-10	RL-10					RR			IBC								06005048	0.00000	2.05000	PM 5/139/D
RE-10	RL-10					RR			IBC	MR							06005053	0.00000	5.73000	SEC 17 12 10
RE-10	RL-10					RR			IBC	MR							06006001	0.00000	1.72000	RS 20/59/1
RE-10	RL-10					RR			IBC								06006003	0.00000	9.07000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06006005	0.00000	10.00000	SEC 18 12 10
AE	RL-10					RR			IBC								06006007	0.00000	104.81000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06006009	0.00000	10.44000	PM 18/30/1
RE-10	RL-10					RR			IBC								06006010	0.00000	10.39000	PM 18/30/2
RE-10	RL-10					RR			IBC								06006012	0.00000	10.42000	PM 23/45/A
RE-10	RL-10					RR			IBC								06006013	0.00000	10.21000	PM 23/45/B
RE-10	RL-10					RR			IBC								06007038	0.00000	6.23000	RS 8/110 S181210
RE-10	RL-10					RR			IBC								06007039	0.00000	4.22300	RS 30/87/1
RE-10	RL-10					RR			IBC								06007040	0.00000	6.38000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06007041	0.00000	4.47000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06007042	0.00000	4.47000	SEC 18 12 10

RE-10	RL-10					RR			IBC								06007043	0.00000	9.40000	SEC 18 12 10
RE-10	RL-10					RR			IBC								06007045	0.00000	17.95000	PM 18/2/1
RE-10	RL-10					RR			IBC								06007046	0.00000	10.00000	PM 18/2/2
RE-10	RL-10					RR			IBC								06007047	0.00000	10.00000	PM 18/2/3
RE-10	RL-10					RR			IBC								06007048	0.00000	9.71000	PM 21/16/1
RE-10	RL-10					RR			IBC								06007049	0.00000	10.00000	PM 21/16/2
RE-10	RL-20					AL	A		IBC								06008005	0.00000	40.00000	SEC 17 12 10
RE-10	RL-10					RR	A		IBC								06008016	0.00000	20.00000	SEC 17 12 10
RE-10	RL-10					RR	A		IBC	MR							06008017	0.00000	20.00000	SEC 17 12 10
RE-10	RL-10					RR			IBC								06008021	0.00000	20.00000	SEC 17 12 10
RE-10	RL-10					RR			IBC								06008023	0.00000	20.00000	SEC 17 12 10
RE-5	RL-10					RR	A		IBC	MR							06008024	6.00000	4.19000	SEC 17&20 12 10
RE-5	RL-10					RR	A		IBC	MR							06008026	0.00000	6.61000	SEC 20 12 10
RE-5	RL-10					RR	A		IBC	MR							06008027	0.00000	9.38000	PM 3/138/1
RE-10	RL-10					RR			IBC								06008033	0.00000	10.00000	PM 18/65/1
RE-10	RL-10					RR			IBC								06008034	0.00000	10.17000	PM 18/65/2
RE-10	RL-10					RR			IBC								06008035	0.00000	10.77000	PM 18/65/3
RE-10	RL-10					RR			IBC								06008036	0.00000	10.00000	PM 18/65/4
RE-10	RL-10					RR			IBC								06008037	0.00000	10.00000	PM 23/33/1
RE-10	RL-10					RR			IBC								06008038	0.00000	10.00000	PM 23/33/2
RE-10	RL-10					RR			IBC								06008040	0.00000	10.00000	PM 23/33/4
RE-10	RL-10					RR			IBC								06008041	0.00000	10.16000	PM 25/11/A
RE-10	RL-10					RR			IBC								06008042	0.00000	10.16000	PM 25/11/B
RE-10	RL-10					RR			IBC								06008043	0.00000	10.16000	PM 25/11/C
RE-10	RL-10					RR	A		IBC								06008050	0.00000	9.02000	PM 28/118/1
RE-10	RL-10					RR	A		IBC								06008051	0.00000	10.00000	PM 28/118/2
RE-10	RL-10					RR	A		IBC	MR							06008052	0.00000	10.00000	PM 28/118/3
RE-10	RL-10					RR	A		IBC	MR							06008053	0.00000	7.31000	SEC 20 12 10
RE-10	RL-20					AL	A			MR							06008055	0.00000	21.60000	RS 9/1 S201210
RE-5	RL-10					RR	A		IBC	MR							06008056	0.00000	5.05000	RS 11/45 S201210
RE-5	RL-10					RR	A		IBC	MR							06008057	0.00000	5.05000	RS 11/45 S201210
RE-10	RL-10					RR			IBC								06008058	0.00000	4.41000	PM 20/132/A
RE-5	RL-10					RR			IBC								06008058	0.00000	4.41000	PM 20/132/A
RE-10	RL-10					RR			IBC								06008059	0.00000	10.00000	RS 8/82/4
RE-10	RL-10					RR			IBC								06008060	0.00000	10.00000	RS 8/82/1
RE-10	RL-10					RR			IBC								06008061	0.00000	10.11000	RS 28/93
RE-10	RL-10					RR			IBC								06008062	0.00000	10.47000	RS 8/82/3
RE-5	RL-10					RR			IBC								06008062	0.00000	10.47000	RS 8/82/3
RE-10	RL-10					RR			IBC								06008063	0.00000	10.00000	PM 36/57/A
RE-10	RL-10					RR			IBC								06008064	0.00000	10.00000	PM 36/57/B
RE-10	RL-10					RR			IBC								06008065	0.00000	7.81000	PM 36/57/C
RE-10	RL-10					RR			IBC								06008066	0.00000	10.00000	PM 36/57/D
RE-5	RL-10					RR	A		IBC	MR							06008067	0.00000	4.39000	PM 37/84/A
RE-5	RL-10					RR	A		IBC	MR							06008068	0.00000	5.00000	PM 37/84/B
RE-5	RL-10					RR	A		IBC	MR							06008069	0.00000	12.85000	PM 37/131/A
RE-5	RL-10					RR	A		IBC	MR							06008070	0.00000	5.06000	PM 37/131/B

RE-10	RL-10					RR			IBC								06009005	0.00000	10.03000	POR PAR 1 13-95
RE-10	RL-10					RR			IBC								06009006	0.00000	10.15000	PM 13/95/4
RE-10	RL-10					RR			IBC								06009007	0.00000	10.16000	PM 13/95/2
RE-10	RL-10					RR			IBC								06009008	0.00000	10.13000	PM 13/95/3
RE-10	RL-10					RR	A		IBC								06009015	0.00000	19.34000	PM 10/112/2
RE-10	RL-10					RR	A		IBC								06009016	0.00000	10.00100	PM 25/113/A
RE-10	RL-10					RR	A		IBC								06009017	0.00000	10.00000	PM 25/113/B
RE-10	RL-10					RR	A		IBC								06009020	0.00000	12.01300	PM 11/46/1
RE-10	RL-10					RR	A		IBC								06009021	0.00000	12.02000	PM 11/46/2
RE-10	RL-10					RR	A		IBC								06009022	0.00000	11.85000	PM 30/12/B
RE-10	RL-10					RR	A		IBC								06009023	0.00000	10.07000	PM 30/12/A
RE-10	LA-10					RR	A		IBC								06009024	0.00000	11.17000	PM 11/46/4
RE-10	RL-10					RR			IBC								06009025	0.00000	8.81000	SEC 20 12 10
RE-10	RL-10					RR			IBC								06009026	0.00000	16.11000	PM 28/33/2
RE-10	RL-10					RR			IBC								06009027	0.00000	11.16000	PM 28/33/1
RE-10	RL-10					RR			IBC								06009028	0.00000	37.54000	SEC 20 12 10
RE-10	RL-10					RR			IBC								06009029	0.00000	6.06000	PM 10/110/A
RE-10	RL-10					RR			IBC								06009030	0.00000	10.01000	PM 10/110/B
RE-10	RL-10					RR			IBC								06009031	0.00000	10.12000	PM 10/110/C
RE-10	RL-10					RR			IBC								06009032	0.00000	10.30000	PM 10/110/D
RE-10	RL-10					RR			IBC								06009033	0.00000	40.00000	SEC 20 12 10
RE-10	LA-10					RR	A		IBC								06009034	0.00000	18.96000	RS 13/22/1
RE-10	RL-10					RR	A		IBC								06009035	0.00000	20.00000	SEC 20 12 10
RE-10	RL-10					RR	A		IBC	MR							06009037	0.00000	3.52000	SEC 21 12 10
RE-10	RL-10					RR	A		IBC	MR							06009038	0.00000	1.97000	SEC 21 12 10
RE-10	RL-10					RR	A		IBC	MR							06009039	0.00000	0.79000	SEC 21 12 10
RE-10	RL-10					RR	A		IBC	MR							06009039	0.00000	0.79000	SEC 21 12 10
RE-5	RL-10					AL	A		IBC								06009040	0.00000	35.04000	SEC 20 12 10
RE-5	RL-10					AL	A		IBC								06009040	0.00000	35.04000	SEC 20 12 10
RE-5	RL-10					RR	A		IBC	MR							06009042	0.00000	18.36000	SEC 20 12 10
RE-5	RL-10					RR	A		IBC	MR							06009042	0.00000	18.36000	SEC 20 12 10
R2A	RE-5					LDR							GT				06012102	0.00000	4.00000	PM 32/106/A
R2A	RE-5					LDR							GT				06012103	0.00000	3.42000	PM 32/106/B
R2A	RE-5					LDR							GT				06012104	0.00000	4.00000	PM 32/106/C
R2A	RE-5					LDR							GT				06012105	0.00000	2.00000	PM 30/53/A
R2A	RE-5					LDR							GT				06012106	0.00000	2.00000	PM 30/53/B
RE-10	RL-10					RR	A										06012111	0.00000	10.37000	PM 3/152/2
RE-5	RL-10					RR	A										06012112	0.00000	11.18000	PM 30/53/C
RE-10	RL-10					RR	A										06012113	0.00000	16.23000	SEC 23 12 10
RE-10	RL-10					RR	A										06012114	0.00000	9.54000	PM 35/57/4
RE-10	RL-10					RR	A										06012115	0.00000	10.00000	PM 35/57/1
RE-10	RL-10					RR	A										06012116	0.00000	10.00000	PM 35/57/2
RE-10	LA-10					RR	A										06012117	0.00000	10.00000	PM 35/57/3
R2A	RE-5					LDR							GT				06012118	0.00000	4.01000	POR P4 P/M3-152
RE-10	RL-10					RR											06012211	0.00000	19.83000	SEC 23 12 10
RE-10	RL-10					RR											06012212	0.00000	4.07000	SEC 23 12 10

RE-10	RL-10					RR											06012213	0.00000	10.00000	SEC 23 12 10
RE-10	RL-10					RR											06012214	0.00000	5.68000	RS 16/81/1
RE-10	RL-10					RR											06012215	0.00000	5.39000	SEC 23 12 10
RE-10	RL-10					RR											06012216	0.00000	1.00000	SEC 23 12 10
RE-10	RL-10					RR											06012217	0.00000	1.00000	1 A SEC 23 12 10
RE-10	RL-10					RR											06012218	0.00000	6.02000	SEC 23 12 10
RE-10	RL-10					RR											06012219	0.00000	9.80000	PM 21/71/3
RE-10	RL-10					RR											06012221	0.00000	2.50000	PM 20/135/1
RE-10	RL-10					RR											06012222	0.00000	2.00000	PM 20/135/2
RE-10	RL-10					RR											06012223	0.00000	2.03200	PM 20/135/3
RE-10	RL-10					RR											06012224	0.00000	20.36000	RS 16/81/2
RE-10	RL-10					RR											06012225	0.00000	2.92800	PM 20/135/4
RE-10	RL-20					AL	A										06013002	0.00000	12.13000	SEC 22 12 10
RE-10	RL-20					AL	A			MR							06013005	0.00000	2.29000	SEC 22 12 10
RE-10	RL-20					AL	A			MR							06013007	0.00000	10.14300	PM 27/144/A
RE-10	RL-20					AL	A			MR							06013008	0.00000	10.68000	PM 27/144/B
RE-10	RL-20					AL	A			MR							06013011	0.00000	9.98000	PM 32/104/A
RE-10	RL-20					AL	A			MR							06013012	0.00000	10.00000	PM 32/104/B
RE-10	RL-20					AL	A			MR							06013013	0.00000	10.00000	PM 32/104/C
RE-10	RL-20					AL	A			MR							06013019	0.00000	2.18000	RS 14/53/1
RE-10	RL-20					AL	A			MR							06013020	0.00000	3.47000	RS 14/53/2
RE-10	RL-20					AL	A			MR							06013023	0.00000	8.40000	POR PM 32/104/D
RE-10	RL-20					AL	A			MR							06013024	0.00000	2.60000	SEC 22 12 10
RE-10	RL-10					RR	A		IBC	MR							06014001	0.00000	2.19000	SEC 21 12 10
RE-10	RL-10					RR	A		IBC	MR							06014003	0.00000	4.00600	PM 13/8/1
RE-10	RL-10					RR	A		IBC	MR							06014004	0.00000	4.03000	PM 13/8/2
RE-10	RL-10					RR	A		IBC	MR							06014005	0.00000	4.16000	PM 13/8/3
RE-10	RL-10					RR	A		IBC	MR							06014006	0.00000	4.16000	SEC 21 12 10
RE-10	RL-10					RR	A			MR							06014007	0.00000	2.06000	SEC 21 12 10
RE-10	RL-10					RR	A			MR							06014008	0.00000	0.84000	SEC 21 12 10
RE-10	RL-10					RR	A			MR							06014009	0.00000	3.24000	SEC 21 12 10
RE-10	RL-10					RR	A			MR							06014010	0.00000	3.48000	SEC 21 12 10
RE-10	RL-10					RR	A										06014011	0.00000	10.00000	PM 5/74/1
RE-10	RL-10					RR	A										06014014	0.00000	4.30000	PM 5/74/4
RE-10	RL-10					RR	A										06014015	0.00000	1.81800	PM 21/20/A
RE-10	RL-10					RR	A										06014016	0.00000	2.03000	PM 21/20/B
RE-10	RL-10					RR	A										06014017	0.00000	1.00000	SEC 21 12 10
RE-10	RL-10					RR	A										06014018	0.00000	3.00000	SEC 21 12 10
RE-10	RL-10					RR	A										06014019	0.00000	7.45000	SEC 21 12 10
RE-10	RL-10					RR	A										06014020	0.00000	14.67000	SEC 21 12 10
RE-5	RL-10					RR	A										06014020	0.00000	14.67000	SEC 21 12 10
RE-10	RL-10					RR	A										06014021	0.00000	10.00000	SEC 21 12 10
RE-10	RL-10					RR	A										06014022	0.00000	5.74000	SEC 22 12 10
RE-10	RL-10					RR	A										06014023	0.00000	18.01000	PM 7/95/1
RE-5	RL-10					RR	A										06014023	0.00000	18.01000	PM 7/95/1
RE-10	RL-10					RR	A										06014024	0.00000	10.01000	PM 28/127/A

RE-10	RL-10					RR	A									06014025	0.00000	10.04000	PM 28/127/B
RE-10	RL-10					RR	A									06014027	0.00000	10.00000	SEC 21 12 10
RE-10	RL-10					RR	A			MR						06014028	0.00000	3.19000	SEC 21 12 10
RE-10	RL-10					RR	A									06014029	0.00000	10.00000	SEC 21 12 10
RE-5	RL-10					RR	A									06014030	0.00000	5.00000	PM 30/52/1
RE-5	RL-10					RR	A									06014031	0.00000	5.00000	PM 30/52/2
RE-5	RL-10					RR	A									06014032	0.00000	5.35000	PM 30/52/3
RE-10	RL-10					RR	A									06014035	0.00000	7.50000	SEC 21 12 10
RE-10	LA-10					RR	A									06014036	0.00000	13.56000	PPM 28/127/C
RE-5	RL-10					RR	A									06014037	0.00000	5.00000	PM 35/68/A
RE-5	RL-10					RR	A									06014038	0.00000	5.04000	PM 35/68/B
RE-5	RL-10					RR	A									06014039	0.00000	5.06000	PM 37/147/A
RE-5	RL-10					RR	A									06014040	0.00000	6.79000	PM 37/147/B
RE-5	RL-10					RR	A									06014042	0.00000	5.07700	PORPAR 4 PM30-52
RE-10	RL-10					RR	A									06014044	0.00000	7.87300	RS18/116S21 1210
RE-5	RL-10					RR	A									06014044	0.00000	7.87300	RS18/116S21 1210
RE-10	RL-20					AL	A									06014045	0.00000	43.98500	RS 29/7/2
RE-10	RL-20					AL	A									06014045	0.00000	43.98500	RS 29/7/2
RE-5	RL-10					AL	A									06014045	0.00000	43.98500	RS 29/7/2
RE-10	RL-10					RR	A									06015014	0.00000	5.00000	PM 26/100/A
RE-10	RL-10					RR	A									06015015	0.00000	5.00000	PM 26/100/B
RE-10	RL-10					RR	A									06015016	0.00000	5.00000	PM 26/100/C
RE-10	RL-10					RR	A									06015017	0.00000	5.00100	PM 26/100/D
RE-10	RL-10					RR	A									06015018	0.00000	5.02000	PM 26/115/1
RE-10	RL-10					RR	A									06015019	0.00000	5.01600	PM 26/115/2
RE-10	RL-10					RR	A									06015020	0.00000	10.03000	PM 27/21/A
RE-10	RL-10					RR	A									06015021	0.00000	10.03000	PM 27/21/B
RE-10	LA-10					RR	A									06015022	0.00000	10.05000	PM 27/21/C
RE-10	RL-10					RR	A			MR						06015023	0.00000	10.01000	PM 27/21/D
RE-10	RL-10					RR	A									06015024	0.00000	5.02000	PM 27/32/1
RE-10	RL-10					RR	A			MR						06015025	0.00000	5.02000	PM 27/32/2
RE-10	RL-10					RR	A			MR						06015026	0.00000	10.03000	PM 21/142/A
RE-10	RL-10					RR	A			MR						06015027	0.00000	10.03000	PM 21/142/B
RE-10	RL-10					RR	A			MR						06015028	0.00000	5.00000	PM 21/21/A
RE-10	RL-10					RR	A									06015029	0.00000	5.00000	PM 21/21/B
RE-10	RL-10					RR	A									06015030	0.00000	5.00000	PM 21/21/D
RE-10	RL-10					RR	A									06015031	0.00000	5.00000	PM 21/21/C
RE-10	RL-10					RR	A			MR						06015032	0.00000	2.61000	PM 11/139/1
RE-10	RL-10					RR	A			MR						06015033	0.00000	2.10500	PM 11/139/2
RE-10	RL-10					RR	A			MR						06015034	0.00000	2.47900	PM 11/139/3
RE-10	RL-20					AL	A			MR						06016001	0.00000	7.00000	SEC 22 12 10
RE-10	RL-20					AL	A									06016002	0.00000	23.00000	SEC 22 12 10
RE-10	RL-20					AL	A									06016003	0.00000	35.98000	SEC22 & 27 12 10
RE-10	RL-20					AL	A									06016005	0.00000	3.17000	PM 13/67/B
RE-10	RL-20					AL	A									06016006	0.00000	3.42000	PM 13/67/C
RE-10	RL-20					AL	A			MR						06016007	0.00000	21.82000	SEC 22 12 10

RE-10	RL-20					AL	A			MR						06016008	0.00000	20.55000	PM 22/8/A
RE-10	RL-10					RR	A			MR						06016010	0.00000	12.31000	PM 22/8/C
RE-10	RL-10					RR	A			MR						06016011	0.00000	20.00700	PM 22/8/D
RE-10	RL-20					AL	A			MR						06016013	0.00000	37.99000	R/S 22/5
RE-10	RL-20					AL	A			MR						06016015	0.00000	10.00000	PM 32/105/A
RE-10	RL-20					AL	A			MR						06016016	0.00000	10.00000	PM 32/105/B
RE-10	RL-20					AL	A									06016017	0.00000	10.00000	PM 32/105/C
RE-10	RL-20					AL	A									06016018	0.00000	9.38000	PM 32/105/D
RE-5	RL-10					RR	A									06016019	0.00000	18.98000	PM 31/69/A
RE-10	RL-20					AL	A			MR						06016020	11.00000	20.00000	SEC 27 12 10
RE-10	RL-20					AL	A									06016021	0.00000	9.89600	RS25-129&13/67/A
RE-10	LA-10					RR	A			MR						06016022	0.00000	15.70000	PM 22/8/B
RE-10	RL-10					RR	A			MR						06017001	0.00000	1.35000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017003	0.00000	1.00000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017009	0.00000	2.50000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017012	0.00000	2.59000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017013	0.00000	4.50000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017014	0.00000	8.91000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017016	0.00000	2.70000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017017	0.00000	2.33900	PM 1/178/1
RE-10	RL-10					RR	A		IBC	MR						06017019	0.00000	5.52000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017020	0.00000	1.17000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017021	0.00000	1.38000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017022	0.00000	1.01000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017023	0.00000	1.60000	SEC 28 12 10
RE-10	LA-10					RR	A		IBC	MR						06017026	0.00000	13.40000	PM 3/85/2
RE-10	RL-20					AL	A		IBC							06017031	0.00000	59.00000	SEC 28 12 10
RE-10	LA-10					RR	A		IBC	MR						06017032	0.00000	11.88000	L 5 S 28 12 10
RE-10	RL-10					RR	A		IBC	MR						06017033	0.00000	6.84000	PM 15/36/C
RE-10	RL-10					RR	A		IBC	MR						06017034	0.00000	6.84000	PM 15/36/B
RE-5	RL-10					RR	A		IBC	MR						06017034	0.00000	6.84000	PM 15/36/B
RE-10	RL-10					RR	A		IBC	MR						06017035	0.00000	6.84000	PM 15/36/A
RE-5	RL-10					RR	A		IBC	MR						06017035	0.00000	6.84000	PM 15/36/A
RE-10	RL-10					RR	A		IBC	MR						06017036	0.00000	3.83100	PM 3/69/1
RE-10	RL-10					RR	A		IBC	MR						06017037	0.00000	4.05100	PM 3/69/2
RE-10	RL-10					RR	A		IBC	MR						06017038	0.00000	5.83400	PM 3/69/3
RE-10	RL-10					RR	A		IBC	MR						06017039	0.00000	5.54000	PM 3/69/4
RE-10	RL-10					RR	A		IBC	MR						06017041	0.00000	7.71000	PM 42/108/1
RE-10	RL-10					RR	A		IBC	MR						06017042	0.00000	10.02000	PM 42/108/2
RE-10	RL-10					RR	A		IBC	MR						06017043	0.00000	10.02000	PM 42/108/3
RE-10	RL-10					RR	A		IBC							06017044	0.00000	4.87700	RS 19/130/1
RE-10	RL-10					RR	A		IBC							06017045	0.00000	4.90000	RS 19/130/2
RE-5	RL-10					RR	A			MR						06018002	0.00000	7.10000	SEC 28 12 10
RE-10	RL-10					RR	A			MR						06018006	0.00000	4.93000	SEC 28 12 10
RE-5	RL-10					RR	A			MR						06018015	0.00000	5.17000	SEC 28 12 10
RE-5	RL-10					RR	A			MR						06018016	0.00000	1.07000	SEC 28 12 10

RE-10	RL-10					RR	A			MR						06018017	0.00000	6.91000	SEC 28 12 10
RE-10	RL-10					RR	A			MR						06018018	0.00000	18.00000	SEC 28 12 10
RE-10	RL-20					AL	A									06018019	0.00000	31.95000	SEC 28 12 10
RE-5	RL-10					RR	A			MR						06018020	0.00000	4.62000	SEC 28 12 10
RE-10	RL-10					RR	A									06018022	0.00000	10.10000	SEC 28 12 10
RE-10	RL-10					RR	A									06018023	0.00000	10.00000	SEC 28 12 10
RE-10	RL-10					RR	A									06018024	0.00000	2.44700	PM 14/100/2
RE-10	RL-10					RR	A									06018025	0.00000	2.44000	PM 14/100/1
RE-10	RL-10					RR	A									06018026	0.00000	5.00000	SEC 28 12 10
RE-5	RL-10					RR	A									06018027	0.00000	5.67000	PM 31/54/A
RE-5	RL-10					RR	A									06018028	0.00000	5.00000	PM 28/81/A
RE-5	RL-10					RR	A									06018029	0.00000	5.00000	PM 28/81/B
RE-5	RL-10					RR	A									06018030	0.00000	5.00000	PM 28/81/C
RE-5	RL-10					RR	A									06018031	0.00000	5.08000	PM 31/54/C
RE-5	RL-10					RR	A									06018032	0.00000	5.41000	PM 31/54/D
RE-5	RL-10					RR	A									06018033	0.00000	5.77000	PM 31/54/B
RE-5	RL-10					RR	A			MR						06018039	0.00000	3.07000	SEC 28 12 10
RE-5	RL-10					RR	A			MR						06018041	0.00000	5.04000	PM 36/138/A
RE-5	RL-10					RR	A			MR						06018042	0.00000	5.00000	PM 36/138/B
RE-5	RL-10					RR	A		IBC	MR						06019022	0.00000	6.90000	PM 7/71/B
RE-10	RL-10					RR	A		IBC							06019023	0.00000	9.39000	RS 24/107/1
RE-10	RL-10					RR	A		IBC							06019024	0.00000	8.83000	RS 24/107/2
RE-10	RL-10					RR	A		IBC	MR						06019025	0.00000	10.05000	SEC 28 12 10
RE-10	LA-10					RR	A		IBC	MR						06019026	0.00000	10.00000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC							06019027	0.00000	6.45000	RS 6/59/4
RE-10	RL-10					RR	A		IBC							06019028	0.00000	5.40000	RS 6/59/3
RE-10	RL-10					RR	A		IBC							06019029	0.00000	5.32000	RS 6/59/2
RE-10	RL-10					RR	A		IBC							06019030	0.00000	5.10000	RS 6/59/1
RE-10	RL-20					AL	A		IBC	MR						06019031	0.00000	1.00000	SEC 28 12 10
RE-5	RL-10					AL	A		IBC	MR						06019031	0.00000	1.00000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC							06019033	0.00000	5.00000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC							06019034	0.00000	5.25000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC							06019035	0.00000	5.25000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC							06019036	0.00000	5.25000	SEC 28 12 10
RE-10	RL-10					RR	A		IBC							06019037	0.00000	5.34000	RS 8/108/1
RE-10	RL-10					RR	A		IBC							06019038	0.00000	4.25000	RS 8/108/2
RE-10	RL-10					RR	A		IBC							06019039	0.00000	1.39000	RS 8/108 S281210
SA-10	LA-10					RR	A		IBC	MR						06019041	0.00000	13.53000	PM 50/24/A
RE-10	RL-20					AL	A		IBC	MR						06019042	0.00000	1.00000	PM 50/24/B
RE-5	RL-10					AL	A		IBC	MR						06019042	0.00000	1.00000	PM 50/24/B
RE-5	LA-10					RR	A		IBC							06020037	0.00000	10.62000	PM 8/148/2
RE-5	RL-10					RR	A		IBC							06020038	0.00000	5.30000	PM 16/19/B
RE-5	RL-10					RR	A		IBC							06020039	0.00000	5.30000	PM 16/19/A
RE-5	RL-10					RR	A		IBC	MR						06020040	0.00000	5.04000	PM 15/116/1
RE-5	RL-10					RR	A		IBC	MR						06020041	0.00000	5.52000	PM 15/116/2
RE-5	RL-10					RR	A		IBC	MR						06020042	0.00000	5.12000	PM 15/17/2

RE-5	RL-10					RR	A		IBC	MR							06020043	0.00000	5.52000	PM 15/17/3
RE-5	RL-10					RR	A		IBC	MR							06020044	0.00000	5.45000	PM 15/17/4
RE-10	LA-10					RR	A		IBC	MR							06020045	0.00000	14.20000	PM 16/36/D
RE-5	LA-10					RR	A		IBC	MR							06020046	0.00000	5.13000	PM 16/36/C
RE-5	RL-10					RR	A		IBC	MR							06020047	0.00000	5.43000	PM 16/36/B
RE-5	RL-10					RR	A		IBC	MR							06020048	0.00000	5.06000	PM 16/36/A
RE-10	PA-20					AL	A		IBC								06020049	0.00000	20.90000	RS 18/22/1
RE-10	PA-20					AL	A		IBC								06020052	0.00000	56.99200	PORPAR 2 PM28-38
RE-10	RL-10					RR	A		IBC								06020056	0.00000	12.67000	PM 46/10/1
RE-10	RL-10					RR	A		IBC	MR							06020057	0.00000	12.74000	PM 46/10/2
RE-10	RL-20					AL	A		IBC								06020059	0.00000	73.87800	PM 47/83/1
RE-10	RL-10					RR	A		IBC	MR							06020060	0.00000	8.82200	PM 47/83/2
RE-10	RL-10					RR			IBC								06021023	0.00000	10.00000	SEC 29 12 10
RE-10	RL-10					RR			IBC								06021024	0.00000	40.00000	SEC 29 12 10
RE-10	RL-10					RR	A		IBC								06021025	0.00000	10.00000	PM 17/59/A
RE-10	LA-10					RR	A		IBC								06021026	0.00000	10.00000	PM 17/59/B
RE-10	RL-10					RR	A		IBC								06021027	0.00000	10.00000	PM 17/59/C
RE-10	RL-10					RR	A		IBC								06021028	0.00000	8.01000	PM 17/59/D
RE-10	RL-20					AL	A										06022015	0.00000	20.00000	SEC 32 12 10
RE-10	RL-20					AL	A										06022016	0.00000	20.00000	SEC 32 12 10
RE-10	RL-20					AL	A										06022018	0.00000	20.00000	SEC 32 12 10
RE-10	RL-10					RR	A		IBC								06022019	0.00000	5.00000	SEC 32 12 10
RE-10	LA-10					RR	A		IBC								06022020	0.00000	10.00000	SEC 32 12 10
RE-10	RL-10					RR	A		IBC								06022021	0.00000	5.00000	SEC 32 12 10
RE-10	RL-10					RR	A										06023001	11.00000	0.80000	SEC 26 12 10
RE-5	RL-10					RR	A										06023008	0.00000	8.00000	PM 1/168/3
RE-5	RL-10					RR	A										06023010	0.00000	5.92000	PM 3/180/B
RE-10	RL-10					RR	A		IBC	MR							06024006	0.00000	9.81000	27 28 & 33 12 10
RE-10	LA-10					RR	A		IBC	MR							06024007	0.00000	11.36000	SEC 33 12 10
RE-10	RL-10					RR	A		IBC	MR							06024009	0.00000	6.00000	SEC 33 12 10
R2A	CL					C							GV				06024014	0.00000	0.58000	RS 26/85/2
R2A	CL					C							GV				06024015	0.00000	0.88000	S 33 & 34 12 10
R2A	CL					C							GV				06024016	0.00000	0.61000	S 27 & 34 12 10
RE-10	CC					C							GV				06024017	0.00000	2.28000	S 27 & 34 12 10
RE-10	RL-10					RR	A										06027017	0.00000	25.03000	PM 6/130/2
RE-10	RL-10					RR	A										06027018	0.00000	20.01000	PM 6/130/3
RE-5	RL-10					RR	A			MR							06027019	1.00000	0.01000	ROADWAY
RE-10	RL-10					RR	A		IBC	MR							06027021	0.00000	10.28000	PM 14/71/1
RE-10	RL-10					RR	A										06027026	0.00000	9.44000	PM 18/93/2
RE-5	RL-10					RR	A			MR							06027029	0.00000	6.46000	SEC 27 12 10
RE-5	RL-10					RR	A			MR							06027030	0.00000	5.01000	SEC 27 12 10
RE-5	RL-10					RR	A			MR							06027031	0.00000	2.50000	SEC 27 12 10
RE-5	RL-10					RR	A			MR							06027032	0.00000	2.50000	SEC 27 12 10
RE-5	RL-10					RR	A										06027036	0.00000	9.34000	PM 39/130/1
RE-5	RL-10					RR	A										06027037	0.00000	5.00000	PM 39/130/2
RA-20	RL-40					NR											06029009	0.00000	19.11000	PM 6/114/A

RA-20	RL-40					NR											06029010	0.00000	10.06000	PM 6/114/B
RA-20	RL-40					NR											06029011	0.00000	10.00000	PM 6/114/C
RA-20	RL-40					NR											06029012	0.00000	37.63000	PM 6/114/D
RA-20	RL-40					NR											06029013	0.00000	20.02000	PM 6/107/C
RA-20	RL-40					NR											06029014	0.00000	20.16000	PM 6/107/D
RA-20	RL-40					NR											06029015	0.00000	16.70000	PM 6/107/B
RA-20	RL-40					NR											06029016	0.00000	20.08000	PM 6/107/A
RA-20	LA-10					RR					PL						06029017	0.00000	8.00000	SEC 13 12 10
RA-20	RL-10					RR					PL						06029018	0.00000	9.10000	SEC 13 12 10
RA-20	RL-10					RR					PL						06029019	0.00000	9.35000	SEC 13 12 10
RA-20	LA-10					RR					PL						06029020	0.00000	9.55000	SEC 13 12 10
RA-20	RL-40					NR											06029021	0.00000	58.68000	SEC 13 12 10
RA-20	RL-40					NR											06029022	0.00000	20.00000	SEC 13 12 10
RA-20	LA-10					RR					PL						06030008	0.00000	12.84000	PM 6/108/D
RA-20	LA-10					RR					PL						06030009	0.00000	10.69000	PM 6/108/C
RA-20	LA-10					RR					PL						06030010	0.00000	10.02000	PM 24/136/1
RA-20	LA-10					RR					PL						06030011	0.00000	10.05000	PM 24/136/2
RA-20	LA-10					RR					PL						06030012	0.00000	10.01000	PM 24/136/3
RA-20	RL-10					RR					PL						06030013	0.00000	10.00000	PM 24/136/4
RA-20	RL-40					NR											06030014	0.00000	20.03000	PM 6/106/C
RA-20	RL-40					NR											06030015	0.00000	20.27400	PM 6/106/B
RA-20	RL-40					NR											06030016	0.00000	27.04000	PM 6/106/D
RE-10	RL-40					NR											06030017	0.00000	20.00000	PM 6/106/A
RA-20	RL-10					RR					PL						06030018	0.00000	13.40000	SEC 13 12 10
RA-20	RL-40					NR											06030019	0.00000	20.00000	SEC 13 12 10
RA-20	RL-40					NR											06030020	0.00000	20.00000	SEC 13 12 10
RA-20	RL-10					RR					PL						06030021	0.00000	10.09000	PM 7/47/1
RA-20	RL-10					RR					PL						06030022	0.00000	10.02000	PM 7/47/2
RA-20	RL-10					RR					PL						06030023	0.00000	10.00000	SEC 13 12 10
RA-20	RL-10					RR					PL						06030024	0.00000	10.00000	SEC 13 12 10
RA-20	RL-10					RR					PL						06030025	0.00000	10.00000	SEC 13 12 10
RA-20	RL-10					RR					PL						06030026	0.00000	10.00000	SEC 13 12 10
RA-20	RL-40					NR											06030027	0.00000	50.00000	SEC 13 12 10
RA-20	RL-10					RR					PL						06030028	0.00000	9.99000	PM 7/47/3
RA-20	RL-10					RR					PL						06030029	0.00000	10.06000	PM 7/47/4
RE-5	RL-10					RR	A		IBC								06032004	0.00000	4.12000	SEC 34 12 10
RE-5	RL-10					RR	A		IBC								06032008	0.00000	5.10000	PM 12/113/1
RE-5	RL-10					RR	A		IBC	MR							06032009	0.00000	5.12000	PM 12/113/2
RE-5	RL-10					RR	A		IBC								06032010	0.00000	5.04000	PM 12/113/3
RE-5	RL-10					RR	A		IBC								06032011	0.00000	5.08000	PM 12/113/4
RE-10	RL-10					RR	A		IBC								06032012	0.00000	20.11000	PM 14/125/A
RE-10	RL-10					RR	A		IBC								06032013	0.00000	12.03000	PM 14/125/B
RE-10	RL-10					RR	A		IBC								06032014	0.00000	8.01000	PM 14/125/C
RE-5	RL-10					RR	A		IBC	MR							06032015	0.00000	4.14000	SEC 34 12 10
RE-5	RL-10					RR	A		IBC	MR							06032016	0.00000	6.77000	SEC 34 12 10
RE-5	RL-10					RR	A		IBC	MR							06032017	0.00000	5.72000	SEC 34 12 10

RE-5	RL-10					RR	A		IBC	MR							06032018	0.00000	3.40000	SEC 34 12 10
RE-5	LA-10					RR	A		IBC	MR							06032019	0.00000	12.38300	PM 14/70/1
RE-5	RL-10					RR	A		IBC	MR							06032020	0.00000	3.07500	PM 15/149/A
RE-5	RL-10					RR	A		IBC	MR							06032022	0.00000	8.14000	PM 14/70/2
RE-5	LA-10					RR	A		IBC	MR							06032023	0.00000	10.32000	PM 7/145/4
RE-5	LA-10					RR	A		IBC	MR							06032025	0.00000	10.49000	PM 7/145/3
RE-10	RL-10					RR	A		IBC	MR							06032026	0.00000	10.15000	PM 7/145/2
RE-10	RL-10					RR	A										06032027	0.00000	20.13000	PM 31/95/A
RE-10	RL-10					RR	A										06032028	0.00000	10.00000	PM 31/95/B
RE-10	RL-10					RR	A										06032029	0.00000	12.19000	PM 31/95/C
RE-10	RL-10					RR	A										06032030	0.00000	2.80000	PM 1/30/2
RE-10	RL-10					RR	A										06032031	0.00000	6.00000	SEC 35 12 10
RE-10	RL-10					RR	A										06032032	0.00000	4.00000	SEC 35 12 10
RE-10	RL-10					RR	A										06032033	0.00000	5.00000	PM 1/30/1
RE-10	LA-10					RR	A										06032034	0.00000	20.00000	SEC 35 12 10
RE-10	RL-10					RR	A										06032035	0.00000	19.85100	PM 8/32/1
RE-10	RL-10					RR	A										06032036	0.00000	19.85100	PM 8/32/2
RE-10	RL-10					RR	A										06032037	0.00000	10.00000	PM 27/121/A
RE-10	RL-10					RR	A										06032038	0.00000	10.00000	PM 27/121/B
RE-10	RL-10					RR	A										06032039	0.00000	9.03000	PM 27/121/C
RE-10	RL-10					RR	A										06032040	0.00000	10.00000	PM 27/121/D
RE-5	RL-10					RR	A		IBC	MR							06032042	0.00000	5.52000	PM 42/72/1
RE-5	RL-10					RR	A		IBC	MR							06032043	0.00000	5.52000	PM 42/72/2
RE-5	RL-10					RR	A		IBC	MR							06032050	0.00000	2.76400	TR 1&2 RS 21-24
R3A	RE-5					LDR							GT				06034029	0.00000	1.81800	SEC 15 12 10
RE-10	LA-10					RR	A										06034034	0.00000	9.47000	RS 23/47/1
RE-10	RL-10					RR	A										06034035	0.00000	3.07600	RS 23/47/3
RE-10	RL-10					RR	A										06034040	0.00000	8.98000	RS 23/47/2
RE-10	RL-10					RR	A										06034041	0.00000	4.68000	RS 23/47/4
RE-10	RE-5					LDR							GT				06035215	0.00000	6.14000	S 14 & 23 12 10
R2A	RE-5					LDR							GT				06035217	0.00000	3.05000	PM 33/87/A
R2A	RE-5					LDR							GT				06035218	0.00000	2.96000	PM 33/87/B
R2A	RE-5					LDR							GT				06035219	0.00000	2.68000	PM 33/87/C
R2A	RE-5					LDR							GT				06035220	0.00000	2.91000	PM 33/87/D
RE-5	RL-10					RR	A										06036101	0.00000	17.06000	PM 30/22/1
RE-5	RL-10					RR	A										06036102	0.00000	5.00000	PM 30/22/2
RE-5	RL-10					RR	A										06036103	0.00000	5.00000	PM 30/22/3
RE-5	RL-10					RR	A										06036104	0.00000	5.00000	PM 30/22/4
RE-10	RL-10					RR	A										06036105	0.00000	1.05000	SEC 27 12 10
RE-10	RL-10					RR	A										06036106	0.00000	5.50000	PM 17/26/1
RE-10	RL-10					RR	A			MR							06036110	0.00000	8.00000	SEC 27 12 10
RE-10	RL-10					RR	A			MR							06036112	0.00000	7.00000	SEC 27 12 10
RE-10	RL-10					RR	A			MR							06036116	0.00000	8.38000	PM 2/82/1
RE-5	RL-10					RR	A										06036134	0.00000	3.96000	PM 11/20/1
RE-5	RL-10					RR	A			MR							06036141	0.00000	2.09000	PM 21/113/C
RE-5	RL-10					RR	A			MR							06036142	0.00000	4.65000	PM 21/113/B

RE-5	LA-10					RR	A			MR						06036143	0.00000	10.13000	PM 21/113/A
RE-10	RL-10					RR	A									06036146	0.00000	10.01000	PM 13/126/A
RE-10	RL-10					RR	A									06036147	0.00000	10.01000	PM 13/126/B
RE-10	RL-10					RR	A									06036148	0.00000	10.01000	PM 13/126/C
RE-10	LA-10					RR	A									06036149	0.00000	10.01000	PM 13/126/D
AE	CC					C						GV				06036154	11.00000	1.01000	TR 1 RS 14-40
AE	CL					C						GV				06036155	0.00000	0.51700	RS 14/40/2
RE-5	RL-10					RR	A			MR						06036157	0.00000	4.95000	PM 39/78/1
C	CC			PD		C						GV				06036165	0.00000	7.61000	PM 45/144/3
RE-5	CL					C						GV				06036165	0.00000	7.61000	PM 45/144/3
RE-10	RL-10					RR	A									06036167	0.00000	6.05400	POR SEC 27 12 10
RE-5	RL-10					AL	A									06036172	0.00000	40.31000	PM 47/24/1
C	CL			PD		C						GV				06036174	0.00000	10.50000	PM 47/24/2
RE-5	RL-10					RR	A			MR						06036176	0.00000	10.90000	SEC 28 12 10
RE-5	RL-10					RR	A			MR						06036177	0.00000	2.23700	POR PM 39/78/2+
C	CG					C						GV				06036185	0.00000	0.41900	SEC 27 12 10
C	CL					C						GV				06036186	0.00000	1.68000	RS 32/108/1
CG	CL					C						GV				06036186	0.00000	1.68000	RS 32/108/1
CG	CL					C						GV				06036186	0.00000	1.68000	RS 32/108/1
RE-10	RE-5					MDR						GV				06039134	11.00000	5.19000	RS 33/22/2
RE-10	RE-5					MDR						GV				06040101	0.00000	9.44000	RS 1/98/14
RE-5	RL-10					RR	A		IBC	MR						06040117	0.00000	10.00000	SEC 27 12 10
CP	CC					C						GV				06040126	0.00000	1.01000	RS 25/28/1
C	CL					C						GV				06040132	0.00000	1.10800	PM 49/52/1
CG	CL					C						GV				06040132	0.00000	1.10800	PM 49/52/1
C	CL					C						GV				06040133	0.00000	4.94100	PM 49/52/2
C	CL					C						GV				06040133	0.00000	4.94100	PM 49/52/2
CG	CL					C						GV				06040133	0.00000	4.94100	PM 49/52/2
MR	CC					C						GV				06040133	0.00000	4.94100	PM 49/52/2
RE-10	LA-10					RR	A		IBC	MR						06042002	0.00000	18.45000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR						06042006	0.00000	6.00000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR						06042008	0.00000	0.69000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR						06042011	0.00000	2.00000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR						06042012	0.00000	1.00000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR						06042013	0.00000	8.40000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR						06042014	0.00000	0.33000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR						06042015	0.00000	9.66000	RS 32/130/2
RE-10	RL-20					AL	A		IBC	MR						06042016	0.00000	21.30000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR						06042017	0.00000	5.00000	SEC 3 11 10
RE-10	RL-10					RR	A		IBC	MR						06042018	0.00000	3.60000	SEC 3 11 10
RE-10	RL-10					RR	A		IBC	MR						06042021	0.00000	16.24000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR						06042025	0.00000	11.22000	SEC 34 12 10
RE-5	RL-10					RR	A		IBC	MR						06042034	0.00000	6.03000	PM 1/166/1
RE-5	RL-10					RR	A		IBC	MR						06042042	0.00000	4.36000	PM 6/19/C
RE-5	RL-10					RR	A		IBC	MR						06042043	0.00000	11.87000	P 2&3 PM 1/131
RE-5	RL-10					RR	A		IBC	MR						06042045	0.00000	6.54000	PM 1/166/2

RE-5	RL-10					RR	A		IBC	MR							06042046	0.00000	13.33000	PM 1/166/3
RE-5	RL-10					RR	A		IBC	MR							06042047	0.00000	6.64000	PM 1/166/4
RE-10	RL-10					RR	A										06043006	0.00000	13.00000	RS 14/101/1
RE-5	RL-10					RR	A										06043011	0.00000	4.50000	SEC 26 12 10
RE-10	RL-10					RR	A										06043017	0.00000	8.44000	SEC 26 12 10
RE-10	RL-10					RR	A										06043019	0.00000	17.49000	SEC 26 12 10
AE	PA-20					AL	A										06043021	0.00000	30.87200	SEC 26 12 10
RE-5	LA-10					RR	A										06043025	0.00000	10.26300	PM 3/27/2
RE-5	RL-10					RR	A										06043031	0.00000	5.32000	PM 12/148/1
RE-5	RL-10					RR	A										06043032	0.00000	3.77400	PM 12/148/2
RE-5	RL-10					RR	A										06043033	0.00000	4.51000	PM 12/148/3
RE-5	RL-10					RR	A										06043035	0.00000	7.00700	PM 12/149/2
RE-5	RL-10					RR	A										06043036	0.00000	6.00800	PM 12/149/3
RE-5	LA-10					RR	A										06043046	0.00000	10.16000	PM 30/103/A
RE-5	RL-10					RR	A										06043047	0.00000	5.34700	PM 30/103/B
R3A	RL-10					AL	A										06043048	0.00000	29.73000	PM 33/62/1
RE-10	RL-20					AL	A										06043048	0.00000	29.73000	PM 33/62/1
RA-20	LA-20					AL	A										06043063	0.00000	28.89000	POR PAR 2PM33-62
RE-5	RL-10					RR	A										06043067	0.00000	5.88000	RS 13/49 S261210
R3A	RL-10					RR	A										06043069	0.00000	14.87000	RS 13/49 S261210
RE-10	RL-20					AL	A										06043075	0.00000	50.00000	PM 3/33/2
RE-5	RE-10					MDI	A				PL						06043080	0.00000	7.78000	RS 30/10/1
RE-5	RL-10					RR	A										06043081	0.00000	5.94000	POR RS 30/10
RE-5	RL-10					RR	A										06043081	0.00000	5.94000	POR RS 30/10
RE-10	RL-10					RR	A		IBC								06044008	0.00000	2.78000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC	MR							06044016	0.00000	0.70000	SEC 34 12 10
RE-10	RL-10					RR	A		IBC								06044017	0.00000	2.93000	PM 4/53/1
RE-10	RL-10					RR	A		IBC	MR							06044019	0.00000	10.18000	PM 13/56/A
RE-10	RL-10					RR	A		IBC	MR							06044020	0.00000	20.39000	PM 13/56/B
RE-10	RL-20					AL	A		IBC	MR							06044021	0.00000	20.06000	PM 13/56/C
RE-10	RL-10					RR	A		IBC	MR							06044022	0.00000	20.05000	PM 13/56/D
RE-10	RL-10					RR	A		IBC								06044024	0.00000	20.00000	PM 17/9/B
RE-10	RL-20					AL	A		IBC								06044025	0.00000	20.00000	PM 17/9/C
RE-10	RL-10					RR	A		IBC								06044027	0.00000	5.79000	PM 17/55/A
RE-10	RL-10					RR	A		IBC								06044029	0.00000	6.79000	PM 17/55/C
RE-10	RL-10					RR	A		IBC								06044031	0.00000	5.00200	PM 18/3/1
RE-10	RL-10					RR	A		IBC								06044032	0.00000	5.00000	PM 18/3/2
RE-10	RL-10					RR	A		IBC								06044033	0.00000	6.40000	PM 18/3/3
RE-10	RL-10					RR	A		IBC								06044034	0.00000	20.01000	PM 18/3/4
RE-10	RL-10					RR	A		IBC								06044035	0.00000	2.61000	PM 19/95/1
RE-10	RL-10					RR	A		IBC								06044036	0.00000	1.10000	PM 19/95/2
RE-10	RL-10					RR	A		IBC								06044037	0.00000	1.10000	PM 19/95/3
RE-10	RL-10					RR	A		IBC								06044038	0.00000	2.40000	PM 19/95/4
RE-10	RL-10					RR	A		IBC								06044039	0.00000	1.50000	PM 20/12/1
RE-10	RL-10					RR	A		IBC								06044040	0.00000	1.62000	PM 20/12/2
RE-10	RL-10					RR	A		IBC								06044041	0.00000	2.14000	PM 20/12/3

RE-10	RL-10					RR	A		IBC								06044042	0.00000	11.55700	PM 20/12/4
RE-10	RL-10					RR	A		IBC								06044043	0.00000	10.00000	RS 14/52/2
RE-10	RL-10					RR	A		IBC								06044044	0.00000	10.00000	RS 14/52/1
RE-10	RL-10					RR	A		IBC								06044045	0.00000	13.62000	PM 36/6/1
RE-10	RL-10					RR	A		IBC								06044046	0.00000	10.19000	PM 36/6/2
RE-10	RL-20					AL	A		IBC								06044047	0.00000	19.48000	PM 50/53/1
RE-10	RL-20					AL	A		IBC								06044048	0.00000	19.48000	PM 50/53/2
RE-10	RL-20					AL	A										06047004	0.00000	6.14000	SEC 35 12 10
RE-10	RL-10					RR	A										06047007	0.00000	9.86700	RS 24/53/2
RE-10	RL-10					RR	A										06047008	0.00000	9.85900	RS 24/53/1
RE-10	RL-10					RR	A										06047009	0.00000	4.75000	SEC 36 12 10
RE-10	RL-10					RR	A										06047019	0.00000	4.75000	SEC 36 12 10
RE-10	RL-10					RR	A										06047022	0.00000	4.75000	SEC 36 12 10
RE-10	RL-10					RR	A										06047023	0.00000	4.80000	SEC 36 12 10
RE-10	RL-10					RR	A										06047024	0.00000	4.80000	SEC 36 12 10
RE-10	RL-10					RR	A										06047025	0.00000	4.79000	SEC 36 12 10
RE-10	RL-10					RR	A										06047026	0.00000	4.79000	SEC 36 12 10
RE-10	RL-10					RR	A										06047028	0.00000	10.07000	PM 4/178/1
RE-10	RL-10					RR	A										06047029	0.00000	10.00000	PM 4/178/2
RE-10	RL-10					RR	A										06047032	0.00000	4.97000	PM 9/11/3
RE-10	RL-10					RR	A										06047033	0.00000	4.96000	PM 9/11/4
RE-10	RL-10					RR	A										06047038	0.00000	10.01000	PM 19/96/A
RE-10	RL-10					RR	A										06047039	0.00000	10.00000	PM 19/96/B
RE-10	RL-10					RR	A										06047040	0.00000	10.00000	PM 19/96/C
RE-10	RL-10					RR	A										06047041	0.00000	8.73700	PM 19/96/D
RE-10	RL-10					RR	A										06047051	0.00000	10.01000	PM 23/124/1
RE-10	RL-10					RR	A										06047052	0.00000	10.00000	PM 23/124/2
RE-10	RL-10					RR	A										06047055	0.00000	10.00000	PM 31/113/3
RE-10	RL-10					RR	A										06047056	0.00000	10.00000	PM 31/113/4
RE-10	RL-10					RR	A										06047057	0.00000	3.83000	SEC 36 12 10
RE-10	RL-10					RR	A										06047058	0.00000	4.84000	SEC 36 12 10
RE-10	LA-10					RR	A										06047062	0.00000	10.04000	PM 32/31/B
RE-10	RL-10					RR	A										06047063	0.00000	10.65000	PM 32/31/C
RE-10	RL-10					RR	A										06047064	0.00000	10.10600	PM 32/31/D
RE-10	RL-10					RR	A										06047065	0.00000	9.95000	PAR 1 & 2PM9-11
RE-10	RL-10					RR	A										06047066	0.00000	10.76000	PM 32/31/A
RE-10	RL-10					RR	A										06047067	0.00000	4.74000	SEC 36 12 10
RE-10	RL-10					RR	A										06047068	0.00000	4.74000	SEC 36 12 10
RE-10	RL-10					RR	A										06047069	0.00000	4.74000	SEC 36 12 10
RE-10	RL-20					AL	A										06047075	0.00000	14.30100	RS 31/91/1
RE-10	RL-20					AL	A										06047076	0.00000	25.86000	SEC 35&36 12 10
RE-10	RL-10					RR	A										06047078	0.00000	12.57000	PM 49/132/1
RE-10	RL-20					AL	A										06047079	0.00000	24.92000	PM 49/132/2
RE-10	RL-20					AL	A										06047080	0.00000	10.09000	PM 49/132/3
RE-10	RL-20					AL	A										06047081	0.00000	10.08000	PM 49/132/4
RE-10	RL-10					RR	A										06047082	0.00000	4.79000	SEC 36 12 10

RE-10	RL-10					RR	A										06047083	0.00000	4.79000	SEC 36 12 10
RE-10	RL-10					RR	A										06048001	0.00000	7.50000	SEC 23 12 10
RE-10	RL-10					RR	A										06048002	0.00000	7.50000	SEC 23 12 10
RE-10	RL-10					RR											06048004	0.00000	12.95000	SEC 23 12 10
AE	PA-20					AL	A										06048009	0.00000	21.23000	SEC 23 12 10
RE-10	LA-10					RR	A										06048010	0.00000	10.01000	PM 3/3/A
RE-10	RL-10					RR	A										06048011	0.00000	4.74000	PM 3/3/B
RE-10	RL-10					RR	A										06048014	0.00000	1.00000	PM 3/113/A
RE-10	LA-10					RR	A										06048015	0.00000	17.00000	PM 3/113/B
RE-10	RL-10					RR	A										06048017	0.00000	16.32000	SEC 23 12 10
R3A	RL-10					RR	A										06048018	0.00000	20.09000	PM 17/122/A
RE-10	RL-10					RR	A										06048018	0.00000	20.09000	PM 17/122/A
R3A	RL-10					RR	A										06048019	0.00000	10.08000	PM 17/122/B
R3A	RL-10					RR	A										06048023	0.00000	14.00000	PM 25/45/1
RE-10	RL-10					RR	A										06048023	0.00000	14.00000	PM 25/45/1
R3A	RL-10					RR	A										06048024	0.00000	14.93000	PM 25/45/2
MR	RL-10					RR				MR							06048031	0.00000	25.82000	PM 45/51/1
MR	RL-10					RR											06048032	0.00000	10.16000	PM 45/51/2
RE-10	RL-10					RR	A										06048034	0.00000	5.00000	PM 49/67/A
RE-10	RL-10					RR	A										06048035	0.00000	10.07000	PM 49/67/B
RE-10	RL-10					RR	A										06052101	0.00000	10.57000	PM 6/130/1
RE-10	LA-10					RR	A										06052102	0.00000	13.20000	PM 9/25/1
RE-10	RL-10					RR	A										06052103	0.00000	5.00000	PM 15/134/C
RE-10	RL-10					RR	A										06052104	0.00000	4.37000	PM 15/134/B
RE-10	RL-10					RR	A										06052105	0.00000	5.00000	PM 15/134/A
RE-10	LA-10					RR	A										06052106	0.00000	10.09000	SEC 26 12 10
RE-10	LA-10					RR	A										06052107	0.00000	22.13000	PM 9/25/2
RE-10	RL-10					RR	A										06052108	0.00000	21.50000	PM 9/25/3
RE-10	RL-10					RR	A										06052110	0.00000	10.18000	SEC 26 12 10
RE-10	RL-10					RR	A										06052111	0.00000	2.00000	PM 25/81/D
RE-5	LA-10					RR	A										06052112	0.00000	24.02000	SEC 26 12 10
RE-10	RL-10					RR	A										06052114	0.00000	10.19000	SEC 26 12 10
RE-5	RL-10					RR	A										06052201	0.00000	3.47000	SEC 26 12 10
RE-5	RL-10					RR	A										06052202	0.00000	4.00000	PM 25/81/A
RE-5	RL-10					RR	A										06052203	0.00000	5.00000	PM 25/81/B
RE-5	RL-10					RR	A										06052204	0.00000	7.84000	PM 25/81/C
RE-5	RL-10					RR	A										06052206	0.00000	5.56300	PM 6/50/1
RE-5	RL-10					RR	A										06052207	0.00000	5.24000	SEC 26 12 10
RE-5	RL-10					RR	A										06052208	0.00000	5.56000	PM 6/50/2
R3A	RL-10					RR	A										06052209	0.00000	3.00000	PM 11/140/3
RE-5	RL-10					RR	A										06052210	0.00000	6.28700	PM 11/140/4
RE-5	RL-10					RR	A										06052211	0.00000	5.55800	PM 6/50/3
RE-5	RL-10					RR	A										06052212	0.00000	5.56200	PM 6/50/4
RE-5	RL-10					RR	A										06052213	0.00000	5.45900	SEC 26 12 10
RE-5	RL-10					RR	A										06052214	0.00000	5.22000	PM 4/86/1
RE-5	RL-10					RR	A										06052215	0.00000	5.08000	PM 4/86/2

RE-5	RL-10					RR	A										06052216	0.00000	10.64000	SEC 26 12 10
RE-10	LA-10					RR	A										06052217	0.00000	16.76000	PM 3/47/1
RE-5	RL-10					RR	A										06052220	0.00000	10.04000	SEC 26 12 10
RE-5	RL-10					RR	A										06052221	0.00000	3.65000	PM 3/47/3
RE-10	RL-10					RR	A										06052222	0.00000	2.51600	PM 3/47/4
RE-5	RL-10					RR	A										06052223	0.00000	5.04400	PM 38/92/1
RE-5	RL-10					RR	A										06052224	0.00000	5.00000	PM 38/92/2
RE-10	RL-10					RR	A										06052225	0.00000	7.65000	PM 49/90/A
RE-10	RL-10					RR	A										06052226	0.00000	10.00000	PM 49/90/B
RE-10	RL-10					RR	A										06052227	2.00000	0.44000	PM 49/90/R AW
R3A	RL-10					RR	A										06054045	0.00000	15.00000	PM 3/61/1
RE-10	RL-20					AL	A										06054047	0.00000	78.27000	SEC 25 12 10
RE-10	RL-10					RR	A										06054048	0.00000	10.03000	SEC 25 12 10
RE-10	RL-10					RR	A										06054049	0.00000	9.93000	RS 26/146/1
RE-10	RL-10					RR	A										06054050	0.00000	5.02000	SEC 25 12 10
RE-10	RL-10					RR	A										06054051	0.00000	4.95000	PM 21/31/1
RE-10	RL-10					RR	A										06054052	0.00000	4.94000	PM 21/31/2
RE-10	RL-10					RR	A										06054053	0.00000	4.93000	PM 21/31/3
RE-10	RL-10					RR	A										06054054	0.00000	10.00000	PM 32/92/1
RE-10	RL-10					RR	A										06054055	0.00000	9.73000	PM 32/92/2
RE-10	RL-20					AL	A										06055002	0.00000	86.52000	SEC 35 36 12 10
RE-10	LA-10					RR	A										06055004	0.00000	10.70000	PM 17/16/B
RE-10	LA-10					RR	A										06055009	0.00000	11.46000	PM 19/84/2
RE-10	LA-10					RR	A										06055010	0.00000	11.00000	PM 19/130/A
RE-10	RL-10					RR	A										06055011	0.00000	10.00000	PM 19/130/B
RE-10	LA-10					RR	A										06055012	0.00000	13.48500	PM 19/130/C
RE-10	RL-10					RR	A										06055013	0.00000	12.00000	PM 19/130/D
RE-10	RL-10					RR	A										06055014	0.00000	10.40600	PM 25/61/1
RE-10	LA-10					RR	A										06055015	0.00000	10.30500	PM 25/61/2
RE-5	RL-10					RR	A										06065015	0.00000	8.57000	SEC 26 12 10
RE-5	RL-10					RR	A										06065016	0.00000	6.60000	SEC 26 12 10
RE-10	RL-10					RR	A										06065021	0.00000	10.16000	PM 11/120/1
RE-10	RL-10					RR	A										06065022	0.00000	10.05000	PM 11/120/2
RE-10	RL-10					RR	A										06065024	0.00000	10.09000	PM 11/120/4
RE-10	RL-40					NR											06065025	0.00000	20.12000	SEC 25 12 10
RE-10	RL-40					NR											06065026	0.00000	9.69000	PM 16/78/1
RE-10	RL-40					NR											06065027	0.00000	5.00000	PM 16/78/2
RE-10	RL-40					NR											06065028	0.00000	5.00000	PM 16/78/3
RE-10	RL-40					NR											06065029	0.00000	20.03000	SEC 25 12 10
RE-10	RL-10					RR	A										06065030	0.00000	4.67000	PM 1/106/1
RE-10	RL-10					RR	A										06065031	0.00000	5.31000	PM 1/106/2
RE-10	RL-10					RR	A										06065032	0.00000	4.63000	PM 1/106/3
RE-10	RL-10					RR	A										06065033	0.00000	5.36600	PM 1/106/4
RE-5	LA-10					RR	A										06065061	0.00000	12.01700	PM 36/94/1
RE-5	RL-10					RR	A										06065062	0.00000	5.55000	PM 36/94/2
RE-10	RL-40					NR											06066001	0.00000	19.58000	RS 17/86/2

RE-10	RL-40					NR											06066002	0.00000	19.64000	RS 17/86/1
RE-10	RL-40					NR											06066005	0.00000	19.43000	RS 11/53 S361210
RE-10	RL-40					NR											06066007	0.00000	20.00000	SEC 36 12 10
RE-10	RL-40					NR											06066008	0.00000	20.00000	SEC 36 12 10
RE-10	RL-10					RR	A										06066016	0.00000	9.84800	PM 14/5/1
RE-10	RL-10					RR	A										06066017	0.00000	9.84000	PM 14/5/2
RE-10	RL-10					RR	A										06066018	0.00000	9.84000	PM 14/6/1
RE-10	RL-10					RR	A										06066019	0.00000	9.84000	PM 14/6/2
RE-10	RL-10					RR	A										06066020	0.00000	10.01000	PM 18/29/A
RE-10	RL-10					RR	A										06066021	0.00000	10.00900	PM 18/29/B
RE-10	RL-40					NR											06066027	0.00000	19.49000	RS 11/53 S361210
RE-10	LA-10					RR	A										06066030	0.00000	15.37800	RS 15/27 S361210
RE-10	LA-10					RR	A										06066032	0.00000	12.71300	PM 45/94/1
RE-10	RL-10					RR	A										06066033	0.00000	10.04600	PM 45/94/2
RE-10	RL-10					RR	A										06066038	0.00000	10.00900	POR PM 18/29/D&C
RE-10	LA-10					RR	A										06066039	0.00000	10.00900	POR PM 18/29/C&D
RE-10	RL-10					RR			IBC								06069024	0.00000	25.68000	PM 30/17/1
RE-10	RL-10					RR			IBC								06069025	0.00000	10.02000	PM 30/17/2
RE-10	RL-10					RR			IBC								06069027	0.00000	10.02000	PM 30/17/4
RE-10	RL-10					RR			IBC								06069041	0.00000	26.45000	SEC 33 12 10
RE-10	RL-10					RR			IBC								06069042	0.00000	10.00000	PM 30/17/3
RE-10	RL-10					RR			IBC								06070038	0.00000	20.00000	SEC 33 12 10
R3A	R2A					MDR							GV				06070053	0.00000	2.95000	S 33 & 34 12 10
RE-10	RL-10					RR	A		IBC	MR							06071002	0.00000	5.80000	PM 26/30/2
RE-5	RL-10					RR	A		IBC	MR							06071005	0.00000	5.00000	PM 36/65/A
RE-5	RL-10					RR	A		IBC	MR							06071006	0.00000	5.00000	PM 36/65/B
RE-5	RL-10					RR	A		IBC	MR							06071007	0.00000	5.00000	PM 36/65/C
RE-5	LA-10					RR	A		IBC	MR							06071008	0.00000	25.01000	PM 36/65/D
RE-5	RL-10					RR	A		IBC	MR							06071009	0.00000	5.00000	PM 37/108/A
RE-5	RL-10					RR	A		IBC	MR							06071010	0.00000	5.00000	PM 37/108/B
RE-5	RL-10					RR	A		IBC	MR							06071011	0.00000	5.35000	PM 37/108/C
RE-5	RL-10					RR	A		IBC	MR							06071017	0.00000	20.80300	RS 29/47/1
RE-10	RL-10					RR	A		IBC	MR							06071018	0.00000	5.01000	RS 29/47/2
U	FR-40					NR											06101001	11.00000	20.00000	SEC 11 13 10
U	FR-40					NR											06101003	0.00000	0.00000	SEC 1 13 10
U	FR-40					NR											06101004	0.00000	32.05000	RS 10/91 S121310
U	RL-40					NR											06101005	0.00000	73.49000	RS 10/91 S121310
U	FR-40					NR											06101006	11.00000	40.00000	SEC 1 13 10
A	RL-40					NR											06101007	0.00000	187.65000	SEC 1 13 10
A	FR-160					NR											06101008	11.00000	0.00000	SEC 1&12 13 10
A	FR-40					NR											06101009	11.00000	0.00000	SEC 1 13 10
A	LA-40					NR											06102002	0.00000	28.00000	SEC 21 13 10
A	FR-40					NR											06102003	11.00000	48.90000	SEC 16 13 10
A	FR-40					NR											06102008	11.00000	0.00000	POR SEC 21 13 10
U	RL-40					NR											06103002	0.00000	67.00000	SEC 15 13 10
U	RL-40					NR											06103006	0.00000	483.47000	SEC 23 13 10

U	RL-40					NR											06103007	0.00000	168.07000	SEC 23 13 10
A	FR-40					NR											06103008	11.00000	0.00000	POR SEC 8 13 10
A	FR-40					NR											06103009	11.00000	0.00000	POR SEC 22 13 10
A	FR-160					NR											06103010	11.00000	0.00000	POR SEC 24 13 10
RE-10	RL-10					RR				MR							06104202	0.00000	23.94000	SEC 30 13 10
RE-5	RL-10					RR				MR							06104202	0.00000	23.94000	SEC 30 13 10
RE-10	RL-10					RR			IBC	MR							06104203	0.00000	26.15400	RS 32/39/2
RA-80	RL-80					RR											06104205	0.00000	40.00000	SEC 29 13 10
RA-80	RL-80					RR											06104206	0.00000	49.34000	SEC 29 13 10
RA-20	RL-10					RR											06104207	0.00000	7.56000	POR RS 32/57 ADM
RA-80	RL-10					RR											06104207	0.00000	7.56000	POR RS 32/57 ADM
RA-20	RL-10					RR											06104208	0.00000	10.36000	POR RS 32/57 ADM
TPZ	RL-20					RR											06104208	0.00000	10.36000	POR RS 32/57 ADM
RA-20	RL-20					RR											06104209	0.00000	81.47000	SEC 29 13 10
RA-20	RL-20					RR											06104210	0.00000	26.73000	SEC 29 13 10
A	FR-40					NR											06104213	11.00000	0.00000	SEC 28 13 10
RA-40	RL-10					RR											06104222	0.00000	9.82000	RS 13/70 S331310
RA-40	RL-10					RR											06104223	0.00000	19.50000	RS 13/70 S331310
RA-40	RL-10					RR											06104225	0.00000	19.33000	RS 13/70 S331310
RA-40	RL-40					RR											06104226	0.00000	24.28000	RS 13/70 S331310
RA-40	RL-10					RR											06104231	0.00000	19.46000	33 13 1013-63&70
RA-40	RL-10					RR											06104231	0.00000	19.46000	33 13 1013-63&70
RA-40	RL-40					RR											06104232	0.00000	19.44000	RS 13/63 S331310
RA-40	RL-40					RR											06104233	0.00000	19.38000	RS 13/63 S331310
RA-40	RL-40					RR											06104234	0.00000	19.43000	RS 13/63 S331310
RA-40	RL-10					RR											06104235	0.00000	19.36000	RS 13/63 S331310
RA-40	RL-10					RR											06104236	0.00000	19.31000	RS 13/63 S331310
RA-40	RL-10					RR											06104237	0.00000	19.25000	33 13 10 RS13-63
RE-10	RL-10					RR											06104238	0.00000	30.00000	SEC 32 13 10
RA-40	RL-40					RR											06104239	0.00000	19.30000	RS 13/63 S331310
RE-10	RL-10					RR											06104240	0.00000	30.00000	SEC 32 13 10
RE-10	RL-10					RR											06104241	0.00000	10.00000	SEC 32 13 10
RE-5	RL-10					RR											06104242	0.00000	10.00000	SEC 32 13 10
RE-5	RL-10					RR											06104243	0.00000	25.00000	SEC 32 13 10
RE-10	RL-10					RR											06104248	0.00000	11.00000	PM 24/126/B
RE-10	RL-10					RR											06104249	0.00000	13.37700	PM 24/126/A
RA-20	OS					OS											06104250	11.00000	0.00000	NE 1/4 S32 13 10
RA-20	OS					OS											06104251	11.00000	0.00000	NW 1/4 S32 13 10
RA-20	RL-20					RR											06104253	0.00000	20.02200	PM 47/61/2
RE-10	RL-10					RR			IBC								06104254	0.00000	20.98700	PM 47/61/1
A	LA-20					AL			IBC								06104259	11.00000	34.05000	PAR 2 P/M 8-139
A	RE-10					RR			IBC								06104260	11.00000	40.00000	PAR 3 P/M 8-139
A	RL-10					RR			IBC								06104262	0.00000	3.82000	PM 8/139/1
RE-10	OS					OS											06104263	11.00000	17.67000	RS 33/19/1
R3A	RL-10					RR			IBC								06104269	0.00000	6.71000	PM 47/110/B
RA-20	RL-10					RR			IBC								06104269	0.00000	6.71000	PM 47/110/B

RA-20	LA-20					AL											06104270	0.00000	337.88000	PM 47/110/C
RE-10	LA-20					AL											06104270	0.00000	337.88000	PM 47/110/C
RA-20	RE-10					MDR			IBC		PL						06104271	0.00000	6.48000	PM 47/110/A
A	FR-40					NR											06105102	0.00000	40.00000	SEC 26 13 10
A	FR-40					NR											06105103	0.00000	20.00000	SEC 26 13 10
RA-40	OS					NR											06105108	0.00000	9.26000	RS 11/57/C
RA-40	RL-10					RR											06105109	0.00000	5.00000	SEC 34 13 10
RA-40	TPZ					NR											06105111	0.00000	55.00000	SEC 35 13 10
RA-40	TPZ					NR											06105111	0.00000	55.00000	SEC 35 13 10
RA-40	TPZ					NR											06105112	0.00000	75.00000	SEC 35 13 10
RA-40	LA-10					RR											06105113	0.00000	20.00000	SEC 35 13 10
RA-40	LA-40					NR											06105114	0.00000	72.50000	SEC 35 13 10
RA-40	LA-40					NR											06105114	0.00000	72.50000	SEC 35 13 10
TPZ	LA-40					NR											06105114	0.00000	72.50000	SEC 35 13 10
RE-10	RL-10					RR											06105116	0.00000	1.70000	SEC 2 12 10 ADM
RA-40	RL-40					NR											06105117	0.00000	40.00000	SEC 35 13 10
RA-40	LA-40					NR											06105118	0.00000	20.13000	PM 28/48/1
RA-40	LA-40					NR											06105119	0.00000	19.21000	PM 28/48/2
RA-40	RL-40					NR											06105120	0.00000	19.50000	RS 10/103S351310
RA-40	RL-40					NR											06105121	0.00000	19.41000	RS 10/103S351310
RA-20	RL-10					LDR							GT				06105122	0.00000	39.57000	RS 9/9 S351310
RA-20	RL-10					LDR							GT				06105123	0.00000	39.18000	RS 9/9 S351310
RA-40	RL-40					NR											06105124	0.00000	19.93000	PM 28/47/1
RA-40	RL-40					NR											06105126	0.00000	19.79000	PM 28/27/A
RA-40	RL-40					NR											06105147	0.00000	38.25000	SEC 36 13 10
RA-40	LA-40					NR											06105148	0.00000	37.71700	RS30/46&PRS3/139
RA-40	LA-40					NR											06105161	0.00000	39.15000	SEC 36 13 10
RA-40	RL-40					NR											06105163	0.00000	312.62000	RS 10/36S251310
RA-40	RL-160					NR											06105164	0.00000	156.31000	RS 10/36 S251310
RA-40	RL-160					NR											06105165	0.00000	156.31000	RS 10/36 S251310
A	FR-40					NR											06105166	11.00000	0.00000	POR SEC 26 13 10
RA-40	RL-40					NR											06105167	11.00000	0.00000	POR SEC 34 13 10
RA-40	RE-10					RR											06105168	11.00000	10.00000	S34 13 10RS11-57
RA-40	RL-40					NR											06105169	11.00000	10.00000	S34 13 10RS11-57
RA-20	RL-40					NR											06105170	11.00000	0.00000	SEC 34 13 10
TPZ	RL-20					NR											06105170	11.00000	0.00000	SEC 34 13 10
RA-20	RL-10					LDR											06105171	0.00000	114.30000	SEC 36 13 10
RA-20	RL-10					LDR							GT				06105172	0.00000	38.75000	PM 43/74/1
RA-40	RL-40					NR											06105173	0.00000	38.16000	RS 9/9
TPZ	RL-40					NR											06105173	0.00000	38.16000	RS 9/9
RE-10	RL-10					RR			IBC	MR							06106105	0.00000	20.66000	SEC 7 12 10
RE-10	RL-10					RR			IBC	MR							06106109	0.00000	10.00000	SEC 6&7 12 10
RE-10	RL-10					RR			IBC	MR							06106110	0.00000	9.78000	SEC 7 12 10
RA-20	FR-160					NR											06107123	11.00000	407.90000	SEC 12 12 10
RE-10	OS					LDR							GT				06107126	0.00000	104.60000	POR SEC 1 12 10
RE-10	OS					OS							GT				06107127	11.00000	4.00000	R/S 23-81

I	RE-10					LDR							GT				06107128	11.00000	0.00000	POR S 2&3 12 10
RE-10	OS					OS							GT				06107130	11.00000	0.86300	TR 5 R/S 28/48
RE-10	RF-L					OS							GT				06107140	0.00000	91.88100	RS 28/48/1
RE-10	RE-5					LDR							GT				06107141	0.00000	6.19700	RS 28/48/4
AE	RL-10					RR			IBC	MR							06110001	0.00000	4.34000	SEC 6 12 10
AE	AG-40					RR			IBC								06110002	0.00000	15.50000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06110017	0.00000	17.86000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06110018	0.00000	13.90000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06110019	0.00000	7.00000	SEC 6 12 10
RE-5	RL-10					RR			IBC	MR							06110020	2.00000	1.44000	SEC 6 12 10
AE	AG-40					RR			IBC	MR							06110024	0.00000	33.58300	PM 5/80/1
RE-10	RL-10					RR			IBC	MR							06110025	0.00000	56.93000	PM 5/80/2
AE	AG-40					RR			IBC	MR							06110026	0.00000	9.80200	PM 5/80/3
RE-10	RL-10					RR			IBC								06110043	0.00000	10.36000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06110044	0.00000	68.30000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06110055	0.00000	1.05900	RS 25/62/1
RE-10	RL-10					RR			IBC								06110056	0.00000	5.94000	RS 25/62/2
RE-10	TPZ					NR											06112025	0.00000	37.84000	RS22/17 34 13 10
R3A	R2A					MDR							GT				06114003	0.00000	2.00000	SEC 2 12 10
I	CG					C							GT				06115020	0.00000	15.27000	PM 30/18/2
R2A	CG					C							GT				06115020	0.00000	15.27000	PM 30/18/2
CG	I					I							GT				06115026	0.00000	2.19000	PM 33/96/1
R3A	RE-5					LDR							GT				06117023	0.00000	10.22000	PM 23/75/A
R2	RM					MFR							GT				06117024	0.00000	1.23000	PM 30/20/A
R2	RM					MFR							GT				06117025	0.00000	1.23000	PM 30/20/B
R2	RM					MFR							GT				06117026	0.00000	1.23000	PM 30/20/C
CP	CM		DC			C							GT				06119020	11.00000	4.00000	PM 28/139/B
CG	CM		DC			C							GT				06119028	0.00000	0.23100	SEC 10&11 12 10
R3A	RM					MFR							GT				06119031	0.00000	2.83000	PM 49/129/1
R3A	R1A					HDR							GT				06119035	0.00000	0.79000	RS 32/127/1
C	CM		DC			C							GT				06119101	0.00000	0.00000	POR L 1 B 4
C	CM		DC			C							GT				06119102	0.00000	0.00000	POR L 2 BLK 4
C	CM		DC			C							GT				06119106	0.00000	0.00000	POR LOT 2
CP	CM		DC			C							GT				06119125	0.00000	1.27600	POR P/M 28-139
CG	CM		DC			C							GT				06119129	0.00000	0.00000	POR R/S 21-125
CP	CM					C							GT				06120006	0.00000	1.41000	SEC 11 12 10
CP	CM					C							GT				06120010	0.00000	1.76000	PM 19/10/1
CP	CM					C							GT				06120011	0.00000	1.76000	PM 19/10/2
CP	CM					C							GT				06120015	0.00000	1.61000	PM 23/3/1
CP	CM		DC			C							GT				06120018	0.00000	1.61000	PM 23/3/4
CP	CM					C							GT				06120020	0.00000	1.53700	RS 14/21/3
CP	CM					C							GT				06120021	0.00000	1.60600	PM 23/3/3
CP	CG					C							GT				06122006	0.00000	26.46000	RS 27/137/1
RE-10	RE-5					LDR							GT				06122035	0.00000	0.92000	PM 35/14/1
CG	CM					C							GT				06124109	0.00000	0.00000	POR L 1 BL 16
R1A	CM					C							GT				06124109	0.00000	0.00000	POR L 1 BL 16

CG	CM					C							GT				06124121	0.00000	0.00000	POR L 1 B 16
CG	CM					C							GT				06124130	0.00000	0.00000	POR L 1 B 16
R1A	CM					C							GT				06124130	0.00000	0.00000	POR L 1 B 16
CP	CM					C							GT				06124143	0.00000	0.43000	PM 27/109/A
C	CM					C							GT				06125101	0.00000	0.00000	POR L 1 BL 13
C	CM					C							GT				06125109	0.00000	0.00000	POR B 13
C	CM					C							GT				06125201	0.00000	0.00000	POR B 8
C	CM					C							GT				06125202	0.00000	0.00000	POR B 8
C	CM					C							GT				06125203	0.00000	0.00000	POR B 8
C	CM					C							GT				06125208	0.00000	0.00000	POR B 8
C	CM					C							GT				06125209	0.00000	0.00000	POR B 8
C	CM					C							GT				06125210	0.00000	0.00000	POR B 8
C	CM					C							GT				06125211	0.00000	0.06900	POR B 8
C	CM					C							GT				06125212	0.00000	0.00000	POR B 8
C	CM					PF							GT				06125214	11.00000	0.00000	LOT 9 & 10
C	CM					C							GT				06125215	0.00000	0.61000	L 7 B 8
C	CM					C							GT				06125216	11.00000	0.06000	L 8 B 8 RS20-8
R1A	RM					MFR							GT				06126114	0.00000	1.09000	POR B 11
R2	RM					MFR							GT				06126119	0.00000	0.50000	PM 42/12/2
R1A	RM					MFR							GT				06126203	0.00000	0.00000	POR B 10
R1A	RM					MFR							GT				06126208	0.00000	0.00000	POR L 8 BLK 10
R1A	RM					MFR							GT				06126213	0.00000	0.25000	RS 10/135/3
R1A	RM					MFR							GT				06126214	0.00000	0.00000	POR L 7&8 BLK 10
R1A	RM					MFR							GT				06126216	0.00000	0.00000	POR B 10
R1A	RM					MFR							GT				06126218	0.00000	0.00000	POR L 5&7 BLK 10
CP	CM					C							GT				06126220	0.00000	1.28000	RS 10/135/2
CP	R1A					MDR							GT				06126222	0.00000	2.30000	RS 10/135/1
R1A	RM					MFR							GT				06129104	0.00000	0.00000	POR B 12
R1A	RM					MFR							GT				06129106	0.00000	0.00000	POR B 12
R1A	RM					MFR							GT				06129107	0.00000	0.00000	POR B 12
R1A	RM					MFR							GT				06129109	0.00000	0.65000	POR B 12
R1A	RM					MFR							GT				06129111	0.00000	0.00000	POR B 12
R1A	RM					MFR							GT				06129115	0.00000	0.00000	L 1 B 12
R1A	RM					MFR							GT				06129118	0.00000	0.00000	POR L 6&7 BLK 12
R1A	RM					MFR							GT				06129120	0.00000	0.00000	POR B 12
R1A	RM					MFR							GT				06129121	0.00000	0.00000	POR L 7&9 BLK 12
R1A	RM					MFR							GT				06129125	0.00000	0.42100	POR L 2 B 12
R1A	RM					MFR							GT				06129126	0.00000	0.79000	POR BLK12 RS7-79
R1A	RM					MFR							GT				06129128	0.00000	0.36000	PM 33/1/A
CPO	CM					C							GT				06129130	0.00000	0.40900	PM 33/1/B
R1A	RM					MFR							GT				06129135	0.00000	0.64300	POR B 12
R1A	RM					MFR							GT				06129136	0.00000	0.51000	RS 23/44/1
C	CM		DC			C							GT				06129205	0.00000	0.00000	POR B 9
C	CM		DC			C							GT				06129206	0.00000	0.00000	POR B 9
C	CM					C							GT				06129208	0.00000	0.00000	POR B 9
C	CM					C							GT				06129211	0.00000	0.00000	POR B 9

C	CM					C							GT				06129212	0.00000	0.00000	POR L 1 BLK 9
C	CM					C							GT				06129213	0.00000	0.30700	POR L 1 BLK 9
C	CM		DC			C							GT				06129217	0.00000	0.00000	POR L 4 BLK 9
C	CM		DC			C							GT				06129218	0.00000	0.00000	POR LOT 4 BLK 9
C	CM		DC			C							GT				06129219	0.00000	0.00000	POR L 4 BLK 9
C	CM					C							GT				06129220	0.00000	0.37000	POR L2 B9RS11-51
C	CM					C							GT				06129221	0.00000	0.00000	POR L 2 B 9
C	CM					C							GT				06129227	0.00000	0.29000	RS 12/100/A
C	CM					C							GT				06129229	0.00000	0.53400	PM 46/45/1
C	CM					C							GT				06129230	0.00000	0.22000	PM 46/45/2
R1A	RM					MFR							GT				06131003	0.00000	0.42700	RS 21/81/2
R1A	RM					MFR							GT				06131004	0.00000	0.75000	SEC 11 12 10
R1A	RM					MFR							GT				06131006	0.00000	0.50000	SEC 11 12 10
R1A	RM					MFR							GT				06131007	0.00000	0.20000	RS 21/81/3
R1A	RM					MFR							GT				06131008	0.00000	0.50000	SEC 11 12 10
R1A	RM					MFR							GT				06131104	0.00000	0.00000	POR L 8 BLK 1
R1A	RM					MFR							GT				06131105	0.00000	0.00000	POR B 1
R1A	RM					MFR							GT				06131107	0.00000	0.00000	POR B 1
R1A	RM					MFR							GT				06131108	0.00000	0.00000	POR B 1
R1A	RM					MFR							GT				06131109	0.00000	0.00000	POR B 1
R1A	RM					MFR							GT				06131110	0.00000	0.00000	L 5 B 1
R1A	RM					MFR							GT				06131113	0.00000	0.00000	POR B 1
R1A	RM					MFR							GT				06131114	0.00000	0.62000	POR B 1
R1A	RM					MFR							GT				06131116	0.00000	0.00000	POR L 8 B 1
R1A	RM					MFR							GT				06131125	0.00000	0.24000	RS 19/27/3
R1A	RM					MFR							GT				06131127	0.00000	0.32700	POR B 1
R1A	RM					MFR							GT				06131132	0.00000	0.34400	POR L 8 BLK 1
R1A	RM					MFR							GT				06131140	0.00000	0.00000	POR L 8 BLK 1
R1A	RM					MFR							GT				06131142	0.00000	0.00000	POR L 7 B 1
R1A	RM					MFR							GT				06131143	0.00000	0.00000	POR L 7 B 1
R1A	RM					MFR							GT				06131147	0.00000	0.61600	POR L 8 B 1
R1A	RM					MFR							GT				06131152	0.00000	0.00000	POR L 8 B 1
R1A	RM					MFR							GT				06131155	0.00000	0.00000	POR L 8 B 1
R1A	RM					MFR							GT				06131157	11.00000	0.00000	POR L 8 BLK 1
R1A	RM					MFR							GT				06131158	0.00000	4.39300	RS 21/81/1
R1A	RM					MFR							GT				06131160	0.00000	1.02800	RS 2/40/1
R1A	RM					MFR							GT				06131161	0.00000	0.55300	RS 2/40/2&PL8 B1
R1A	CM					C							GT				06131162	0.00000	0.00000	POR L 8 B 1
R1A	RM					MFR							GT				06131165	0.00000	0.00000	TR 1&2 RS 19/27
R1A	RM					MFR							GT				06131166	11.00000	0.00000	POR B 1
C	CM					C							GT				06133205	0.00000	0.00000	POR B 6
C	CM					C							GT				06133206	0.00000	0.00000	POR B 6
C	CM					C							GT				06133207	0.00000	0.00000	POR L 2&4 BLK 6
R1A	RM					MFR							GT				06133215	0.00000	0.00000	POR B 6
C	CM					C							GT				06133221	0.00000	0.00000	POR L 1&2 BLK 6
C	CM					C							GT				06133222	0.00000	0.15000	POR L 1 BLK 6

R1A	RM					MFR						GT				06133223	0.00000	0.00000	POR L 4 BLK 6
R1A	CM					C						GT				06133224	0.00000	0.00000	POR L 4 BLK 6
R1A	RM					MFR						GT				06133225	0.00000	0.00000	POR L 4 BLK 6
R1A	RM					MFR						GT				06133226	0.00000	0.00000	POR L 4 BLK 6
C	CM					C						GT				06133227	0.00000	0.00000	POR B 6
C	CM					C						GT				06133227	0.00000	0.00000	POR B 6
C	CM					C						GT				06133232	0.00000	0.39200	POR LOT 8 BLK 6
C	CM					C						GT				06133233	11.00000	0.05800	POR LOT 8 BLK 6
C	CM					C						GT				06133237	11.00000	0.54000	POR B 6 RS20-109
C	CM					C						GT				06133242	0.00000	0.35800	PM 46/98/1
C	CM					C						GT				06133243	0.00000	0.62900	PM 46/98/2
C	RM					MFR						GT				06133245	11.00000	0.77000	POR B R/S 20-109
C	CM					C						GT				06133247	0.00000	1.41400	PM 48/61/1
C	CM					C						GT				06133248	0.00000	1.23600	PM 48/61/2
C	CM					C						GT				06133249	0.00000	1.64600	PM 48/61/3
C	CM					C						GT				06134103	0.00000	0.00000	POR B 14
C	CM					C						GT				06134104	0.00000	0.00000	POR B 14
C	CM					C						GT				06134105	0.00000	0.00000	POR L 6 B 14
C	CM					C						GT				06134108	0.00000	0.00000	POR L 1&6 BLK 14
C	CM					C						GT				06134112	0.00000	0.30000	RS 17/113/1
C	CM					C						GT				06134114	0.00000	0.36000	RS 17/113/2
C	CM					C						GT				06134203	0.00000	0.00000	POR B 14
C	CM					C						GT				06134206	0.00000	0.00000	POR B 14 RS20-11
C	CM					C						GT				06134213	0.00000	0.00000	POR L 5 B 14
C	CM					C						GT				06134215	0.00000	0.00000	PORS L 5&7 B 14
C	CM					C						GT				06134216	0.00000	0.00000	POR B 14 RS20-11
C	CM					C						GT				06134219	0.00000	0.00000	POR L 5&7 B 14
C	CM					C						GT				06134224	0.00000	0.26000	PM 44/68/1
C	CM					C						GT				06134225	0.00000	0.15000	PM 44/68/2
C	CM					C						GT				06134302	6.00000	0.00000	POR B7
C	CM					C						GT				06134304	0.00000	0.00000	POR B 7
C	CM					C						GT				06134305	0.00000	0.08400	RS 31/147 L4 B7
C	CM					C						GT				06134306	0.00000	0.07700	RS 31/147 L3 B7
C	CM					C						GT				06134307	0.00000	0.00000	POR B 7
C	CM					C						GT				06134311	0.00000	0.24000	PM 41/105/1
C	CM					C						GT				06134312	0.00000	0.14000	PM 41/105/2
C	CM					C						GT				06135201	0.00000	0.00000	POR B 3
C	CM					C						GT				06135204	0.00000	0.00000	RS13/62 L 16 B 3
CG	CM					C						GT				06135212	0.00000	0.76000	RS 8/17 POR L1B3
C	CM					C						GT				06135217	0.00000	0.18000	RS8/17PORL67&8B3
C	CM					C						GT				06135223	0.00000	0.30000	RS8/17PORL78&9B3
C	CM					C						GT				06135227	0.00000	0.45000	POR B 3
C	CM					C						GT				06135229	0.00000	0.00000	POR B 3
CG	CM					C						GT				06135230	0.00000	1.70000	PM 29/12/1
CG	CM					C						GT				06135231	0.00000	0.34000	PM 29/12/2
CP	CM					C						GT				06135232	0.00000	1.00000	PM 30/126/A

CG	CM					C							GT				06135235	0.00000	0.06700	L 5
CG	CM					C							GT				06135236	0.00000	0.35200	RS 8/17 L 4 B 3
CG	CM					C							GT				06135237	0.00000	0.00000	RS8/17PORL13&4B3
C	CM		DC			C							GT				06136201	0.00000	0.00000	L 10 11&12 B 1
C	CM		DC			C							GT				06136202	0.00000	0.00000	POR L 9 BLK 1 GE
C	CM		DC			C							GT				06136204	0.00000	0.00000	POR L 9 BLK 1 GE
C	CM		DC			C							GT				06136205	0.00000	1.99600	POR L 9 BLK 1 GE
C	CM		DC			C							GT				06136206	0.00000	0.00000	POR L 9 BLK 1
R1A	RM					MFR							GT				06138102	0.00000	0.00000	POR B 20
R1A	RM					MFR							GT				06138104	0.00000	0.11100	POR L 4 BLK 20
R1A	RM					MFR							GT				06138113	0.00000	0.00000	POR B 20
R1A	RM					MFR							GT				06138114	0.00000	0.00000	POR B 20
R1A	RM					MFR							GT				06138122	0.00000	0.52800	POR L 1&2 BLK 5
R1A	RM					MFR							GT				06138123	0.00000	0.00000	POR L 1 B 5
R1A	RM					MFR							GT				06138124	0.00000	0.00000	POR L 2 B 5
R1A	RM					MFR							GT				06138126	0.00000	0.00000	POR L 1 B 20
R1A	RM					MFR							GT				06138129	0.00000	0.62000	PM 24/12/A
R1A	RM					MFR							GT				06138130	0.00000	0.74000	PM 24/12/B
R1A	RM					MFR							GT				06138131	0.00000	0.21900	RS 19/88/2
R1A	RM					MFR							GT				06138133	0.00000	0.35800	RS 19/88/1
R1A	RM					MFR							GT				06138134	0.00000	1.39800	POR B 5
CG	CM					C							GT				06139131	0.00000	1.31400	RS 14/21/1
CP	CM					C							GT				06139133	0.00000	0.45000	S 11 12 10
CP	CM					C							GT				06139138	0.00000	0.93200	RS 14/21/2
RE-10	RL-10					RR			IBC								06140101	0.00000	59.33000	SEC 7 12 10
RE-10	RL-10					RR			IBC								06140103	0.00000	6.55000	PPM 21/82/1 ADM
RE-10	RL-10					RR			IBC								06140104	0.00000	3.46000	PPM 21/82/1 ADM
RE-10	RL-10					RR			IBC								06140105	0.00000	3.95500	PPM 21/82/2ADM
RE-10	RL-10					RR			IBC								06140106	0.00000	6.05000	PPM 21/82/2 ADM
RE-10	RL-10					RR			IBC								06140107	0.00000	6.00000	PPM 21/82/3 ADM
RE-10	RL-10					RR			IBC								06140108	0.00000	4.08000	PPM 21/82/3 ADM
RE-10	RL-10					RR			IBC								06140109	0.00000	10.02000	PM 25/55/A
RE-10	RL-10					RR			IBC								06140110	0.00000	10.02000	PM 25/55/B
RE-10	RL-10					RR			IBC								06140111	0.00000	10.08200	PM 23/142/C
RE-10	RL-10					RR			IBC								06140112	0.00000	10.08000	PM 23/142/D
RE-10	RL-10					RR			IBC								06140113	0.00000	10.07000	PM 23/142/A
RE-10	RL-10					RR			IBC								06140114	0.00000	10.15000	PM 23/142/B
RE-10	RL-10					RR			IBC								06140115	0.00000	1.28000	PPM 23/26/A ADM
RE-10	RL-10					RR			IBC								06140116	0.00000	8.71000	PPM 23/26/A ADM
RE-10	RL-10					RR			IBC								06140117	0.00000	10.29000	PM 23/26/B
RE-10	RL-10					RR			IBC	MR							06140118	0.00000	10.00000	PM 23/26/D
RE-10	RL-10					RR			IBC								06140119	0.00000	7.67000	PPM 23/26/C ADM
RE-10	RL-10					RR			IBC								06140120	0.00000	2.38000	PPM 23/26/C ADM
RE-10	RL-10					RR			IBC								06140131	0.00000	10.00000	PM 24/134/1
RE-10	RL-10					RR			IBC	MR							06140132	0.00000	10.00000	PM 24/134/2
RE-10	RL-10					RR			IBC								06140133	0.00000	22.03000	SEC 8 12 10

RE-10	RL-10					RR			IBC								06140134	0.00000	15.13600	RS 22/1/1
RE-10	RL-10					RR			IBC								06140136	0.00000	13.57800	PM 25/73/A
RE-10	RL-10					RR			IBC								06140137	0.00000	10.86000	PM 25/73/B
RE-10	RL-10					RR			IBC								06140138	0.00000	13.96000	PM 25/73/C
RE-10	RL-10					RR			IBC								06140139	0.00000	40.00000	SEC 8 12 10
RE-10	RL-10					RR			IBC								06140140	0.00000	45.00000	SEC 8 12 10
RE-10	RL-10					RR			IBC								06140151	0.00000	40.00000	SEC 8 12 10
RE-10	RL-10					RR			IBC								06140152	0.00000	11.80000	PM 12/115/C
RE-10	RL-10					RR			IBC								06140153	0.00000	11.80000	PM 12/115/B
RE-10	RL-10					RR			IBC								06140154	0.00000	11.80000	PM 12/115/A
RE-10	RL-10					RR			IBC								06140155	0.00000	15.46000	PM 29/23/1
RE-10	RL-10					RR			IBC								06140156	0.00000	10.01000	PM 25/56/C
RE-10	RL-10					RR			IBC								06140157	0.00000	10.01000	PM 29/23/2
RE-10	RL-10					RR			IBC								06140158	0.00000	27.23000	PM 30/101/A
RE-10	RL-10					RR			IBC								06140159	0.00000	10.00000	PM 30/101/B
RE-10	RL-10					RR			IBC								06140160	0.00000	17.33000	RS 11/147 S81210
RE-10	RL-10					RR			IBC								06140161	0.00000	17.07000	RS 11/147 S81210
RE-10	RL-10					RR			IBC								06140162	0.00000	13.76600	PM 42/147/1
RE-10	RL-10					RR			IBC								06140163	0.00000	11.99600	PM 42/147/2
RE-10	RL-10					RR			IBC								06140164	0.00000	10.97600	PM 42/147/3
RE-10	RL-10					RR			IBC	MR							06140165	0.00000	10.17900	PM 46/11/1
RE-10	RL-10					RR			IBC	MR							06140166	0.00000	23.90500	PM 46/11/2
RE-10	RL-10					RR			IBC	MR							06140168	0.00000	20.40000	SEC 7 12 10
RE-10	RL-10					RR			IBC	MR							06142003	0.00000	8.84000	L 1
RE-10	RL-10					RR			IBC	MR							06142004	0.00000	10.00000	L 2
CPO	CM					C							GT				06145002	0.00000	1.97000	SEC 10 12 10
C	CM					C							GT				06146211	0.00000	0.93500	L 21
RA-20	RL-40					NR											06149015	0.00000	9.52000	SEC 12 12 10
RA-20	RL-40					NR											06149016	0.00000	9.48000	SEC 12 12 10
RA-20	RL-40					NR											06149017	0.00000	9.44000	SEC 12 12 10
RA-20	RL-160					NR											06149018	0.00000	9.39000	SEC 12 12 10
RA-20	RE-5					LDR							GT				06149019	0.00000	0.26800	RS 16/129/A
CP	CM					C							GT				06151146	0.00000	2.00000	PM 31/40/D
R2A	RE-5					LDR							GT				06151162	0.00000	3.44200	RS 32/55/1
RE-10	RL-10					RR			IBC								06152035	0.00000	51.27000	RS 7/78/1
RE-10	RL-10					RR			IBC								06152037	0.00000	40.08000	RS 7/78/3
RE-10	RL-10					RR											06152042	0.00000	10.77000	PM 28/14/A
RE-10	RL-10					RR											06152043	0.00000	10.00100	PM 28/14/B
RE-10	RL-10					RR			IBC								06152044	0.00000	10.01000	PM 28/14/C
RE-10	RL-10					RR			IBC								06152050	0.00000	10.01000	PM 28/14/D
RE-10	RL-10					RR			IBC								06153002	0.00000	10.91000	SEC 5 12 10
RE-10	RL-10					RR			IBC								06153007	0.00000	20.50000	SEC 5 12 10
RE-10	RL-10					RR			IBC								06153009	0.00000	20.04100	PM 18/27/2
RE-10	RL-10					RR			IBC								06153015	0.00000	18.92000	PM 23/10/A
RE-10	RL-10					RR			IBC								06153016	0.00000	10.00000	PM 23/10/B
RE-10	RL-10					RR			IBC								06153017	0.00000	10.00000	PM 23/10/C

RE-10	RL-10					RR			IBC								06153018	0.00000	10.00100	PM 23/10/D
RE-10	RL-10					RR			IBC								06153019	0.00000	10.47000	PM 23/23/A
RE-10	RL-10					RR			IBC								06153020	0.00000	10.00000	PM 23/23/B
RE-10	RL-10					RR			IBC								06153021	0.00000	10.00000	PM 23/23/C
RE-10	RL-10					RR			IBC								06153022	0.00000	10.00000	PM 23/23/D
RE-10	RL-10					RR			IBC								06153023	0.00000	10.05000	PM 23/48/A
RE-10	RL-10					RR			IBC								06153024	0.00000	10.05000	PM 23/48/B
RE-10	RL-10					RR			IBC								06153025	0.00000	10.00000	PM 29/77/A
RE-10	RL-10					RR			IBC								06153026	0.00000	10.00000	PM 29/77/B
RE-10	RL-10					RR			IBC								06153027	0.00000	12.23000	PM 29/77/C
RE-10	RL-10					RR			IBC								06153028	0.00000	20.00000	PM 29/77/D
RE-10	I					I							GT				06155041	0.00000	4.03000	PM 26/87/2
RE-10	I					I							GT				06155044	0.00000	8.13000	PM 42/141/1
RA-20	LA-10					LDR							GT				06155046	0.00000	5.80000	S34 1310 &3 1210
RE-10	LA-10					LDR							GT				06155046	0.00000	5.80000	S34 1310 &3 1210
RA-20	RE-5					LDR							GT				06155047	0.00000	5.24000	S34 1310 &3 1210
C	TC					C							GT				06156076	11.00000	152.54000	TR 1 RS 22-51 NA
CPO	TC					C							GT				06156076	11.00000	152.54000	TR 1 RS 22-51 NA
I	TC					C							GT				06156076	11.00000	152.54000	TR 1 RS 22-51 NA
OS	TC					C							GT				06156076	11.00000	152.54000	TR 1 RS 22-51 NA
RF	TC					C							GT				06156076	11.00000	152.54000	TR 1 RS 22-51 NA
RF	TC					C							GT				06156076	11.00000	152.54000	TR 1 RS 22-51 NA
R3A	RE-5					LDR							GT				06157121	0.00000	11.00000	PM 21/38/C
R3A	RE-5					LDR							GT				06157129	0.00000	11.61000	PM 23/70/2
RE-10	RL-10					RR			IBC	MR							06159005	0.00000	2.90000	SEC 6 12 10
RE-10	RL-10					RR			IBC	MR							06159021	0.00000	9.64000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06159022	0.00000	11.00000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06159033	0.00000	34.65000	SEC 6 12 10
RE-10	RL-10					RR			IBC	MR							06159034	0.00000	13.55000	SEC 7 12 10
RE-10	RL-10					RR			IBC	MR							06159040	0.00000	4.23000	PM 8/45/1
RE-10	RL-10					RR			IBC	MR							06159041	0.00000	3.05000	PM 8/45/2
RE-10	RL-10					RR			IBC	MR							06159045	0.00000	10.33000	SEC 6 & 7 12 10
RE-10	RL-10					RR			IBC	MR							06159046	0.00000	10.57000	SEC 6 & 7 12 10
AE	RL-10					RR			IBC	MR							06159053	0.00000	0.43000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06159055	0.00000	4.99000	PM 48/128/1
RE-10	RL-10					RR			IBC								06159056	0.00000	29.31000	PM 48/128/2
RE-10	RL-10					RR			IBC								06160003	0.00000	23.89000	SEC 30 13 10
RE-10	RL-10					RR			IBC								06172034	0.00000	20.14700	PM 12/91/2
RE-10	RL-10					RR			IBC								06172035	0.00000	10.04500	PM 12/91/3
RE-10	RL-10					RR			IBC								06172036	0.00000	10.03000	PM 12/91/4
RE-10	RL-10					RR			IBC								06172040	0.00000	10.01000	PM 22/127/A
RE-10	RL-10					RR			IBC								06172041	0.00000	10.00000	PM 22/127/B
RE-10	RL-10					RR			IBC	MR							06172042	0.00000	10.00000	PM 22/127/C
RE-10	RL-10					RR			IBC								06172043	0.00000	10.00000	PM 22/127/D
RE-10	RL-10					RR			IBC								06172048	0.00000	10.00000	RS 10/60/1
RE-10	RL-10					RR			IBC								06172051	0.00000	13.03000	RS 10/60/4

RA-20	R2A					MDR			IBC		PL						06172055	11.00000	1.00000	SEC 31 13 10
RE-10	RL-10					RR			IBC	MR							06172062	0.00000	4.63000	RS 18/74/1
RE-10	RL-10					RR			IBC	MR							06172063	0.00000	5.00000	RS 18/74/2
RE-10	RL-10					RR			IBC	MR							06172064	0.00000	5.00000	RS 18/74/3
RE-10	RL-10					RR			IBC								06172067	0.00000	10.14100	RS 10/60/3+
RE-10	RL-10					RR			IBC								06172068	0.00000	10.09100	RS 10/60/2+
RE-10	RL-10					RR			IBC								06176002	0.00000	9.41000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06176003	0.00000	9.20000	SEC 6 12 10
RE-10	RL-10					RR			IBC								06176004	0.00000	131.39000	SEC 6 12 10
RE-10	RL-10					RR			IBC	MR							06177001	0.00000	65.59000	SEC 31 13 10
RE-10	RL-10					RR			IBC								06177002	0.00000	13.40000	PM 26/97/1
RE-10	RL-10					RR			IBC								06177003	0.00000	40.48000	PM 26/97/2
RE-10	RL-10					RR			IBC								06177004	0.00000	12.01000	PM 26/97/3
RE-10	RL-10					RR			IBC								06177005	0.00000	10.00200	PM 16/29/A
RE-10	RL-10					RR			IBC								06177006	0.00000	18.53000	PM 16/29/B
RE-10	RL-10					RR			IBC								06177007	0.00000	10.00200	PM 16/29/C
RE-10	RL-10					RR			IBC								06177008	0.00000	10.00200	PM 18/19/1
RE-10	RL-10					RR			IBC								06177009	0.00000	10.00000	PM 18/19/2
RA-80	RL-80					RR											06178003	0.00000	26.33000	SEC 29 13 10
RA-80	RL-80					RR											06178004	0.00000	17.06000	SEC 29 13 10
RA-80	RL-80					RR											06178005	0.00000	17.06000	SEC 29 13 10
RA-80	RL-80					RR											06178008	0.00000	22.76000	SEC 29 13 10
RA-80	RL-80					RR											06178009	0.00000	27.02000	RS 12/3 S291310
RA-80	RL-80					RR											06178010	0.00000	25.66000	SEC 29 13 10
RA-80	LA-10					RR											06178011	0.00000	17.54000	RS 12/3 S291310
CP	CM					C							GT				06179001	0.00000	0.77000	PM 27/117/1
CP	CM					C							GT				06179002	0.00000	0.81000	PM 27/117/2
CP	CM					C							GT				06179005	0.00000	0.55000	PM 27/117/5
CP	CM					C							GT				06179006	0.00000	1.18400	PM 27/117/6
CP	CM					C							GT				06179007	0.00000	1.26000	PM 27/117/7
CP	CM					C							GT				06179008	0.00000	0.27000	PM 27/117/8
CP	CM					C							GT				06179011	0.00000	0.66000	RS 28/8/2
CP	CM					C							GT				06179012	0.00000	1.42000	PORPAR 3PM27-117
CP	CM					C							GT				06179014	0.00000	2.51600	27-11728-8RS18-1
RA-40	RL-40					NR											06180001	0.00000	20.64000	RS 10/79 S351310
RA-40	LA-40					NR											06180002	0.00000	21.11000	RS 10/79 S351310
RA-40	LA-40					NR											06180005	0.00000	20.08000	RS 10/79 S351310
RA-40	LA-40					NR											06180006	0.00000	19.61000	RS 10/79 S351310
RA-40	LA-40					NR											06180007	0.00000	20.32000	RS 10/79 S351310
RA-40	LA-40					NR											06180008	0.00000	21.35000	RS 10/79 S351310
RA-40	LA-40					NR											06180009	0.00000	20.88000	RS 10/79 S351310
RA-40	RL-40					NR											06180010	0.00000	19.85000	RS 10/79 S351310
RA-40	RL-40					NR											06182001	0.00000	20.25000	PM 28/47/2
RA-40	RL-10					RR											06182002	0.00000	10.01000	PM 28/27/B
RA-40	RL-10					RR											06182003	0.00000	10.10000	PM 28/27/C
RA-20	RL-40					NR											06182004	0.00000	20.01000	PM 28/82/A

RA-20	RL-20					RR											06182005	0.00000	19.80000	PM 28/82/B
RA-20	RL-10					RR											06182006	0.00000	10.06000	PM 24/123/1
RA-20	LA-10					RR											06182007	0.00000	9.04000	PM 24/123/2
RA-20	LA-10					RR											06182008	0.00000	10.03000	PM 24/123/3
RA-20	RL-10					RR											06182009	0.00000	9.04000	PM 24/123/4
AE	LA-20					AL	A										06182010	0.00000	19.68000	PM 27/101/1
RA-20	LA-20					AL	A										06182010	0.00000	19.68000	PM 27/101/1
RA-20	RE-10					LDR							GT				06182011	0.00000	10.15000	PM 27/101/2
RA-20	RE-10					LDR							GT				06182012	0.00000	10.01000	PM 27/101/3
RA-20	RE-10					LDR							GT				06182014	0.00000	9.00000	PM 25/4/1
RA-20	LA-10					LDR							GT				06182015	0.00000	9.00000	PM 25/4/2
RA-20	RE-10					LDR							GT				06182016	0.00000	10.06200	PM 25/4/3
RA-20	RE-10					LDR							GT				06182017	0.00000	10.09000	PM 25/4/4
A	FR-160					NR											06201002	0.00000	40.00000	SEC 7 13 11
A	FR-160					NR											06201003	0.00000	80.51000	RS 10/91 S81311
A	RL-40					NR											06201007	0.00000	90.63000	SEC 4 & 5 13 11
A	RL-40					NR											06201008	0.00000	87.00000	SEC 5 13 11
A	FR-40					NR											06201009	0.00000	10.00000	SEC 6 13 11
A	FR-160					NR											06201022	0.00000	155.00000	RS 10/91 S91311
A	FR-160					NR											06201040	11.00000	0.00000	POR SEC 8 13 11
A	FR-160					NR											06201041	11.00000	39.15000	S8 13 11 RS10-91
A	FR-160					NR											06201042	11.00000	74.22000	S9 13 11 RS10-91
A	FR-160					NR											06201043	11.00000	270.27000	S7 13 11 RS10-91
A	FR-40					NR											06201044	11.00000	0.00000	POR SEC 4 13 11
A	FR-40					NR											06201045	11.00000	0.00000	POR SEC 6 13 11
A	FR-40					NR											06201048	11.00000	0.00000	POR SEC 5 13 11
A	FR-40					NR											06201048	11.00000	0.00000	POR SEC 5 13 11
A	FR-40					NR											06202007	11.00000	0.00000	SEC 2 3 4 13 11
RE-5	FR-160					NR											06202017	0.00000	22.56000	SEC 10 13 11
RE-5	FR-160					NR											06202023	0.00000	16.92000	SEC 10 13 11
A	FR-160					NR											06202037	11.00000	0.00000	SEC 2&11 13 11
A	FR-160					NR											06202038	11.00000	0.00000	S10 13 11RS15-91
A	FR-40					NR											06202040	11.00000	0.00000	SEC 12 13 11
A	FR-160					NR											06203014	0.00000	50.00000	SEC 16 13 11
A	FR-160					NR											06203019	0.00000	20.00000	SEC 16 13 11
A	LA-10					RR					PL						06203020	0.00000	10.00000	SEC 16 13 11
A	FR-160					NR											06203022	0.00000	20.00000	SEC 16 13 11
A	LA-10					RR					PL						06203023	0.00000	10.00000	SEC 16 13 11
A	RL-10					RR					PL						06203024	0.00000	10.00000	SEC 16 13 11
A	RL-10					RR					PL						06203025	0.00000	10.00000	SEC 16 13 11
A	RL-10					RR					PL						06203028	0.00000	10.00000	SEC 16 13 11
A	RL-10					RR					PL						06203029	0.00000	10.00000	SEC 16 13 11
A	RL-10					RR					PL						06203030	0.00000	10.00000	SEC 16 13 11
A	RL-10					RR					PL						06203031	0.00000	10.00000	SEC 16 13 11
RA-40	RL-160					NR											06203038	0.00000	40.00000	SEC 21 13 11
RA-40	RL-160					NR											06203040	0.00000	40.00000	SEC 21 13 11

RA-40	RL-160					NR											06203041	0.00000	40.00000	SEC 21 13 11
RA-40	RL-160					NR											06203042	0.00000	40.00000	SEC 21 13 11
A	FR-160					NR											06203043	11.00000	0.00000	SEC 19 13 11
A	FR-160					NR											06203044	11.00000	0.00000	S16 13 11RS15-91
A	FR-160					NR											06203045	11.00000	70.91000	S17 13 11RS10-91
A	FR-160					NR											06203046	11.00000	296.62000	S18 13 11RS10-91
A	FR-160					NR											06203047	11.00000	84.80000	RS 31/72
A	FR-160					NR											06203048	11.00000	0.00000	SEC 20 13 11
A	FR-160					NR											06203050	0.00000	21.31000	S181311 RS 10/91
A	FR-160					NR											06203051	11.00000	0.00000	POR S19&20 13 11
A	FR-160					NR											06203052	11.00000	29.90000	RS 31/72
RA-40	RL-160					NR											06204101	0.00000	11.08000	SEC 22 13 11
RA-40	RL-160					NR											06204102	0.00000	11.08000	RS 17/5/1
RA-40	RL-160					NR											06204103	0.00000	11.56000	R/S 21-109
RA-160	RL-160					NR											06204108	0.00000	280.00000	SEC 13 13 11
A	FR-160					NR											06204109	0.00000	40.00000	SEC 13 13 11
A	FR-160					LDR					PL						06204110	11.00000	0.00000	S 14& 15 RS15-91
RA-40	FR-160					NR											06204111	11.00000	46.24000	22 13 11RS10-122
A	FR-160					LDR					PL						06204112	11.00000	0.00000	SEC 15&22 13 11
A	FR-160					LDR					PL						06204112	11.00000	0.00000	SEC 15&22 13 11
A	FR-160					NR											06204113	11.00000	0.00000	NW 1/4 S22 13 11
A	FR-160					NR											06204114	11.00000	0.00000	S15 13 11RS15-91
A	FR-160					NR											06204115	11.00000	0.00000	POR SEC 24 13 11
RA-40	FR-40					NR											06205101	0.00000	20.00000	PM 28/88/A
RA-40	RL-20					RR					PL						06205104	0.00000	18.78000	R/S 21-90
RA-40	RL-20					RR					PL						06205105	0.00000	18.77300	R/S 21-90
RA-40	RL-20					RR					PL						06205106	0.00000	17.77000	PM 28/88/C
RA-40	RL-160					NR											06205107	0.00000	20.07000	PM 28/88/B
RA-40	RL-160					NR											06205109	0.00000	40.00000	SEC 29 13 11
RA-20	RL-160					NR											06205111	0.00000	20.00000	SEC 32 13 11
RA-20	RL-160					NR											06205112	0.00000	20.00000	SEC 32 13 11
RE-10	FR-160					NR											06205114	0.00000	38.62000	SEC 32 13 11
RA-20	FR-160					NR											06205115	3.00000	240.00000	M/R SEC 33 13 11
RA-20	FR-160					NR											06205116	11.00000	158.62000	SEC 33 13 11
RA-20	FR-160					NR											06205116	11.00000	158.62000	SEC 33 13 11
RA-20	FR-160					NR											06205117	11.00000	1.38000	SEC 33 13 11
A	FR-160					NR											06205119	11.00000	0.00000	POR SEC 19 13 11
A	FR-160					NR											06205120	11.00000	0.00000	SEC 28&29 13 11
RA-20	FR-160					NR											06205121	11.00000	0.00000	POR SEC 32 13 11
RE-10	FR-160					NR											06205121	11.00000	0.00000	POR SEC 32 13 11
U	FR-160					NR											06205122	11.00000	38.01000	S29 13 11RS7-100
U	FR-40					RR					PL						06205123	0.00000	18.65000	SEC 29 13 11
RE-10	FR-160					NR											06205125	0.00000	10.00000	POR SEC 32 13 11
RA-20	RL-160					NR											06205126	0.00000	70.00000	SEC 32 13 11
RE-10	FR-160					NR											06205126	0.00000	70.00000	SEC 32 13 11
RA-20	RL-160					NR											06206103	0.00000	2.00000	PORTR1RS23-43ADM

RA-20	RL-160					NR											06206104	0.00000	103.06000	PORTR1RS23-43ADM
RA-20	RL-160					NR											06206104	0.00000	103.06000	PORTR1RS23-43ADM
A	FR-160					NR											06206114	0.00000	6.00000	SEC 36 13 11
A	FR-160					NR											06206116	0.00000	589.84000	SEC 36 13 11
A	FR-160					NR											06206116	0.00000	589.84000	SEC 36 13 11
A	FR-160					NR											06206117	0.00000	40.00000	SEC 36 13 11
RA-40	FR-160					NR											06206119	11.00000	80.00000	SEC 35 13 11
RA-40	FR-160					NR											06206120	0.00000	544.40000	SEC 35 13 11
TPZ	FR-160					NR											06206120	0.00000	544.40000	SEC 35 13 11
A	FR-160					NR											06206122	11.00000	0.00000	POR SEC 27 13 11
RA-20	FR-160					NR											06206123	11.00000	185.90000	S34 13 11 RS8-2
RA-20	FR-160					NR											06206126	11.00000	0.47000	TR A RS 13-136
A	FR-160					NR											06206127	11.00000	0.00000	27 13 11RS13-136
RE-10	FR-160					NR											06206127	11.00000	0.00000	27 13 11RS13-136
RA-20	RL-160					NR											06206128	0.00000	20.00000	PM 37/102/A
RA-20	RL-160					NR											06206129	0.00000	20.01000	PM 37/102/B
RA-20	RL-160					NR											06206130	0.00000	20.08000	PM 37/102/C
RA-20	RL-160					NR											06206132	0.00000	20.85000	PM 42/80/1
RA-20	RL-160					NR											06206133	0.00000	20.12000	PM 42/80/2
RA-20	RL-160					NR											06206134	0.00000	20.13000	PM 42/80/3
RA-20	RL-160					NR											06206135	0.00000	1.26000	SEC 27 13 11
A	FR-160					NR											06206142	0.00000	90.44000	SEC 27 13 11
A	FR-160					NR											06206144	0.00000	316.46300	SEC 27 13 11 ADM
RA-20	RL-40					NR											06207108	0.00000	419.70000	SEC 6 & 7 12 11
RE-10	RL-40					NR											06207108	0.00000	419.70000	SEC 6 & 7 12 11
RA-20	RL-40					NR											06207110	0.00000	40.33000	SEC 7 12 11
RA-20	RL-160					NR											06207111	0.00000	40.69300	SEC 7 12 11
RA-20	RL-40					NR											06207112	0.00000	39.95000	SEC 7 12 11
RA-20	RL-160					NR											06207113	0.00000	40.32000	SEC 7 12 11
RA-40	RL-40					RR					PL						06207114	0.00000	19.56000	RS 10/130 S71211
RA-40	LA-10					RR					PL						06207115	0.00000	19.56000	RS 10/130 S71211
RA-40	LA-10					RR					PL						06207116	0.00000	19.55000	RS 10/130 S71211
RA-40	RL-10					RR					PL						06207117	0.00000	19.56000	RS 10/130 S71211
RA-40	RL-40					NR											06207118	0.00000	40.00000	SEC 7 12 11
RA-40	RL-10					RR					PL						06207119	0.00000	19.58000	RS 10/130 S71211
RA-40	RL-10					RR					PL						06207120	0.00000	19.58000	RS 10/130 S71211
RA-40	RL-20					RR					PL						06207125	0.00000	18.28000	RS 19/91/1
RA-40	RL-20					RR					PL						06207126	0.00000	18.10000	RS 19/91/2
RA-40	RL-160					NR											06207127	0.00000	40.00000	SEC 5 12 11
RA-40	RL-160					NR											06207129	0.00000	40.00000	SEC 5 12 11
RA-40	RL-160					NR											06207130	0.00000	20.00000	SEC 5 12 11
RA-40	RL-160					NR											06207131	0.00000	20.00000	SEC 5 12 11
RA-40	FR-160					NR											06207133	11.00000	640.00000	SEC 9 12 11
RA-20	RL-40					PF											06207134	11.00000	12.42000	SEC 5 12 11
RA-40	RL-160					NR											06207136	0.00000	17.41000	RS 12/109/1
RA-40	RL-160					NR											06207137	0.00000	17.37000	RS 12/109/2

RA-20	RL-10					RR					PL						06207138	0.00000	7.06000	SEC 5 12 11
RA-40	RL-20					RR					PL						06207141	0.00000	11.01000	POR TR 2RS12-117
RA-20	RL-10					RR					PL						06207146	0.00000	12.12100	PORP2PM31-131AD
RA-40	RL-20					RR					PL						06207149	0.00000	9.63000	POR TR 2RS12-117
RA-20	RL-10					RR					PL						06207150	0.00000	11.79000	R/S 18-54 ADM
RA-20	RL-160					NR											06207152	0.00000	26.60000	R/S 18-54 ADM
RA-40	RL-160					NR											06207155	0.00000	40.00000	SEC 5 12 11
RA-20	RL-160					NR											06207163	0.00000	20.23000	PM 31/131/1
RA-20	RL-160					NR											06207164	0.00000	8.09000	PORP2PM31-131AD
RA-20	RL-160					NR											06207164	0.00000	8.09000	PORP2PM31-131AD
RA-40	FR-160					NR											06207165	11.00000	0.00000	POR SEC 4 12 11
RA-40	FR-160					NR											06207166	11.00000	0.00000	SEC 8 12 11
RE-10	FR-160					NR											06207167	11.00000	40.61000	RS 4/88
RE-10	FR-160					NR											06207167	11.00000	40.61000	RS 4/88
RE-10	RL-10					RR					PL						06207168	0.00000	13.32000	PM 35/127/A
RE-10	RL-10					RR					PL						06207169	0.00000	10.34000	PM 35/127/B
RE-10	RL-10					RR					PL						06207171	0.00000	10.34000	PM 35/128/1
RE-10	RL-10					RR					PL						06207173	0.00000	10.14000	PM 37/49/A
RE-10	RL-10					RR					PL						06207175	0.00000	10.16000	PM 37/50/A
RE-10	RL-10					RR					PL						06207177	0.00000	15.80000	RS 15/87/1
RE-10	RL-10					RR					PL						06207179	0.00000	14.86000	RS 15/87/2
RA-20	RL-160					NR											06207180	0.00000	41.06000	RS 7/13 S51211
RA-20	RL-160					NR											06207181	0.00000	40.35000	RS 7/13 S51211
RE-10	RL-10					RR					PL						06207183	0.00000	10.01000	PM 42/57/1
RE-10	RL-10					RR					PL						06207184	0.00000	10.01000	PM 42/57/2
RE-10	RL-10					RR					PL						06207185	0.00000	9.70000	PM 42/57/3
RE-10	RL-10					RR					PL						06207186	0.00000	10.01000	PM 42/57/4
RA-20	RL-40					NR											06207187	0.00000	40.00000	SEC 6 12 11
RA-20	RL-160					NR											06207188	0.00000	40.00000	SEC 6 12 11
RA-40	RL-160					NR											06207189	0.00000	20.64000	RS 12/117/1
RE-10	RL-10					RR					PL						06207194	0.00000	10.00000	PM 37/49
RE-10	RL-10					RR					PL						06207195	0.00000	10.16000	PM 37/49
RA-20	RL-160					NR											06207196	0.00000	5.00000	SEC 5 12 11 ADM
RA-20	RL-160					NR											06207197	0.00000	29.60000	SEC 5 12 11 ADM
RA-40	FR-160					NR											06208001	11.00000	572.58000	SEC 3 12 11
A	FR-160					NR											06208005	11.00000	640.00000	SEC 11 12 11
A	RE-5					LDR											06208015	0.00000	5.00000	SEC 1 12 11
A	FR-160					NR											06208022	11.00000	0.00000	SEC 2 12 11
A	FR-160					NR											06208023	11.00000	0.00000	SEC 10 12 11
A	FR-160					NR											06208024	11.00000	0.00000	SEC 12 12 11
RA-40	FR-160					NR											06208025	11.00000	0.00000	POR SEC 3 12 11
RA-40	LA-40					NR											06209001	0.00000	166.42000	RS 9/19 S181211
U	FR-160					NR											06209003	0.00000	40.00000	SEC 17 12 11
U	FR-160					NR											06209004	0.00000	40.00000	SEC 17 12 11
U	FR-160					NR											06209005	0.00000	43.91000	RS 10/86 S161211
A	FR-160					NR											06209006	11.00000	640.00000	SEC 21 12 11

RE-10	RL-40					NR											06209016	0.00000	40.93000	POR RS 2/100
RE-10	RL-40					NR											06209017	0.00000	40.98000	POR RS 2/100
A	FR-40					NR											06209020	0.00000	20.00000	SEC 17 12 11
A	FR-40					NR											06209025	0.00000	40.00000	SEC 20 12 11 ADM
RE-10	RL-40					NR											06209027	0.00000	144.47000	SEC 19 12 11 ADM
RE-10	RL-40					NR											06209028	0.00000	8.26000	SEC 19 12 11 ADM
RE-10	RL-40					NR											06209030	0.00000	127.62000	SEC 19 12 11
RE-10	RL-10					RR					PL						06209037	0.00000	7.63000	PPM 20/87/3 ADM
RE-10	RL-10					RR					PL						06209038	0.00000	10.50000	PM 20/103/1
RE-10	RL-10					RR					PL						06209039	0.00000	10.66000	PM 20/103/2
RE-10	RL-40					NR											06209040	0.00000	10.20000	PM 20/103/3
RE-10	RL-40					NR											06209041	0.00000	28.36000	PPM 20/103/4 ADM
RE-10	RL-40					NR											06209042	0.00000	14.58000	PM 23/80/1
A	FR-160					NR											06209047	11.00000	0.00000	S16 12 11RS10-86
A	FR-160					NR											06209048	11.00000	495.08000	POR RS 15/30
RA-40	RL-40					NR											06209049	11.00000	525.35000	S18 12 11RS14-84
RE-10	RL-40					NR											06209055	0.00000	45.46000	PM 45/57/1
RE-10	RL-10					RR					PL						06209056	0.00000	15.20000	PM 45/57/2
RE-10	RL-10					RR					PL						06209057	0.00000	15.20000	PM 45/57/3
RE-10	RL-40					NR											06209058	0.00000	7.00000	PPM 45/57/4 ADM
RE-10	RL-40					NR											06209059	0.00000	23.39000	PPM 45/57/4 ADM
RE-10	RL-40					NR											06209061	0.00000	20.09300	POR RS 17/127/1
RE-10	RL-40					NR											06209063	0.00000	10.00000	PM 49/77/A
RE-10	RL-40					NR											06209064	0.00000	39.24600	PM 49/77/B
A	RL-40					NR											06209065	0.00000	125.15000	SEC 17 12 11
A	RL-40					NR											06209066	0.00000	104.13000	SEC 20 12 11 ADM
A	FR-160					NR											06210001	11.00000	480.00000	SEC 15 12 11
A	FR-160					NR											06210002	11.00000	640.00000	SEC 23 12 11
A	FR-160					NR											06210005	11.00000	710.00000	SEC 13 12 11
A	FR-160					NR											06210006	11.00000	0.00000	SEC 14 12 11
A	FR-160					NR											06210007	11.00000	0.00000	POR SEC 15 12 11
A	FR-160					NR											06210008	11.00000	0.00000	SEC 22-12-11
A	FR-160					NR											06210009	11.00000	0.00000	SEC 24-12-11
RE-10	RL-40					NR											06211102	0.00000	23.39000	PM 38/45/2
RE-10	RL-40					NR											06211103	0.00000	43.93000	SEC 30 12 11
RE-10	RL-40					NR											06211104	0.00000	41.65000	RS 18/90 S301211
RE-10	RL-40					NR											06211105	0.00000	43.61000	SEC 30 12 11
RE-10	RL-40					NR											06211106	0.00000	40.00000	SEC 30 12 11
RE-10	RL-10					RR					PL						06211108	0.00000	10.16000	PM 28/69/1
RE-10	RL-10					RR					PL						06211109	0.00000	10.14000	PM 28/69/2
RE-10	RL-10					RR					PL						06211110	0.00000	10.11000	PM 28/69/3
RE-10	RL-10					RR					PL						06211111	0.00000	10.08000	PM 28/69/4
RE-10	RL-10					RR					PL						06211112	0.00000	10.05000	PM4/65/1&RS29/43
RE-10	RL-10					RR					PL						06211113	0.00000	9.99500	PM 4/65/2
RE-10	RL-10					RR					PL						06211114	0.00000	10.02000	PM 4/65/3
RE-10	RL-10					RR					PL						06211115	0.00000	10.00000	PM 4/65/4

RE-10	RL-10					RR					PL						06211116	0.00000	10.00000	PM 33/145/1
RE-10	RL-10					RR					PL						06211117	0.00000	10.00000	PM 33/145/2
RE-10	RL-10					RR					PL						06211118	0.00000	10.00000	PM 33/145/3
RE-10	RL-10					RR					PL						06211119	0.00000	10.00000	PM 33/145/4
RE-10	RL-10					RR					PL						06211120	0.00000	10.01300	PM 33/122/1
RE-10	RL-10					RR					PL						06211121	0.00000	10.01000	PM 33/122/2
RE-10	RL-10					RR					PL						06211122	0.00000	10.01000	PM 33/122/3
RE-10	RL-10					RR					PL						06211123	0.00000	10.01300	PM 33/122/4
RE-10	RL-40					NR											06211124	0.00000	20.01000	PM 35/74/1
RE-10	RL-40					NR											06211125	0.00000	20.00500	PM 35/74/2
RE-10	RL-40					NR											06211126	0.00000	20.08000	PM 35/74/3
RE-10	RL-40					NR											06211127	0.00000	19.00200	PM 35/74/4
RE-10	RL-40					NR											06211128	0.00000	80.39000	SEC 31 12 11
RE-10	RL-10					RR					PL						06211130	0.00000	10.00000	PM 36/123/1
RE-10	RL-10					RR					PL						06211131	0.00000	10.00000	PM 36/123/2
RE-10	RL-10					RR					PL						06211132	0.00000	10.02000	PM 36/123/3
RE-10	RL-10					RR					PL						06211133	0.00000	11.45000	PM 36/123/4
RE-10	RL-10					RR					PL						06211134	0.00000	10.21000	PM 35/7/C
RE-10	RL-10					RR					PL						06211135	0.00000	10.30000	PM 35/7/D
RE-10	RL-10					RR					PL						06211136	0.00000	10.38000	PM 35/102/A
RE-10	RL-10					RR					PL						06211137	0.00000	10.24000	PM 35/102/B
RE-10	RL-10					RR					PL						06211138	0.00000	10.00000	PM 35/102/C
RE-10	RL-10					RR					PL						06211139	0.00000	10.00000	PM 35/102/D
A	FR-40					NR											06211141	11.00000	0.00000	POR SEC 29-12-11
A	FR-40					NR											06211147	11.00000	0.00000	SEC 28-12-11
A	FR-40					NR											06211148	11.00000	0.00000	POR RS 11/79
A	FR-40					NR											06211149	11.00000	151.51000	POR RS 11/79
U	RL-40					NR											06211150	0.00000	157.80000	SEC 32 12 11
U	RL-10					RR					PL						06211151	0.00000	10.16700	RS 19/67/1
U	RL-10					RR					PL						06211152	0.00000	10.21600	RS 19/67/2
U	RL-10					RR					PL						06211153	0.00000	10.10200	RS 19/67/3
U	RL-10					RR					PL						06211154	0.00000	10.15100	RS 19/67/4
A	FR-40					NR											06211155	11.00000	540.00000	SEC 33 12 11
U	RE-5					LDR					PL						06211156	0.00000	4.32000	SEC 33 12 11
U	RL-40					NR											06211157	0.00000	34.04000	SEC 33 12 11
RE-10	RL-40					NR											06211161	0.00000	60.02200	R/S 21-22
RE-10	RL-10					RR					PL						06211163	0.00000	10.11000	PM 43/58/1
RE-10	RL-10					RR					PL						06211164	0.00000	10.00000	PM 43/58/2
RE-10	RL-10					RR					PL						06211165	0.00000	10.00000	PM 43/58/3
RE-10	RL-10					RR					PL						06211166	0.00000	10.03000	PM 43/58/4
RE-10	RL-10					RR					PL						06211167	0.00000	10.09000	PM 43/117/1
RE-10	RL-10					RR					PL						06211168	0.00000	10.00000	PM 43/117/2
RE-10	RL-10					RR					PL						06211169	0.00000	10.00000	PM 43/117/3
RE-10	RL-10					RR					PL						06211170	0.00000	10.00000	PM 43/117/4
RE-10	RL-10					RR					PL						06211171	0.00000	10.03000	PM 43/118/1
RE-10	RL-10					RR					PL						06211172	0.00000	10.37000	PM 43/118/2

RE-10	RL-10					RR					PL						06211173	0.00000	10.70000	PM 43/118/3
RE-10	RL-10					RR					PL						06211174	0.00000	10.17000	PM 43/118/4
RE-10	RL-10					RR					PL						06211175	0.00000	10.00000	PM 43/119/1
RE-10	RL-10					RR					PL						06211176	0.00000	10.00000	PM 43/119/2
RE-10	RL-10					RR					PL						06211177	0.00000	10.00000	PM 43/119/3
RE-10	RL-10					RR					PL						06211178	0.00000	10.04000	PM 43/119/4
RE-10	RL-40					NR											06211179	0.00000	30.11800	POR R/S 21-22
RE-10	RL-40					NR											06211181	0.00000	46.78000	POR SEC 29 12 11
A	FR-160					NR											06212001	11.00000	539.40000	SEC 27 12 11
A	FR-40					NR											06212006	11.00000	120.00000	SEC 35 12 11
A	FR-160					NR											06212007	11.00000	640.00000	SEC 25 12 11
U	FR-40					NR											06212010	0.00000	20.60000	SEC 27 12 11
U	FR-160					NR											06212013	0.00000	87.06100	RS 21/4/2
A	FR-40					NR											06212014	0.00000	20.41000	S 27 & 34 12 11
U	RL-40					NR											06212015	0.00000	60.00000	SEC 35 12 11
U	FR-40					NR											06212016	0.00000	22.05500	R/S 21-79
U	FR-160					NR											06212019	0.00000	97.03600	RS 21/4/1
U	RL-40					NR											06212020	0.00000	40.00000	SEC 35 12 11
U	FR-160					NR											06212021	0.00000	40.00000	SEC 35 12 11
A	FR-40					NR											06212024	11.00000	0.00000	SEC 34-12-11
A	FR-40					NR											06212024	11.00000	0.00000	SEC 34-12-11
A	FR-160					NR											06212025	11.00000	0.00000	SEC 26-12-11
A	FR-160					NR											06212026	11.00000	0.00000	POR SEC 35-12-11
A	FR-160					NR											06212027	11.00000	0.00000	SEC 36-12-11
U	FR-160					NR											06212029	0.00000	79.91600	RS 21/136/1
U	FR-40					NR											06212031	0.00000	22.41500	RS 21/136/2
A	FR-40					NR											06213001	0.00000	9.72000	SEC 5 13 11
RE-10	RL-10					RR					PL						06214002	0.00000	0.11000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214003	0.00000	0.22000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214007	0.00000	2.03000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214008	0.00000	2.23000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214009	0.00000	0.11000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214010	0.00000	11.10000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214013	0.00000	1.00000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214021	0.00000	2.84000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214026	0.00000	5.79000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214028	0.00000	14.40000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214030	0.00000	8.39000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214033	0.00000	10.07000	SEC 34 13 11
RE-10	RL-10					RR					PL						06214034	0.00000	10.00000	PM 4/8/A
RE-10	RL-10					RR					PL						06214037	0.00000	10.00000	PM 4/8/B
RE-10	RL-10					RR					PL						06214038	0.00000	11.96000	PM 4/8/C
C	CC					C					PL						06214040	0.00000	12.54000	PPM 4/1/2 ADM
RE-10	CC					C					PL						06214040	0.00000	12.54000	PPM 4/1/2 ADM
RE-10	FR-160					NR											06214044	0.00000	1.31000	SEC 34 13 11
RA-20	RL-160					NR											06214045	0.00000	28.05000	SEC 34 13 11 ADM

RE-10	RL-10					RR					PL						06214047	0.00000	9.78000	PM 35/119/1
RE-10	RL-10					RR					PL						06214048	0.00000	5.00000	PM 35/119/2
C	CC					C					PL						06214049	0.00000	1.72000	SEC 33 13 11
RE-10	RL-10					RR					PL						06214054	0.00000	12.74000	34 13 11RS19-141
RE-10	RL-10					RR					PL						06214055	0.00000	10.00000	34 13 11RS19-141
RE-10	FR-160					NR											06214059	0.00000	20.70200	PM 48/6/A
RE-10	FR-160					NR											06214061	0.00000	17.24600	PM 48/6/B
C	CC					C					PL						06214062	0.00000	2.37600	PM 4/1/1
RE-10	FR-160					NR											06216006	0.00000	1.75000	RS 23/43/2
RE-10	R1A					HDR					PL						06216030	0.00000	0.51000	RS 28/102
RE-10	R1A					HDR					PL						06216031	0.00000	0.90000	SEC 34 13 11
RE-10	R1A					HDR					PL						06216032	0.00000	0.19000	SEC 34 13 11
RE-10	R1A					HDR					PL						06216033	0.00000	0.24000	SEC 34 13 11
RE-10	FR-160					NR											06216034	0.00000	1.98000	SEC 34 13 11
RE-10	FR-160					NR											06216035	0.00000	2.58000	SEC 34 13 11
RE-10	R1A					HDR					PL						06218101	0.00000	0.65000	BLK O
RE-10	R1A					HDR					PL						06218201	0.00000	0.73500	BLK G
RE-10	R1A					HDR					PL						06218202	0.00000	0.54000	BLK H
RE-10	R1A					HDR					PL						06218203	0.00000	0.82000	L 3 THRU 11 BI
RE-10	R1A					HDR					PL						06218301	0.00000	1.17300	BLK F
RE-10	R1A					HDR					PL						06218302	0.00000	0.58000	L 1 THRU 7 BLK E
RE-10	R1A					HDR					PL						06218303	0.00000	0.19000	L 9 & 10 B D
RE-10	R1A					HDR					PL						06218304	0.00000	0.00000	L4 5 6 7&8 B D
RE-10	R1A					HDR					PL						06218305	0.00000	0.00000	L 1 2 & 3 BLK D
RE-10	R1A					HDR					PL						06218401	0.00000	1.32000	BLK P
RE-10	R1A					HDR					PL						06220101	0.00000	0.58000	BLK N
RE-10	R1A					HDR					PL						06220213	0.00000	0.00000	L 8 9 & 10 B M
RE-10	R1A					HDR					PL						06220214	0.00000	0.00000	POR BL M
RE-10	R1A					HDR					PL						06220215	0.00000	0.00000	POR BL M
RE-10	R1A					HDR					PL						06220216	1.00000	0.00000	P L 11-12-13 B M
RE-10	R1A					HDR					PL						06220217	0.00000	0.00000	POR BL M
RE-10	R1A					HDR					PL						06220221	0.00000	0.00000	L20 - 26 B M
RE-10	R1A					HDR					PL						06220303	0.00000	0.00000	L 1 B L
RE-10	R1A					HDR					PL						06220306	0.00000	0.00000	L 8 9 & 10 B L
RE-10	R1A					HDR					PL						06220307	0.00000	0.00000	L 4 5 6 & 7 BL
RE-10	R1A					HDR					PL						06220308	0.00000	0.00000	L 2 & 3 B L
RE-10	R1A					HDR					PL						06220309	0.00000	0.00000	L 1 B K
RE-10	R1A					HDR					PL						06220310	0.00000	0.00000	L 2 3 & 4 B K
RE-10	R1A					HDR					PL						06220311	0.00000	0.00000	L 5 B K
RE-10	R1A					HDR					PL						06220312	0.00000	0.00000	L 6 B K
RE-10	R1A					HDR					PL						06220313	0.00000	0.00000	L 1 B J
RE-10	R1A					HDR					PL						06220316	0.00000	0.00000	L2-4B J&L1&2 B I
RE-10	R1A					HDR					PL						06220405	0.00000	0.00000	L 1 & 2 B A
RE-10	R1A					HDR					PL						06220408	0.00000	0.00000	POR BL A
RE-10	R1A					HDR					PL						06220409	0.00000	0.32000	POR BL A
RE-10	R1A					HDR					PL						06220411	0.00000	0.00000	L 1 B B

RE-10	R1A					HDR					PL						06220414	0.00000	0.00000	L 4 B B
RE-10	R1A					HDR					PL						06220415	0.00000	0.00000	L 5 B B
RE-10	R1A					HDR					PL						06220416	0.00000	0.00000	L 6 B B
RE-10	R1A					HDR					PL						06220417	0.00000	0.00000	L1-4 B C&L 7 B B
RE-10	R1A					HDR					PL						06220418	0.00000	0.00000	L 5 B C
RE-10	R1A					HDR					PL						06220419	0.00000	0.00000	L 6 & 7 B C
RE-10	R1A					HDR					PL						06220420	0.00000	0.00000	L 8 B C
RE-10	R1A					HDR					PL						06220421	0.00000	0.00000	L 9 B C
RE-10	R1A					HDR					PL						06220422	0.00000	0.00000	LOTS3 4 5 6B A
RE-10	R1A					HDR					PL						06220423	0.00000	0.00000	LOTS 2&3 B B
C	CC					C							GT				06223015	0.00000	1.58000	PM 1/76/1
MP	R1					HDR							GT				06223016	0.00000	10.26000	PM 1/76/2
RE-10	RL-160					NR											06225110	11.00000	0.58000	L3GEORGETOWN RN
RA-20	RE-5					LDR							GT				06225122	0.00000	2.80000	RS 33/26/2
A	RE-5					LDR											06228008	0.00000	8.77000	SEC 1 12 11
A	RE-5					LDR											06228011	0.00000	9.72000	SEC 1 12 11
A	RL-10					LDR											06228019	0.00000	18.97900	SEC 1 12 11
A	R1A					MDR							QU				06228020	0.00000	0.84700	RS 19/52/1
A	RE-5					LDR											06228025	0.00000	10.00000	SEC 1 12 11
A	RL-10					LDR											06228026	0.00000	12.08600	SEC 1 12 11
RE-10	RL-10					RR					PL						06229001	0.00000	9.20000	SEC 32 12 11
RE-10	RL-10					RR					PL						06229002	0.00000	0.35000	RS 11/118S321211
RE-10	RL-10					RR					PL						06229003	0.00000	5.00000	SEC 32 12 11
RE-10	RL-10					RR					PL						06229005	0.00000	1.07000	RS 11/118S321211
RE-10	RL-10					RR					PL						06229006	0.00000	8.69000	RS 11/118S321211
RE-10	RL-10					RR					PL						06229008	0.00000	7.30000	SEC 32 12 11
RE-10	RL-10					RR					PL						06229009	0.00000	12.90000	SEC 32 12 11
RE-10	RL-10					RR					PL						06229010	0.00000	11.78000	PM 6/165/1
RE-10	RL-10					RR					PL						06229011	0.00000	12.03800	PM 6/165/2
RE-10	RL-10					RR					PL						06229012	0.00000	12.79000	PM 6/165/3
U	RE-5					LDR					PL						06230001	0.00000	2.00000	SEC 33 12 11
U	RE-5					LDR					PL						06230003	0.00000	5.00000	SEC 33 12 11
U	RE-5					LDR					PL						06230004	0.00000	5.00000	SEC 33 12 11
A	RE-5					LDR					PL						06230005	0.00000	5.50000	SEC 33 12 11
U	RE-5					LDR					PL						06230010	0.00000	0.00000	3 A SEC 33 12 11
RE-10	RL-10					RR					PL						06231028	0.00000	1.26000	SEC 33 13 11
RE-10	RL-10					RR					PL						06231029	0.00000	0.76000	SEC 33 13 11
RE-10	FR-160					NR											06231030	0.00000	1.38000	SEC 32 13 11
RE-10	RL-10					RR					PL						06231031	0.00000	8.03000	PM 6/48/A
RE-10	RL-10					RR					PL						06231032	0.00000	8.09000	PM 6/48/B
RE-10	RL-10					RR					PL						06231033	0.00000	6.48000	PM 6/48/C
RE-10	FR-160					NR											06231050	0.00000	40.72500	SEC 33 13 11
RE-10	RL-10					RR					PL						06232004	0.00000	1.28000	SEC 33 13 11
RE-10	FR-160					NR											06232010	0.00000	25.86000	SEC 33 13 11
RE-10	RL-10					RR					PL						06232014	0.00000	7.22000	SEC 33 13 11
RE-10	RL-10					RR					PL						06232015	0.00000	7.05000	SEC 33 13 11

RE-10	RL-10					RR					PL						06232023	0.00000	1.00000	PM 7/12/3
RE-10	RL-10					RR					PL						06232024	0.00000	5.00000	POR PAR 1 7-12
RE-10	RL-10					RR					PL						06232028	0.00000	10.32000	RS 29/49/1
RE-10	RL-10					RR					PL						06232029	0.00000	10.13000	POR PAR 2P/M7-12
RE-5	RL-10					RR					PL						06232032	0.00000	5.00000	PM 35/9/A
RE-10	RL-10					RR					PL						06232033	0.00000	4.00000	PM 35/9/B
RE-5	RL-10					RR					PL						06232033	0.00000	4.00000	PM 35/9/B
RE-10	RL-10					RR					PL						06233003	0.00000	6.90000	SEC 32 12 11
RE-10	RL-40					NR											06233004	0.00000	24.00000	SEC 29 12 11
RE-10	RL-40					NR											06233005	0.00000	23.20000	S 29 & 32 12 11
RE-10	RL-10					RR					PL						06233006	0.00000	11.44000	SEC 32 12 11
RE-10	RL-10					RR					PL						06233007	0.00000	5.26000	SEC 32 12 11
U	RL-40					NR											06234002	0.00000	1.20000	SEC 32 12 11
U	RL-40					NR											06234003	0.00000	0.99000	SEC 32 12 11
RA-20	FR-160					NR											06236001	11.00000	0.00000	LOT 1
RA-20	FR-160					NR											06236002	11.00000	0.00000	LOT 2
A	RE-5					MDR					PL						06237001	0.00000	1.50000	SEC 17 13 11
A	RE-5					MDR					PL						06237002	0.00000	1.50000	SEC 17 13 11
A	RE-5					MDR					PL						06237003	0.00000	2.56000	SEC 17 13 11
A	RE-5					MDR					PL						06237004	0.00000	4.08000	SEC 17 13 11
A	FR-160					NR											06237005	0.00000	4.67000	RS 10/132S171311
A	FR-160					NR											06237008	0.00000	12.00000	SEC 17 13 11
A	FR-160					NR											06237009	0.00000	13.00000	SEC 17 13 11
A	FR-160					NR											06237010	0.00000	10.00000	SEC 17 13 11
A	FR-160					NR											06237012	0.00000	58.47000	SEC 7 & 18 13 11
A	FR-160					NR											06237015	0.00000	29.63000	SEC 17 13 11
A	FR-160					NR											06237016	0.00000	15.50000	SEC 18 13 11
A	FR-160					NR											06237017	0.00000	42.48000	PM 28/34/A
A	FR-160					NR											06237018	0.00000	10.01000	PM 28/34/B
A	FR-160					NR											06237019	0.00000	10.00000	PM 28/34/C
A	FR-160					NR											06237020	0.00000	10.01000	PM 28/34/D
A	FR-160					NR											06237021	0.00000	1.14200	RS 3/168 CEM
A	FR-160					NR											06237022	0.00000	28.16800	SEC 18 13 11
RA-20	RL-160					NR											06238118	0.00000	20.00000	SEC 34 13 11
RA-40	LA-10					RR											06240024	0.00000	17.22000	RS 12/2 S311311
RA-40	RL-10					RR											06240025	0.00000	17.27000	RS 12/2 S311311
RA-40	RL-40					RR											06240026	0.00000	37.51000	RS 10/96 S311311
RA-40	RL-40					RR											06240027	0.00000	37.60000	RS 10/113S311311
RA-40	LA-10					RR											06240028	0.00000	37.75000	RS 10/113S311311
RA-40	LA-10					RR											06240029	0.00000	37.90000	RS 10/113S311311
RA-40	RL-160					NR											06240030	0.00000	40.00000	SEC 31 13 11
RA-40	RL-10					RR											06240031	0.00000	19.13000	RS 12/2 S311311
RA-40	RL-10					RR											06240032	0.00000	20.00000	SEC 31 13 11
RA-40	RL-40					RR											06240033	0.00000	36.29000	SEC 31 13 11
RA-40	RL-40					RR											06240034	0.00000	20.00000	SEC 31 13 11
RA-40	RL-10					RR											06240035	0.00000	20.00000	SEC 31 13 11

RA-20	LA-10					RR											06240036	0.00000	20.10000	PM 31/15/A
RA-20	RL-20					RR											06240037	0.00000	20.01000	RS 33/26/1
RA-20	RL-160					NR											06240042	0.00000	40.00000	RS 17/92/3
RA-40	RL-160					NR											06240044	0.00000	40.00000	SEC 31 13 11
RA-20	RL-160					NR											06240045	0.00000	40.65900	RS 17/92/1
RA-20	RL-160					NR											06240046	0.00000	40.42000	RS 17/92/2
A	RL-10					LDR					PL						06241043	0.00000	10.25000	SEC 9 13 11
A	RE-5					LDR					PL						06241044	0.00000	10.24000	SEC 9 13 11
A	RE-5					LDR					PL						06241045	0.00000	10.00000	SEC 9 13 11
A	RL-10					LDR					PL						06241046	0.00000	10.05000	SEC 9 13 11
A	RE-5					LDR					PL						06241055	0.00000	10.11000	PM 4/61/A
A	RE-5					LDR					PL						06241056	0.00000	10.24000	PM 4/61/B
A	RE-5					LDR					PL						06241058	0.00000	9.95000	PM 4/79/2
A	RL-10					LDR					PL						06241059	0.00000	10.01000	PM 4/79/3
A	RE-5					LDR					PL						06241060	0.00000	10.08000	PM 4/79/4
A	RL-10					LDR					PL						06241061	0.00000	10.24000	PM 4/144/A
A	RE-5					LDR					PL						06241062	0.00000	10.01000	PM 4/144/B
A	RL-10					LDR					PL						06241063	0.00000	10.01000	PM 4/144/C
A	FR-160					NR											06241067	11.00000	0.00000	POR SEC 9 13 11
RE-10	RL-10					RR					PL						06242001	0.00000	10.00000	SEC 30 12 11
RE-10	RL-10					RR					PL						06242002	0.00000	13.22000	SEC 30 12 11
RE-10	RL-10					RR					PL						06242003	0.00000	9.96000	SEC 30 12 11
RE-10	RL-10					RR					PL						06242004	0.00000	11.47900	SEC 30 12 11
RE-10	RL-10					RR					PL						06242005	0.00000	5.16000	SEC 30 12 11
RE-10	RL-10					RR					PL						06242006	0.00000	13.80300	SEC 30 12 11
RE-10	RL-10					RR					PL						06242010	0.00000	14.57000	SEC 30 12 11
RE-10	RL-10					RR					PL						06242011	0.00000	6.00000	SEC 30 12 11
RE-10	RL-10					RR					PL						06242018	0.00000	1.73000	PPM 20/103/4 ADM
RE-10	RL-10					RR					PL						06242021	0.00000	11.20000	SEC 30 12 11
RE-10	RL-10					RR					PL						06242022	0.00000	2.47000	PPM 20/87/3 ADM
RE-10	RL-40					NR											06242023	0.00000	30.94000	PM 20/87/4
RE-10	RL-10					RR					PL						06242024	0.00000	11.05900	PM 30/87/1
RE-10	RL-10					RR					PL						06242025	0.00000	10.15600	PM 30/87/2
RE-10	RL-10					RR					PL						06242026	0.00000	10.02300	PM 30/87/3
RE-10	RL-10					RR					PL						06242027	0.00000	10.19000	PM 30/87/4
RE-10	RL-10					RR					PL						06242033	0.00000	2.95000	SEC 30 12 11
RE-10	RL-40					NR											06242034	0.00000	40.78000	PM 33/37/1
RE-10	RL-10					RR					PL						06242035	0.00000	10.10000	PM 33/37/2
RE-10	RL-10					RR					PL						06242036	0.00000	10.10000	PM 33/37/3
RE-10	RL-10					RR					PL						06242039	0.00000	11.18000	PM 35/10/3
RE-10	RL-10					RR					PL						06242040	0.00000	10.63000	PM 35/10/4
RE-10	RL-10					RR					PL						06242041	0.00000	15.36600	RS 11/70 S301211
RE-10	RL-10					RR					PL						06242043	0.00000	10.00300	RS 29/40/1
RE-10	RL-10					RR					PL						06242046	0.00000	10.39800	RS 29/40/2
RE-10	RL-10					RR					PL						06242047	0.00000	10.91900	RS 29/40/3
RE-10	RL-10					RR					PL						06243011	0.00000	1.24000	SEC 34 13 11

RE-10	RL-10					RR					PL						06243013	0.00000	1.03000	SEC 34 13 11
RE-10	RL-10					RR					PL						06243022	0.00000	1.05200	SEC 34 13 11
RE-10	RL-10					RR					PL						06243023	0.00000	1.03100	SEC 34 13 11
RA-20	LA-10					RR					PL						06244020	0.00000	11.00000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244021	0.00000	11.20000	SEC 7 12 11
RA-20	LA-10					RR					PL						06244024	0.00000	12.80000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244025	0.00000	10.80000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244027	0.00000	10.00000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244028	0.00000	10.70000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244029	0.00000	10.50000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244030	0.00000	11.50000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244032	0.00000	13.00000	SEC 7 12 11
RA-20	LA-10					RR					PL						06244033	0.00000	10.40000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244034	0.00000	13.00000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244035	0.00000	10.50000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244040	0.00000	10.90000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244041	0.00000	10.70000	SEC 7 12 11
RA-20	RL-10					RR					PL						06244042	0.00000	12.10000	SEC 7 12 11
RA-20	LA-10					RR					PL						06244045	2.00000	17.20000	SEC 7 12 11 AW
RE-10	RL-40					NR											06245001	0.00000	150.24000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245007	0.00000	10.08000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245009	0.00000	5.16000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245010	0.00000	14.44000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245012	0.00000	5.05000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245014	0.00000	10.01000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245015	0.00000	5.10000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245016	0.00000	5.65000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245017	0.00000	5.00000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245018	0.00000	5.00000	SEC 31 12 11
RE-10	RL-10					RR					PL						06245019	0.00000	10.00000	PM 43/110/1
RE-10	RL-10					RR					PL						06245020	0.00000	9.21700	PM 43/110/2
RE-10	RL-10					RR					PL						06245021	0.00000	5.05000	SEC 31 12 11
RA-40	RL-160					LDR					PL						06246001	0.00000	6.16000	SEC 22 13 11
RA-40	RL-160					LDR					PL						06246002	0.00000	4.92000	SEC 22 13 11
A	FR-160					NR											06246008	0.00000	46.36000	SEC 22 13 11
A	FR-160					NR											06246009	0.00000	23.29000	SEC 22 13 11
A	FR-160					NR											06246010	0.00000	23.29000	SEC 22 13 11
A	FR-160					NR											06246011	0.00000	22.84000	SEC 22 13 11
A	FR-160					NR											06246012	0.00000	22.82000	SEC 22 13 11
A	FR-160					NR											06246014	0.00000	22.92000	SEC 22 13 11
A	LA-10					RR					PL						06246019	0.00000	11.66000	PM 20/46/1
A	RL-10					RR					PL						06246020	0.00000	11.66000	PM 20/46/2
A	LA-10					RR					PL						06246021	0.00000	11.63000	PM 20/46/3
A	LA-10					RR					PL						06246022	0.00000	11.64000	PM 20/46/4
A	RL-10					RR					PL						06246029	0.00000	11.61000	PM 20/42/1
A	RL-10					RR					PL						06246030	0.00000	11.61000	PM 20/42/2

A	RL-10					RR					PL						06246031	0.00000	11.58000	PM 20/42/3
A	RL-10					RR					PL						06246032	0.00000	11.58000	PM 20/42/4
A	LA-10					RR					PL						06246033	0.00000	11.45000	PM 21/64/1
A	RL-10					RR					PL						06246034	0.00000	11.44000	PM 21/64/2
A	RL-10					RR					PL						06246035	0.00000	11.45000	PM 21/64/3
A	RL-10					RR					PL						06246036	0.00000	11.45000	PM 21/64/4
A	FR-160					NR											06246037	0.00000	11.46000	PM 38/17/A
A	FR-160					NR											06246038	0.00000	11.47000	PM 38/17/B
A	FR-160					NR											06246039	0.00000	46.27200	POR RS 10-122ADM
A	FR-160					NR											06246040	0.00000	46.27200	PRS 10/122 ADM
A	FR-160					NR											06248156	0.00000	40.50000	SEC 26 13 11
A	LA-10					RR					PL						06248157	0.00000	10.07000	PM 33/98/1
A	LA-10					RR					PL						06248158	0.00000	10.26000	PM 33/98/2
A	RL-10					RR					PL						06248168	0.00000	10.75000	PM 42/98/3
A	LA-10					RR					PL						06248176	0.00000	10.28000	PM 42/98/2
A	FR-160					NR											06249005	0.00000	40.00000	SEC 24 13 11
A	FR-160					NR											06249006	0.00000	40.00000	SEC 24 13 11
A	LA-10					RR					PL						06249007	0.00000	18.08500	PM 21/130/1
A	RL-10					RR					PL						06249008	0.00000	10.00000	PM 21/130/2
A	RL-10					RR					PL						06249009	0.00000	10.00000	PM 21/130/3
A	LA-10					RR					PL						06249010	0.00000	10.00000	PM 21/129/1
A	LA-10					RR					PL						06249011	0.00000	10.00000	PM 21/129/2
A	LA-10					RR					PL						06249012	0.00000	17.48000	PM 21/129/3
A	RL-10					LDR					PL						06250010	0.00000	12.76000	SEC 15 13 11
A	RL-10					LDR					PL						06250011	0.00000	12.76000	SEC 15 13 11
A	RL-10					LDR					PL						06250012	0.00000	11.60000	PM 3/174/A
A	RL-10					LDR					PL						06250013	0.00000	11.60000	PM 3/174/B
A	FR-160					NR											06250030	0.00000	45.76800	PM 13/57/1
A	FR-160					NR											06250038	0.00000	25.48000	PM 24/121/A
A	FR-160					NR											06250039	0.00000	20.31000	PM 24/121/B
RA-40	RL-160					NR											06250040	0.00000	44.83000	SEC 15 13 11
RA-40	RL-160					NR											06250041	0.00000	44.72000	SEC 15 13 11
RE-5	FR-160					NR											06250042	0.00000	47.08000	RS 10/100S151311
A	FR-160					NR											06251001	0.00000	30.10000	SEC 15 13 11
A	FR-160					NR											06251011	0.00000	22.52000	SEC 15 13 11
A	FR-160					NR											06251012	0.00000	22.53000	SEC 15 13 11
A	FR-160					NR											06252115	0.00000	35.20000	PRS 12/139/2 ADM
A	FR-160					NR											06252143	0.00000	20.05000	PORPAR 2 PM42-11
A	FR-160					NR											06252144	0.00000	34.60000	PRS 10/94/2 ADM
A	RL-10					RR					PL						06252150	0.00000	10.21000	PM 38/90/1
A	RL-10					RR					PL						06252152	0.00000	10.28000	PM 38/90/2
A	RE-5					LDR					PL						06252153	0.00000	10.27000	PM 36/9/3
A	RE-5					LDR					PL						06252153	0.00000	10.27000	PM 36/9/3
U	RE-5					LDR											06253005	0.00000	3.93000	SEC 29 13 11
U	RE-5					LDR											06253006	0.00000	3.08000	SEC 29 13 11
U	RE-5					LDR											06253007	0.00000	4.26000	SEC 29 13 11

U	RE-5					LDR											06253008	0.00000	4.51000	SEC 29 13 11
U	RE-5					LDR											06253009	0.00000	6.92000	SEC 29 13 11
U	RE-5					LDR											06253010	0.00000	4.14000	SEC 29 13 11
U	RE-5					LDR											06253011	0.00000	4.12000	SEC 29 13 11
U	RE-5					LDR											06253013	0.00000	11.09000	SEC 29 13 11
U	RE-5					LDR											06253015	0.00000	5.39000	SEC 29 13 11
U	RE-5					LDR											06253016	0.00000	7.84000	PM 1/39/1
U	RE-5					LDR											06253017	0.00000	9.77000	PM 1/39/2
U	RE-5					LDR											06253018	0.00000	2.94000	PM 1/81/1
U	RE-5					LDR											06253019	0.00000	2.95000	PM 1/81/2
U	RE-5					LDR											06253020	0.00000	2.67000	PM 1/81/3
U	RE-5					LDR											06253021	0.00000	3.29000	PM 1/81/4
U	RE-5					LDR											06253022	0.00000	11.21000	PM 2/91/1
U	RE-5					LDR											06253023	0.00000	4.84000	PM 2/91/2
U	RE-5					LDR											06253024	0.00000	7.41100	PM 2/91/3
U	RE-5					LDR											06253025	0.00000	25.82100	PM 2/91/4
U	RE-5					LDR											06253026	0.00000	2.32000	PM 4/166/1
U	RE-5					LDR											06253027	0.00000	2.32000	PM 4/166/2
U	RE-5					LDR											06253028	0.00000	2.32000	PM 4/166/3
U	RE-5					LDR											06253029	0.00000	3.43000	PM 4/166/4
U	RE-5					LDR											06253030	0.00000	3.69000	PM 10/60/1
U	RE-5					LDR											06253031	0.00000	8.17000	PM 10/60/2
U	RE-5					LDR											06253032	0.00000	6.47000	PM 15/130/A
U	RE-5					LDR											06253033	0.00000	5.04000	PM 15/130/B
RE-5	FR-160					NR											06256011	0.00000	23.63000	PM 19/71/A
A	FR-160					NR											06256014	0.00000	12.50000	PM 19/71/D
RA-20	RL-20					RR					PL						06257006	0.00000	40.10000	RS 7/14/3
RA-20	RL-10					RR					PL						06257010	0.00000	3.00000	PPM 27/60/B ADM
RE-10	RL-10					RR					PL						06257010	0.00000	3.00000	PPM 27/60/B ADM
RA-20	RL-20					RR					PL						06257013	0.00000	40.04000	RS 7/14/1
RA-20	RL-20					RR					PL						06257014	0.00000	40.21000	RS 7/14/4
RA-20	RL-20					RR					PL						06257017	0.00000	20.02000	PM 27/60/A
RA-20	RL-20					RR					PL						06257017	0.00000	20.02000	PM 27/60/A
RE-10	RL-20					RR					PL						06257017	0.00000	20.02000	PM 27/60/A
RE-10	RL-10					RR					PL						06257018	0.00000	17.00000	PPM 27/60/B ADM
RE-10	RL-10					RR					PL						06257018	0.00000	17.00000	PPM 27/60/B ADM
RE-10	RL-10					RR					PL						06257018	0.00000	17.00000	PPM 27/60/B ADM
RA-20	RL-20					RR					PL						06257019	0.00000	20.00000	PM 28/39/A
RA-20	RL-20					RR					PL						06257020	0.00000	20.00000	PM 28/39/B
RA-20	RL-20					RR					PL						06257026	0.00000	18.30000	PPM 29/127/B ADM
RA-20	RL-20					RR					PL						06257026	0.00000	18.30000	PPM 29/127/B ADM
RA-20	RL-10					RR					PL						06257028	0.00000	0.00000	PPM 29/127/B ADM
RA-20	RL-20					RR					PL						06257029	0.00000	20.00000	RS 7/60 S231311
RA-20	RL-20					RR					PL						06257030	0.00000	20.01000	RS 7/60 S231311
RA-20	RL-20					RR					PL						06257032	0.00000	33.84000	RS 7/60 S231311
RA-20	RL-20					RR					PL						06257033	0.00000	20.08000	PM 29/127/A

RE-10	RL-10					RR					PL						06257034	0.00000	10.00300	PM 45/98/1
RE-10	RL-10					RR					PL						06257035	0.00000	10.00300	PM 45/98/2
A	RE-5					LDR					PL						06259001	0.00000	10.00000	PM 31/19/1
A	RL-10					LDR					PL						06259002	0.00000	10.00000	PM 31/19/2
A	RE-5					LDR					PL						06259006	0.00000	5.00000	SEC 8
A	RE-5					LDR					PL						06259007	0.00000	7.50000	SEC 8 13 11
A	RL-10					LDR					PL						06259009	0.00000	12.50000	SEC 8 13 11
A	RL-10					LDR					PL						06259013	0.00000	16.14600	PORPAR 3 PM31-19
A	RL-10					LDR					PL						06259015	0.00000	15.86400	SEC 8 13 11
RA-20	RL-40					NR											06260001	0.00000	13.02000	PM 5/104/1
RA-20	RL-40					NR											06260002	0.00000	12.97000	PM 5/104/2
RA-20	RL-40					NR											06260003	0.00000	40.00000	PM 5/104/3
RA-20	RL-40					NR											06260004	0.00000	40.00000	PM 5/104/4
RA-160	FR-160					NR											06301001	11.00000	431.22000	SEC 19 13 12
A	FR-160					NR											06301005	11.00000	0.00000	SEC 7&18-13-12
A	FR-40					NR											06301006	11.00000	0.00000	SEC 19 13 12
RA-160	FR-160					NR											06302011	11.00000	497.00000	SEC 29 13 12
RA-160	FR-160					NR											06302012	11.00000	10.00000	SEC 29 13 12
RA-160	FR-160					NR											06302013	11.00000	43.00000	SEC 29 13 12
RA-160	FR-160					NR											06302014	11.00000	10.00000	SEC 29 13 12
RA-160	FR-160					NR											06302015	0.00000	0.00000	POR SEC 33 13 12
RA-160	FR-160					NR											06302016	0.00000	10.00000	POR SEC 33 13 12
RE-10	TPZ					MDR					PL						06302020	0.00000	0.00000	POR SEC 31 13 12
A	FR-160					NR											06302027	11.00000	0.00000	POR SEC 30-13-12
A	FR-160					NR											06302028	11.00000	0.00000	POR SEC 30-13-12
A	FR-160					NR											06302029	11.00000	0.00000	POR SEC 32 13 12
A	FR-160					NR											06302030	11.00000	0.00000	POP SEC 28 13 12
RA-160	FR-160					NR											06302031	11.00000	0.00000	POR SEC 33 13 12
RA-160	FR-160					NR											06302031	11.00000	0.00000	POR SEC 33 13 12
RA-160	FR-160					NR											06302032	0.00000	0.00000	SEC 33 13 12 ADM
RA-160	FR-160					NR											06302033	0.00000	0.00000	SEC 33 13 12 ADM
RA-160	FR-160					NR											06303001	11.00000	134.88000	SEC 27 13 12
A	FR-160					NR											06303005	11.00000	0.00000	POR SEC 34 13 12
A	FR-160					NR											06303007	11.00000	0.00000	POR SEC 36 13 12
A	FR-160					NR											06304003	11.00000	0.00000	S 13 23 24 13 13
A	FR-160					NR											06305001	11.00000	0.00000	SEC 33 13 13
A	FR-160					NR											06306006	11.00000	0.00000	SEC 26 13 13
A	FR-160					NR											06306007	11.00000	0.00000	SEC 7 13 13
TPZ	FR-160					NR											06306007	11.00000	0.00000	SEC 7 13 13
A	FR-160					NR											06306008	11.00000	0.00000	SEC 34 13 13
A	FR-160					NR											06306009	11.00000	0.00000	POR SEC 25 13 13
A	FR-160					NR											06307004	11.00000	320.00000	SEC 5 12 12
A	FR-160					NR											06307010	11.00000	320.00000	SEC 8 12 12
A	FR-160					NR											06307010	11.00000	320.00000	SEC 8 12 12
A	FR-160					NR											06307011	0.00000	160.00000	SEC 8 12 12
A	FR-160					NR											06307012	0.00000	488.72000	SEC 7 12 12

A	FR-160					NR											06307015	11.00000	402.00000	SEC 5 12 12
A	FR-160					NR											06307081	11.00000	30.00000	SEC 9 12 12
A	FR-160					NR											06307082	11.00000	85.00000	SEC 9 12 12
A	FR-160					NR											06307089	11.00000	117.40000	SEC 8 12 12
A	FR-160					NR											06307089	11.00000	117.40000	SEC 8 12 12
A	FR-160					NR											06307090	11.00000	198.95000	SEC 9 12 12
A	FR-160					NR											06307090	11.00000	198.95000	SEC 9 12 12
A	FR-160					NR											06307091	11.00000	37.55000	SEC 8 12 12
A	FR-160					NR											06307091	11.00000	37.55000	SEC 8 12 12
A	FR-160					NR											06307093	11.00000	0.00000	SEC 6 12 12
A	FR-160					NR											06307094	11.00000	149.18000	S4 12 12RS13-148
A	FR-160					NR											06307095	0.00000	44.91000	SEC 6 12 12
A	RE-5					LDR											06307096	0.00000	5.00000	SEC 6 12 12
A	RE-5					LDR											06307097	0.00000	5.00000	SEC 6 12 12
A	FR-160					NR											06308026	0.00000	21.48000	POR RS 13/148
AE	RL-160					NR											06308027	0.00000	19.59000	12 12 12RS13-148
A	FR-160					NR											06308049	11.00000	1.00000	SEC 11 12 12
AE	RL-160					NR											06308057	0.00000	297.38000	SEC 3 12 12
TPZ	RL-160					NR											06308057	0.00000	297.38000	SEC 3 12 12
A	FR-160					NR											06308059	11.00000	291.94000	SEC 11&12 12 12
A	FR-160					NR											06308060	11.00000	14.40000	SEC 11 12 12
A	FR-160					NR											06308061	11.00000	7.91000	SEC 11 12 12
A	FR-160					NR											06308062	11.00000	0.85000	SEC 12 12 12
A	FR-160					NR											06308063	11.00000	1.78000	SEC 11 12 12
A	FR-160					NR											06308067	11.00000	0.00000	1&2 12 12RS13148
A	FR-160					NR											06308068	11.00000	0.00000	12 12 12RS13-148
A	FR-160					NR											06308069	11.00000	0.00000	POR RS 13/148
A	FR-160					NR											06309010	11.00000	640.00000	SEC 16&17 12 12
A	FR-160					NR											06309011	11.00000	443.78000	20&211212RS15-47
A	FR-160					NR											06309015	11.00000	165.16000	S20 12 12RS15-47
A	FR-160					NR											06309017	0.00000	147.95000	L1 2 3S18 12 12
A	FR-160					NR											06310013	0.00000	113.65000	13 12 12RS13-148
A	FR-160					NR											06310013	0.00000	113.65000	13 12 12RS13-148
A	FR-160					NR											06310014	11.00000	40.20000	SEC 13 12 12
A	FR-160					NR											06310018	0.00000	0.00000	RS 20/49 S131212
A	FR-160					NR											06310019	0.00000	0.00000	RS 20/49 S23&24
A	FR-160					NR											06311002	0.00000	10.00000	SEC 30 12 12
A	FR-160					NR											06311010	11.00000	497.14000	S30 12 12RS 9-98
A	FR-160					NR											06311011	11.00000	139.16000	S28 12 12RS7-71
A	FR-160					NR											06311012	11.00000	73.09000	S28 12 12 RS7-71
A	FR-160					NR											06311013	11.00000	82.87000	S29 12 12 RS7-72
A	FR-160					NR											06311014	11.00000	0.00000	S32 12 12 RS7-83
A	FR-160					NR											06311016	11.00000	0.00000	S33 12 12 RS7-84
A	FR-160					NR											06312008	11.00000	413.18000	S35 12 12RS12-46
A	FR-160					NR											06312010	11.00000	343.14000	S34 12 12 RS7-73
A	FR-160					NR											06312011	11.00000	0.00000	POR SEC 36 12 12

A	FR-160					NR											06313023	11.00000	0.00000	S8 12 13 RS7-148
A	FR-160					NR											06313025	11.00000	605.26000	S 7 12 13RS14-89
A	FR-160					NR											06313026	11.00000	0.00000	S 4 12 13RS14-89
A	FR-160					NR											06313027	11.00000	0.00000	POR SEC 6 12 13
A	FR-160					NR											06313028	11.00000	0.00000	POR SEC 6 12 13
A	TPZ					NR											06314002	0.00000	496.00000	SEC 2 12 13
A	FR-160					NR											06314011	11.00000	182.58000	S 3 12 13RS14-89
A	FR-160					NR											06314012	11.00000	0.00000	POR SEC 3 12 13
A	FR-160					NR											06314013	0.00000	0.00000	POR SEC 2 12 13
A	FR-160					NR											06315010	0.00000	40.00000	SEC 17 12 13
A	FR-160					NR											06315035	0.00000	0.00000	POR SEC 18 12 13
A	FR-160					NR											06317007	11.00000	0.00000	28 12 13RS11-103
A	FR-160					NR											06317008	11.00000	0.00000	32 12 13RS11-126
A	FR-160					NR											06317009	11.00000	0.00000	29 12 13RS11-126
A	FR-160					NR											06317010	11.00000	0.00000	POR SEC 31 12 13
A	FR-160					NR											06317011	11.00000	0.00000	POR SEC 32 12 13
A	FR-160					NR											06317012	11.00000	0.00000	SEC 33 12 13
AE	FR-160					NR											06318006	0.00000	0.00000	SEC 36 12 13
A	FR-160					NR											06318011	11.00000	0.00000	SEC 34 12 13
A	FR-160					NR											06318012	11.00000	0.00000	POR SEC 35 12 13
A	RE-5					LDR											06323002	0.00000	4.46000	SEC 6 12 12
A	R3A					MDR							QU				06323017	0.00000	3.92900	RS 20/132 S61212
A	R1A					HDR							QU				06323018	0.00000	0.56000	SEC 6 12 12
A	R3A					MDR							QU				06323020	0.00000	3.71000	SEC 6 12 12
A	RE-5					LDR											06323038	0.00000	6.87000	SEC 6 12 12
A	CC					C							QU				06324012	0.00000	12.33000	SEC 6 12 12
C	CC					C							QU				06324012	0.00000	12.33000	SEC 6 12 12
A	RE-5					LDR											06324040	0.00000	9.92000	SEC 6 12 12
R1A	RE-5					LDR											06324049	0.00000	3.00000	PM 9/90/3
A	RE-5					LDR											06324062	0.00000	9.64000	SEC 6 12 12
A	RL-10					LDR											06324070	0.00000	10.66400	PM 33/70/2
A	LA-10					LDR											06324073	0.00000	14.42900	RS 13/132/1
A	RE-5					LDR											06324079	0.00000	5.76000	SEC 6 12 12
A	LA-10					LDR											06324080	0.00000	10.01600	SEC 6 12 12
A	RL-10					LDR											06324081	0.00000	13.91400	PM 33/70/1
R1A	RE-5					LDR											06324083	0.00000	6.71600	POR SEC 6 12 12
R1A	RE-5					LDR											06324084	0.00000	1.18400	SEC 6 12 12
A	RL-10					LDR											06324085	0.00000	10.37000	SEC 6 12 12
A	RE-5					LDR											06324086	0.00000	8.19000	SEC 6 12 12
RE-10	RL-10					RR											06903003	0.00000	10.00000	S 11 & 14 10 9
RE-10	RL-10					RR											06903011	0.00000	10.18000	SEC 14 10 9
RE-10	RL-10					RR											06903012	0.00000	9.31000	SEC 14 10 9
A	LA-10					RR											06903013	0.00000	2.50000	SEC 14 10 9
RE-10	RL-10					RR											06903034	0.00000	10.00100	PM 8/24/B
RE-10	RL-10					RR											06903035	0.00000	10.00000	PM 8/24/C
RE-10	RL-10					RR											06903039	0.00000	10.57700	PM 15/108/A

RE-10	RL-10					RR											06903041	0.00000	11.00000	PM 15/108/C
RE-10	RL-10					RR											06903042	0.00000	10.04300	PM 15/108/D
RE-10	RL-10					RR											06903054	0.00000	14.41000	PM 27/40/1
RE-5	RL-10					RR											06903054	0.00000	14.41000	PM 27/40/1
RE-10	RL-10					RR											06903056	0.00000	10.00000	PM 34/68/1
RE-10	RL-10					RR											06903057	0.00000	10.00000	PM 34/68/2
RE-10	RL-10					RR											06903058	0.00000	10.00000	PM 34/68/3
RE-10	RL-10					RR											06903062	0.00000	10.00000	PM 39/22/A
RE-10	RL-10					RR											06903063	0.00000	10.01000	PM 39/22/B
RE-10	RL-10					RR											06903064	0.00000	18.43000	PM 39/22/C
RE-10	RL-10					RR											06903065	0.00000	9.75000	PM 39/83/1
RE-10	RL-10					RR											06903066	0.00000	10.00000	PM 39/83/2
RE-10	RL-10					RR											06903067	0.00000	10.00900	PM 39/83/3
AE	AG-40					RR			IBC	MR							06904001	0.00000	5.97000	SEC 13 10 9
AE	AG-40					RR			IBC								06904004	0.00000	3.88000	SEC 13 10 9
AE	AG-40					RR											06904005	0.00000	5.59000	SEC 13 10 9
AE	RL-10					RR											06904006	1.00000	0.84000	SEC 13 10 9
RE-10	RL-10					RR			IBC	MR							06904021	0.00000	2.38000	PPM 30/58/A ADM
RE-10	RL-10					RR			IBC								06904042	0.00000	42.48000	SEC 13 10 9
PD	RL-10					RR											06904043	0.00000	34.57000	SEC 13 10 9
PD	RE-5					MDR											06904046	11.00000	0.54000	SEC 13 10 9
PD	RE-5					MDR											06904048	11.00000	0.59000	SEC 13 10 9
RE-10	RL-10					RR											06904049	0.00000	20.00000	SEC 13 10 9
RE-10	RL-10					RR											06904050	0.00000	10.00000	SEC 13 10 9
RE-10	RE-5					LDR			IBC								06904069	0.00000	6.16300	PM 50/26/1
RE-10	RE-5					LDR			IBC								06904070	0.00000	5.27700	PM 50/26/2
A	LA-10					RR											06905004	0.00000	2.50000	SEC 14 10 9
A	RL-10					RR											06905008	0.00000	1.30000	SEC 14 10 9
RE-10	RL-10					RR											06905010	1.00000	0.65000	SEC 14 10 9
RE-10	RL-10					RR											06905011	0.00000	9.76000	SEC 14 10 9
RE-10	RL-10					RR											06905012	0.00000	9.90000	PM 3/114/1
RE-10	RL-10					RR											06905015	0.00000	9.81000	SEC 14 10 9
RE-10	RL-10					RR											06905017	0.00000	10.00000	SEC 14 10 9
A	OS					OS											06905018	11.00000	0.00000	SEC 14-10-09
RE-10	RL-10					RR											06905019	0.00000	10.08000	PM 41/46/1
A	LA-10					RR											06905020	0.00000	18.16300	PM 41/46/2
RE-10	LA-10					RR											06905020	0.00000	18.16300	PM 41/46/2
R20K	R1A					MDR							RES				06906005	0.00000	2.69000	SEC 23 10 9
RE-10	RL-10					RR											06906041	0.00000	10.00000	SEC 13 & 14 10 9
R20K	R1A					MDR							RES				06906054	0.00000	5.00000	SEC 23 10 9
R20K	R1A					MDR							RES				06906055	0.00000	1.80900	SEC 23 10 9
RE-10	RL-10					RR											06906056	0.00000	5.49000	PM 4/48/A
RE-10	RL-10					RR											06906057	0.00000	5.83500	PM 7/78/3
RE-10	RL-10					RR											06906058	0.00000	10.01000	SEC 14 10 9
RE-10	RL-10					RR											06906059	0.00000	10.05000	SEC 14 10 9
RE-10	RL-10					RR											06906061	0.00000	5.02000	PM 7/78/1

RE-10	RL-10					RR										06906062	0.00000	5.02000	PM 7/78/2
RE-10	RL-10					RR										06906063	0.00000	5.00000	PM 7/77/1
RE-10	RL-10					RR										06906064	0.00000	5.01000	PM 7/77/2
R20K	R1A					MDR						RES				06906080	0.00000	2.20000	PM 33/45/1
R20K	R1A					MDR						RES				06906081	0.00000	1.00000	PM 33/45/2
R20K	R1A					MDR						RES				06906082	0.00000	1.00000	PM 33/45/3
R20K	R1A					MDR						RES				06906083	0.00000	1.82000	PM 34/15/1
R20K	R1A					MDR						RES				06906084	0.00000	1.52000	PM 34/15/2
R20K	R1A					MDR						RES				06906085	0.00000	1.00000	PM 34/15/3
R20K	R1A					MDR						RES				06906086	0.00000	1.03000	PM 34/15/4
C	R1A					MDR						RES				06906090	0.00000	8.83600	PM 44/81/1
R20K	R1A					MDR						RES				06906090	0.00000	8.83600	PM 44/81/1
R20K	R1A					MDR						RES				06906091	0.00000	4.51000	PM 44/81/2
RE-10	RL-10					RR										06906092	0.00000	10.00200	SEC 14 10 9
R20K	R1A					MDR						RES				06906093	0.00000	10.00000	PM 2/54/1
RE-10	RL-10					RR										06906095	0.00000	10.54100	SEC 14 10 9
R20K	R1A					MDR						RES				06910116	0.00000	1.85000	PM 35/150/A
R20K	R1A					MDR						RES				06910117	0.00000	1.75000	PM 35/150/B
R20K	R1A					MDR						RES				06910118	0.00000	1.22000	PM 35/150/C
R20K	R1A					MDR						RES				06910119	0.00000	1.10000	PM 35/150/D
R20K	R1A					MDR						RES				06910120	0.00000	1.62000	PM 35/148/A
R20K	R1A					MDR						RES				06910121	0.00000	1.96000	PM 35/148/B
R20K	R1A					MDR						RES				06910123	0.00000	1.00000	PM 34/65/1
R20K	R1A					MDR						RES				06910124	0.00000	1.00000	PM 34/65/2
R20K	R1A					MDR						RES				06910125	0.00000	1.00000	PM 34/65/3
R20K	R1A					MDR						RES				06910126	0.00000	1.00000	PM 35/138/A
R20K	R1A					MDR						RES				06910127	0.00000	1.00000	PM 35/138/B
R20K	R1A					MDR						RES				06910128	0.00000	2.10000	PM 34/80/1
R20K	R1A					MDR						RES				06910129	0.00000	1.09000	PM 34/80/2
R20K	R1A					MDR						RES				06910130	0.00000	0.90000	PM 34/80/3
R20K	R1A					MDR						RES				06910131	0.00000	0.91000	PM 34/80/4
R20K	R1A					MDR						RES				06910135	0.00000	1.05000	PM 35/87/1
R20K	R1A					MDR						RES				06910136	0.00000	1.02000	PM 35/87/2
R20K	R1A					MDR						RES				06910137	0.00000	1.02000	PM 33/12/B
R20K	R1A					MDR						RES				06910138	0.00000	1.01000	PM 33/12/C
R20K	R1A					MDR						RES				06910139	0.00000	1.13000	PM 33/12/D
R20K	R1A					MDR						RES				06910140	0.00000	1.70000	PM 35/76/A
R20K	R1A					MDR						RES				06910141	0.00000	1.68000	PM 35/76/B
R20K	R1A					MDR						RES				06910142	0.00000	1.26000	PM 33/52/2
R20K	R1A					MDR						RES				06910143	0.00000	1.21000	PM 33/52/3
R20K	R1A					MDR						RES				06910144	0.00000	1.40000	PM 33/52/4
R20K	R1A					MDR						RES				06910145	0.00000	1.00000	PM 32/87/B
R20K	R1A					MDR						RES				06910146	0.00000	1.00000	PM 32/87/C
R20K	R1A					MDR						RES				06910147	0.00000	1.00000	PM 32/87/D
R20K	R1A					MDR						RES				06910149	0.00000	4.66000	PM 30/50/2
R20K	R1A					MDR						RES				06910152	0.00000	0.00000	CEMETERY

R20K	R1A					MDR							RES				06910153	0.00000	1.12000	PM 33/16/A
R20K	R1A					MDR							RES				06910154	0.00000	1.87000	PM 33/16/B
R20K	R1A					MDR							RES				06910155	0.00000	1.59000	PM 33/16/C
R20K	R1A					MDR							RES				06910156	0.00000	1.76000	PM 33/16/D
R20K	R1A					MDR							RES				06910157	0.00000	1.04000	PM 36/55/1
R20K	R1A					MDR							RES				06910158	0.00000	1.53000	PM 36/55/2
R20K	R1A					MDR							RES				06910159	0.00000	1.24000	PM 36/55/3
R20K	R1A					MDR							RES				06910160	0.00000	2.02000	PM 36/55/4
R20K	R1A					MDR							RES				06910163	0.00000	1.26000	PM 36/106/C
R20K	R1A					MDR							RES				06910164	0.00000	1.45000	PM 36/106/D
R20K	R1A					MDR							RES				06910165	0.00000	1.05000	PM 37/26/1
R20K	R1A					MDR							RES				06910166	0.00000	1.33300	PM 37/26/2
R20K	R1A					MDR							RES				06910168	0.00000	1.02000	PM 40/31/2
R20K	R1A					MDR							RES				06910169	0.00000	1.10000	PM 40/31/3
R20K	R1A					MDR							RES				06910170	0.00000	1.10000	PM 40/31/4
R20K	R1A					MDR							RES				06910171	0.00000	0.00000	PM 41/24/1
R20K	R1A					MDR							RES				06910172	0.00000	1.10200	PM 41/24/2
R20K	R1A					MDR							RES				06910173	0.00000	1.06000	PM 41/24/3
R20K	R1A					MDR							RES				06910174	0.00000	1.16800	PM 41/24/4
R20K	R1A					MDR							RES				06910179	0.00000	1.02000	RS 20/122/2
R20K	R1A					MDR							RES				06910180	0.00000	1.20000	RS 20/122/1
R20K	R1A					MDR							RES				06910182	0.00000	2.18400	PM 45/10/2
R20K	R1A					MDR							RES				06910184	0.00000	1.00000	PM 45/114/1
R20K	R1A					MDR							RES				06910185	0.00000	1.00000	PM 45/114/2
R20K	R1A					MDR							RES				06910187	11.00000	0.02800	POR PM 45/10/3
R20K	R1A					MDR							RES				06910188	0.00000	1.98400	POR PM 45/10/3
R20K	R1A					MDR							RES				06910189	11.00000	0.01400	PPM 45/10/1
R20K	R1A					MDR							RES				06910190	0.00000	1.44900	PPM 45/10/1
RE-10	RL-10					RR											06911002	0.00000	4.99000	SEC 22 10 9
RE-10	RL-10					RR		EP									06911015	0.00000	10.00000	SEC 22 10 9
RE-10	RL-10					RR		EP									06911016	0.00000	10.00000	SEC 22 10 9
RE-10	RL-10					RR		EP									06911017	0.00000	20.00000	SEC 22 10 9
RE-10	RL-10					RR											06911019	0.00000	10.00000	PM 3/71/1
RE-10	RL-10					RR											06911020	0.00000	10.00000	PM 3/71/2
RE-10	RL-10					RR		EP									06911021	0.00000	10.12000	PM 3/57/A
RE-10	RL-10					RR		EP									06911022	0.00000	10.85000	PM 3/57/B
RE-10	RL-10					RR											06911023	0.00000	10.00000	PM 9/76/A
RE-10	RL-10					RR											06911024	0.00000	9.88000	PM 9/76/B
RE-10	RL-10					RR											06911025	0.00000	10.00000	PM 24/27/A
RE-10	RL-10					RR											06911026	0.00000	10.01000	PM 24/27/B
RE-10	RL-10					RR		EP									06911028	0.00000	10.00000	PM 26/104/2
RE-10	RL-10					RR		EP									06911029	0.00000	10.00100	PM 26/104/1
AE	RL-10					RR											06912002	0.00000	2.00000	SEC 22 10 9
AE	RL-10					RR											06912003	0.00000	37.13000	RS 14/140/1
AE	PA-20					AL											06912006	0.00000	24.99100	RS 30/20/1
AE	RE-5					LDR											06912007	0.00000	7.04700	SEC 23 10 9

RE-10	RL-10					RR											06912010	0.00000	10.00000	PM 15/40/C
RE-10	RL-10					RR											06912011	0.00000	10.00000	PM 15/40/B
RE-10	RL-10					RR											06912012	0.00000	10.22200	PM 15/40/A
RE-10	RL-10					RR											06912013	0.00000	10.00000	PM 15/40/D
AE	AG-40					AL											06912014	0.00000	206.22000	SEC 22 & 23 10 9
RE-10	RL-10					RR											06912019	0.00000	23.00000	PM 41/56/1
RE-10	RL-10					RR											06912020	0.00000	23.79000	PM 41/56/2
RE-10	RL-10					RR											06912021	0.00000	10.00000	PM 41/56/3
RE-10	RL-10					RR											06912022	0.00000	22.10000	PM 41/56/4
RE-10	RL-10					RR											06912023	0.00000	27.62000	REM P/M 41-56
RE-10	RL-10					RR											06913002	0.00000	6.07300	RS 26/77/1
C	CC					C					PL						06913006	0.00000	3.32000	SEC 22 10 9
C	CC					PF							RES				06915001	11.00000	1.14000	SEC 23 10 9
C	CC					C							RES				06915002	0.00000	1.47000	SEC 23 10 9
RE-10	RE-5					MDR							RES				06915014	0.00000	10.05000	PM 21/51/1
RE-10	RL-10					RR											06915015	0.00000	10.01000	PM 21/51/2
RE-10	RL-10					RR											06915016	0.00000	10.01000	PM 21/51/3
RE-10	RL-10					RR											06915017	0.00000	10.05000	PM 21/51/4
RE-10	RL-10					RR											06915019	0.00000	10.00000	PM 24/1/A
RE-10	RL-10					RR											06915020	0.00000	10.09000	PM 24/1/B
RE-10	RL-10					RR											06915021	0.00000	10.00000	PM 24/1/C
RE-10	RL-10					RR											06915022	0.00000	10.00000	PM 24/1/D
C	CC					C							RES				06915023	0.00000	39.25000	SEC 23 10 9
RE-10	CC					C							RES				06915023	0.00000	39.25000	SEC 23 10 9
C	CC					C							RES				06915026	0.00000	5.84000	POR SEC 23 10 9
C	CL					C							RES				06915028	0.00000	0.93000	POR SEC 23 10 9
R2A	R1A					RR											06916001	0.00000	0.60000	SEC 23 10 9
RE-10	RE-5					MDR							RES				06916009	0.00000	1.15400	SEC 23 10 9
RE-10	RE-5					MDR							RES				06916013	0.00000	2.21000	SEC 23 10 9
RE-10	RE-5					MDR							RES				06916014	0.00000	2.21300	SEC 23 10 9
RE-10	CC					C							RES				06916015	0.00000	2.48000	RS 31/79/1
RE-10	RE-5					MDR							RES				06916019	0.00000	11.73000	SEC 23 10 9
RE-10	RE-5					MDR							RES				06916020	0.00000	1.98000	SEC 23 10 9
R20K	R1A					MDR							RES				06917120	0.00000	5.25000	SEC 23 & 24 10 9
R20K	R1A					MDR							RES				06917121	0.00000	1.11000	SEC 24 10 9
RE-10	RL-10					RR											06928003	0.00000	10.00000	PM 3/118/1
RE-10	RL-10					RR		EP									06928005	0.00000	14.00000	PM 3/118/3
RE-10	RL-10					RR		EP									06928009	0.00000	20.02000	RS 11/107/2
RE-10	RL-10					RR		EP									06928010	0.00000	0.00000	SEC 15 10 9
RE-10	RL-10					RR		EP									06928011	0.00000	15.41000	PM 28/89/D
RE-10	RL-10					RR		EP									06928012	0.00000	9.71000	PM 18/134/B
RE-10	RL-10					RR		EP									06928013	0.00000	10.00000	PM 18/134/A
RE-10	RL-10					RR		EP									06928014	0.00000	9.69000	PM 28/80/1
RE-10	RL-10					RR		EP									06928015	0.00000	10.00200	PM 28/80/2
RE-10	RL-10					RR											06928019	0.00000	9.92000	PM 20/34/A
RE-10	RL-10					RR											06928020	0.00000	10.00000	PM 20/34/B

RE-10	RL-10					RR											06928021	0.00000	10.00000	PM 20/34/C
RE-10	RL-10					RR											06928022	0.00000	10.00000	PM 20/34/D
RE-10	RL-10					RR											06928023	0.00000	10.00000	PM 7/61/A
RE-10	RL-10					RR											06928024	0.00000	10.00100	PM 7/61/B
RE-10	RL-10					RR											06928025	0.00000	10.00000	PM 7/61/C
RE-10	RL-10					RR											06928026	0.00000	10.00000	PM 7/61/D
RE-10	RL-10					RR											06928029	0.00000	10.00000	SEC 15 10 9
RE-10	RL-10					RR		EP									06928030	0.00000	20.21000	PM 33/117/A
RE-10	RL-10					RR		EP									06928031	0.00000	10.00000	PM 33/117/B
RE-10	RL-10					RR		EP									06928033	0.00000	10.00000	PM 33/117/D
RE-10	RL-10					RR		EP									06928034	0.00000	10.00000	PM 34/115/1
RE-10	RL-10					RR		EP									06928035	0.00000	10.00000	PM 34/115/2
RE-10	RL-10					RR		EP									06928036	0.00000	10.00000	PM 34/115/3
RE-10	RL-10					RR											06928039	0.00000	10.00000	RS 13/130 S15109
RE-10	RL-10					RR											06928043	0.00000	31.27000	PM 35/34/B
RE-10	RL-10					RR		EP									06928044	0.00000	10.02000	PM 35/40/1
RE-10	RL-10					RR		EP									06928045	0.00000	10.00000	PM 35/40/2
RE-10	RL-10					RR		EP									06928046	0.00000	10.10000	PM 35/40/3
RE-10	RL-10					RR		EP									06928047	0.00000	10.00000	PM 35/40/4
RE-10	RL-10					RR											06928048	0.00000	10.00000	PM 37/68/A
RE-10	RL-10					RR											06928049	0.00000	10.00000	PM 37/68/B
RE-10	RL-10					RR											06928050	0.00000	10.00000	PM 37/68/C
RE-10	RL-10					RR											06928053	0.00000	10.00000	PM 38/98/2
RE-10	RL-10					RR											06928054	0.00000	10.00000	PM 38/98/3
RE-10	RL-10					RR											06928061	0.00000	10.00000	PM 38/143/1
RE-10	RL-10					RR											06928062	0.00000	10.03000	PM 38/143/2
RE-10	RL-10					RR		EP									06928063	0.00000	12.82000	PM 40/15/1
RE-10	RL-10					RR											06928066	0.00000	10.25500	PM 40/15/4
RE-10	RL-10					RR											06928067	0.00000	10.01200	PM 40/131/1
RE-10	RL-10					RR											06928068	0.00000	10.04100	PM 40/131/2
RE-10	RL-10					RR		EP									06928071	0.00000	20.08000	PM 41/74/1
RE-10	RL-10					RR		EP									06928072	0.00000	20.07000	PM 41/74/2
RE-10	RL-10					RR											06928073	0.00000	12.00000	PM 38/98/1
RE-10	RL-10					RR											06928074	0.00000	10.00800	PM 47/5/1
RE-10	RL-10					RR											06928075	0.00000	10.00500	PM 47/5/2
RE-10	RL-10					RR											06928076	0.00000	10.50000	PM 47/5/3
RE-10	RL-10					RR											06928077	0.00000	10.00600	PM 47/5/4
RE-10	RL-20					AL											06929044	0.00000	28.43000	SEC 23 10 9
C	CL					C							RES				06929050	0.00000	0.59000	RS 16/138/1
R20K	R1A					MDR							RES				06934003	0.00000	0.78600	L 3
R20K	R1A					MDR							RES				06934004	0.00000	1.05000	L 4
R20K	R1A					MDR							RES				06934005	0.00000	0.91000	L 5
R20K	R1A					MDR							RES				06934006	0.00000	1.03500	L 6
R20K	R1A					MDR							RES				06934007	0.00000	1.21400	L 7
R20K	R1A					MDR							RES				06934008	0.00000	0.74000	L 8
R20K	R1A					MDR							RES				06934009	0.00000	0.96900	L 9

R20K	R1A					MDR						RES				06934010	0.00000	0.90700	L 10
R20K	R1A					MDR						RES				06934011	0.00000	0.92000	L 11
R20K	R1A					MDR						RES				06934012	11.00000	0.03000	L A
R20K	R1A					MDR						RES				06934014	0.00000	0.94800	POR L 2
R20K	R1A					MDR						RES				06934016	0.00000	1.75800	POR L 1
CP	CC		DC		AA	C					CP					07001101	0.00000	1.69000	SEC 21 & 28 10 9
R2	RM		DC		AA	C					CP					07001101	0.00000	1.69000	SEC 21 & 28 10 9
CP	CC		DC		AA	C					CP					07001102	0.00000	8.00000	PM 21/44/B
R2	RM		DC		AA	C					CP					07001102	0.00000	8.00000	PM 21/44/B
CP	CC		DC		AA	C					CP					07001103	0.00000	8.04000	PM 21/44/A
R2	RM		DC		AA	C					CP					07001103	0.00000	8.04000	PM 21/44/A
RE-10	R1A				AA	HDR					CP					07001125	0.00000	41.00000	PM 21/44/C
R1	R1A			PD	AA	HDR					CP					07001133	0.00000	15.74000	PM 45/39/1
OS	R1A			PD	AA	HDR					CP					07001145	0.00000	54.16600	POR RS 5/81/2
R1	R1A			PD	AA	HDR					CP					07001145	0.00000	54.16600	POR RS 5/81/2
RE-10	OS				AA	HDR					CP					07001147	11.00000	40.51900	PRS 17/134/1 ADM
RE-10	R1A					HDR					CP					07001148	0.00000	126.16100	PRS 17/134/1
RE-10	R1A				AA	HDR					CP					07001148	0.00000	126.16100	PRS 17/134/1
RE-10	R1A				AA	HDR					CP					07001149	0.00000	31.25000	PM 21/44/D
RE-5	R1A				AA	HDR					CP					07004001	0.00000	10.00000	SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004005	0.00000	10.00000	SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004009	0.00000	5.00000	SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004026	0.00000	1.50000	PM 17/40/A
RE-5	R1A				AA	HDR					CP					07004027	0.00000	1.50000	PM 17/40/B
RE-5	R1A				AA	HDR					CP					07004029	0.00000	1.51100	PM 17/40/D
R3A	R1A				AA	HDR					CP					07004051	0.00000	3.00000	PM 44/11/REM
RE-5	R1A				AA	HDR					CP					07004070	11.00000	0.07800	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004070	11.00000	0.07800	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004071	0.00000	3.29700	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004072	11.00000	0.39100	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004074	11.00000	0.21000	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004075	0.00000	5.50200	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004076	11.00000	0.27800	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004077	0.00000	0.87900	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004078	11.00000	0.16300	POR SEC 34 10 9
RE-5	R1A					HDR					CP					07004079	0.00000	11.11700	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004079	0.00000	11.11700	POR SEC 34 10 9
RE-5	R1A					HDR					CP					07004081	0.00000	3.03900	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004081	0.00000	3.03900	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004082	11.00000	0.24300	SEC 34 10 9 RDWY
RE-5	R1A				AA	HDR					CP					07004083	0.00000	4.13700	SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004084	11.00000	0.08500	POR PM 17/40/C
RE-5	R1A				AA	HDR					CP					07004085	0.00000	1.92400	POR PM 17/40/C
RE-5	R1A				AA	HDR					CP					07004086	11.00000	0.26900	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004087	0.00000	2.07500	POR SEC 34 10 9
RE-5	R1A				AA	HDR					CP					07004088	0.00000	1.20200	POR SEC 34 10 9

RE-5	R1A				AA	HDR					CP					07004089	11.00000	0.43300	POR SEC 34 10 9
R1A	R20K				AA	HDR					CP					07004092	11.00000	0.35000	PM 50/58/R
RE-5	R1A					MDR					SS					07006378	0.00000	1.04300	PM 42/42/1
RE-5	R1A					MDR					SS					07006379	0.00000	1.00000	PM 42/42/2
RE-5	R1A					MDR					SS					07006380	0.00000	1.03000	SEC 35 10 9
RE-5	R1A					MDR					SS					07006381	0.00000	1.03000	SEC 35 10 9
RE-10	RE-5					MDR					SS					07007298	0.00000	10.00000	SEC 35 10 9
RE-10	R1A					MDR					SS					07010143	0.00000	1.08100	PM 12/10/1
RE-10	R1A					MDR					SS					07010144	0.00000	1.28000	PM 12/10/2
RE-10	R1A					MDR					SS					07010145	0.00000	1.22000	PM 12/10/4
RE-10	R1A					MDR					SS					07010146	0.00000	1.44000	PM 12/10/3
AE	RE-5					LDR										07013144	0.00000	3.66000	PPM 46/33/1 ADM
SA-10	PA-10					LDR										07013145	0.00000	10.97800	PPM 46/89& 46/33
AE	PA-20					LDR										07013156	0.00000	30.17200	PM 46/33/3
AE	RE-5					LDR										07013157	0.00000	7.33600	PPM 46/33/2 ADM
AE	RE-5					LDR										07013158	0.00000	3.65500	PPM 46/33/1 ADM
AE	PA-20					LDR										07013159	0.00000	24.82600	POR PM 46/33/4
RE-5	R1A					MDR					SS					07016007	0.00000	1.76000	SEC 35 10 9
RE-5	R1A					MDR					SS					07016027	0.00000	1.15000	PM 1/170/C
RE-5	R1A					MDR					SS					07016054	0.00000	1.07000	PM 1/170/A
RE-5	R1A					MDR					SS					07016055	0.00000	1.03000	PM 1/170/B
RE-5	R1A					MDR					SS					07016057	0.00000	0.00000	
RE-5	R1A					MDR					SS					07016059	0.00000	1.04000	SEC 26 & 35 10 9
RE-5	R1A					MDR					SS					07017201	0.00000	1.00000	PM 18/86/A
RE-5	R1A					MDR					SS					07017202	0.00000	1.00000	PM 18/86/B
RE-5	R1A					MDR					SS					07017203	0.00000	0.85000	PM 18/86/C
RE-5	R1A					MDR					SS					07017204	0.00000	0.18000	SEC 35 10 9
RE-5	R1A					MDR					SS					07017205	0.00000	1.00000	SEC 35 10 9
RE-5	R1A					MDR					SS					07018001	0.00000	1.01000	PM 10/130/1
RE-5	R1A					MDR					SS					07018002	0.00000	1.00000	PM 10/130/2
RE-5	R1A					MDR					SS					07018003	0.00000	1.00000	PM 10/130/3
RE-5	R1A					MDR					SS					07018005	0.00000	1.03000	SEC 35 10 9
RE-5	R1A					MDR					SS					07018007	0.00000	1.00000	PM 16/49/A
RE-5	R1A					MDR					SS					07018008	0.00000	1.06600	PM 16/49/B
RE-5	R1A					MDR					SS					07018009	0.00000	1.05000	PM 16/49/C
RE-5	R1A					MDR					SS					07018010	0.00000	1.00000	PM 16/49/D
RE-5	R1A					MDR					SS					07018011	0.00000	1.03000	PM 16/22/1
RE-5	R1A					MDR					SS					07018012	0.00000	1.01000	PM 16/22/2
RE-5	R1A					MDR					SS					07018013	0.00000	1.05000	PM 16/22/3
RE-5	R1A					MDR					SS					07018014	0.00000	1.04000	PM 16/22/4
RE-5	R1A					MDR					SS					07018016	0.00000	1.08000	PM 17/25/1
RE-5	R1A					MDR					SS					07018017	0.00000	1.07000	PM 17/25/2
RE-5	R1A					MDR					SS					07018024	0.00000	1.00000	SEC 35 10 9
RE-5	R1A				AA	MDR					SS					07018030	0.00000	23.21000	SEC 35 10 9
RE-5	R2A					MDR					SS					07018032	0.00000	2.75000	SEC 35 10 9
RE-5	R1A					MDR					SS					07018033	0.00000	1.00000	SEC 35 10 9

RE-5	R1A					MDR						SS					07018034	0.00000	1.09000	SEC 35 10 9
RE-5	R1A					MDR						SS					07018035	0.00000	1.05000	SEC 35 10 9
RE-5	R1A					MDR						SS					07018036	0.00000	1.12000	PM 1/142/C
RE-5	R1A					MDR						SS					07018037	0.00000	1.11000	PM 1/142/B
RE-5	R1A					MDR						SS					07018039	0.00000	1.19000	SEC 35 10 9
RE-5	R1A					MDR						SS					07018040	0.00000	1.19000	SEC 35 10 9
RE-5	R1A					MDR						SS					07018041	0.00000	1.98400	SEC 35 10 9
RE-5	R1A					MDR						SS					07018042	0.00000	1.51000	SEC 35 10 9
RE-5	R2A					MDR						SS					07018043	0.00000	2.13200	RS 32/34/1
RE-5	R2A					MDR						SS					07018044	2.00000	2.30000	SEC 35 10 9 ROAD
AE	PA-20					LDR											07021032	0.00000	33.50000	RS8/137S25&26109
AE	PA-20					LDR											07021055	0.00000	11.24000	RS 7/63/2
RE-5	R1A					MDR						SS					07023003	0.00000	0.97000	SEC 1 9 9
RE-5	R1A					MDR						SS					07023004	0.00000	1.00000	SEC 1 9 9
RE-5	R1A					MDR						SS					07023005	0.00000	0.03000	SEC 1 9 9
RE-5	R1A					MDR						SS					07023006	0.00000	1.00000	PM 22/58/1
RE-5	R3A					MDR						SS					07023007	0.00000	4.48600	PM 22/58/2
RE-5	R3A					MDR						SS					07023008	0.00000	3.84000	SEC 1 9 9
RE-5	R1A					MDR						SS					07023010	0.00000	0.23000	SEC 1 9 9
RE-5	R1A					MDR						SS					07023013	0.00000	0.51000	SEC 6 9 10
R1A	CC					C						SS					07023019	0.00000	4.38000	PM 48/53/A
R1A	CC					C						SS					07023020	0.00000	2.34300	PM 48/53/B
RE-5	R1A					MDR						SS					07024002	0.00000	1.45200	SEC 1 9 9
RE-5	R1A					MDR						SS					07024003	0.00000	1.00000	SEC 1 9 9
RE-5	R2A					MDR						SS					07024006	0.00000	2.00000	SEC 1 9 9
RE-5	R1A					MDR						SS					07024007	0.00000	1.62000	PM 2/7/D
RE-5	R1A					MDR						SS					07024008	0.00000	1.00000	PM 2/7/A
RE-5	R2A					MDR						SS					07024027	0.00000	2.08000	SEC 1 9 9
RE-5	R1A					MDR						SS					07024029	0.00000	0.91000	SEC 1 9 9
RE-5	R1A					MDR						SS					07024031	0.00000	0.91000	SEC 1 9 9
RE-5	R1A					MDR						SS					07024032	0.00000	1.94000	SEC 1 9 9
RE-5	R1A					MDR						SS					07024033	0.00000	1.00000	SEC 1 9 9
RE-5	R2A					MDR						SS					07024034	0.00000	2.58000	SEC 1 9 9
RE-5	R2A					MDR						SS					07024035	0.00000	2.49000	SEC 1 9 9
RE-5	R2A					MDR						SS					07024036	0.00000	2.38000	SEC 1 9 9
RE-5	R2A					MDR						SS					07024037	0.00000	2.55000	SEC 1 9 9
RE-5	R3A					MDR						SS					07024039	0.00000	4.00000	PM 4/87/2
RE-5	R2A					MDR						SS					07024040	0.00000	2.01000	PM 5/54/1
RE-5	R2A					MDR						SS					07024041	0.00000	2.01000	PM 5/54/2
RE-5	R2A					MDR						SS					07024042	0.00000	2.96000	SEC 1 9 9
RE-5	R1A					MDR						SS					07024043	0.00000	1.00000	PM 19/19/2
RE-5	R1A					MDR						SS					07024045	0.00000	1.75000	PM 19/19/1
RE-5	R2A					MDR						SS					07024056	0.00000	2.61400	SEC 1 9 9
RE-5	R1A					MDR						SS					07024057	0.00000	0.55700	RS 28/88/1
R1A	CL					C						SS					07025011	0.00000	0.61000	SEC 1 9 9
R1A	CR					C						SS					07025013	0.00000	1.00000	RS 13/138 S199

R1A	CR					C					SS					07025015	0.00000	3.96000	SEC 1 9 9
C	CR			PD		C					SS					07025016	0.00000	1.01000	SEC 1 9 9
MP	R1					HDR					SS					07025040	0.00000	10.00000	SEC 1 9 9
R1A	CL					C					SS					07025058	0.00000	0.84000	PM 44/61/2
RE-5	R2A					MDR					SS					07026108	0.00000	2.34000	PM 7/43/C
RE-5	R2A					MDR					SS					07026109	0.00000	2.34000	PM 7/43/D
RE-5	R1A					MDR					SS					07026110	0.00000	1.17000	PM 13/149/1
RE-5	R1A					MDR					SS					07026111	0.00000	1.17000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026112	0.00000	1.17000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026113	0.00000	1.17500	PM 13/149/2
RE-5	R1A					MDR					SS					07026115	0.00000	1.21000	PM 14/95/1
RE-5	R1A					MDR					SS					07026120	0.00000	1.08000	PM 14/95/2
RE-5	R1A					MDR					SS					07026121	0.00000	1.21000	PM 14/95/3
RE-5	R1A					MDR					SS					07026126	0.00000	1.16000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026127	0.00000	1.67000	PM 9/143/1
RE-5	R1A					MDR					SS					07026128	0.00000	1.16000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026129	0.00000	1.16000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026130	0.00000	1.00000	PM 9/143/2
RE-5	R1A					MDR					SS					07026131	0.00000	1.66000	SEC 2 9 9
RE-5	R3A					MDR					SS					07026133	0.00000	3.33000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026134	0.00000	1.00000	PM 2/125/A
RE-5	R1A					MDR					SS					07026135	0.00000	1.02000	PM 2/125/B
RE-5	R1A					MDR					SS					07026136	0.00000	1.08000	PM 2/125/C
RE-5	R1A					MDR					SS					07026137	0.00000	1.54000	SEC 2 9 9
RE-5	R2A					MDR					SS					07026138	0.00000	2.01000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026139	0.00000	1.00000	PM 9/143/3
RE-5	R1A					MDR					SS					07026140	0.00000	1.16000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026141	0.00000	1.16000	RS 22/38/1
RE-5	R1A					MDR					SS					07026142	0.00000	1.00000	PM 9/143/4
RE-5	R1A					MDR					SS					07026144	0.00000	1.26000	PM 15/133/A
RE-5	R1A					MDR					SS					07026145	0.00000	1.25700	PM 15/133/B
RE-5	R1A					MDR					SS					07026146	0.00000	1.26000	PM 15/133/C
RE-5	R1A					MDR					SS					07026147	0.00000	1.26000	PM 15/133/D
RE-5	R1A					MDR					SS					07026148	0.00000	2.00000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026149	0.00000	1.00000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026150	0.00000	1.00000	SEC 2 9 9
RE-5	R1A					MDR					SS					07026151	0.00000	1.00000	RS 23/104/1
RE-5	R3A					MDR					SS					07026152	0.00000	4.02000	RS 23/104/2
RE-5	R1A					MDR					SS					07026153	0.00000	1.00000	RS 23/104/3
RE-5	R1A					MDR					SS					07026154	0.00000	1.01000	PM 6/138/3
RE-5	R1A					MDR					SS					07026155	0.00000	1.00400	PM 6/138/2
RE-5	R1A					MDR					SS					07026156	0.00000	1.00400	PM 6/138/1
RE-5	R1A					MDR					SS					07026157	0.00000	1.00000	PM 18/68/1
RE-5	R1A					MDR					SS					07026158	0.00000	1.00000	PM 18/68/2
RE-5	R1A					MDR					SS					07026159	0.00000	1.67000	RS 32/103/1
RE-5	R3A					MDR					SS					07026161	0.00000	5.00400	PM 14/120/B

RE-5	R3A					MDR						SS					07026165	0.00000	5.00000	PM 10/144/4
RE-5	R3A					MDR						SS					07026166	0.00000	5.00000	PM 11/74/1
RE-5	R3A					MDR						SS					07026167	0.00000	5.00000	PM 11/74/2
RE-5	R3A					MDR						SS					07026168	0.00000	5.00000	PM 11/74/3
RE-5	R3A					MDR						SS					07026169	0.00000	5.00000	PM 12/75/A
RE-5	R3A					MDR						SS					07026170	0.00000	5.00000	PM 12/75/B
RE-5	R3A					MDR						SS					07026171	0.00000	5.08000	PM 12/75/C
RE-5	R3A					MDR						SS					07026174	0.00000	5.00000	PM 12/92/3
RE-5	R3A					MDR						SS					07026175	0.00000	5.07000	PM 16/99/A
RE-5	OS					MFR						SS					07026177	11.00000	5.01000	PM 16/99/C
RE-5	RM					MFR						SS					07026178	0.00000	5.02500	PM 12/93/1
RE-5	OS					MFR						SS					07026179	11.00000	5.01300	PM 12/93/2
RE-5	OS					MFR						SS					07026180	11.00000	5.06000	PM 12/93/3
RE-5	OS					MFR						SS					07026181	11.00000	5.02000	PM 12/93/4
RE-5	OS					C						SS					07026182	0.00000	0.00000	
R3A	CR					C						SS					07027019	0.00000	9.74700	PM 36/90/A
C	CR			PD		C						SS					07027020	0.00000	10.45900	PM 35/33/2
C	CR					C						SS					07027027	2.00000	0.07900	PM 48/26/R AW
CG	CR			PD		C						SS					07027028	11.00000	0.17800	RS 26-59
CG	CR			PD		C						SS					07027029	0.00000	6.72200	POR PM 48/10/2
C	CR					C						SS					07027031	0.00000	2.12000	PM 49/84/1
C	CR					C						SS					07027032	0.00000	1.16000	PM 49/84/2
RE-5	R1A					MDR						SS					07028002	0.00000	1.39000	SEC 2 9 9
C	CR			PD		C						SS					07028036	0.00000	3.00000	PM 26/4/A
C	CR					C						SS					07028039	0.00000	2.20000	PM 26/4/D
C	CR					C						SS					07028053	0.00000	6.17000	PM 35/66/1
RE-5	R1A					MDR						SS					07028054	0.00000	0.60000	RS 23/4/1
R1A	OS			PD		OS		EP				SS					07028055	11.00000	41.82600	TR 1 RS 17-49
R1A	OS			PD		OS		EP				SS					07028056	11.00000	48.83700	TR 2 RS 17-49
RE-5	R1A					MDR						SS					07028057	11.00000	0.32000	POR SEC 2 9 9
C	CC			PD		C						SS					07028062	0.00000	1.00000	PM 49/73/1
C	CC			PD		C						SS					07028063	0.00000	1.00000	PM 49/73/2
C	CC			PD		C						SS					07028064	0.00000	3.00000	PM 49/73/3
RA-20	RL-20					RR											07101008	11.00000	142.27000	SEC 12 12 8
MR	OS					OS											07101010	11.00000	183.03000	SEC 6&7 12 9
MR	OS					OS											07101011	11.00000	10.00000	SEC 7 12 9
RA-20	RL-40					NR											07101016	0.00000	108.59000	RS 18/148/1
OS	RL-40					NR											07101017	11.00000	0.00000	RS 29/23
RA-20	RL-40					NR											07101017	11.00000	0.00000	RS 29/23
MR	RL-40					NR											07101018	0.00000	142.98000	RS 16/16 S7129
RA-20	RL-40					NR											07101018	0.00000	142.98000	RS 16/16 S7129
MR	RL-40					NR											07101019	0.00000	20.00000	RS 16/16 S7129
RA-20	RL-20					RR											07101022	11.00000	81.20000	RS 16/16 S7129
RA-20	RL-40					NR											07101023	11.00000	55.90000	SEC 7 12 9 RS 16
MR	RL-40					NR											07101025	0.00000	208.02000	RS 21/100
RA-20	RL-40					NR											07101025	0.00000	208.02000	RS 21/100

RA-20	RL-40					NR											07101025	0.00000	208.02000	RS 21/100
MR	OS					OS											07103202	11.00000	6.20000	SEC 18 12 9
R2A	RE-5					LDR											07103215	0.00000	25.03700	PM 9/98/2
AE	RE-5					MDR							CO				07103218	11.00000	1.01000	SEC 17 12 9
R2A	RE-5					LDR											07103219	0.00000	154.00000	SEC 17 & 20 12 9
RE-10	RL-10			PD		RR											07103233	0.00000	305.96000	RS 15/74/1
AE	CC					C							CO				07103239	0.00000	32.92000	PM 44/80/3
AE	RE-5					MDR							CO				07103240	0.00000	146.20000	REM P/M 44-80
AE	RE-5					MDR							CO				07103240	0.00000	146.20000	REM P/M 44-80
MR	RL-20					RR											07103241	11.00000	97.96000	SEC 18 12 9
RA-20	RL-20					RR											07103241	11.00000	97.96000	SEC 18 12 9
RE-10	RL-10			PD		RR											07103245	0.00000	282.29000	POR RS 9/61
RE-10	RL-10			PD		RR											07103246	0.00000	45.03000	RS15/8/1&S1612 9
AE	LA-10					RR											07104002	0.00000	71.63000	SEC 26 12 8
RF	RF-L					OS											07104007	11.00000	0.00000	POR SEC 34 12 8
RF	RF-L					OS											07104008	11.00000	74.07000	SEC 26&35 12 8
AE	LA-10					RR											07104009	0.00000	486.76000	SEC 35 12 8
AE	LA-10					RR			IBC								07104031	0.00000	10.90900	SEC 36 12 8
AE	LA-10					RR			IBC								07104032	0.00000	27.45700	SEC 36 12 8
AE	LA-10					RR			IBC								07104033	0.00000	76.69400	SEC 36 12 8
RF	RF-L					OS											07104035	11.00000	0.00000	SEC 34 12 8
RE-5	OS					OS											07105103	11.00000	5.00000	SEC 30 12 9
RF	RF-H				DH	PF							PLTH				07105108	11.00000	9.42000	SEC 31 12 9
RF	RF-L				DH	PF							PLTH				07105109	11.00000	0.64000	SEC 31 12 9
RF	RF-L					C							PLTH				07105119	11.00000	0.29000	PORPAR A PM36-71
RE-10	RL-10					RR											07105137	0.00000	69.77000	PM 48/3/1
RE-10	RL-10					RR											07105140	0.00000	67.59000	PM 48/24/A
RE-10	RL-10					RR											07105141	0.00000	219.64000	PM 48/24/B
R1	RE-5					C							PLTH				07105144	0.00000	244.45300	PM 48/47/2
R1A	RE-5					C							PLTH				07105144	0.00000	244.45300	PM 48/47/2
R1A	RE-10					LDR											07105146	0.00000	80.00000	SEC 32 12 9
R1	RE-10					C							PLTH				07105156	0.00000	61.68000	PM 50/128/1
R1A	RE-10					C							PLTH				07105156	0.00000	61.68000	PM 50/128/1
RE-5	RE-10					C							PLTH				07105156	0.00000	61.68000	PM 50/128/1
R1	RE-5					LDR											07105157	0.00000	58.09000	PM 50/128/2
R1A	RE-5					LDR											07105157	0.00000	58.09000	PM 50/128/2
R1A	RE-5					LDR											07105158	0.00000	125.02000	PM 50/128/3
R1A	RE-5					LDR											07105161	0.00000	59.96000	RS 33/15/B
R1A	RE-5					LDR											07105162	0.00000	153.39000	RS 33/15/A
RE-10	RL-10					RR			IBC								07107002	0.00000	15.45000	SEC 16 12 9
RE-10	RL-10					RR			IBC								07107004	0.00000	7.00000	SEC 16 12 9
RE-10	RL-10					RR			IBC								07107006	0.00000	4.70000	SEC 16 12 9
RE-10	RL-10					RR			IBC								07107010	0.00000	9.73000	SEC 16 12 9
C	CC		DC			PF							CO				07108002	11.00000	2.40000	SEC 18 12 9
C	CC		DC			C							CO				07108006	0.00000	1.35000	SEC 18 12 9
C	CC		DC			C							CO				07108010	0.00000	2.00900	PM 34/141/1

C	CC		DC			C							CO				07108011	0.00000	3.72000	PM 34/141/2
RA-40	RL-40					RR											07111011	0.00000	39.23000	RS 13/73 S25128
CG	CC					C							CO				07128051	0.00000	3.39000	SEC 19 12 9
R2A	CC					C							CO				07128051	0.00000	3.39000	SEC 19 12 9
CG	R2A					MDR							CO				07128053	11.00000	0.10000	SEC 19 12 9
RA-20	RE-10					LDR			IBC								07130207	0.00000	0.00000	L 13
RE-10	RL-10					RR											07137008	0.00000	10.00000	PM 23/139/3
RE-10	RL-10					RR											07137009	0.00000	10.00000	PM 23/139/4
RE-10	RL-10					RR											07137011	0.00000	10.00000	PM 26/143/A
RE-10	RL-10					RR											07137012	0.00000	10.00000	PM 26/143/B
RE-10	RL-10					RR											07137032	0.00000	2.00000	RS 12/29/4
RE-10	RL-10					RR											07137034	0.00000	2.00000	RS 12/29/5
RE-10	RL-10					RR											07137037	0.00000	10.00000	RS 12/84/1
RE-10	RL-10					RR											07137038	0.00000	10.00000	RS 12/84/4
RE-10	RL-10					RR											07137039	0.00000	10.00000	RS 12/84/3
RE-10	RL-10					RR											07137040	0.00000	10.00000	RS 12/84/2
RE-10	RL-10					RR											07137046	0.00000	10.00000	RS 12/29/7
RE-10	RL-10					RR											07137048	0.00000	10.00000	RS 12/88/E
RE-10	RL-10					RR											07137049	0.00000	10.00000	RS 12/88/H
RE-10	RL-10					RR											07137050	0.00000	10.00000	RS 12/88/G
RE-10	RL-10					RR											07137051	0.00000	10.00000	RS 12/88/F
RE-10	RL-10					RR											07137059	0.00000	3.17000	RS 12/29/3
RE-10	RL-10					RR											07137060	0.00000	10.00000	RS 12/29/6
RE-10	RL-10					RR											07137061	0.00000	10.00000	RS 12/88/A
RE-10	RL-10					RR											07137062	0.00000	10.00000	RS 12/88/D
RE-10	RL-10					RR											07137063	0.00000	10.00000	RS 12/88/C
RE-10	RL-10					RR											07137064	0.00000	10.00000	RS 12/88/B
RE-10	RL-10					RR											07137080	0.00000	2.83000	RS 12/92/A
RE-10	RL-10					RR											07137081	0.00000	10.00000	RS 12/92/B
RE-10	RE-5					LDR											07137082	0.00000	15.01000	PM 37/19/A
RE-10	RE-5					LDR											07137083	0.00000	10.00000	PM 37/19/B
RE-10	RE-5					LDR											07137085	0.00000	5.00000	PM 37/19/D
RE-10	RL-10					RR											07138005	0.00000	3.00000	SEC 28 12 9
RE-10	RL-10					RR											07138006	0.00000	2.00000	SEC 28 12 9
RE-10	RL-10					RR											07138007	0.00000	3.00000	SEC 28 12 9
RE-10	RL-10					RR											07138008	0.00000	2.00000	SEC 28 12 9
RE-10	RL-10					RR											07138010	0.00000	2.15000	SEC 28 12 9
RE-10	RL-10					RR											07138011	0.00000	3.31000	SEC 28 12 9
RE-10	RL-10					RR											07138012	0.00000	2.00000	SEC 28 12 9
RE-10	RL-10					RR											07138013	0.00000	2.26000	SEC 28 12 9
RE-10	RL-10					RR											07138014	0.00000	10.00000	SEC 28 12 9
RE-10	RL-10					RR											07138015	0.00000	10.00000	SEC 28 12 9
RE-10	RL-10					RR											07138016	0.00000	10.00000	SEC 28 12 9
RE-10	RL-10					RR											07138017	0.00000	10.00000	SEC 28 12 9
RE-10	RL-10					RR											07138018	0.00000	4.98000	SEC 28 12 9
RE-10	RL-10					RR											07138019	0.00000	5.00000	SEC 28 12 9

RE-10	RL-10					RR											07138020	0.00000	2.50000	SEC 28 12 9
RE-10	RL-10					RR											07138021	0.00000	2.50000	SEC 28 12 9
RE-10	RL-10					RR											07138022	0.00000	5.00000	SEC 28 12 9
RE-10	RL-10					RR											07138023	0.00000	5.00000	SEC 28 12 9
RE-10	RL-10					RR											07138024	0.00000	5.28000	RS 21/77/1
RE-10	RL-10					RR											07138025	0.00000	20.00000	SEC 28 12 9
RE-10	RL-10					RR											07138027	0.00000	10.00000	SEC 28 12 9
RE-10	RL-10					RR											07138028	0.00000	10.00000	SEC 28 12 9
RE-10	RL-10					RR											07138029	0.00000	10.00000	SEC 28 12 9
RE-10	RL-10					RR											07138030	0.00000	10.00000	SEC 28 12 9
RE-10	RL-10					RR											07138031	0.00000	10.00000	SEC 28 12 9
RE-10	RL-10					RR											07138034	0.00000	10.00000	RS 21/20/1
C	CC		DC			C							CO				07139001	0.00000	10.00000	PM 28/36/1
OS	R2A					MDR							CO				07139009	0.00000	5.33000	PM 39/145/1
R2A	RE-5					LDR											07143001	0.00000	2.95800	PM 18/18/1
R2A	RE-5					LDR											07143002	0.00000	5.00000	PM 22/12/A
R2A	RE-5					LDR											07143005	0.00000	2.00000	RS 12/73/1
R2A	RE-5					LDR											07143006	0.00000	2.00000	RS 12/73/2
R2A	RE-5					LDR											07143007	0.00000	2.11000	RS 12/73/3
R2A	RE-5					LDR											07143011	0.00000	15.00000	SEC 30 12 9
R2A	RE-5					LDR											07143012	0.00000	6.80100	PM 18/18/4
R2A	RE-5					LDR											07143013	0.00000	3.67000	SEC 30 12 9
R2A	RE-5					LDR											07143018	0.00000	2.00000	RS 27/4/1
R2A	RE-5					LDR											07143019	0.00000	2.60000	RS 27/4/2
RE-10	RE-5					LDR											07144002	0.00000	10.16000	POR PAR 3 22-48
RE-10	RL-10					RR											07144003	0.00000	10.00000	PM 23/74/1
RE-10	RL-10					RR											07144004	0.00000	10.00000	PM 23/74/2
RE-10	RL-10					RR											07144005	0.00000	10.00000	PM 22/42/1
RE-10	RL-10					RR											07144006	0.00000	10.00000	PM 22/42/2
RE-10	RL-10					RR											07144007	0.00000	10.00000	PM 22/42/4
RE-10	RL-10					RR											07144008	0.00000	10.05000	PM 22/42/3
RE-10	RL-10					RR											07144009	0.00000	10.00000	PM 23/74/3
RE-10	RL-10					RR											07145002	0.00000	20.06000	PM 20/11/2
RE-10	RL-10			PD		RR											07145003	0.00000	40.19000	PPM 14/84/G&H
RE-10	RL-10					RR											07145005	0.00000	20.00000	PM 21/65/1
RE-10	RL-10					RR											07145006	0.00000	10.00000	RS 28/74/A
RE-10	RL-10					RR											07145007	0.00000	10.01000	RS 12/19/B
RE-10	RL-10					RR											07145008	0.00000	20.00000	PM 40/107/1
RE-10	RL-10					RR											07145009	0.00000	20.00000	PM 40/107/2
RE-10	RL-10					RR											07145011	0.00000	10.00600	PM 47/8/1
RE-10	RL-10					RR											07145012	0.00000	10.00700	PM 47/8/2
MR	RL-40					NR											07149020	0.00000	39.01000	RS 21/100
RA-20	RL-40					NR											07149020	0.00000	39.01000	RS 21/100
R2	R2A		DC			MDR							CO				07150011	0.00000	40.36000	SEC 17 12 9
C	CC					C							CO				07150025	0.00000	2.00000	PM 17/48/3
CP	CC					C							CO				07150026	0.00000	20.36000	PM 34/118/1

R2	RM					MFR						CO				07150027	0.00000	7.14000	PM 34/118/2
R2	RM					MFR						CO				07150028	0.00000	7.16000	PM 34/118/3
R2	RM					MFR						CO				07150029	0.00000	7.09000	PM 34/118/4
AE	RM					MFR						CO				07150042	0.00000	29.67000	PM 44/80/1
AE	RL-10					LDR										07151001	0.00000	181.04000	PM 50/105/1
RA-40	RL-10					LDR										07151001	0.00000	181.04000	PM 50/105/1
RE-10	RL-10					LDR										07151001	0.00000	181.04000	PM 50/105/1
AE	RL-10					LDR										07151002	0.00000	213.03000	PM 50/105/2
AE	RL-10					LDR										07151002	0.00000	213.03000	PM 50/105/2
RA-40	RL-10					LDR										07151002	0.00000	213.03000	PM 50/105/2
RA-40	RL-10					LDR										07151002	0.00000	213.03000	PM 50/105/2
AE	RL-10					LDR										07151003	0.00000	188.45000	PM 50/105/3
RE-10	RL-10					LDR										07151003	0.00000	188.45000	PM 50/105/3
AE	RL-10					LDR										07151004	0.00000	226.24000	PM 50/105/4
RA-40	RE-5					LDR										07151004	0.00000	226.24000	PM 50/105/4
RA-20	RL-40					NR										07202009	0.00000	160.00000	SEC 8 12 9
RF	RF-L					OS						CO				07205101	2.00000	0.00000	COMMON AREA
C	CC		DC			C						CO				07205201	2.00000	8.46000	L B
R2A	R1A					HDR						CO				07205204	0.00000	4.49000	SEC 17 12 9
R1	R1A					MDR						CO				07209105	0.00000	0.00000	L 165
R2A	R1A					HDR						CO				07213312	0.00000	3.38000	PM39/107/296A
RF	R1					HDR						CO				07215310	2.00000	0.00000	COMMON AREA
RF	RF-L					HDR						CO				07216003	0.00000	0.00000	
RF	RF-L					HDR						CO				07216003	0.00000	0.00000	
RF	RF-L					HDR						CO				07216003	0.00000	0.00000	
RF	RF-L					HDR						CO				07216003	0.00000	0.00000	
RF	RF-L					HDR						CO				07216003	0.00000	0.00000	
RF	RF-L					HDR						CO				07216003	0.00000	0.00000	
RF	RF-L					HDR						CO				07216003	0.00000	0.00000	
R2A	RF-L					HDR						CO				07217301	2.00000	0.00000	L 140 AW
R1	R2A					MDR						CO				07220223	0.00000	6.04100	POR PM 40/41/1
R1	R2A					MDR						CO				07220305	0.00000	2.90000	PM 34/33/A
RF	RF-H					HDR						CO				07223301	2.00000	0.98000	COMMON AREA
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	
R2A	R1A					HDR						CO				07235026	0.00000	0.00000	

R2A	R1A					HDR							CO				07235026	0.00000	0.00000	
R2A	R1A					HDR							CO				07235026	0.00000	0.00000	
RF	R1A					HDR							CO				07235026	0.00000	0.00000	
RF	RF-L					HDR							CO				07236119	2.00000	0.00000	COMMON AREA
RF	RF-L					HDR							CO				07237134	2.00000	0.00000	COMMON AREA
RF	RF-L					MDR			IBC		PL						07243115	2.00000	0.00000	C-8 & C-11 AW
RE-10	OS					OS											07301006	0.00000	18.28000	SEC 35 13 9
RE-10	RL-10					RR			IBC								07302037	0.00000	6.26000	PM 9/95/1
RE-10	RL-10					RR			IBC								07302038	0.00000	6.09000	PM 9/95/2
RE-10	RL-10					RR			IBC								07302039	0.00000	7.16000	PM 9/95/3
RE-10	RL-10					RR			IBC								07302040	0.00000	6.08000	PM 9/95/4
RA-20	LA-10					RR			IBC								07302043	0.00000	46.23000	RS 23/65/3
RA-20	LA-10			PD		RR			IBC								07302044	0.00000	43.20000	RS 23/65/1
RA-20	RL-20			PD		RR			IBC								07302045	0.00000	80.00000	SEC 11 12 9
RA-20	RL-20			PD		RR			IBC								07302046	0.00000	90.00000	RS 23/65/2
AE	AG-40					AL			IBC								07302049	0.00000	61.76700	SEC 10&15 12 9
AE	AG-40					AL			IBC								07302050	0.00000	55.93500	SEC 10&15 12 9
AE	AG-40					AL			IBC								07302051	0.00000	38.50000	SEC 10 12 9
R2A	RF-L					OS			IBC								07310202	0.00000	2.00000	L 774
RF	RF-L					MDR			IBC		PL						07334116	2.00000	0.00000	COMMON AREA
RF	RF-L					MDR			IBC		PL						07345208	2.00000	6.96000	COMMON AREA
RF	RF-L					MDR			IBC		PL						07347104	2.00000	37.58000	COMMON AREA
RF	RF-L					MDR			IBC		PL						07347205	2.00000	20.21000	COMMON AREA
AE	RF-L					MDR			IBC		PL						07349407	2.00000	0.00000	L 1706 (AW)
RF	RF-L					MDR			IBC		PL						07350205	2.00000	27.17000	COMMON AREA
RF	RF-L					MDR			IBC		PL						07356102	0.00000	3.58000	PM 34/54/A
RE-10	OS					OS				MR							07402003	11.00000	80.00000	SEC 25 13 9
RE-10	RL-10					RR				MR							07402004	0.00000	112.38500	RS 21/75/1
RE-10	OS					NR											07402006	0.00000	5.00000	SEC 35 13 9
RE-10	OS					OS											07402008	11.00000	37.59000	SEC 35 13 9
RE-10	RL-10					RR			IBC	MR							07402017	0.00000	11.35000	SEC 36 13 9
RE-10	RL-10					RR			IBC	MR							07402020	0.00000	10.00000	SEC 36 13 9
RE-10	RL-10					RR			IBC	MR							07402022	0.00000	38.38000	RS 20/112 S36139
RE-10	OS					OS											07402040	11.00000	147.90000	SEC 35 & 36 13 9
RE-10	RL-10					RR			IBC	MR							07402041	0.00000	9.87000	PM 10/59/1
RE-10	RL-10					RR			IBC	MR							07402042	0.00000	9.82000	PM 10/59/2
RE-10	RL-10					RR											07403001	0.00000	78.70000	SEC 1 12 9
RE-10	RL-10					RR			IBC	MR							07403002	0.00000	10.00000	SEC 1 12 9
RE-10	RL-10					RR			IBC	MR							07403003	0.00000	36.61000	SEC 1 12 9
RE-10	RL-10					RR			IBC	MR							07403004	0.00000	5.95000	SEC 1 12 9
RE-10	RL-10					RR			IBC	MR							07403008	0.00000	20.10800	RS 30/90/1
RE-10	RL-10					RR				MR							07403031	0.00000	53.23000	SEC 1 12 9
RE-10	RL-10					RR			IBC	MR							07403037	0.00000	10.23000	PM 11/21/1
RE-10	RL-10					RR			IBC	MR							07403038	0.00000	10.08000	PM 11/21/2
RE-10	RL-10					RR			IBC	MR							07403039	0.00000	10.83000	PM 11/21/3
RE-10	RL-10					RR			IBC								07403055	0.00000	20.07900	PM 11/21/4

RE-10	RL-10					RR			IBC								07404201	0.00000	40.01000	RS 12/78/1
AE	PA-20					RR			IBC								07404202	0.00000	146.52100	POR SEC 15 12 9
AE	PA-20					RR			IBC								07404203	0.00000	167.76900	POR SEC 14 12 9
AE	RL-10					RR			IBC								07404204	0.00000	55.42000	RS 12/94/1
AE	LA-10					RR			IBC								07404205	0.00000	40.00000	RS 14/144/1
AE	RL-10					RR			IBC								07404208	0.00000	57.45000	RS 12/94/2
AE	AG-40					AL											07404209	0.00000	63.86400	SEC 15 12 9
AE	RL-10					RR			IBC								07404210	0.00000	239.09000	SEC 13 12 9
AE	AG-40					AL											07404211	0.00000	40.01000	RS 18/131/1
AE	RL-10					RR			IBC								07404213	0.00000	10.00000	PM 48/126/1
AE	AG-40					AL											07404214	0.00000	150.59300	SEC 22 12 9
AE	AG-40					AL											07404215	0.00000	150.53300	SEC 22 12 9
AE	RL-10					RR			IBC								07404217	0.00000	40.00000	RS 12/116 S24129
AE	RL-10					RR											07404218	0.00000	66.71000	RS 31/53/1
AE	RL-10					RR											07404219	0.00000	160.00000	SEC 24 12 9
AE	AG-40					AL											07404220	0.00000	160.00000	SEC 22 12 9
AE	RL-10					RR											07404221	0.00000	160.00000	POR SEC 24 12 9
AE	RL-10					RR											07404222	0.00000	160.00000	POR SEC 24 12 9
AE	RL-10					RR			IBC								07404224	0.00000	45.61000	PM 49/65/1
AE	RL-10					RR			IBC								07404225	0.00000	20.01000	PM 49/65/2
AE	RL-10					RR			IBC	MR							07404229	0.00000	44.02000	PM 50/52/1
AE	RL-10					LDR			IBC	MR							07404230	0.00000	30.04400	PM 50/52/2
RA-40	RL-40					RR											07405003	0.00000	40.00000	SEC 34 12 9
RA-40	RL-40					RR											07405005	0.00000	40.00000	SEC 34 12 9
RA-40	LA-10					RR											07405007	0.00000	40.00000	SEC 34 12 9
AE	AG-40					AL											07405008	0.00000	80.00000	SEC 34 12 9
AE	RL-10					LDR											07405010	0.00000	640.00000	SEC 25 12 9
AE	AG-40					AL											07405011	0.00000	80.00000	SEC 35 12 9
AE	AG-40					AL											07405013	0.00000	240.00000	SEC 35 12 9 ADM
RA-40	RL-40					RR											07405021	11.00000	0.00000	SE 1/4 S34 12 9
RA-40	RL-40					RR											07405022	11.00000	0.00000	SW 1/4 S 34 12 9
RA-40	LA-10					RR											07405023	0.00000	40.00000	SEC 34 12 9 ADM
RA-40	LA-10					RR											07405024	0.00000	39.85000	SEC 34 12 9 ADM
RA-40	LA-10					RR											07405025	0.00000	240.00000	SEC 34 12 9 ADM
RA-40	LA-10					RR											07405026	0.00000	40.00000	SEC 34 12 9 ADM
AE	AG-40					AL											07405027	0.00000	72.00000	RS 8/115 S36129
AE	AG-40					AL											07405028	0.00000	320.00000	SEC 35 12 9 ADM
RE-10	RL-10					RR											07405029	0.00000	80.00000	POR SEC 27 12 19
RE-10	RL-10					RR											07405030	0.00000	153.30000	POR SEC 27 12 19
AE	RL-10					LDR											07405031	0.00000	90.50000	SEC 36 12 9 ADM
AE	RL-10					LDR											07405032	0.00000	160.00000	SEC 36 12 9 ADM
AE	PA-20					AL											07405033	0.00000	157.50000	SEC 36 12 9 ADM
AE	PA-20					AL											07405034	0.00000	160.00000	SEC 36 12 9 ADM
RE-10	OS					OS				MR							07406002	11.00000	17.16000	SEC 25 13 9
RE-10	OS					OS				MR							07406004	11.00000	15.17000	SEC 25 13 9
RE-10	RL-10					RR			IBC	MR							07406026	0.00000	10.02000	PM 29/67/1

RE-10	RL-10					RR			IBC	MR							07406027	0.00000	8.81000	PM 29/67/2
RE-10	RL-10					RR			IBC	MR							07406028	0.00000	10.01000	PM 29/67/3
RE-10	RL-10					RR			IBC								07409008	0.00000	0.52000	SEC 12 12 9
C	CC					C							GW				07409010	0.00000	0.97000	SEC 12 12 9
RE-10	RL-10					RR			IBC								07409014	0.00000	7.56000	PM 27/147/A
RE-10	RL-10					RR			IBC								07409015	0.00000	8.67000	PM 27/147/B
RE-10	RL-10					RR			IBC								07409016	0.00000	5.01000	PM 27/147/C
RE-10	RL-10					RR			IBC	MR							07409017	0.00000	4.59000	SEC 1 12 9
C	CC					C							GW				07410028	0.00000	4.94400	PM 7/16/1
C	CL					C							GW				07410029	0.00000	0.57000	PM 7/16/2
RE-5	CG					C							GW				07410036	0.00000	10.03000	PM 14/7/4
C	CC					C							GW				07410040	0.00000	1.00000	PM 22/26/A
C	CL					C							GW				07410041	0.00000	1.00000	PM 22/26/B
C	CL					C							GW				07410046	0.00000	0.48000	PM 23/117/3
C	CC					C							GW				07410047	0.00000	2.24000	PM 23/117/4
C	CC					C							GW				07410049	0.00000	1.63000	PM 26/26/A
C	CL					C							GW				07410050	0.00000	0.70000	PM 26/26/B
RE-10	RL-10					RR			IBC	MR							07410051	0.00000	10.00000	PM 26/81/A
RE-10	RL-10					RR			IBC								07410059	0.00000	16.10000	POR PM 19/150/1
RE-10	RL-10					RR			IBC	MR							07410063	0.00000	10.00000	PM 19/150/2
RE-10	RL-10					RR			IBC								07410066	0.00000	10.00000	PM 19/150/3
RE-10	RL-10					RR			IBC								07410067	0.00000	6.86000	SEC 12 12 9
R3A	RE-5					LDR			IBC								07410075	0.00000	40.02000	RS 14/74/1
RE-10	RL-10					RR			IBC								07410076	0.00000	55.84000	RS 14/74/2
RE-10	RL-10					RR			IBC	MR							07410081	0.00000	10.00000	RS 15/38/2
RE-10	RL-10					RR			IBC	MR							07410082	0.00000	10.00000	RS 15/38/1
RE-10	RL-10					RR			IBC								07411002	0.00000	1.17000	SEC 15 12 9
RE-10	RL-10					RR			IBC								07411008	0.00000	6.80000	SEC 15 12 9
RE-10	RL-10					RR			IBC								07411010	0.00000	0.90000	SEC 15 12 9
RE-10	RL-10					RR			IBC								07411012	0.00000	10.14000	SEC 15 12 9
R2A	RE-5					LDR			IBC								07411013	0.00000	13.46400	RS 25/29/1
RE-10	RL-10					RR			IBC								07411014	0.00000	9.19000	PM 2/3/1
RE-10	RL-10					RR			IBC								07411015	0.00000	2.01000	PM 2/3/2
RE-10	RL-10					RR			IBC								07411018	0.00000	5.00000	PM 28/125/2
RE-10	RL-10					RR			IBC								07411036	0.00000	12.67000	PM 34/18/2
RE-10	RL-10					RR			IBC								07411037	0.00000	10.35000	PM 34/18/3
RE-10	RL-10					RR			IBC								07411042	0.00000	20.00000	RS 16/78/2
RE-10	RL-10					RR			IBC								07411046	0.00000	10.00000	RS 23/60/2
RE-10	RL-10					RR			IBC								07411048	0.00000	5.14000	RS 23/60/1
RE-10	RL-10					RR			IBC								07411050	0.00000	1.81400	RS 24/54/1
RE-10	RL-10					RR			IBC								07411051	0.00000	19.39600	POR SEC 15 12 19
RE-10	RE-5					MDR							GW				07413101	0.00000	5.56600	POR L 1 B 2
C	CC		DC			C							GW				07413108	0.00000	5.41000	RS 9/18 S12129
R2A	CL					C							GW				07413108	0.00000	5.41000	RS 9/18 S12129
RE-10	RE-5					MDR							GW				07413111	0.00000	12.37000	RS 9/18 S12129
C	CC		DC			C							GW				07413112	0.00000	0.00000	POR L 1 & 2 B 2

C	CL					C							GW				07416110	0.00000	0.00000	POR L 8 & 9 B 1
R1A	CL					C							GW				07416111	0.00000	0.00000	POR LOT 10 B 1
C	CL					C							GW				07417202	0.00000	2.96000	POR B 3
R1A	CC					C							GW				07417202	0.00000	2.96000	POR B 3
C	CL					C							GW				07417203	0.00000	0.46000	POR L 3 B 3
C	R1					HDR							GW				07417208	0.00000	0.00000	L 4 B 3
C	R1					HDR							GW				07417209	0.00000	0.00000	L 4 B 3
C	CL					C							GW				07417302	0.00000	0.00000	L 13 B 1
R1A	I					PF							GW				07417309	11.00000	0.00000	RS 28/121
R3A	R1A					HDR							GW				07421101	0.00000	0.00000	L 7 B 3
R3A	R1A					HDR							GW				07421112	0.00000	15.42800	PM 49/138/1
RE-10	R1A					HDR							GW				07421112	0.00000	15.42800	PM 49/138/1
RE-10	RE-5					MDR							GW				07421113	0.00000	10.39000	PM 49/138/2
R3A	R1A					HDR							GW				07422118	0.00000	2.00000	RS 23/16/1
R3A	R1A					HDR							GW				07422119	0.00000	3.01600	RS 23/16/2
R3A	R1A					HDR							GW				07422120	0.00000	5.94100	RS 23/16/3
R3A	RE-5					LDR			IBC								07423027	0.00000	3.49000	SEC 12 12 9
R3A	RE-5					LDR			IBC								07423028	0.00000	4.58000	SEC 12 12 9
R3A	RE-5					LDR			IBC								07423029	0.00000	12.90000	SEC 12 12 9
R3A	RE-5					LDR			IBC								07423030	0.00000	12.64000	SEC 12 12 9
A	LA-10					RR			IBC								07423031	0.00000	16.02000	SEC 12 12 9
R3A	RE-5					LDR			IBC								07423032	0.00000	2.62000	SEC 12 12 9
R3A	RE-5					LDR			IBC								07423033	0.00000	2.38000	SEC 12 12 9
AE	RL-10					RR			IBC								07426001	0.00000	20.00000	RS 10/65/1
AE	RL-10					RR			IBC								07426002	0.00000	20.00000	PM 30/82/1
AE	RL-10					RR			IBC								07426003	0.00000	20.00000	PM 30/82/2
AE	RL-10					RR			IBC								07426005	0.00000	20.00000	PM 30/82/4
AE	LA-10					RR			IBC								07426006	0.00000	20.00000	SEC 23 12 9
AE	RL-10					RR			IBC								07426007	0.00000	20.00000	RS 11/7/2
AE	LA-10					RR			IBC								07426008	0.00000	20.00000	RS 11/7/1
AE	LA-10					RR			IBC								07426009	0.00000	20.00000	RS 11/7/4
AE	LA-10					RR			IBC								07426010	0.00000	20.00000	SEC 23 12 9
AE	LA-10					RR			IBC								07426011	0.00000	22.00000	RS 10/65/4
AE	LA-10					RR			IBC								07426012	0.00000	20.00000	PM 31/52/1
AE	LA-10					RR			IBC								07426015	0.00000	20.00000	PM 31/52/4
AE	RL-10					RR			IBC								07426016	0.00000	20.00000	PM 30/84/A
AE	RL-10					RR			IBC								07426017	0.00000	20.00000	POR PAR D 30-84
AE	RL-10					RR			IBC								07426018	0.00000	20.00000	POR PAR D 30-84
AE	RL-10					RR			IBC								07426019	0.00000	20.00000	PM 30/84/C
AE	LA-10					RR			IBC								07426020	0.00000	20.00000	PM 30/84/B
AE	RL-10					RR			IBC								07426023	0.00000	20.00000	RS 10/65/2
AE	RL-10					RR			IBC								07426024	0.00000	40.00000	RS 12/41/1
AE	RL-10					RR			IBC								07426025	0.00000	40.00000	RS 12/41/2
AE	RL-10					RR			IBC								07426026	0.00000	40.00000	RS 12/41/3
AE	LA-10					RR			IBC								07426027	0.00000	40.00000	RS 12/40/1
AE	LA-10					RR			IBC								07426028	0.00000	60.00000	RS 12/40/2

AE	RL-10					RR			IBC								07426029	0.00000	40.00000	RS 12/40/3
AE	RL-10					RR			IBC								07426031	0.00000	19.09000	PORPAR 3 PM30-82
AE	LA-10					RR			IBC								07426033	0.00000	17.77000	PORPAR 2 PM31-52
AE	LA-10					RR			IBC								07426035	0.00000	18.26000	PORPAR 3 PM31-52
AE	RL-10					RR											07427001	0.00000	40.00000	RS 10/134/A
AE	RL-10					RR											07427002	0.00000	20.00000	RS 11/100/1
AE	LA-10					RR											07427003	0.00000	20.05000	RS 11/100/3
AE	RL-10					RR											07427004	0.00000	20.05000	RS 11/100/5
AE	LA-10					RR											07427006	0.00000	40.11000	RS 9/138/B
AE	RL-10					RR											07427009	0.00000	20.20000	RS 11/100/6
AE	RL-10					RR											07427010	0.00000	20.00000	PRS 11/100/4 ADM
AE	RL-10					RR											07427011	0.00000	20.00000	RS 11/100/2
AE	RL-10					RR											07427012	0.00000	40.06700	RS 10/134/B
AE	RL-10					RR											07427013	0.00000	40.64000	RS 10/134/C
AE	RL-10					RR											07427014	0.00000	40.04600	RS 10/134/D
AE	RL-10					RR											07427017	0.00000	5.00000	PRS 11/100/4 ADM
AE	RL-10					RR											07427027	0.00000	53.42000	RS 10/41/A
AE	RL-10					RR											07427028	0.00000	48.69000	RS 10/41/B
AE	RL-10					RR											07427029	0.00000	40.18000	RS 10/41/C
AE	RL-10					RR											07427030	0.00000	40.33000	RS 10/41/D
AE	LA-10					RR											07427031	0.00000	85.71000	RS 9/138/C&D
AE	LA-10					RR											07427032	0.00000	81.22000	RS 11/100&9/138
RA-40	RL-40					RR			IBC								07428001	0.00000	40.00000	RS 9/77/1
RA-40	RL-40					RR			IBC								07428002	0.00000	40.00000	RS 9/77/3
RA-40	RL-40					RR			IBC								07428003	0.00000	40.00000	RS 9/77/4
RA-40	RL-40					RR			IBC								07428004	0.00000	40.00000	RS 9/77/2
RA-40	RL-40					RR											07428007	0.00000	40.00000	RS 9/96/1
RA-40	RL-40					RR											07428008	0.00000	40.00000	RS 9/96/2
RA-40	RL-40					RR											07428009	0.00000	50.28000	RS 9/96/3
RA-40	RL-40					RR											07428010	0.00000	40.00000	RS 9/96/4
RA-40	RL-40					RR											07428012	0.00000	40.00000	RS 9/78/1
RA-40	LA-10					RR			IBC								07428013	0.00000	40.00000	RS 9/78/2
RA-40	RL-40					RR			IBC								07428014	0.00000	40.00000	RS 9/78/3
RA-40	LA-10					RR			IBC								07428015	0.00000	40.00000	RS 9/78/4
RE-10	RL-10					RR			IBC								07429003	0.00000	10.00000	PM 34/73/1
RE-10	RL-10					RR			IBC								07429004	0.00000	10.00000	PM 34/73/2
RE-10	RL-10					RR			IBC								07429005	0.00000	10.00000	PM 34/73/3
RE-10	RL-10					RR			IBC								07429006	0.00000	10.00000	PM 34/73/4
RE-10	RL-10					RR			IBC								07429010	0.00000	10.00000	PM 35/95/1
RE-10	RL-10					RR			IBC								07429011	0.00000	10.00000	PM 35/95/2
RE-10	RL-10					RR			IBC								07429015	0.00000	10.00000	PM 39/21/1
RE-10	RL-10					RR			IBC								07429017	0.00000	10.00000	PM 39/21/3
RE-10	RL-10					RR			IBC								07429018	0.00000	9.00000	RS 21/43/2
RE-10	RL-10					RR			IBC								07429020	0.00000	34.87000	RS 21/43/1
RE-10	RL-10					RR			IBC								07429022	0.00000	10.00000	PM 50/130/1
RE-10	RL-10					RR			IBC								07429023	0.00000	10.00000	PM 50/130/2

AE	RL-10					RR			IBC								07430001	0.00000	40.01000	RS 23/50/1
AE	RL-10					RR			IBC								07430002	0.00000	20.00000	RS 23/50/2
AE	RL-10					RR			IBC								07430003	0.00000	20.00000	RS 23/50/3
AE	LA-10					RR			IBC								07430004	0.00000	20.28000	RS 23/130/1
AE	RL-10					RR			IBC								07430005	0.00000	20.00000	RS 23/130/2
AE	RL-10					RR			IBC								07430006	0.00000	40.12000	RS 23/130/3
AE	RL-10					RR			IBC								07430007	0.00000	20.00000	RS 23/34/1
AE	RL-10					RR			IBC								07430008	0.00000	28.08000	RS 23/34/2
AE	RL-10					RR			IBC								07430009	0.00000	20.24000	RS 23/34/3
AE	RL-10					RR			IBC								07430010	0.00000	20.17000	RS 23/131/1
AE	RL-10					RR			IBC								07430011	0.00000	25.64000	RS 23/131/2
AE	LA-10					RR			IBC								07430012	0.00000	20.37500	RS 24/132/1
AE	LA-10					RR			IBC								07430013	0.00000	20.82200	RS 24/132/2
AE	LA-10					RR			IBC								07430014	0.00000	20.64600	RS 24/132/3
AE	LA-10					RR			IBC								07430015	0.00000	20.09700	RS 24/117/2
AE	LA-10					RR			IBC								07430016	0.00000	20.64500	RS 24/114/2
AE	RL-10					RR			IBC								07430017	0.00000	20.82500	RS 24/117/3
AE	LA-10					RR			IBC								07430018	0.00000	20.60000	PM 46/142/A
AE	RL-10					RR			IBC								07430019	0.00000	20.80000	PM 46/142/B
RE-10	RL-10					RR			IBC								07431001	0.00000	10.00000	PM 29/149/A
RE-10	RL-10					RR			IBC								07431002	0.00000	10.42000	PM 29/149/B
RE-10	RL-10					RR			IBC								07431003	0.00000	10.00000	PM 29/149/C
RE-10	RL-10					RR			IBC								07431004	0.00000	13.33000	PM 32/126/1
RE-10	RL-10					RR			IBC								07431005	0.00000	10.01000	PM 32/126/2
RE-10	RL-10					RR			IBC								07431006	0.00000	10.37000	PM 32/126/3
RE-10	RL-10					RR			IBC								07431007	0.00000	10.00000	PM 32/126/4
R1A	RE-5					LDR			IBC	MR							07432105	11.00000	1.53300	PM 49/139/R
R3A	RE-5					LDR			IBC	MR							07432105	11.00000	1.53300	PM 49/139/R
R1A	TC					OS						CPP					07601103	11.00000	11.00000	SEC 2 10 12
RA-40	TC					MDR						CPP					07601104	11.00000	2.50000	SEC 2 10 12__AW
RA-40	OS					OS											07601105	11.00000	0.00000	SEC 2 10 12
RA-20	RL-20					RR											07601106	0.00000	98.49000	SEC2&11 10 12ADM
RA-20	RL-20					RR											07601107	0.00000	56.65000	SEC 11 10 12 ADM
RA-20	RL-20					RR											07601108	0.00000	143.50000	SEC 1&2 1012 ADM
RE-10	RL-10					RR											07601108	0.00000	143.50000	SEC 1&2 1012 ADM
RA-20	RL-10					RR											07601109	0.00000	5.00000	SEC 2 10 12 ADM
RA-20	RL-10					RR											07601110	0.00000	10.50000	SEC 1 10 12 ADM
RA-40	OS					OS											07601118	11.00000	0.00000	NE 1/4 S10 10 12
RA-20	RL-20					RR											07601119	0.00000	24.78000	SEC 11 10 12 ADM
RA-20	OS					OS											07601121	11.00000	60.10000	POR RS 14/143
RE-10	RL-10					RR											07601122	0.00000	8.25000	SEC 10 10 12 ADM
RE-10	RL-10					RR											07601123	0.00000	8.25000	SEC 10 10 12 ADM
RA-20	RL-10					RR											07601124	0.00000	11.75000	SEC 10 10 12 ADM
RA-20	LA-10					RR											07601125	0.00000	11.75000	SEC 10 10 12 ADM
RA-20	RL-10					RR											07601130	0.00000	10.00000	SEC 10 10 12
RA-20	OS					OS											07601133	11.00000	0.00000	S 1/2 S10 10 12

RA-20	RL-20					RR										07601134	0.00000	55.22000	SEC 11 10 12 ADM
RA-20	OS					OS										07601136	11.00000	42.25000	POR RS 14/143
RA-20	OS					OS										07601138	11.00000	104.01000	RS14-143&PM24-13
RA-20	OS					OS										07601138	11.00000	104.01000	RS14-143&PM24-13
RA-40	OS					OS										07601138	11.00000	104.01000	RS14-143&PM24-13
R20K	R1A					MDR					CPP					07606024	0.00000	3.69000	SEC 3 10 12
SA-10	PA-10					MDR					CPP					07606055	0.00000	11.77200	SEC 4 10 12
SA-10	PA-10					MDR					CPP					07606056	0.00000	12.83400	SEC 3&4 10 12
MP	RM					MFR					CPP					07618001	0.00000	4.68000	SEC 3 10 12
RE-10	RL-10					RR										07618005	0.00000	5.88000	RS 23/85/1
RE-10	RL-10					RR										07618006	0.00000	14.75000	SEC 3 10 12
RE-10	RL-10					RR										07618007	0.00000	2.37000	SEC 3 10 12
RE-10	RL-10					RR										07618008	0.00000	5.43000	SEC 3 10 12
RE-10	RL-10					RR										07618013	0.00000	4.46000	SEC 10 10 12
RE-10	RL-10					RR										07618014	0.00000	11.67000	SEC 10 10 12
RE-10	RL-10					RR										07618015	0.00000	1.22900	RS 24/91/1
RE-10	RL-10					RR										07618016	0.00000	11.09900	RS 24/91/2
RE-10	RL-10					RR										07618018	0.00000	6.07000	SEC 10 10 12
RE-10	RL-10					RR										07618024	0.00000	4.97000	RS 24/15/1
RE-10	RL-10					RR										07618025	0.00000	21.87000	SEC 3 10 12
RE-10	RL-10					RR										07620001	0.00000	4.97000	SEC 10 10 12
RE-10	RL-10					RR										07620002	0.00000	1.00000	SEC 10 10 12
RE-10	RL-10					RR										07620003	0.00000	4.57000	SEC 10 10 12
RE-10	RL-10					RR										07620004	0.00000	5.53900	SEC 10 10 12
RE-10	RL-10					RR										07620005	0.00000	5.40000	SEC 10 10 12
RE-10	RL-10					RR										07620006	0.00000	5.08600	SEC 10 10 12
RE-10	RL-10					RR										07620007	0.00000	5.00000	SEC 10 10 12
RE-10	RL-10					RR										07620008	0.00000	4.25000	SEC 10 10 12
RE-10	RL-10					RR										07620009	0.00000	9.30000	SEC 10 10 12 ADM
RA-20	RL-10					RR										07620010	0.00000	2.60000	SEC 10 10 12 ADM
RE-10	RL-10					RR										07620011	0.00000	4.63000	SEC 10 10 12 ADM
RA-20	RL-10					RR										07620012	0.00000	1.58000	SEC 10 10 12 ADM
RE-10	RL-10					RR										07620019	0.00000	10.00000	SEC 10 10 12
RE-10	RL-10					RR										07620020	0.00000	10.00000	SEC 10 10 12
RE-10	RL-10					RR										07620021	0.00000	10.00000	SEC 10 10 12
RE-10	RL-10					RR										07620022	0.00000	10.00000	SEC 10 10 12
RA-20	RL-10					RR										07620023	0.00000	1.93000	SEC 10 10 12
RE-10	RL-10					RR										07620023	0.00000	1.93000	SEC 10 10 12
RA-20	RL-10					RR										07620024	0.00000	2.03000	SEC 10 10 12
RE-10	RL-10					RR										07620024	0.00000	2.03000	SEC 10 10 12
RA-20	RL-10					RR										07620025	0.00000	1.96000	SEC 10 10 12
RE-10	RL-10					RR										07620025	0.00000	1.96000	SEC 10 10 12
R2	RM				DS	MFR					CPP					07623013	0.00000	0.42000	PM 32/75/A
R2	RM				DS	MFR					CPP					07623014	0.00000	0.53000	PM 32/75/B
R2	RM				DS	MFR					CPP					07623015	0.00000	0.88000	PM 32/75/C
MP	RM					MFR					CPP					07623016	0.00000	0.85000	SEC 2 10 12

MP	RM					MFR						CPP					07623017	0.00000	1.04000	SEC 2 10 12
MP	RM					MFR						CPP					07623018	0.00000	0.28000	SEC 2 10 12
MP	RM					MFR						CPP					07623019	0.00000	3.04000	SEC 2 10 12
C	CL				DS	C						CPP					07623024	0.00000	0.44000	SEC 2 10 12
C	CC				DS	C						CPP					07627001	0.00000	1.14500	SEC 2 10 12
C	CL				DS	C						CPP					07627003	0.00000	0.96000	SEC 2 10 12
C	CC				DS	C						CPP					07627004	0.00000	1.08000	SEC 2 10 12
C	CL				DS	C						CPP					07627005	0.00000	0.83000	RS 28/97/1
C	CL				DS	C						CPP					07627006	0.00000	0.31000	RS 28/97/2
C	CL				DS	C						CPP					07627007	0.00000	0.45000	RS 13/55 S21012
C	CC				DS	C						CPP					07627008	0.00000	1.51000	SEC 2 10 12
C	CL				DS	C						CPP					07627009	0.00000	0.63000	SEC 2 10 12
C	CC				DS	C						CPP					07627010	0.00000	1.17000	SEC 2 10 12
C	CL				DS	C						CPP					07627011	11.00000	0.05000	SEC 2 10 12
C	CC				DS	C						CPP					07627012	0.00000	1.03000	PM 2/166/1
C	CC				DS	C						CPP					07627014	0.00000	1.27000	PM 18/98/A
C	CC				DS	C						CPP					07627015	0.00000	1.39000	PM 18/98/B
C	CL				DS	C						CPP					07627018	0.00000	0.39000	SEC 2 10 12
C	CC				DS	C						CPP					07627019	0.00000	2.09000	PM 12/146/3
C	CC				DS	C						CPP					07627020	0.00000	1.00000	PM 12/146/2
C	CC				DS	C						CPP					07627021	0.00000	1.13000	PM 12/146/1
C	CC				DS	C						CPP					07627024	0.00000	0.84000	SEC 2 10 12
C	CL				DS	C						CPP					07627029	0.00000	0.47000	SEC 2 10 12
C	CL				DS	C						CPP					07627033	0.00000	0.86000	SEC 2 10 12
R2	RM				DS	MFR						CPP					07627040	0.00000	0.39000	PM 41/118/1
R2	RM				DS	MFR						CPP					07627041	0.00000	0.34700	PM 41/118/2
R2	RM				DS	MFR						CPP					07627042	0.00000	0.26000	PM 41/118/3
C	CC				DS	C						CPP					07627044	0.00000	1.77000	SEC 2 10 12
C	CL				DS	C						CPP					07627046	0.00000	0.71900	PM 49/118/2
C	CL				DS	C						CPP					07627047	0.00000	1.46600	PM 49/118/1
C	CC		DC		DS	C						CPP					07627047	0.00000	1.46600	PM 49/118/1
C	CC				DS	C						CPP					07627048	0.00000	1.75000	SEC 2 10 12
C	CC				DS	C						CPP					07628001	0.00000	1.41000	SEC 1 10 12
C	CC				DS	C						CPP					07628002	0.00000	1.22000	SEC 1 & 2 10 12
R2	RM					MFR						CPP					07628006	0.00000	0.56000	SEC 35 11 12
RA-20	RL-10					RR											07628007	0.00000	2.54000	SEC 1 & 2 10 12
RE-10	RL-10					RR											07628007	0.00000	2.54000	SEC 1 & 2 10 12
C	CL				DS	C						CPP					07628018	0.00000	0.31400	PM 23/92/2
R3A	CC					C						CPP					07628021	0.00000	2.96000	PM 47/21/A
R3A	CC					C						CPP					07628022	0.00000	2.83400	PM 47/21/B
C	CC				DS	C						CPP					07628024	0.00000	2.29000	POR PAR B PM4-83
C	CL				DS	C						CPP					07628025	0.00000	0.94000	RS 22/142/1
C	CC				DS	C						CPP					07628026	0.00000	1.40000	SEC 1 10 12
C	CL				DS	C						CPP					07628027	0.00000	0.23000	SEC 1 10 12
C	CL				DS	C						CPP					07628028	0.00000	0.23000	SEC 1 10 12
RA-20	RE-10					LDR						CPP					07629017	0.00000	20.00000	SEC 12 10 12

RA-20	RE-5					LDR						CPP					07629047	0.00000	1.25000	SEC 12 10 12
RA-20	RE-5					LDR						CPP					07629048	0.00000	1.25000	SEC 12 10 12
RA-20	RE-10					LDR						CPP					07629059	0.00000	9.25000	SEC 1 & 12 10 12
RA-20	RE-10					LDR						CPP					07629060	0.00000	18.08000	RS 24/28/1
RA-20	RE-10					LDR						CPP					07629061	0.00000	20.00000	SEC 1 10 12
RA-20	RE-5					LDR						CPP					07632009	0.00000	0.30000	SEC 11 10 12
RA-20	RE-10					LDR						CPP					07632010	0.00000	9.77000	SEC 11 10 12
RA-20	RE-10					LDR						CPP					07632011	0.00000	10.02000	SEC 11 10 12
RA-20	RE-10					LDR						CPP					07632013	0.00000	10.02000	SEC 11 10 12
RA-20	RE-10					LDR						CPP					07632015	0.00000	10.88000	SEC 11 10 12
RA-20	RE-5					LDR						CPP					07632056	0.00000	4.05000	PM 43/56/2
RA-20	RE-10					LDR						CPP					07632057	0.00000	6.27200	PM 43/56/1
RE-10	RL-10					RR											07635001	0.00000	10.14000	PM 15/19/A
RE-10	RL-10					RR											07635002	0.00000	15.35000	SEC 10 10 12
RE-10	RL-10					RR											07635003	0.00000	14.57000	RS 20/108/1
RE-10	RL-10					RR											07635004	0.00000	11.54000	PM 15/19/D
RE-10	RL-10					RR											07635005	0.00000	13.40000	PM 15/19/C
RE-10	RL-10					RR											07635007	0.00000	5.08000	POR PAR B 15-19
RE-10	RL-10					RR											07635008	0.00000	10.00000	PM 22/137/A
RE-10	RL-10					RR											07635009	0.00000	10.00000	PM 22/137/B
RE-10	RL-10					RR											07635010	0.00000	10.25000	PM 22/137/C
RE-10	RL-10					RR											07635011	0.00000	10.25000	PM 11/116/4
RA-20	RL-10					RR											07635012	0.00000	6.74000	PPM 11/116/3 ADM
RE-10	RL-10					RR											07635012	0.00000	6.74000	PPM 11/116/3 ADM
RA-20	LA-10					RR											07635015	0.00000	3.34000	PPM 11/116/3 ADM
RA-20	RL-10					RR											07635016	0.00000	10.00000	PM 22/137/D
RE-10	RL-10					RR											07635016	0.00000	10.00000	PM 22/137/D
RE-10	RL-10					RR											07635017	0.00000	5.08000	POR PAR B 15-19
RE-10	RL-10					RR											07701103	0.00000	77.29000	SEC 17 10 12
RE-10	RL-10					RR											07701109	0.00000	119.41000	RS 29/18/2
RE-10	RL-10					RR											07701111	0.00000	18.10000	PM 14/12/1
RE-10	RL-10					RR											07701112	0.00000	10.33000	PM 14/12/2
RE-10	RL-10					RR											07701114	0.00000	10.67000	PM 11/136/1
RE-10	RL-10					RR											07701115	0.00000	10.67000	PM 14/13/2
RE-10	RL-10					RR											07701116	0.00000	21.33000	PM 14/13/1
RE-10	RL-10					RR											07701117	0.00000	10.33000	PM 3/34/3
RE-10	RL-10					RR											07701118	0.00000	10.33000	PM 3/34/2
RE-10	RL-10					RR											07701119	0.00000	10.33000	PM 3/34/1
RE-10	RL-10					RR											07701120	0.00000	59.51900	PRS 17/19/2 ADM
RE-10	RL-10					RR											07701121	0.00000	30.34000	PM 21/145/B
RE-10	RL-10					RR											07701122	0.00000	10.01000	PM 21/145/A
RE-10	RL-10					RR											07701123	0.00000	30.51000	PM 4/149/1
SA-10	PA-20					AL											07701127	0.00000	30.19000	POR PM 10/12/C
SA-10	PA-20					AL											07701128	0.00000	16.00000	POR PM 10/12/C
RE-10	RL-10					RR											07701135	0.00000	20.00000	SEC 20 10 12
RE-10	RL-10					RR											07701136	0.00000	20.00000	SEC 20 10 12

RE-10	RL-10					RR											07701137	0.00000	19.29000	SEC 20 10 12
SA-10	PA-20					AL											07701150	0.00000	48.55000	SEC 19 10 12
SA-10	PA-20					AL											07701151	0.00000	31.45000	SEC 19 10 12
RE-10	RL-10					RR											07701163	0.00000	79.03000	RS 29/18/1
RE-10	RL-10					RR											07701166	0.00000	8.10000	PM 39/105/1
RE-10	RL-10					RR											07701167	0.00000	10.00000	PM 39/105/2
RE-10	RL-10					RR											07701168	0.00000	10.00000	PM 39/105/3
RE-10	RL-10					RR											07701169	0.00000	89.24000	RS 17/19/1
RE-10	RL-10					RR											07701170	0.00000	22.33600	PRS 17/19/2 ADM
RE-10	RL-10					RR											07701172	0.00000	40.02400	PM 41/139/1
RE-10	RL-10					RR											07701173	0.00000	40.59400	PM 41/139/2
RE-10	RL-10					RR											07701174	0.00000	40.51000	PM 41/139/3
RE-10	RL-10					RR											07701176	0.00000	10.66600	PM 11/136/2
RE-10	RL-10					RR											07701177	0.00000	10.66800	PM 11/136/3
RE-5	RE-10					RR											07701178	11.00000	0.00000	POR SEC 19 10 12
RE-10	RL-10					RR											07701183	0.00000	196.11700	PM 41/139/REM
RE-10	RL-10					RR											07702103	0.00000	40.15000	RS 13/17/4
RE-10	RL-10					RR											07702106	0.00000	52.00000	S 15 & 22 10 12
RE-10	RL-10					RR											07702110	0.00000	20.00000	SEC 22 10 12
RE-10	RL-10					RR											07702112	0.00000	20.00000	SEC 22 10 12
RE-10	RL-10					RR											07702113	0.00000	20.00000	SEC 22 10 12
RE-10	RL-10					RR											07702116	0.00000	18.21000	PM 13/38/A
RE-10	RL-10					RR											07702117	0.00000	10.00000	PM 13/38/B
RE-10	RL-10					RR											07702118	0.00000	10.00000	PM 13/38/C
RE-10	RL-10					RR											07702120	0.00000	19.16800	RS 28/73/1
RE-10	RL-10					RR											07702121	0.00000	19.35000	SEC 22 10 12
RE-10	RL-10					RR											07702123	0.00000	10.00000	SEC 22 10 12
RE-10	RL-10					RR											07702124	0.00000	20.00000	SEC 22 10 12
RE-10	RL-10					RR											07702125	0.00000	10.00000	SEC 22 10 12
RE-10	RL-10					RR											07702126	0.00000	9.51000	RS 10/118S221012
RE-10	RL-10					RR											07702127	0.00000	20.00000	SEC 22 10 12
RE-10	OS					OS											07702128	11.00000	40.00000	RS 13/17
RE-10	LA-10					LDR						CPP					07702136	0.00000	20.00000	SEC 13 10 12
RA-20	RE-10					LDR						CPP					07702138	0.00000	40.00000	SEC 13 10 12
RE-10	RE-5					MDR						CPP					07702149	0.00000	10.00000	SEC 24 10 12
RA-20	RL-160					NR											07702150	0.00000	9.21000	RS 10/47/1
RA-20	RL-160					NR											07702151	0.00000	9.13000	RS 10/47/2
RA-20	RL-160					NR											07702152	0.00000	19.06000	RS 10/47/3
RE-10	RL-10					RR											07702158	0.00000	40.00000	RS 15/82/4
RE-10	RL-10					RR											07702164	0.00000	28.92000	RS 29/18/3
RE-10	RL-10					RR											07702169	0.00000	40.28600	POR RS 15/82/2
RE-10	RL-10					RR											07702171	0.00000	10.02000	PM 38/146/1
RE-10	RL-10					RR											07702172	0.00000	10.00000	PM 38/146/2
RE-10	RL-10					RR											07702173	0.00000	10.01500	PM 38/146/3
RE-10	RL-10					RR											07702174	0.00000	10.06000	PM 38/146/4
RE-10	RL-10					RR											07702175	0.00000	20.01000	PM 40/121/1

RE-10	RL-10					RR											07702176	0.00000	20.00000	PM 40/121/2
RA-20	FR-160					NR											07702177	11.00000	44.15000	24 10 12RS16-127
RE-10	RL-10					RR											07702179	0.00000	9.50200	PM 42/44/1
RE-10	RL-10					RR											07702180	0.00000	10.00000	PM 42/44/2
RE-10	RL-10					RR											07702182	0.00000	10.00000	PM 42/134/2
RE-10	RL-10					RR											07702183	0.00000	10.00000	PM 42/134/3
RE-10	RL-10					RR											07702184	0.00000	10.00000	PM 42/134/4
RE-10	FR-160					NR											07702185	11.00000	40.39000	RS 19/120/1
RE-10	FR-160					NR											07702186	11.00000	79.82000	RS 19/120/2
RE-10	RL-10					RR											07702189	0.00000	10.00100	PM 44/55/3
RE-10	RL-10					RR											07702194	0.00000	10.01000	PM 46/119/1
RE-10	RL-10					RR											07702195	0.00000	10.03000	PM 46/119/2
RE-10	RL-10					RR											07702196	0.00000	17.09000	PM 46/119/3
RE-10	RL-10					RR											07702197	0.00000	10.00000	SEC 22 10 12
RE-10	RL-10					RR											07702198	0.00000	120.27000	RS 29/18/4
RE-10	RL-10					RR											07703002	0.00000	1.00000	SEC 19 10 12
RE-10	RL-10					RR											07703004	0.00000	5.06500	SEC 19 10 12
RE-10	RL-10					RR											07703012	0.00000	2.00000	PM 7/86/1
RE-10	RL-10					RR											07703013	0.00000	3.00000	PM 7/86/2
RE-10	RL-10					RR											07703014	0.00000	3.56000	PM 10/70/1
RE-10	RL-10					RR											07703015	0.00000	2.04000	PM 10/70/2
RE-10	RL-10					RR											07703016	0.00000	2.00000	PM 12/36/1
RE-10	RL-10					RR											07703017	0.00000	1.00000	PM 12/36/2
RE-10	RL-10					RR											07703018	0.00000	3.50700	PM 12/36/3
RE-10	RL-10					RR											07703019	0.00000	10.01000	PM 21/24/1
RE-10	RL-10					RR											07703020	0.00000	10.01000	PM 21/24/2
RE-10	RL-10					RR											07703021	0.00000	10.98000	PM 21/24/3
RE-10	RL-10					RR											07703022	0.00000	10.00800	PM 21/24/4
RE-10	RL-10					RR											07703023	0.00000	2.43000	PM 21/96/1
RE-10	RL-10					RR											07703024	0.00000	4.00000	PM 21/96/2
RE-10	RL-10					RR											07703025	0.00000	5.29000	PM 22/118/1
RE-10	RL-10					RR											07703026	0.00000	5.47000	PM 22/118/2
RE-10	RL-10					RR											07703027	0.00000	6.01000	PM 22/118/3
RE-10	RL-10					RR											07703028	0.00000	10.17000	PM 22/118/4
RE-5	RL-10					RR											07703029	0.00000	8.25100	PM 26/92/1
RE-5	RL-10					RR											07703030	0.00000	5.01000	PM 26/92/2
RE-10	RL-10					RR											07703034	0.00000	12.99000	SEC 19 10 12
RE-10	RL-10					RR											07703035	0.00000	6.67000	SEC 19 10 12
RA-20	LA-10					RR											07703042	0.00000	20.10000	PM 40/23/1
RA-20	RL-20					RR											07703043	0.00000	20.74000	PM 40/23/2
RA-20	LA-10					RR											07703044	0.00000	20.10000	PM 40/23/3
RA-20	RL-20					RR											07703045	0.00000	21.00000	PM 40/23/4
RA-20	RL-10					RR											07704002	0.00000	7.64000	RS 30/8/1
RA-20	RL-10					RR											07704003	0.00000	2.50000	SEC 19 10 12
RA-20	LA-10					RR											07704004	0.00000	10.17000	SEC 19 10 12
RE-10	RL-10					RR											07705011	0.00000	11.12000	PM 41/134/1

RE-10	RL-10					RR										07705011	0.00000	11.12000	PM 41/134/1
RE-10	RL-10					RR										07705013	0.00000	10.00000	PM 45/128/1
RE-10	RL-10					RR										07705014	0.00000	18.88400	PM 45/128/2
R3A	RE-5					LDR					CPP					07710101	11.00000	80.10000	POR PAR 1 12-15
R3A	RE-5					LDR					CPP					07710119	0.00000	2.36100	PPM 30/96/B ADM
R2A	RE-5					LDR					CPP					07710120	0.00000	7.81000	PPM 30/96/B ADM
R3A	RE-5					LDR					CPP					07710120	0.00000	7.81000	PPM 30/96/B ADM
R3A	RE-5					LDR					CPP					07710121	0.00000	10.30100	PM 30/95/A
R3A	RE-5					LDR					CPP					07710122	0.00000	13.02000	PM 30/95/B
RE-5	R1A					MDR					CPP					07710133	0.00000	0.66000	SEC 13 10 12
RE-5	R3A					MDR					CPP					07710134	0.00000	2.96000	SEC 13 10 12
RE-5	R3A					MDR					CPP					07710135	0.00000	4.26000	SEC 13 10 12
RE-5	R2A					MDR					CPP					07710136	0.00000	2.56000	SEC 13 10 12
RE-5	R2A					MDR					CPP					07710137	0.00000	2.09000	SEC 13 10 12
RE-5	R1A					MDR					CPP					07710139	0.00000	0.57700	RS 18/112/1
RE-5	R1A					MDR					CPP					07710140	0.00000	0.51000	SEC 13 10 12
RE-5	R1A					MDR					CPP					07710143	0.00000	0.62000	RS 16/85/1
RE-5	R1A					MDR					CPP					07710144	0.00000	0.59000	SEC 13 10 12
RE-5	R1A					MDR					CPP					07710145	0.00000	0.79000	RS 20/110/1
RE-5	R3A					MDR					CPP					07710146	0.00000	3.72000	SEC 13 10 12
RE-10	R2A					MDR					CPP					07710147	0.00000	2.41000	SEC 13 10 12
RE-10	R2A					MDR					CPP					07710148	0.00000	2.38000	SEC 13 10 12
RE-10	R2A					MDR					CPP					07710149	0.00000	2.40000	SEC 13 10 12
RE-10	R1A					MDR					CPP					07710150	0.00000	1.20000	SEC 13 10 12
RE-10	R1A					MDR					CPP					07710151	0.00000	1.20000	SEC 13 10 12
RE-10	R2A					MDR					CPP					07710152	0.00000	2.42000	SEC 13 10 12
RE-10	R2A					MDR					CPP					07710153	0.00000	2.49000	SEC 13 10 12
RE-10	RE-5					MDR					CPP					07710154	0.00000	5.87000	SEC 13 10 12
RE-10	R2A					MDR					CPP					07710155	0.00000	2.48000	SEC 13 10 12
RE-10	R2A					MDR					CPP					07710156	0.00000	2.56000	SEC 13 10 12
RE-10	R2A					MDR					CPP					07710157	0.00000	2.19000	RS 7/126 S131012
RE-10	R2A					MDR					CPP					07710158	0.00000	2.71000	SEC 13 10 12
RE-10	RE-5					MDR					CPP					07710159	0.00000	5.55000	RS 7/126 S131012
RE-10	R2A					MDR					CPP					07710160	0.00000	2.85000	SEC 13 10 12
RE-10	R3A					MDR					CPP					07710161	0.00000	3.72300	S 13 10 12
RE-5	R1A					MDR					CPP					07710166	0.00000	0.51800	RS 17/115/2
RE-5	R1A					MDR					CPP					07710167	0.00000	0.57200	RS 17/115/1
R3A	RE-5					LDR					CPP					07710168	0.00000	10.00000	PM 30/96/A
R2A	R1A					MDR					CPP					07715105	0.00000	1.00000	PM 19/16/B
R2A	R1A					MDR					CPP					07715106	0.00000	1.00000	PM 19/16/C
R2A	R1A					MDR					CPP					07715109	0.00000	1.49000	PM 12/94/B
R2A	R1A					MDR					CPP					07715110	0.00000	1.00000	PM 12/94/A
R2A	R1A					MDR					CPP					07715113	0.00000	0.88000	SEC 24 10 12
R2A	R1A					MDR					CPP					07715114	0.00000	1.00000	PM 19/53/A
R2A	R1A					MDR					CPP					07715115	0.00000	1.49000	PM 12/94/C
R2A	R1A					MDR					CPP					07715119	0.00000	0.30000	SEC 24 10 12

R2A	R1A					MDR					CPP					07715120	0.00000	0.78000	SEC 24 10 12
RA-20	R3A					MDR					CPP					07715122	0.00000	5.00000	SEC 24 10 12
R2A	R1A					MDR					CPP					07715123	0.00000	0.77000	PM 4/38/A
R2A	R1A					MDR					CPP					07715124	0.00000	0.89000	PM 19/53/B
R2A	R1A					MDR					CPP					07715125	0.00000	0.51000	SEC 24 10 12
R2A	R1A					MDR					CPP					07715126	0.00000	1.50000	SEC 24 10 12
R2A	R1A					MDR					CPP					07715127	0.00000	0.56000	SEC 24 10 12
R2A	R1A					MDR					CPP					07715128	0.00000	1.31000	SEC 24 10 12
R2A	R1A					MDR					CPP					07715129	0.00000	0.93000	SEC 24 10 12
R2A	R1A					MDR					CPP					07715131	0.00000	1.10000	PM 8/75/3
R2A	R1A					MDR					CPP					07715132	0.00000	1.10000	PM 8/75/2
R2A	R1A					MDR					CPP					07715133	0.00000	1.09700	PM 8/75/1
R2A	R1A					MDR					CPP					07715135	0.00000	0.88000	SEC 24 10 12
RF	RF-H					HDR					CPP					07722002	2.00000	0.00000	COMMON AREA
R1	R2A					MDR					CPP					07723104	0.00000	0.00000	L 249
R1	R2A					MDR					CPP					07723105	0.00000	0.00000	L 248
RF	RF-L					MDR					CPP					07723111	2.00000	5.00000	COMMON AREA
R1	R1A					MDR					CPP					07723112	0.00000	0.00000	L 252
R1	R2A					MDR					CPP					07723113	0.00000	0.00000	L 250
R1	R3A					MDR					CPP					07723114	0.00000	0.00000	L 251
RF	RF-L					MDR					CPP					07729005	2.00000	41.02000	COMMON AREA
R2A	RE-5					LDR					CPP					07729015	0.00000	3.22000	PM 13/116/A
R2A	RE-5					LDR					CPP					07729016	0.00000	3.00000	PM 13/116/B
R2A	RE-5					LDR					CPP					07729017	0.00000	3.00000	PM 13/116/C
R2A	RE-5					LDR					CPP					07729018	0.00000	3.00000	PM 13/116/D
R3A	RE-5					LDR					CPP					07729019	11.00000	0.22000	SEC 14 10 12
R3A	RE-5					LDR					CPP					07729020	0.00000	16.13000	PM 16/102/A
R3A	RE-5					LDR					CPP					07729021	0.00000	10.00000	PM 16/102/B
R3A	RE-5					LDR					CPP					07729022	0.00000	10.91000	PM 16/102/C
R2A	RE-5					LDR					CPP					07729023	0.00000	5.52300	PM 16/102/D
R3A	RE-5					LDR					CPP					07729024	0.00000	10.76000	PM 30/35/A
R3A	RE-5					LDR					CPP					07729026	0.00000	8.32000	PM 30/35/C
R3A	RE-5					LDR					CPP					07729027	0.00000	16.34000	PM 30/35/D
R3A	RE-5					LDR					CPP					07729039	0.00000	3.46000	PM 39/90/1
R3A	RE-5					LDR					CPP					07729040	0.00000	3.59000	PM 39/90/2
R1	R2A					MDR					CPP					07731104	0.00000	0.00000	L 302
R1	R2A					MDR					CPP					07731105	0.00000	0.00000	L 303
R1	R3A					MDR					CPP					07731106	0.00000	0.00000	L 304
R1	R3A					MDR					CPP					07731107	0.00000	0.00000	L 305
R1	R2A					MDR					CPP					07731108	0.00000	0.00000	L 306
R1	R3A					MDR					CPP					07731109	0.00000	0.00000	L 307
R1	R1A					MDR					CPP					07732101	0.00000	0.00000	L 308
R1	R1A					MDR					CPP					07732102	0.00000	0.00000	L 309
R2A	R1A					MDR					CPP					07736101	0.00000	0.00000	L 1
R2A	R1A					MDR					CPP					07736201	0.00000	0.00000	L 8
R2A	R1A					MDR					CPP					07736205	0.00000	0.00000	L 12

R2A	R1A					MDR					CPP					07738301	0.00000	2.01000	L 36
R2A	R1A					MDR					CPP					07738308	0.00000	0.00000	L 39
R2A	R1A					MDR					CPP					07740304	0.00000	2.00000	L 34
R2A	R1A					MDR					CPP					07748104	0.00000	2.01000	L 56
R2A	R1A					MDR					CPP					07748203	0.00000	2.01000	L 155
R2A	R1A					MDR					CPP					07749303	0.00000	2.03000	L 63
R2A	R1A					MDR					CPP					07749309	0.00000	0.00000	L 69
R2A	R1A					MDR					CPP					07750104	0.00000	2.01000	L 128
R2A	R1A					MDR					CPP					07750201	0.00000	2.03000	L 107
R2A	R1A					MDR					CPP					07750202	0.00000	2.04000	L 108
R2A	R1A					MDR					CPP					07750203	0.00000	2.06000	L 109
R2A	R1A					MDR					CPP					07750402	0.00000	2.05000	L 161
R2A	R1A					MDR					CPP					07751101	0.00000	0.00000	L 95
R2A	R1A					MDR					CPP					07751102	0.00000	2.06000	L 96
R2A	R1A					MDR					CPP					07752115	0.00000	2.02000	L 77
R2A	R1A					MDR					CPP					07752305	0.00000	2.00400	L 88
R2A	R1A					MDR					CPP					07765105	0.00000	2.00600	L 166
R2A	R1A					MDR					CPP					07765116	0.00000	2.03200	L 162
R2A	R1A					MDR					CPP					07765117	0.00000	2.00900	L 163
R2A	R1A					MDR					CPP					07765118	0.00000	0.00000	L 164
R3A	R2A					MDR					CPP					07766102	0.00000	0.00000	L 196
R3A	R2A					MDR					CPP					07766105	0.00000	0.00000	L 199
R3A	R2A					MDR					CPP					07766110	0.00000	0.00000	L 188
R3A	R2A					MDR					CPP					07766112	0.00000	3.04000	L 186
R3A	R2A					MDR					CPP					07766208	0.00000	0.00000	L 183
R3A	R2A					MDR					CPP					07766209	0.00000	0.00000	L 184
R3A	R2A					MDR					CPP					07766211	0.00000	0.00000	L 174
R3A	R2A					MDR					CPP					07767206	0.00000	3.02000	L 208
R2A	R1A					MDR					CPP					07770015	0.00000	1.23000	PM 22/7/1
R2A	R1A					MDR					CPP					07770016	0.00000	1.37000	PM 22/7/2
R2A	R1A					MDR					CPP					07770017	0.00000	1.45000	PM 22/7/3
R2A	R1A					MDR					CPP					07770018	0.00000	1.58000	PM 22/7/4
R2A	R1A					MDR					CPP					07770019	0.00000	0.66000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770020	0.00000	0.66000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770021	0.00000	0.66000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770024	0.00000	1.76000	PM 23/116/A
R2A	R1A					MDR					CPP					07770028	0.00000	1.36500	PM 6/59/C
R2A	R1A					MDR					CPP					07770029	0.00000	1.37000	PM 6/59/B
R2A	R1A					MDR					CPP					07770030	0.00000	1.44000	PM 6/59/A
R2A	R1A					MDR					CPP					07770031	0.00000	2.00000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770033	0.00000	1.01000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770034	0.00000	1.08000	PM 1/150/A
R2A	R1A					MDR					CPP					07770035	0.00000	0.42300	RS 27/140/1
R2A	R1A					MDR					CPP					07770036	0.00000	0.44400	RS 27/140/2
R2A	R1A					MDR					CPP					07770037	0.00000	0.60700	RS 27/140/3
R2A	R1A					MDR					CPP					07770038	0.00000	0.53300	RS 27/140/4

R2A	R1A					MDR					CPP					07770039	0.00000	1.47000	PM 1/150/B
R2A	R1A					MDR					CPP					07770040	0.00000	1.00000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770041	0.00000	0.51000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770042	0.00000	0.53000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770043	0.00000	0.62500	SEC 24 10 12
R2A	R1A					MDR					CPP					07770044	0.00000	0.52000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770045	0.00000	1.99300	RS 31/75/5
R2A	R1A					MDR					CPP					07770046	0.00000	0.51000	RS 31/75/2
R2A	R1A					MDR					CPP					07770047	0.00000	0.48000	RS 31/75/4
R2A	R1A					MDR					CPP					07770048	0.00000	0.49000	RS 31/75/3
R2A	R1A					MDR					CPP					07770049	0.00000	0.51600	RS 31/75/1
R2A	R1A					MDR					CPP					07770050	0.00000	0.62500	SEC 24 10 12
R2A	R1A					MDR					CPP					07770051	0.00000	1.88000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770055	0.00000	0.72600	SEC 24 10 12
R2A	R1A					MDR					CPP					07770057	0.00000	1.25000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770058	0.00000	1.25000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770059	0.00000	1.25000	RS 23/45/1
R2A	R1A					MDR					CPP					07770060	0.00000	1.25000	RS 23/45/2
R2A	R1A					MDR					CPP					07770063	0.00000	1.35000	SEC 24 10 12
R2A	R1A					MDR					CPP					07770064	0.00000	1.38500	SEC 24 10 12
R2A	R1A					MDR					CPP					07770067	0.00000	1.27000	RS 23/30/1
R2A	R1A					MDR					CPP					07770068	0.00000	1.27000	RS 23/30/2
RE-10	RL-10					RR										07771003	0.00000	10.01000	PM 16/90/B
R3A	RE-5					LDR										07773204	0.00000	6.07000	L 5
R3A	RE-5					LDR										07773205	0.00000	6.22000	L 6
RE-10	RL-10					RR										07773208	0.00000	10.56000	L 9
R3A	RE-5					LDR										07773209	0.00000	5.40800	L 10
R3A	RE-5					LDR										07773211	0.00000	3.06000	L 12
R3A	RE-5					LDR										07773212	0.00000	6.72000	L 13
R3A	RE-5					LDR										07773213	0.00000	4.01000	L 14
R3A	RE-5					LDR										07773214	0.00000	4.77100	L 15
R3A	RE-5					LDR										07773216	0.00000	3.01000	L 17
R3A	RE-5					LDR										07773217	0.00000	3.35000	L 18
R3A	RE-5					LDR										07773218	0.00000	5.67000	L 19
R3A	RE-5					LDR										07773219	0.00000	4.00200	L 22
R3A	RE-5					LDR										07773220	0.00000	5.10000	L 24
R3A	RE-5					LDR										07773221	0.00000	4.64000	L 23
R3A	RE-5					LDR										07773222	0.00000	5.79000	L 21
R3A	RE-5					LDR										07773223	0.00000	5.96000	L 116
RE-10	RL-10					RR										07773224	0.00000	9.17000	L 117
RE-10	RL-10					RR										07773226	0.00000	13.18400	L 118
RA-20	LA-10					RR										07773227	0.00000	27.22000	L 119
RA-20	LA-10					RR										07773228	0.00000	20.16000	L 120
R3A	RE-5					LDR										07773229	0.00000	3.71000	L 1
RE-10	RL-10					RR										07773231	2.00000	9.09000	LOT 7
R3A	RE-5					LDR										07773233	0.00000	3.56000	PM 26/150/A

R3A	RE-5					LDR											07773234	0.00000	3.00000	PM 26/150/B
R3A	RE-5					LDR											07773235	0.00000	3.49600	PM 26/150/C
RE-10	RL-10					RR											07773237	0.00000	17.48200	PM 29/133/A
RE-10	RL-10					RR											07773238	0.00000	11.91000	PM 29/133/B
R3A	RE-5					LDR											07773241	0.00000	3.06000	L 11
R3A	RE-5					LDR											07773242	0.00000	3.12000	L 16
RE-10	RL-10					RR											07774007	0.00000	10.31000	L 39
R3A	RE-5					LDR											07774011	0.00000	3.01000	L 43
R3A	RE-5					LDR											07774012	0.00000	4.01000	L 44
R3A	RE-5					LDR											07774020	0.00000	5.56000	L 76
R3A	RE-5					LDR											07774026	0.00000	4.65000	L 96
RE-10	RL-10					RR											07774035	0.00000	16.99000	L 114
RE-10	RL-10					RR											07774036	0.00000	13.16000	L 85
R3A	RE-5					LDR											07774037	0.00000	3.09400	L 87
R3A	RE-5					LDR											07774038	0.00000	5.24000	L 88
R3A	RE-5					LDR											07774050	0.00000	4.94600	L 34
R3A	RE-5					LDR											07774051	0.00000	3.45000	L 33
R3A	RE-5					LDR											07774053	11.00000	0.00000	POR LOT 49
R3A	RE-5					LDR											07774054	2.00000	0.00000	POR LOT 49 AW
R3A	RE-5					LDR											07774060	0.00000	7.52000	PM 39/120/1
R3A	RE-5					LDR											07774061	0.00000	7.80500	PM 39/120/2
R3A	RE-5					LDR											07774081	0.00000	3.73000	RS 19/78/2
R3A	RE-5					LDR											07774082	0.00000	3.45400	RS 19/78/1
RA-20	RE-5					LDR											07774083	0.00000	5.65900	PM 49/42/B
R3A	RE-5					LDR											07775001	0.00000	3.72200	L 50
R3A	RE-5					LDR											07775004	0.00000	3.04000	L 73
R3A	RE-5					LDR											07775005	0.00000	3.72000	L 71
R3A	RE-5					LDR											07775017	0.00000	3.19500	L 109
R3A	RE-5					LDR											07775018	0.00000	3.39000	L 108
R3A	RE-5					LDR											07775020	0.00000	3.35000	L 63
R3A	RE-5					LDR											07775021	0.00000	3.62000	L 64
R3A	RE-5					LDR											07775022	0.00000	3.05000	L 66
R3A	RE-5					LDR											07775023	0.00000	3.58300	L 68
R3A	RE-5					LDR											07775024	0.00000	3.00000	L 69
R3A	RE-5					LDR											07775025	0.00000	3.22000	L 67
R3A	RE-5					LDR											07775026	0.00000	3.68900	L 65
R3A	RE-5					LDR											07775027	0.00000	3.58600	L 105
R3A	RE-5					LDR											07775028	0.00000	3.45000	L 104
R3A	RE-5					LDR											07775029	0.00000	4.04000	L 103
R3A	RE-5					LDR											07775030	0.00000	5.43500	L 102
R3A	RE-5					LDR											07775031	0.00000	4.21200	L 100
R3A	RE-5					LDR											07775035	0.00000	3.51000	PM 27/111/A
R3A	RE-5					LDR											07775036	0.00000	3.00200	PM 27/111/B
R3A	RE-5					LDR											07775037	0.00000	4.24400	PM 27/111/C
R3A	RE-5					LDR											07775052	0.00000	3.00000	PM 37/123/A
R3A	RE-5					LDR											07775053	0.00000	3.00000	PM 37/123/B

R3A	RE-5					LDR											07775054	0.00000	3.00000	PM 37/123/C
R3A	RE-5					LDR											07775056	0.00000	3.70500	POR LOT 62
R3A	RE-5					LDR											07775058	0.00000	3.02500	37-123-D&RS20-79
RE-10	RL-10					RR											07775059	0.00000	53.87000	RS 22/43/2
RE-5	RL-10					RR											07775059	0.00000	53.87000	RS 22/43/2
R3A	RE-5					LDR											07775061	0.00000	5.70000	RS 22/43/1
R3A	R2A					MDR						CPP					07777001	0.00000	3.15000	PM 26/12/1
RE-10	RL-10					RR											07778001	0.00000	12.28000	L 128
R3A	RE-5					LDR											07778002	0.00000	3.00100	L 129
R3A	RE-5					LDR											07778003	0.00000	3.01000	L 131
R3A	RE-5					LDR											07778005	0.00000	3.00000	L 133
R3A	RE-5					LDR											07778006	0.00000	3.00000	L 134
R3A	RE-5					LDR											07778007	0.00000	3.00100	L 135
R3A	RE-5					LDR											07778008	0.00000	3.00000	L 136
R3A	RE-5					LDR											07778009	0.00000	3.00000	L 137
R3A	RE-5					LDR											07778010	0.00000	3.45000	L 121
R3A	RE-5					LDR											07778014	0.00000	3.05400	L 130
RE-10	RL-10					RR											07778015	0.00000	7.35100	L 127
R3A	RE-5					LDR											07778016	0.00000	4.49000	L 126
R3A	RE-5					LDR											07778017	0.00000	7.02000	L 166
RE-10	RL-10					RR											07778018	0.00000	7.76000	L 165
RE-10	RL-10					RR											07778019	0.00000	3.00000	L 164
RE-10	RL-10					RR											07778020	0.00000	3.00100	L 163
RE-10	RL-10					RR											07778021	0.00000	3.00000	L 162
RE-10	RL-10					RR											07778022	0.00000	3.00000	L 161
R3A	RE-5					LDR											07778023	0.00000	3.02900	L 160
R3A	RE-5					LDR											07778024	0.00000	3.03000	L 159
R3A	RE-5					LDR											07778025	0.00000	3.00100	L 158
R3A	RE-5					LDR											07778026	0.00000	3.00000	L 157
R3A	RE-5					LDR											07778027	0.00000	3.70600	L 156
R3A	RE-5					LDR											07778028	0.00000	3.14000	L 139
R3A	RE-5					LDR											07778029	0.00000	3.00000	L 138
R3A	RE-5					LDR											07778030	0.00000	3.32000	L 140
R3A	RE-5					LDR											07778031	0.00000	3.00700	L 155
R3A	RE-5					LDR											07778032	0.00000	3.00000	L 154
R3A	RE-5					LDR											07778033	0.00000	3.02000	L 142
R3A	RE-5					LDR											07778034	0.00000	3.34000	L 141
R3A	RE-5					LDR											07778035	0.00000	3.04500	L 144
R3A	RE-5					LDR											07778036	0.00000	3.00000	L 143
R3A	RE-5					LDR											07778037	0.00000	3.00000	L 153
R3A	RE-5					LDR											07778038	0.00000	3.00000	L 152
R3A	RE-5					LDR											07778039	0.00000	3.00100	L 151
R3A	RE-5					LDR											07778040	0.00000	3.00100	L 150
R3A	RE-5					LDR											07778041	0.00000	3.10000	L 149
R3A	RE-5					LDR											07778042	0.00000	3.02000	L 148
R3A	RE-5					LDR											07778043	0.00000	3.00000	L 147

R3A	RE-5					LDR											07778044	0.00000	3.18700	L 146
R3A	RE-5					LDR											07778046	0.00000	3.00100	L 125
R3A	RE-5					LDR											07778052	0.00000	3.00100	L 132
R3A	RE-5					LDR											07778053	0.00000	5.29900	L 124
R3A	RE-5					LDR											07778054	0.00000	6.81100	LOT 122 &LOT 123
RE-10	RL-10					RR											07780001	0.00000	10.05000	L 11
RE-10	RL-10					RR											07780002	0.00000	9.79000	L 12
R3A	RE-5					LDR											07782001	0.00000	5.37000	L 410
R3A	RE-5					LDR											07782002	0.00000	4.61000	L 411
R3A	RE-5					LDR											07782003	0.00000	24.18000	L 412
R3A	RE-5					LDR											07782004	0.00000	4.50300	L 413
R3A	RE-5					LDR											07782008	0.00000	4.55000	L 417
R3A	RE-5					LDR											07782010	0.00000	6.00000	PM 50/49/1
R3A	RE-5					LDR											07782013	0.00000	3.85000	POR L 415
R3A	RE-5					LDR											07782014	0.00000	3.65000	PM 50/49/2+
R2A	R1A					MDR						CPP					07783003	0.00000	2.00000	PM 45/134/1
R2A	R1A					MDR						CPP					07783006	0.00000	2.00000	PM 44/146/1
R3A	RE-5					LDR											07784001	0.00000	4.50900	L 1
R3A	RE-5					LDR											07784002	0.00000	5.26700	L 2
R3A	RE-5					LDR											07784003	0.00000	3.07800	L 3
R3A	RE-5					LDR											07784004	0.00000	5.88700	L 4
R3A	RE-5					LDR											07784005	0.00000	4.68000	L 5
R3A	RE-5					LDR											07784006	0.00000	4.56900	L 6
R3A	RE-5					LDR											07784007	0.00000	4.63400	L 7
R3A	RE-5					LDR											07784008	0.00000	4.80700	L 8
R3A	RE-5					LDR											07784009	0.00000	4.83400	L 9
CP	RE-5					MDR							CHR				07803006	0.00000	1.90000	SEC 30 10 12
CG	CC					C							CHR				07803029	0.00000	4.15000	SEC 30 10 12
RE-5	CC					C							CHR				07803029	0.00000	4.15000	SEC 30 10 12
CP	R1A					MDR							CHR				07803041	0.00000	1.00000	PM 13/113/1
RE-5	R1A					MDR							CHR				07803041	0.00000	1.00000	PM 13/113/1
RE-5	CG					C							CHR				07803043	0.00000	1.00000	PM 13/114/1
CG	CL					C							CHR				07803044	0.00000	2.85000	PM 13/114/2
RE-5	CC					C							CHR				07803044	0.00000	2.85000	PM 13/114/2
C	CC					C							CHR				07803050	0.00000	7.70100	SEC 30 10 12
RE-5	RL-10					RR	A										07803053	0.00000	5.00000	PM 34/143/1
RE-5	RL-10					RR	A										07803054	0.00000	5.00000	PM 34/143/2
RE-5	RL-10					AL	A										07803056	0.00000	20.00000	PM 34/143/4
CP	CC					C							CHR				07803057	0.00000	1.46000	PM 40/96/1
CP	CC					C							CHR				07803058	0.00000	1.35000	PM 40/96/2
CP	CC					C							CHR				07803059	0.00000	2.03000	PM 40/96/3
CP	CC					C							CHR				07803060	0.00000	2.33000	REM P/M 40-96
RE-5	LA-10					RR	A										07803069	0.00000	10.60000	PM 34/143/3
RE-5	I					I											07804018	0.00000	4.60000	RS 10/29 S291012
I	RE-5			PD		LDR											07804026	0.00000	1.84000	SEC 29 10 12
I	RE-5			PD		LDR											07804027	0.00000	0.88700	POR SEC 29 10 12

RE-5	RL-20					AL											07805016	0.00000	12.27000	SEC 29 10 12
AE	OS					OS											07805026	11.00000	0.06000	SEC 29 10 12
AE	AG-40					AL											07805051	0.00000	131.19000	REM P/M 40-98
I	AG-40					AL											07805051	0.00000	131.19000	REM P/M 40-98
RE-5	AG-40					AL											07805051	0.00000	131.19000	REM P/M 40-98
AE	I					AL											07805052	0.00000	11.06000	PM 40/98/1
RE-5	I					AL											07805052	0.00000	11.06000	PM 40/98/1
AE	PA-20					AL											07805059	0.00000	72.16500	PM 48/52/1
RE-5	RL-20					AL											07805060	0.00000	7.08100	PM 48/52/2
RE-5	RL-20					AL											07805061	0.00000	5.84800	PM 48/52/3
RE-5	RL-20					AL											07805062	0.00000	6.44200	PM 48/52/4
RE-10	RL-10					RR											07806001	0.00000	25.00000	SEC 28 10 12
RA-20	LA-10					RR											07806013	0.00000	40.00000	SEC 28 10 12
RA-20	LA-10					RR											07806014	0.00000	60.00000	SEC 28 10 12
RE-10	RL-10					RR			IBC								07807003	0.00000	17.00000	SEC 32 10 12
RE-10	RL-10					RR			IBC								07807004	0.00000	3.00000	SEC 32 10 12
RE-10	RL-10					RR			IBC								07807005	0.00000	10.00000	SEC 32 10 12
RE-10	RL-10					RR			IBC								07807011	0.00000	11.44000	SEC 32 10 12
RE-10	RL-10					RR			IBC								07807024	0.00000	10.54000	SEC 32 10 12
RE-10	RL-10					RR			IBC								07807025	0.00000	11.04000	SEC 32 10 12
C	CC					C							PV				07814003	0.00000	1.10000	RS 25/109/3
C	CL					C							PV				07814005	0.00000	0.45000	S 28 & 29 10 12
C	CL					C							PV				07814006	0.00000	0.45000	SEC 29 10 12
C	CL					C							PV				07814007	0.00000	0.02000	SEC 28 10 12
R2A	R1A					MDR							PV				07814008	0.00000	0.86000	S 28 & 29 10 12
RE-5	R1A					MDR							PV				07814008	0.00000	0.86000	S 28 & 29 10 12
R2A	RE-5					LDR											07814023	0.00000	5.49000	POR PM 44/69/1
C	RE-5					LDR											07814027	0.00000	4.80000	RS 25/109/2
R2A	RE-5					LDR			IBC								07815011	0.00000	10.00000	SEC 32&33 10 12
R2A	CL					C							PV				07817001	0.00000	0.52000	SEC 28 10 12
CP	CL					C							PV				07817003	0.00000	0.49000	S 28 & 33 10 12
CP	CL					C							PV				07817004	0.00000	0.58000	S 28 & 33 10 12
CP	CL					C							PV				07817005	0.00000	0.58100	SEC 33 10 12
R2A	CC					C							PV				07818017	0.00000	1.25000	S 28 & 33 10 12
CP	CC					C							PV				07818037	0.00000	1.37000	PM 32/33/1
R2A	CC					C							PV				07820015	0.00000	1.50000	SEC 33 10 12
R2A	CC					C							PV				07820038	0.00000	1.60000	PM 2/86/2
CP	CC					C							PV				07820047	0.00000	3.23000	PM 15/13/1
CP	CC					C							PV				07820048	0.00000	1.90000	PM 15/13/2
AE	RL-10					RR			IBC								07820050	0.00000	20.66000	SEC 33 10 12
AE	LA-10					RR			IBC								07820051	0.00000	20.71000	SEC 33 10 12
CP	CC					C							PV				07820062	0.00000	1.90200	PM 40/67/1
AE	RE-5					LDR											07820069	0.00000	3.24000	PM 47/138/1
RE-10	RL-10					LDR			IBC								07820071	0.00000	74.38000	PM 47/138/3
RE-10	RL-10					RR			IBC								07821010	0.00000	10.00000	SEC 33 10 12
RE-10	RL-10					RR			IBC								07821011	0.00000	10.00000	SEC 33 10 12

RE-10	RL-10					RR			IBC								07821012	0.00000	20.00000	PM 35/49/1
RE-10	RL-10					RR			IBC								07821013	0.00000	18.17000	PM 35/49/2
RE-10	RL-10					RR			IBC								07821014	0.00000	10.00000	PM 35/49/3
RE-10	RL-10					RR			IBC								07821015	0.00000	10.00000	PM 35/49/4
AE	RL-10					RR			IBC								07821019	0.00000	0.82100	POR SEC 33 10 12
AE	RL-10					RR			IBC								07821020	0.00000	39.17900	POR SEC 33 10 12
AE	AG-40					AL			IBC								07823032	0.00000	160.00000	SEC 32 10 12
RE-10	LA-10					RR	A		IBC								07824003	0.00000	10.50000	RS 2/72/4
RE-10	RL-10					RR	A		IBC								07824015	0.00000	5.14000	SEC 31 10 12
RE-5	RL-10					RR			IBC								07824017	0.00000	10.00000	SEC 31 10 12
AE	PA-20					AL	A										07824021	0.00000	10.52000	POR RS 2/72/3
AE	PA-20					AL	A										07824022	0.00000	10.00900	RS 2/72/2& POR 3
RE-10	RL-10					RR			IBC								07824023	0.00000	10.00000	PM 20/110/A
RE-10	RL-10					RR			IBC								07824024	0.00000	8.24000	PM 20/110/B
RE-10	RL-10					RR			IBC								07824030	0.00000	11.92000	RS 13/125/2
RE-10	RL-10					RR			IBC								07824031	0.00000	5.00000	RS 13/125/1
RE-10	LA-10					RR	A		IBC								07824033	0.00000	18.49000	PM 36/15/A
RE-10	RL-10					RR	A		IBC								07824042	0.00000	14.18000	RS 24/31
RE-10	RL-10					RR	A		IBC								07824043	0.00000	5.91000	POR PM 36/15/B+
AE	PA-20					AL			IBC								07824045	0.00000	77.69000	SEC 31 10 12
AE	AG-40					AL			IBC								07824046	0.00000	11.24000	RS 30/101/1+
RE-5	AG-40					AL			IBC								07824046	0.00000	11.24000	RS 30/101/1+
AE	PA-20					AL	A										07825001	0.00000	40.29000	SEC 31 10 12
RE-10	RL-20					AL	A										07825005	0.00000	10.66000	SEC 31 10 12
RE-10	LA-10					RR	A		IBC								07825008	0.00000	10.08000	SEC 31 10 12
RE-10	RL-20					AL	A										07825011	0.00000	23.37000	SEC 31 10 12
RE-10	RL-20					AL	A										07825012	0.00000	16.83000	SEC 31 10 12
RE-10	RL-20					AL	A										07825013	0.00000	4.55000	SEC 31 10 12
RE-10	RL-20					AL	A										07825014	0.00000	2.13000	SEC 31 10 12
RE-10	RL-10					RR	A		IBC								07825015	0.00000	4.66000	SEC 31 10 12
RE-10	RL-10					RR	A		IBC								07825016	0.00000	4.54000	SEC 31 10 12
RE-10	RL-10					RR	A		IBC								07825017	0.00000	4.49000	SEC 31 10 12
RE-10	RL-20					AL	A										07825018	0.00000	20.06000	SEC 31 10 12
AE	PA-20					AL	A										07825020	0.00000	69.71700	PM 4/7/1
RA-20	LA-20					AL	A										07825021	0.00000	16.65900	PM 4/7/2
RE-10	RL-20					AL	A										07825022	0.00000	26.94000	SEC 31 10 12
RE-10	RL-10					RR											07826053	0.00000	10.02000	PM 29/73/1
RA-20	RE-10					LDR											07826057	0.00000	9.06000	RS 20/66/1
RA-20	LA-20					RR	A										07826058	0.00000	5.24000	S 25 & 30 10 12
CP	CL					C							CHR				07826059	0.00000	2.43000	SEC 30 10 12
RE-5	CC					C							CHR				07826059	0.00000	2.43000	SEC 30 10 12
CP	CL					C							CHR				07826072	0.00000	0.87400	PM 39/43/1
RE-5	CL					C							CHR				07826072	0.00000	0.87400	PM 39/43/1
CP	CC					C							CHR				07826073	0.00000	1.12800	PM 39/43/2
RE-5	CL					C							CHR				07826073	0.00000	1.12800	PM 39/43/2
CP	CC					C							CHR				07826074	0.00000	1.00000	PM 39/43/3

CP	CC					C							CHR				07826075	0.00000	2.01000	PM 39/43/4
C	RL-10					RR											07827001	0.00000	60.00000	SEC 28 10 12
R2A	RL-10					RR											07827001	0.00000	60.00000	SEC 28 10 12
RE-5	RL-10					RR											07827001	0.00000	60.00000	SEC 28 10 12
C	CC					C							PV				07827015	0.00000	1.39000	PM 35/93/3
C	CC					C							PV				07827023	0.00000	3.25100	PM 50/111/1
C	CC					C							PV				07827024	0.00000	3.72800	PM 50/111/2
C	CC					C							PV				07827025	11.00000	2.01400	TR A PM 50/111
AE	OS					OS	A										07828002	11.00000	2.80000	SEC 30 10 12
AE	AG-40					AL	A										07828011	0.00000	40.15000	PM 46/35/1
AE	AG-40					AL	A										07828012	0.00000	40.13000	PM 46/35/2
AE	AG-40					AL	A										07828013	0.00000	40.09000	PM 46/35/3
AE	PA-20					AL	A										07828014	0.00000	41.30000	PM 46/36/1
AE	AG-40					AL	A										07828015	0.00000	40.25000	PM 46/36/2
AE	PA-20					AL	A										07828016	0.00000	41.86000	PM 46/36/3
RE-10	PA-20					NR											07901008	0.00000	20.71000	RS 23/62/1
RA-20	RL-40					NR											07901009	0.00000	69.43000	SEC 34 10 12
AE	PA-40					NR											07901010	0.00000	15.00000	PPM 49/5/3 ADM
RE-10	RL-160					NR											07901011	0.00000	29.81000	SEC 35 10 12
RA-20	RL-160					NR											07901012	0.00000	12.95000	SEC 35 10 12
RA-20	PA-20					NR											07901013	0.00000	35.08000	SEC 35 10 12
RA-20	PA-20					NR											07901013	0.00000	35.08000	SEC 35 10 12
RA-20	RL-40					NR											07901014	0.00000	3.25000	SEC 35 10 12
RA-20	RL-40					NR											07901017	0.00000	20.00000	SEC 35 10 12
RA-40	RL-40					NR											07901020	0.00000	15.00000	SEC 35 10 12
RA-20	RL-40					NR											07901021	0.00000	5.03000	RS 15/18 S351012
RA-40	RL-40					NR											07901021	0.00000	5.03000	RS 15/18 S351012
RA-20	RL-40					NR											07901022	0.00000	40.00000	SEC 35 10 12
RA-40	RL-40					NR											07901022	0.00000	40.00000	SEC 35 10 12
RA-20	FR-40					NR											07901024	0.00000	10.00000	SEC 36 10 12
RA-40	RL-40					NR											07901028	0.00000	4.00000	SEC 35 10 12
RE-10	RL-10					RR											07901041	0.00000	20.00000	SEC 27 10 12
R2A	RE-5					LDR											07901049	0.00000	40.00000	SEC 26 10 12
RA-20	RL-40					NR											07901050	0.00000	20.66000	RS 15/18 S351012
RA-40	RL-40					NR											07901050	0.00000	20.66000	RS 15/18 S351012
RA-20	RL-40					NR											07901051	0.00000	40.85000	RS 15/18 S351012
RA-40	RL-40					NR											07901051	0.00000	40.85000	RS 15/18 S351012
RA-20	RL-40					NR											07901052	0.00000	20.56000	RS 15/18 S351012
RA-160	FR-160					NR											07901054	11.00000	0.00000	S36 10 12 RS 9-6
RA-160	FR-40					NR											07901055	11.00000	40.14000	S35 10 12RS9 141
RA-160	FR-40					NR											07901056	11.00000	0.00000	NE 1/4 S35 10 12
RA-20	FR-160					NR											07901056	11.00000	0.00000	NE 1/4 S35 10 12
RA-160	FR-160					NR											07901057	11.00000	0.00000	E 1/2 S35 10 12
RA-160	FR-40					NR											07901058	11.00000	82.39000	25 10 12RS16-127
RA-20	FR-160					NR											07901058	11.00000	82.39000	25 10 12RS16-127
RA-20	FR-160					NR											07901059	11.00000	0.00000	25 10 12RS16-127

RA-160	FR-160					NR										07901060	11.00000	0.00000	SE 1/4 S25 10 12
RA-20	FR-160					NR										07901061	11.00000	41.08000	26 10 12RS16-127
RE-10	RL-10					RR										07901069	0.00000	10.05000	RS 23/146/3
RE-10	RL-10					RR										07901070	0.00000	23.83000	RS 23/146/1
RE-10	RL-10					RR										07901071	0.00000	23.79000	RS 23/146/2
AE	PA-40					NR										07901076	0.00000	36.00000	PPM 49/5/3 ADM
RE-10	RL-40					NR										07901077	0.00000	21.37000	PM 49/5/1
RE-10	RL-40					NR										07901078	0.00000	20.84000	PM 49/5/2
AE	PA-40					NR										07901079	0.00000	134.16000	PPM 49/5/3 ADM
RE-10	RL-40					NR										07901080	0.00000	35.70000	PM 49/5/4
RE-5	R2A					MDR						PV				07903010	0.00000	4.57000	POR RS 1/33/9
RE-5	RL-10					RR										07903012	0.00000	7.59800	POR RS 1/33/9
RE-5	RL-10					RR										07908001	0.00000	0.98200	27&341012RS10119
RE-5	OS					OS				PL						07908002	11.00000	0.29000	POR SEC 27 10 12
RE-10	RE-5					MDR				PL						07908004	0.00000	1.18000	SEC 34 10 12
RE-10	RE-5					MDR				PL						07908006	0.00000	1.17000	SEC 34 10 12
RE-10	RE-5					MDR				PL						07908007	0.00000	1.23000	SEC 34 10 12
RE-10	RE-5					MDR				PL						07908008	0.00000	1.14000	SEC 34 10 12
RE-10	RE-5					MDR				PL						07908014	0.00000	1.30500	PM 15/23/C
RE-10	RE-5					MDR				PL						07908032	0.00000	2.33000	RS 26/135/1
RE-10	RE-5					MDR				PL						07908033	0.00000	2.14700	RS 26/135/2
RE-10	RL-10					RR										07911001	0.00000	10.00000	SEC 27 10 12
RE-10	RL-10					RR										07911002	0.00000	10.00000	SEC 27 10 12
RE-10	RL-10					RR										07911018	0.00000	10.00000	SEC 27 10 12
RE-10	RL-10					RR										07911019	0.00000	20.00000	SEC 27 10 12
RE-10	RL-10					RR										07911020	0.00000	10.00000	SEC 27 10 12
RE-10	RL-10					RR										07911021	0.00000	10.00000	SEC 27 10 12
RE-10	RL-10					RR										07911022	0.00000	10.00000	SEC 27 10 12
RE-10	RL-10					RR										07911037	0.00000	10.00000	PM 43/3/3
RE-10	RL-10					RR										07911038	0.00000	8.48900	PM 43/3/4
RE-10	RL-10					RR										07911043	0.00000	10.00000	PM 43-3 RS20-35
RE-10	RL-10					RR										07911044	0.00000	10.00000	PM 43-3 RS20-35
R2A	RE-5					LDR										07912121	0.00000	20.00000	SEC 26 10 12
R2A	RE-5					LDR										07912133	0.00000	6.66000	SEC 26 10 12
R2A	RE-5					LDR										07914102	0.00000	11.83900	SEC 26 10 12
R1A	RE-5					LDR										07914103	0.00000	5.51000	PM 22/84/B
R2A	R1A					MDR					CPP					07914115	0.00000	0.60000	SEC 25 10 12 ADM
R2A	R1A					MDR					CPP					07914118	0.00000	1.10000	PM 11/47/B
R2A	R1A					MDR					CPP					07914119	0.00000	1.35000	PM 11/47/A
R2A	R1A					MDR					CPP					07914120	0.00000	0.58000	PM 2/150/A
R2A	R1A					MDR					CPP					07914121	0.00000	0.58000	PM 2/150/B
R2A	R1A					MDR					CPP					07914122	0.00000	0.58000	PM 2/150/C
R2A	R1A					MDR					CPP					07914123	0.00000	0.61000	PM 2/150/D
R2A	R1A					MDR					CPP					07914124	0.00000	1.79000	PM 4/101/3
R2A	R1A					MDR					CPP					07914125	0.00000	0.95000	SEC 26 10 12
R2A	R1A					MDR					CPP					07914126	0.00000	0.75000	SEC 26 10 12

R2A	R1A					MDR					CPP					07914127	0.00000	0.50000	SEC 26 10 12
R2A	R1A					MDR					CPP					07914128	0.00000	0.50000	SEC 26 10 12
R2A	R1A					MDR					CPP					07914135	0.00000	1.88000	SEC 26 10 12
R2A	R1A					MDR					CPP					07914136	0.00000	1.14000	SEC 26 10 12
R2A	R1A					MDR					CPP					07914137	0.00000	1.17000	SEC 26 10 12
R2A	R1A					MDR					CPP					07914145	0.00000	2.00000	PM 41/19/2
R2A	R1A					MDR					CPP					07914146	0.00000	2.00000	PM 41/19/3
R2A	R1A					MDR					CPP					07914147	0.00000	2.00000	PM 41/19/4
R2A	R1A					MDR					CPP					07914154	0.00000	1.30000	SEC25&26 10 12
R2A	R1A					MDR					CPP					07914156	0.00000	1.32000	SEC 25&26 10 12
R2A	R1A					MDR					CPP					07914158	0.00000	2.00000	PM 46/17/2
R1A	RE-5					LDR										07914163	0.00000	5.99100	RS 29/2/1
R2A	R1A					MDR					CPP					07915102	0.00000	1.50000	RS 27/101
R2A	R1A					MDR					CPP					07915103	0.00000	0.55000	SEC 26 10 12
R2A	R1A					MDR					CPP					07915104	0.00000	0.57000	SEC 26 10 12
R2A	R1A					MDR					CPP					07915105	0.00000	0.63000	SEC 26 10 12
R2A	R1A					MDR					CPP					07915106	0.00000	0.64000	RS 27/101/1
R2A	R1A					MDR					CPP					07915109	0.00000	1.84700	SEC 26 10 12
R2A	R1A					MDR					CPP					07915111	0.00000	1.46000	PPM 8/144/4 ADM
R2A	R1A					MDR					CPP					07915113	0.00000	0.44000	SEC 25 10 12
R2A	R1A					MDR					CPP					07915114	0.00000	0.38000	SEC 26 10 12
R2A	R1A					MDR					CPP					07915115	0.00000	0.61000	SEC 26 10 12
R2A	R1A					MDR					CPP					07915116	0.00000	0.60000	SEC 26 10 12
R2A	R1A					MDR					CPP					07915117	0.00000	1.20000	SEC 26 10 12
R2A	R1A					MDR					CPP					07915122	0.00000	0.69000	PPM 8/144/4 ADM
R2A	RE-5					LDR										07915124	0.00000	15.05000	PM 40/13/1
R2A	RE-5					LDR										07915125	0.00000	2.02000	PM 40/13/2
R2A	RE-5					LDR										07915126	0.00000	2.00000	PM 40/13/3
R2A	RE-5					LDR										07915127	0.00000	4.45000	PM 40/13/4
R2A	R1A					MDR					CPP					07916004	0.00000	1.00000	RS 1/123/11
R2A	R1A					MDR					CPP					07916005	0.00000	1.00400	RS 1/123/10
R2A	R1A					MDR					CPP					07916006	0.00000	1.00000	RS 1/123/9
R2A	R1A					MDR					CPP					07916007	2.00000	0.68000	PRS 1/123/14 AW
R2A	R1A					MDR					CPP					07916008	2.00000	0.90000	PRS 1/123/15 AW
R2A	R1A					MDR					CPP					07916011	0.00000	1.00000	RS 1/123/7
R2A	R1A					MDR					CPP					07916014	0.00000	0.34000	POR RS 1/123/5
R2A	R1A					MDR					CPP					07916015	0.00000	0.59000	PRS 1/123/5&16
R2A	R1A					MDR					CPP					07916017	0.00000	1.00000	RS 1/123/4
R2A	R1A					MDR					CPP					07916018	0.00000	1.03000	POR RS 1/123/15
R2A	R1A					MDR					CPP					07916019	0.00000	1.00000	RS 1/123/2
R2A	R1A					MDR					CPP					07916020	0.00000	1.37000	RS 1/123/1
R2A	R1A					MDR					CPP					07916021	0.00000	1.00000	POR RS 1/123/14
R2A	R1A					MDR					CPP					07916022	0.00000	1.00000	POR RS 1/123/14
R2A	R1A					MDR					CPP					07916023	0.00000	1.02000	POR RS 1/123/14
R2A	R1A					MDR					CPP					07916024	0.00000	0.58000	POR RS 1/123/14
R2A	R1A					MDR					CPP					07916026	0.00000	1.41500	POR RS 1/123/15

R2A	R1A					MDR					CPP					07916027	0.00000	1.15000	POR RS 1/123/15
R2A	R1A					MDR					CPP					07916029	0.00000	0.50000	POR RS 1/123/16
R2A	R1A					MDR					CPP					07916031	0.00000	0.52000	POR RS 1/123/16
R2A	R1A					MDR					CPP					07916032	0.00000	0.51000	POR RS 1/123/16
R2A	R1A					MDR					CPP					07916036	0.00000	0.40000	POR RS 1/123/5
R2A	R1A					MDR					CPP					07916037	0.00000	0.48000	PRS 1/123/5&16
R2A	R1A					MDR					CPP					07916040	0.00000	1.00000	SEC 25 10 12
R2A	R1A					MDR					CPP					07916043	0.00000	0.49000	POR RS 1/123/16
R2A	R1A					MDR					CPP					07916045	0.00000	0.65000	POR RS 1/123/16
R2A	R1A					MDR					CPP					07916046	0.00000	0.74000	POR RS 1/123/16
R2A	R1A					MDR					CPP					07916047	0.00000	0.52000	PM 2/66/A
R2A	R1A					MDR					CPP					07916048	0.00000	0.53000	PM 2/66/B
R2A	R1A					MDR					CPP					07916050	0.00000	0.71000	PM 3/111/A
R2A	R1A					MDR					CPP					07916051	0.00000	0.67000	PM 3/111/B
R2A	R1A					MDR					CPP					07916052	0.00000	1.04800	RS 29/110/1
R2A	R1A					MDR					CPP					07916056	0.00000	0.85000	PM 4/168/3
R2A	R1A					MDR					CPP					07916057	0.00000	1.37000	PM 4/168/4
R2A	R1A					MDR					CPP					07916058	0.00000	1.36000	RS 1/123/8&POR15
R2A	R1A					MDR					CPP					07916060	0.00000	0.50000	PM 5/103/B
R2A	R1A					MDR					CPP					07916061	0.00000	0.50200	PM 5/103/C
R2A	R1A					MDR					CPP					07916063	0.00000	1.00000	PM 6/24/A
R2A	R1A					MDR					CPP					07916064	0.00000	0.83000	PM 6/24/B
R2A	R1A					MDR					CPP					07916065	0.00000	0.84000	PM 6/24/C
R2A	R1A					MDR					CPP					07916066	0.00000	0.97000	PM 6/24/D
R2A	R1A					MDR					CPP					07916067	0.00000	0.86800	POR RS 1/123/17
R2A	R1A					MDR					CPP					07916068	11.00000	0.18000	POR RS 1/123/17
R2A	R1A					MDR					CPP					07916071	0.00000	1.12000	RS 13/67/1
R2A	R1A					MDR					CPP					07916073	0.00000	0.54000	RS 13/67/2
R2A	R1A					MDR					CPP					07916075	0.00000	0.88000	POR RS 1/123/16
R2A	R1A					MDR					CPP					07918002	0.00000	0.46800	SEC 25 10 12
R2A	R1A					MDR					CPP					07918003	0.00000	0.62000	RS 27/51/1
R2A	R1A					MDR					CPP					07918004	0.00000	0.59000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918005	0.00000	0.92000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918006	0.00000	0.55000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918007	0.00000	0.55000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918008	0.00000	0.57000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918009	0.00000	0.65000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918010	0.00000	0.52000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918011	0.00000	0.50000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918018	0.00000	0.46000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918019	0.00000	1.09000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918020	0.00000	1.54000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918021	0.00000	0.64000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918022	0.00000	0.50000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918023	0.00000	0.50000	SEC 25 10 12
R2A	R1A					MDR					CPP					07918024	0.00000	0.63000	SEC 25 10 12

R2A	R1A					MDR						CPP					07918025	0.00000	0.51000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918027	0.00000	0.82000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918036	0.00000	0.75000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918037	0.00000	0.83000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918038	0.00000	0.90000	PM 4/95/1
R2A	R1A					MDR						CPP					07918039	0.00000	0.95000	PM 4/95/2
R2A	R1A					MDR						CPP					07918040	0.00000	0.56500	PM 4/95/3
R2A	R1A					MDR						CPP					07918041	0.00000	0.88000	PM 8/100/1
R2A	R1A					MDR						CPP					07918042	0.00000	0.82000	PM 8/100/2
R2A	R1A					MDR						CPP					07918043	0.00000	0.82000	PM 8/100/3
R2A	R1A					MDR						CPP					07918044	0.00000	0.88000	PM 8/100/4
R2A	R1A					MDR						CPP					07918045	0.00000	0.85000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918046	0.00000	0.50000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918047	0.00000	0.50000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918051	0.00000	0.50000	RS 6/102
R2A	R1A					MDR						CPP					07918052	0.00000	0.43000	RS 6/102
R2A	R1A					MDR						CPP					07918053	0.00000	1.33000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918054	0.00000	1.00000	PM 23/87/1
R2A	R1A					MDR						CPP					07918055	0.00000	1.88000	PM 23/87/2
R2A	R1A					MDR						CPP					07918056	0.00000	0.88000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918057	0.00000	1.05000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918058	0.00000	1.02000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918059	0.00000	1.02000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918060	0.00000	1.11000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918063	0.00000	0.79000	SEC 25 10 12
R2A	R1A					MDR						CPP					07918064	0.00000	0.73000	SEC 25 10 12
RE-10	RL-10					RR			IBC								07919001	0.00000	4.75000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919002	0.00000	1.00000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919003	0.00000	2.05500	RS 17/111/2
RE-10	RL-10					RR			IBC								07919004	0.00000	3.00000	RS 17/111/1
RE-10	RL-10					RR			IBC								07919005	0.00000	5.91000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919006	0.00000	11.55000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919008	0.00000	1.99000	RS 26/8/1
RE-10	RL-10					RR			IBC								07919009	0.00000	5.58000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919011	0.00000	5.00000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919012	0.00000	4.98000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919013	0.00000	5.00000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919014	0.00000	5.02000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919015	0.00000	5.02000	RS 10/148/1
RE-10	RL-10					RR			IBC								07919021	0.00000	2.46000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919022	0.00000	4.04000	SEC 34 10 12
RE-10	RL-10					RR			IBC								07919024	0.00000	2.00000	SEC 34 10 12
RE-10	RL-10					RR											07919028	0.00000	47.99400	RS 9/125/2
RE-10	RL-10					RR			IBC								07919029	0.00000	16.96500	RS 10/145/2
RE-10	RL-10					RR			IBC								07919030	0.00000	16.97000	RS 10/145/1
RE-10	RL-10					RR			IBC								07919032	0.00000	10.05000	PM 34/127/2

RE-10	RL-10					RR			IBC								07919033	0.00000	15.68000	PM 34/127/3
RE-10	RL-10					RR			IBC								07919034	0.00000	12.16000	PM 38/150/1
RE-10	RL-10					RR			IBC								07919035	0.00000	10.00000	PM 38/150/2
RE-10	RL-10					RR			IBC								07919040	0.00000	2.44300	RS 31/108/1
RE-10	RL-10					RR			IBC								07919041	0.00000	3.04400	RS 31/108/2
R2A	R1A					MDR						CPP					07920001	0.00000	1.75000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920002	0.00000	0.69000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920003	0.00000	1.08000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920004	0.00000	0.87000	PM 3/143/1
R2A	R1A					MDR						CPP					07920005	0.00000	0.58000	PM 3/143/2
R2A	R1A					MDR						CPP					07920006	0.00000	0.18000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920007	0.00000	1.40000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920008	0.00000	0.61000	PM 3/144/1
R2A	R1A					MDR						CPP					07920009	0.00000	0.76000	PM 3/144/2
R2A	R1A					MDR						CPP					07920018	0.00000	1.00000	PM 17/27/A
R2A	R1A					MDR						CPP					07920019	0.00000	1.00000	PM 17/27/B
R2A	R1A					MDR						CPP					07920022	0.00000	1.00000	RS 7/116/1
R2A	R1A					MDR						CPP					07920024	0.00000	1.00000	RS 7/116/3
R2A	R1A					MDR						CPP					07920026	0.00000	1.00000	RS 7/116/2
R2A	RE-5					LDR											07920032	0.00000	10.75000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920033	0.00000	1.25000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920034	0.00000	1.33000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920039	0.00000	1.34100	SEC 26 10 12
R2A	R1A					MDR						CPP					07920042	0.00000	2.16000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920043	0.00000	1.03000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920044	0.00000	1.03000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920045	0.00000	1.61200	PM 6/129/4
R2A	R1A					MDR						CPP					07920046	0.00000	0.00000	1.28 A PAR 3 P/M
R2A	R1A					MDR						CPP					07920047	0.00000	1.11300	PM 6/129/2
R2A	R1A					MDR						CPP					07920048	0.00000	1.11000	PM 6/129/1
R2A	R1A					MDR						CPP					07920049	0.00000	1.03000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920050	0.00000	1.00000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920051	0.00000	0.99000	SEC 26 10 12
R2A	R1A					MDR						CPP					07920054	0.00000	2.00000	RS 22/108/1
R2A	R1A					MDR						CPP					07921001	0.00000	1.00000	PM 21/26/1
R2A	R1A					MDR						CPP					07921002	0.00000	1.00000	PM 21/26/2
R2A	R1A					MDR						CPP					07921003	0.00000	1.01000	PM 21/26/3
R2A	R1A					MDR						CPP					07921004	0.00000	1.00100	PM 21/26/4
R2A	R1A					MDR						CPP					07921017	0.00000	1.10000	PM 16/35/1
R2A	R1A					MDR						CPP					07921018	0.00000	1.00000	PM 6/174/A
R2A	R1A					MDR						CPP					07921021	0.00000	1.63000	RS 2/116/I
R2A	R1A					MDR						CPP					07921023	0.00000	2.27600	RS 2/116/III
R2A	R1A					MDR						CPP					07921025	0.00000	1.90000	PM 5/125/3
R2A	R1A					MDR						CPP					07921027	0.00000	1.97000	RS 10/66 S251012
R2A	R1A					MDR						CPP					07921028	0.00000	1.28000	SEC 25 10 12
R2A	R1A					MDR						CPP					07921029	0.00000	0.70000	SEC 25 10 12

R2A	R1A					MDR					CPP					07921030	0.00000	1.24000	RS 23/92/1
R2A	R1A					MDR					CPP					07921034	0.00000	0.84000	SEC 25 10 12
R2A	R1A					MDR					CPP					07921035	0.00000	1.83000	SEC 25 10 12
R2A	R1A					MDR					CPP					07921036	0.00000	1.54600	RS 15/31/A
R2A	R1A					MDR					CPP					07921037	0.00000	1.43000	SEC 25 10 12
R2A	R1A					MDR					CPP					07921039	0.00000	1.16000	SEC 25 10 12
R2A	R1A					MDR					CPP					07921040	0.00000	1.16000	SEC 25 10 12
RA-20	RE-5					MDR					CPP					07921042	0.00000	12.50000	SEC 25 10 12
R2A	R1A					MDR					CPP					07921044	0.00000	1.99000	PM 50/41/1
R2A	R1A					MDR					CPP					07922001	0.00000	1.01000	PM 27/3/A
R2A	R1A					MDR					CPP					07922002	0.00000	1.20000	PM 27/3/B
R2A	R1A					MDR					CPP					07922003	0.00000	1.01000	PM 27/3/C
R2A	R1A					MDR					CPP					07922007	0.00000	1.00000	PM 9/62/C
R2A	R1A					MDR					CPP					07922008	0.00000	1.00000	PM 9/62/B
R2A	R1A					MDR					CPP					07922009	0.00000	1.35000	PM 9/62/A
R2A	R1A					MDR					CPP					07922010	0.00000	1.39000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922011	0.00000	0.96000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922012	0.00000	1.28000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922013	0.00000	1.80000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922014	0.00000	1.00000	PM 4/82/A
R2A	R1A					MDR					CPP					07922015	0.00000	1.00000	PM 4/82/B
R2A	R1A					MDR					CPP					07922016	0.00000	0.66000	PM 4/41/B
R2A	R1A					MDR					CPP					07922017	0.00000	0.58000	PM 4/41/A
R2A	R1A					MDR					CPP					07922018	0.00000	1.01000	PM 1/175/D
R2A	R1A					MDR					CPP					07922019	0.00000	1.37000	PM 2/163/1
R2A	R1A					MDR					CPP					07922020	0.00000	1.00000	PM 1/175/A
R2A	R1A					MDR					CPP					07922022	0.00000	1.66000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922023	0.00000	0.84000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922024	0.00000	1.70000	PM 2/163/2
R2A	R1A					MDR					CPP					07922025	0.00000	1.84000	PM 1/175/C
R2A	R1A					MDR					CPP					07922026	0.00000	1.50000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922029	0.00000	1.00000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922030	0.00000	0.50000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922031	0.00000	0.50000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922032	0.00000	1.00000	PM 23/100/2
R2A	R1A					MDR					CPP					07922042	0.00000	1.33000	PM 6/101/1
R2A	R1A					MDR					CPP					07922043	0.00000	1.12000	PM 6/101/2
R2A	R1A					MDR					CPP					07922044	0.00000	1.10000	PM 6/101/3
R2A	R1A					MDR					CPP					07922046	0.00000	1.00000	PM 15/97/1
R2A	R1A					MDR					CPP					07922047	0.00000	1.00000	PM 15/97/2
R2A	R1A					MDR					CPP					07922048	0.00000	1.03000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922049	0.00000	1.64000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922050	0.00000	1.15000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922051	0.00000	1.14000	SEC 25 10 12
R2A	R1A					MDR					CPP					07922052	0.00000	1.44300	RS 27/40/1
R2A	R1A					MDR					CPP					07922055	0.00000	1.86000	RS 13/100/1

R2A	R1A					MDR						CPP					07922056	0.00000	1.17000	RS 14/91/2
R2A	R1A					MDR						CPP					07922062	0.00000	1.36700	SEC 25 10 12
R2A	R1A					MDR						CPP					07922066	0.00000	1.01100	PM 40/79/1
R2A	R1A					MDR						CPP					07922067	0.00000	1.01200	PM 40/79/2
R2A	R1A					MDR						CPP					07922073	0.00000	1.73700	RS 20/91/2
R2A	RE-5					LDR											07923001	0.00000	7.64400	RS 32/104/1
R2A	RE-5					LDR											07923003	0.00000	9.02000	SEC 26 10 12
R2A	RE-5					LDR											07923028	0.00000	4.73600	RS 32/104/2
R2A	RE-5					LDR											07923029	0.00000	5.25800	RS 32/104/3
RE-10	RE-5					MDR					PL						07924002	0.00000	2.72000	PM 9/116/C
RE-10	RE-5					MDR					PL						07924003	0.00000	3.92000	PM 9/116/D
RE-10	RE-5					MDR					PL						07924004	0.00000	3.89000	PM 9/131/A
RE-10	RE-5					MDR					PL						07924009	0.00000	2.38000	PM 9/131/C
RE-10	RE-5					MDR					PL						07924010	0.00000	3.20000	PM 9/131/B
RE-10	RE-5					MDR					PL						07924011	0.00000	2.17600	PM 9/116/A
RE-10	RE-5					MDR					PL						07924012	0.00000	2.96000	PM 9/116/B
RE-10	RE-5					MDR					PL						07924013	0.00000	3.24000	PM 9/115/A
RE-10	RE-5					MDR					PL						07924016	0.00000	3.62000	PM 9/115/B
RE-10	RE-5					MDR					PL						07924017	0.00000	4.13900	PM 9/115/C
RE-10	RE-5					MDR					PL						07924018	0.00000	2.73200	PM 9/115/D
RE-10	R2A					MDR						CPP					07925001	0.00000	2.42000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925002	0.00000	2.50000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925003	0.00000	2.59000	RS 26/90/1
RE-10	R2A					MDR						CPP					07925005	0.00000	2.54000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925006	0.00000	2.60000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925007	0.00000	2.50000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925008	0.00000	2.47500	RS 25/40/1
RE-10	R2A					MDR						CPP					07925009	0.00000	2.50000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925010	0.00000	2.50000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925011	0.00000	1.95000	SEC 26 10 12
RE-10	R3A					MDR						CPP					07925012	0.00000	2.75000	SEC 26 10 12
RE-10	R3A					MDR						CPP					07925013	0.00000	3.34000	SEC 26 10 12
RE-10	R1A					MDR						CPP					07925014	0.00000	1.50000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925015	0.00000	2.50000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925016	0.00000	2.50000	SEC 26 10 12
RE-10	R2A					MDR						CPP					07925017	0.00000	2.56900	RS 31/66/2
R2A	RE-5					LDR											07926017	0.00000	11.90000	SEC 26 10 12
RE-10	RL-10					RR											07927006	0.00000	20.12000	PM 32/125/1
RA-20	LA-10					RR			IBC								07927007	0.00000	20.03000	PM 32/125/2
RA-20	RL-20					RR			IBC								07927008	0.00000	20.01000	PM 32/125/3
RA-20	LA-10					RR			IBC								07927009	0.00000	20.01000	PM 32/125/4
RA-20	LA-10					RR			IBC								07927010	0.00000	20.02000	PM 32/125/5
RA-20	RL-20					RR			IBC								07927011	0.00000	20.04000	PM 32/125/6
RA-20	LA-10					RR			IBC								07927012	0.00000	20.04000	PM 32/125/7
RE-10	RL-10					RR											07927020	0.00000	10.02000	PM 44/25/1
RE-10	RL-10					RR											07927021	0.00000	10.00000	PM 44/25/2

RE-10	RL-10					RR			IBC								07928001	0.00000	15.09000	L 1
RE-10	RL-10					RR			IBC								07928002	0.00000	10.00000	L 2
RE-10	RL-10					RR											07928003	0.00000	10.02000	L 3
RE-10	RL-10					RR											07928004	0.00000	10.02000	L 4
TR1	FR-160					AP											08001012	11.00000	56.46000	3&101218RS15-101
TA	FR-160					AP											08001013	0.00000	20.82000	SEC 10 12 18
TR1	FR-160					AP											08001013	0.00000	20.82000	SEC 10 12 18
TR1	FR-160					AP											08001015	11.00000	29.81000	SEC 10 12 18
TR1	FR-160					AP											08001016	11.00000	56.79000	POR RS 15/101
TR1	FR-160					AP											08001018	11.00000	21.67000	3&101218RS15-101
TR1	R1					AP											08001019	11.00000	4.85000	SEC 10 12 18
TA	FR-160					AP											08001020	11.00000	0.00000	POR RS 15/101
TR1	FR-160					AP											08001020	11.00000	0.00000	POR RS 15/101
TA	FR-160					AP											08002003	11.00000	4.53000	SEC 11 12 18
TA	FR-160					AP											08002008	0.00000	54.84000	SEC 11 12 18
TA	FR-160					AP											08002008	0.00000	54.84000	SEC 11 12 18
TA	FR-160					AP											08002009	11.00000	0.00000	POR SEC 11 12 18
TR1	FR-160					AP											08003001	11.00000	50.00000	SEC 10 12 18
TA	FR-160					AP											08003002	11.00000	0.00000	POR RS 15/101
TR1	FR-160					AP											08003002	11.00000	0.00000	POR RS 15/101
TA	FR-160					AP											08004001	11.00000	43.80000	SEC 11 12 18
TA	FR-160					AP											08004003	11.00000	0.00000	POR SEC 11 12 18
TA	FR-160					AP											08005002	11.00000	160.00000	SEC 15 12 18
TA	FR-160					AP											08005005	0.00000	0.27000	SEC 15 12 18
TA	FR-160					AP											08005006	0.00000	0.27000	SEC 15 12 18
TA	FR-160					AP											08005007	0.00000	0.23600	RS 32/93/1
TA	FR-160					AP											08005008	0.00000	0.27000	SEC 15 12 18
TR1	R1					AP											08005009	0.00000	0.61000	PM 8/18/A
TR1	R1					AP											08005010	0.00000	0.52000	PM 8/18/B
TR1	R1					AP											08005011	0.00000	1.08700	PM 8/18/C
TR1	R1					AP											08005012	11.00000	1.32000	PAR D P/M 8-18
TA	FR-160					AP											08005014	11.00000	0.00000	POR SEC 15 12 18
TR1	R1					AP											08006101	0.00000	0.00000	L 520
TR1	R1					AP											08006102	0.00000	0.00000	L 521
TR1	R1					AP											08006103	0.00000	0.00000	L 522
TR1	R1					AP											08006104	0.00000	0.00000	L 523
TR1	R1					AP											08006105	0.00000	0.50000	L 524
TR1	R1					AP											08006106	0.00000	0.00000	L 525
TR1	R1					AP											08006107	0.00000	0.00000	L 526
TR1	R1					AP											08006108	0.00000	0.00000	L 505
TR1	R1					AP											08006109	0.00000	0.00000	L 506
TR1	R1					AP											08006110	0.00000	0.54400	L 507
TR1	R1					AP											08006111	0.00000	0.40700	L 508
TR1	R1					AP											08006112	0.00000	0.00000	L 509
TR1	R1					AP											08006113	0.00000	0.00000	L 510
TR1	R1					AP											08006114	0.00000	0.00000	L 511

TR1	R1					AP											08006115	0.00000	0.00000	L 512
TR1	R1					AP											08006116	0.00000	0.00000	L 513
TR1	R1					AP											08007101	11.00000	0.00000	L 459
TR1	R1					AP											08007102	11.00000	0.00000	L 460
TR1	R1					AP											08007103	11.00000	0.00000	L 461
TR1	R1					AP											08007104	0.00000	0.00000	L 462
TR1	R1					AP											08007107	11.00000	0.00000	L 465
TR1	R1					AP											08007108	11.00000	0.00000	L 466
TR1	R1					AP											08007109	11.00000	0.00000	L 467
TR1	R1					AP											08007110	11.00000	0.00000	L 468
TR1	R1					AP											08007111	0.00000	0.00000	L 469
TR1	R1					AP											08007112	11.00000	0.00000	L 470
TR1	R1					AP											08007113	11.00000	0.00000	L 471
TR1	R1					AP											08007114	0.00000	0.00000	L 472
TR1	R1					AP											08007115	0.00000	0.00000	L 473
TR1	R1					AP											08007116	0.00000	0.00000	L 474
TR1	R1					AP											08007117	0.00000	0.00000	L 475
TR1	R1					AP											08007118	0.00000	0.00000	L 476
TR1	R1					AP											08007119	0.00000	0.59700	L 491
TR1	R1					AP											08007120	0.00000	0.00000	L 492
TR1	R1					AP											08007121	0.00000	0.00000	L 493
TR1	R1					AP											08007122	0.00000	0.00000	L 494
TR1	R1					AP											08007123	0.00000	0.00000	L 495
TR1	R1					AP											08007124	0.00000	0.00000	L 496
TR1	R1					AP											08007125	11.00000	0.00000	L 497
TR1	R1					AP											08007126	11.00000	0.00000	L 498
TR1	R1					AP											08007127	0.00000	0.38500	L 499
TR1	R1					AP											08007128	0.00000	0.00000	L 500
TR1	R1					AP											08007129	0.00000	0.00000	L 501
TR1	R1					AP											08007130	11.00000	0.00000	L 502
TR1	R1					AP											08007131	0.00000	0.00000	L 503
TR1	R1					AP											08007132	0.00000	1.39500	L 504
TR1	R1					AP											08007133	0.00000	0.00000	L 463 & L 464
TR1	R1					AP											08008101	0.00000	0.00000	L 417
TR1	R1					AP											08008102	0.00000	0.00000	L 418
TR1	R1					AP											08008105	0.00000	0.00000	L 421
TR1	R1					AP											08008106	0.00000	0.00000	L 422
TR1	R1					AP											08008107	0.00000	0.00000	L 423
TR1	R1					AP											08008108	0.00000	0.21300	L 424
TR1	R1					AP											08008109	0.00000	0.22000	L 425
TR1	R1					AP											08008110	0.00000	0.00000	L 426
TR1	R1					AP											08008111	0.00000	0.19500	L 427
TR1	R1					AP											08008112	11.00000	0.00000	L 428
TR1	R1					AP											08008113	11.00000	0.00000	L 429
TR1	R1					AP											08008114	11.00000	0.00000	L 430
TR1	R1					AP											08008115	0.00000	0.00000	L 431

TR1	R1					AP											08008116	0.00000	0.15500	L 440
TR1	R1					AP											08008117	11.00000	0.00000	L 441
TR1	R1					AP											08008118	11.00000	0.00000	L 442
TR1	R1					AP											08008119	0.00000	0.00000	L 443
TR1	R1					AP											08008120	0.00000	0.00000	L 444
TR1	R1					AP											08008121	11.00000	0.00000	L 445
TR1	R1					AP											08008122	0.00000	0.00000	L 446
TR1	R1					AP											08008123	0.00000	0.00000	L 447
TR1	R1					AP											08008124	0.00000	0.19200	L 448
TR1	R1					AP											08008125	0.00000	0.00000	L 449
TR1	R1					AP											08008126	0.00000	0.00000	L 450
TR1	R1					AP											08008127	0.00000	0.00000	L 451
TR1	R1					AP											08008128	0.00000	0.18200	L 452
TR1	R1					AP											08008129	0.00000	0.00000	L 453
TR1	R1					AP											08008132	0.00000	0.00000	L 456
TR1	R1					AP											08008133	11.00000	0.00000	L 457
TR1	R1					AP											08008134	0.00000	0.13800	L 458
TR1	R1					AP											08008135	0.00000	0.35000	PM 43/79/1
TR1	R1					AP											08008136	0.00000	0.00000	L 419 & L 420
TR1	R1					AP											08008201	11.00000	0.00000	L 379
TR1	R1					AP											08008202	0.00000	0.00000	L 380
TR1	R1					AP											08008203	0.00000	0.00000	L 381
TR1	R1					AP											08008204	0.00000	0.14000	L 382
TR1	R1					AP											08008205	0.00000	0.00000	L 383
TR1	R1					AP											08008206	0.00000	0.13800	L 384
TR1	R1					AP											08008207	11.00000	0.00000	L 385
TR1	R1					AP											08008208	0.00000	0.13800	L 386
TR1	R1					AP											08008209	0.00000	0.00000	L 403
TR1	R1					AP											08008210	11.00000	0.00000	L 404
TR1	R1					AP											08008211	0.00000	0.00000	L 405
TR1	R1					AP											08008212	0.00000	0.13800	L 406
TR1	R1					AP											08008213	0.00000	0.00000	L 407
TR1	R1					AP											08008214	0.00000	0.00000	L 408
TR1	R1					AP											08008215	0.00000	0.00000	L 409
TR1	R1					AP											08008216	0.00000	0.13800	L 410
TR1	R1					AP											08008217	0.00000	0.00000	L 411
TR1	R1					AP											08008218	0.00000	0.13700	L 412
TR1	R1					AP											08008219	0.00000	0.00000	L 413
TR1	R1					AP											08008220	0.00000	0.00000	L 414
TR1	R1					AP											08008221	0.00000	0.00000	L 415
TR1	R1					AP											08008222	0.00000	0.13800	L 416
TR1	R1					AP											08008301	0.00000	0.00000	L 374
TR1	R1					AP											08008302	0.00000	0.00000	L 375
TR1	R1					AP											08008303	0.00000	0.00000	L 376
TR1	R1					AP											08008304	0.00000	0.15500	L 377
TR1	R1					AP											08008305	0.00000	0.00000	L 378

TR1	R1					AP											08009101	0.00000	0.00000	L 514
TR1	R1					AP											08009102	11.00000	0.00000	L 515
TR1	R1					AP											08009103	11.00000	0.00000	L 516
TR1	R1					AP											08009104	0.00000	0.73900	RS 29/146 L 517
TR1	R1					AP											08009105	0.00000	0.00000	L 518
TR1	R1					AP											08009106	0.00000	0.39600	L 519
TR1	R1					AP											08009201	11.00000	0.00000	L 477
TR1	R1					AP											08009202	11.00000	0.00000	L 478
TR1	R1					AP											08009203	11.00000	0.00000	L 479
TR1	R1					AP											08009204	11.00000	0.00000	L 480
TR1	R1					AP											08009205	0.00000	0.00000	L 481
TR1	R1					AP											08009206	11.00000	0.00000	L 482
TR1	R1					AP											08009207	11.00000	0.00000	L 483
TR1	R1					AP											08009208	0.00000	0.00000	L 484
TR1	R1					AP											08009209	0.00000	0.00000	L 485
TR1	R1					AP											08009210	11.00000	0.00000	L 486
TR1	R1					AP											08009211	11.00000	0.00000	L 487
TR1	R1					AP											08009212	11.00000	0.00000	L 488
TR1	R1					AP											08009213	0.00000	0.00000	L 489
TR1	R1					AP											08009214	11.00000	0.00000	L 490
TR1	R1					AP											08010101	0.00000	0.16300	L 432
TR1	R1					AP											08010102	0.00000	0.00000	L 433
TR1	R1					AP											08010103	0.00000	0.00000	L 434
TR1	R1					AP											08010104	0.00000	0.00000	L 435
TR1	R1					AP											08010105	0.00000	0.00000	L 436
TR1	R1					AP											08010106	0.00000	0.00000	L 437
TR1	R1					AP											08010107	11.00000	0.00000	L 438
TR1	R1					AP											08010108	0.00000	0.00000	L 439
TR1	R1					AP											08010201	0.00000	0.00000	L 387
TR1	R1					AP											08010202	0.00000	0.13800	L 388
TR1	R1					AP											08010203	11.00000	0.00000	L 389
TR1	R1					AP											08010204	0.00000	0.00000	L 390
TR1	R1					AP											08010205	0.00000	0.13800	L 391
TR1	R1					AP											08010206	0.00000	0.13800	L 392
TR1	R1					AP											08010207	0.00000	0.00000	L 393
TR1	R1					AP											08010208	0.00000	0.00000	L 394
TR1	R1					AP											08010209	0.00000	0.00000	L 395
TR1	R1					AP											08010210	0.00000	0.00000	L 396
TR1	R1					AP											08010211	0.00000	0.00000	L 397
TR1	R1					AP											08010212	0.00000	0.00000	L 398
TR1	R1					AP											08010213	11.00000	0.00000	L 399
TR1	R1					AP											08010214	0.00000	0.00000	L 400
TR1	R1					AP											08010215	0.00000	0.00000	L 401
TR1	R1					AP											08010216	0.00000	0.00000	L 402
TR1	R1					AP											08010301	0.00000	0.00000	L 353
TR1	R1					AP											08010302	11.00000	0.00000	L 354

TR1	R1					AP											08010303	11.00000	0.00000	L 355
TR1	R1					AP											08010304	0.00000	0.13800	L 356
TR1	R1					AP											08010305	0.00000	0.13800	L 357
TR1	R1					AP											08010306	11.00000	0.00000	L 358
TR1	R1					AP											08010307	11.00000	0.00000	L 359
TR1	R1					AP											08010308	0.00000	0.00000	L 360
TR1	R1					AP											08010309	0.00000	0.00000	L 361
TR1	R1					AP											08010310	0.00000	0.00000	L 362
TR1	R1					AP											08010311	0.00000	0.00000	L 363
TR1	R1					AP											08010312	0.00000	0.00000	L 364
TR1	R1					AP											08010313	11.00000	0.00000	L 365
TR1	R1					AP											08010314	0.00000	0.00000	L 366
TR1	R1					AP											08010315	11.00000	0.00000	L 367
TR1	R1					AP											08010316	11.00000	0.00000	L 368
TR1	R1					AP											08010317	0.00000	0.18300	L 369
TR1	R1					AP											08010318	0.00000	0.13700	L 370
TR1	R1					AP											08010319	11.00000	0.00000	L 371
TR1	R1					AP											08010320	0.00000	0.00000	L 372
TR1	R1					AP											08010321	0.00000	0.00000	L 373
TR1	R1					AP											08010401	0.00000	0.00000	L 328
TR1	R1					AP											08010402	0.00000	0.00000	L 329
TR1	R1					AP											08010403	0.00000	0.17700	L 330
TR1	R1					AP											08010404	0.00000	0.00000	L 331
TR1	R1					AP											08010405	0.00000	0.19300	L 332
TR1	R1					AP											08010406	0.00000	0.25400	L 333
TR1	R1					AP											08010407	0.00000	0.00000	L 334
TR1	R1					AP											08010408	0.00000	0.00000	L 335
TR1	R1					AP											08010409	0.00000	0.00000	L 336
TR1	R1					AP											08010410	0.00000	0.00000	L 337
TR1	R1					AP											08010414	0.00000	0.00000	L 341
TR1	R1					AP											08010415	0.00000	0.00000	L 342
TR1	R1					AP											08010416	0.00000	0.00000	L 343
TR1	R1					AP											08010417	0.00000	0.18400	L 344
TR1	R1					AP											08010418	0.00000	0.00000	L 345
TR1	R1					AP											08010419	0.00000	0.00000	L 346
TR1	R1					AP											08010420	0.00000	0.00000	L 347
TR1	R1					AP											08010421	0.00000	0.00000	L 348
TR1	R1					AP											08010422	0.00000	0.00000	L 349
TR1	R1					AP											08010423	0.00000	0.00000	L 350
TR1	R1					AP											08010424	11.00000	0.00000	L 351
TR1	R1					AP											08010425	0.00000	0.00000	L 352
TR1	R1					AP											08011101	11.00000	0.00000	L 21
TR1	R1					AP											08011102	11.00000	0.00000	L 22
TR1	R1					AP											08011103	0.00000	0.00000	L 23
TR1	R1					AP											08011104	0.00000	0.00000	L 24
TR1	R1					AP											08011105	0.00000	0.00000	L 25

TR1	R1					AP											08011106	0.00000	0.00000	L 26
TR1	R1					AP											08011107	11.00000	0.00000	L 27
TR1	R1					AP											08011108	11.00000	0.00000	L 28
TR1	R1					AP											08011109	0.00000	0.34400	L 29
TR1	R1					AP											08011201	0.00000	0.00000	L 15
TR1	R1					AP											08011202	0.00000	0.23600	L 16
TR1	R1					AP											08011203	0.00000	0.00000	L 17
TR1	R1					AP											08011204	0.00000	0.00000	L 18
TR1	R1					AP											08011205	11.00000	0.00000	L 19
TR1	R1					AP											08011206	0.00000	0.00000	L 20
TR1	R1					AP											08011301	0.00000	0.00000	L 140
TR1	R1					AP											08011302	0.00000	0.00000	L 141
TR1	R1					AP											08011303	0.00000	0.17700	L 142
TR1	R1					AP											08011304	0.00000	0.17700	L 143
TR1	R1					AP											08011305	0.00000	0.00000	L 144
TR1	R1					AP											08011306	0.00000	0.00000	L 145
TR1	R1					AP											08011307	0.00000	0.00000	L 146
TR1	R1					AP											08011308	0.00000	0.00000	L 147
TR1	R1					AP											08011309	0.00000	0.16100	L 148
TR1	R1					AP											08011310	0.00000	0.00000	L 149
TR1	R1					AP											08011311	0.00000	0.16300	L 150
TR1	R1					AP											08011312	0.00000	0.18800	L 151
TR1	R1					AP											08011313	0.00000	0.00000	L 152
TR1	R1					AP											08011314	0.00000	0.00000	L 153
TR1	R1					AP											08011317	0.00000	0.16100	L 156
TR1	R1					AP											08011318	0.00000	0.16100	L 157
TR1	R1					AP											08011321	0.00000	0.16100	L 160
TR1	R1					AP											08011322	0.00000	0.00000	L 161
TR1	R1					AP											08011323	0.00000	0.00000	L 162
TR1	R1					AP											08011324	0.00000	0.00000	L 163
TR1	R1					AP											08011325	0.00000	0.00000	L 164
TR1	R1					AP											08011326	0.00000	0.00000	L 165
TR1	R1					AP											08011327	0.00000	0.00000	L 166
TR1	R1					AP											08011328	0.00000	0.00000	L 167
TR1	R1					AP											08011329	0.00000	0.00000	L 168
TR1	R1					AP											08011330	0.00000	0.00000	L 169
TR1	R1					AP											08011331	0.00000	0.00000	L 170
TR1	R1					AP											08011332	0.00000	0.00000	L 171
TR1	R1					AP											08011333	0.00000	0.17700	L 172
TR1	R1					AP											08011334	11.00000	0.00000	L 173
TR1	R1					AP											08011335	0.00000	0.00000	L 174
TR1	R1					AP											08011336	0.00000	0.17500	L 175
TR1	R1					AP											08011337	0.00000	0.00000	L 176
TR1	R1					AP											08011338	0.00000	0.00000	L 177
TR1	R1					AP											08011339	0.00000	0.00000	L 178
TR1	R1					AP											08011340	0.00000	0.00000	L 179

TR1	R1					AP											08011341	0.00000	0.00000	L 180
TR1	R1					AP											08011342	0.00000	0.18400	L 181
TR1	R1					AP											08011343	0.00000	0.00000	L 182
TR1	R1					AP											08011344	0.00000	0.00000	L 183
TR1	R1					AP											08011345	0.00000	0.00000	L 184
TR1	R1					AP											08011346	0.00000	0.00000	L 185
TR1	R1					AP											08011347	0.00000	0.32100	LOT 158 & 159
TR1	R1					AP											08011348	0.00000	0.34000	PM 43/33/1
TR1	R1					AP											08011401	0.00000	0.00000	L 118
TR1	R1					AP											08011402	0.00000	0.00000	L 119
TR1	R1					AP											08011403	0.00000	0.00000	L 120
TR1	R1					AP											08011404	0.00000	0.00000	L 121
TR1	R1					AP											08011405	0.00000	0.00000	L 122
TR1	R1					AP											08011406	0.00000	0.00000	L 123
TR1	R1					AP											08011407	0.00000	0.00000	L 124
TR1	R1					AP											08011408	0.00000	0.00000	L 125
TR1	R1					AP											08011409	0.00000	0.17200	L 126
TR1	R1					AP											08011410	0.00000	0.00000	L 127
TR1	R1					AP											08011411	0.00000	0.00000	L 128
TR1	R1					AP											08011412	0.00000	0.00000	L 129
TR1	R1					AP											08011413	0.00000	0.00000	L 130
TR1	R1					AP											08011414	0.00000	0.24100	L 131
TR1	R1					AP											08011415	0.00000	0.00000	L 132
TR1	R1					AP											08011418	0.00000	0.17900	L 135
TR1	R1					AP											08011419	0.00000	0.17700	L 136
TR1	R1					AP											08011420	0.00000	0.00000	L 137
TR1	R1					AP											08011423	0.00000	0.00000	PM 29/35/A
TR1	R1					AP											08011428	0.00000	0.21000	RS 22/124
TR1	R1					AP											08011429	0.00000	0.20000	RS 22/124
TR1	R1					AP											08011501	0.00000	0.00000	L 7
TR1	R1					AP											08011502	0.00000	0.20700	L 8
TR1	R1					AP											08011503	0.00000	0.16700	L 9
TR1	R1					AP											08011504	0.00000	0.00000	L 10
TR1	R1					AP											08011505	0.00000	0.00000	L 11
TR1	R1					AP											08011506	0.00000	0.00000	L 12
TR1	R1					AP											08011507	0.00000	0.00000	L 13
TR1	R1					AP											08011508	0.00000	0.00000	L 14
TR1	R1					AP											08012101	11.00000	0.00000	L 30
TR1	R1					AP											08012102	11.00000	0.00000	L 31
TR1	R1					AP											08012103	0.00000	0.00000	L 32
TR1	R1					AP											08012104	0.00000	0.34600	L 33
TR1	R1					AP											08012105	0.00000	0.00000	L 34
TR1	R1					AP											08012106	11.00000	0.00000	L 35
TR1	R1					AP											08012107	11.00000	0.00000	L 36
TR1	R1					AP											08012108	11.00000	0.00000	L 37
TR1	R1					AP											08012109	0.00000	0.00000	L 38

TR1	R1					AP											08012110	0.00000	0.31700	L 39
TR1	R1					AP											08012111	0.00000	0.00000	L 40
TR1	R1					AP											08012112	0.00000	0.00000	L 41
TR1	R1					AP											08012113	0.00000	0.00000	L 42
TR1	R1					AP											08012114	11.00000	0.00000	L 43
TR1	R1					AP											08012115	0.00000	0.00000	L 44
TR1	R1					AP											08012116	0.00000	0.21400	L 45
TR1	R1					AP											08012117	0.00000	0.24800	L 46
TR1	R1					AP											08012118	0.00000	0.00000	L 47
TR1	R1					AP											08012119	0.00000	0.21500	L 48
TR1	R1					AP											08012120	11.00000	0.00000	L 49
TR1	R1					AP											08012121	0.00000	0.00000	L 50
TR1	R1					AP											08012122	11.00000	0.00000	L 51
TR1	R1					AP											08012123	0.00000	0.00000	L 52
TR1	R1					AP											08012124	11.00000	0.00000	L 53
TR1	R1					AP											08012125	0.00000	0.00000	L 54
TR1	R1					AP											08012126	11.00000	0.00000	L 55
TR1	R1					AP											08012201	0.00000	0.00000	L 81
TR1	R1					AP											08012202	0.00000	0.00000	L 82
TR1	R1					AP											08012203	0.00000	0.00000	L 83
TR1	R1					AP											08012204	0.00000	0.00000	L 84
TR1	R1					AP											08012205	11.00000	0.00000	L 85
TR1	R1					AP											08012206	0.00000	0.00000	L 86
TR1	R1					AP											08012207	0.00000	0.18500	L 87
TR1	R1					AP											08012208	0.00000	0.00000	L 88
TR1	R1					AP											08012209	0.00000	0.00000	L 89
TR1	R1					AP											08012210	0.00000	0.18500	L 90
TR1	R1					AP											08012211	0.00000	0.00000	L 91
TR1	R1					AP											08012212	0.00000	0.00000	L 92
TR1	R1					AP											08012213	0.00000	0.00000	L 93
TR1	R1					AP											08012214	0.00000	0.00000	L 94
TR1	R1					AP											08012215	0.00000	0.00000	L 95
TR1	R1					AP											08012216	0.00000	0.00000	L 96
TR1	R1					AP											08012217	0.00000	0.00000	L 97
TR1	R1					AP											08012218	0.00000	0.00000	L 98
TR1	R1					AP											08012219	0.00000	0.00000	L 99
TR1	R1					AP											08012220	0.00000	0.00000	L 100
TR1	R1					AP											08012221	0.00000	0.00000	L 101
TR1	R1					AP											08012222	0.00000	0.00000	L 102
TR1	R1					AP											08012223	0.00000	0.00000	L 103
TR1	R1					AP											08013101	11.00000	0.00000	L 56
TR1	R1					AP											08013102	0.00000	0.28100	L 57
TR1	R1					AP											08013103	0.00000	0.00000	L 58
TR1	R1					AP											08013104	11.00000	0.00000	L 59
TR1	R1					AP											08013105	0.00000	0.30900	L 60
TR1	R1					AP											08013106	0.00000	0.00000	L 61

TR1	R1					AP											08013107	0.00000	0.00000	L 62
TR1	R1					AP											08013108	11.00000	0.00000	L 63
TR1	R1					AP											08013109	0.00000	0.00000	L 66
TR1	R1					AP											08013110	11.00000	0.00000	L 65
TR1	R1					AP											08013111	11.00000	0.00000	L 64
TR1	R1					AP											08013201	0.00000	0.00000	L 67
TR1	R1					AP											08013202	0.00000	0.00000	L 68
TR1	R1					AP											08013203	0.00000	0.00000	L 69
TR1	R1					AP											08013204	0.00000	0.16100	L 70
TR1	R1					AP											08013205	0.00000	0.16100	L 71
TR1	R1					AP											08013206	0.00000	0.00000	L 72
TR1	R1					AP											08013207	0.00000	0.00000	L 73
TR1	R1					AP											08013208	0.00000	0.00000	L 74
TR1	R1					AP											08013209	0.00000	0.16100	L 75
TR1	R1					AP											08013210	0.00000	0.00000	L 76
TR1	R1					AP											08013211	0.00000	0.00000	L 77
TR1	R1					AP											08013212	0.00000	0.00000	L 78
TR1	R1					AP											08013213	0.00000	0.16100	L 79
TR1	R1					AP											08013214	0.00000	0.00000	L 80
TR1	R1					AP											08013215	0.00000	0.16100	L 104
TR1	R1					AP											08013216	0.00000	0.16100	L 105
TR1	R1					AP											08013217	0.00000	0.00000	L 106
TR1	R1					AP											08013218	0.00000	0.00000	L 107
TR1	R1					AP											08013219	0.00000	0.00000	L 108
TR1	R1					AP											08013220	0.00000	0.00000	L 109
TR1	R1					AP											08013221	0.00000	0.00000	L 110
TR1	R1					AP											08013222	0.00000	0.16100	L 111
TR1	R1					AP											08013223	0.00000	0.16100	L 112
TR1	R1					AP											08013226	0.00000	0.00000	L 115
TR1	R1					AP											08013227	0.00000	0.00000	L 116
TR1	R1					AP											08013228	0.00000	0.16000	L 117
TR1	R1					AP											08013229	0.00000	0.00000	PM 27/14/A
TR1	R1					AP											08013301	0.00000	0.17900	L 1
TR1	R1					AP											08013302	11.00000	0.00000	L 2
TR1	R1					AP											08013303	0.00000	0.00000	L 3
TR1	R1					AP											08013304	0.00000	0.00000	L 4
TR1	R1					AP											08013305	0.00000	0.17700	L 5
TR1	R1					AP											08013306	0.00000	0.19800	L 6
TR1	R1					AP											08014101	0.00000	0.28800	L 173
TR1	R1					AP											08014201	0.00000	0.00000	L 162
TR1	R1					AP											08014202	0.00000	0.00000	L 163
TR1	R1					AP											08014203	0.00000	0.00000	L 164
TR1	R1					AP											08014204	0.00000	0.00000	L 165
TR1	R1					AP											08014205	0.00000	0.00000	L 166
TR1	R1					AP											08014206	0.00000	0.00000	L 167
TR1	R1					AP											08014207	0.00000	0.18300	L 168

TR1	R1					AP											08014208	0.00000	0.18300	L 169
TR1	R1					AP											08014209	0.00000	0.00000	L 170
TR1	R1					AP											08014210	0.00000	0.00000	L 171
TR1	R1					AP											08014211	0.00000	0.00000	L 172
TR1	R1					AP											08014301	0.00000	0.00000	L 174
TR1	R1					AP											08014302	0.00000	0.00000	L 175
TR1	R1					AP											08014303	0.00000	0.00000	L 176
TR1	R1					AP											08014304	0.00000	0.17600	L 177
TR1	R1					AP											08014305	0.00000	0.00000	L 178
TR1	R1					AP											08014306	0.00000	0.17600	L 179
TR1	R1					AP											08014307	0.00000	0.00000	L 180
TR1	R1					AP											08014308	0.00000	0.00000	L 181
TR1	R1					AP											08014309	0.00000	0.17600	L 182
TR1	R1					AP											08014310	0.00000	0.17700	L 183
TR1	R1					AP											08014311	0.00000	0.17800	L 184
TR1	R1					AP											08014312	0.00000	0.00000	L 185
TR1	R1					AP											08014313	0.00000	0.00000	L 186
TR1	R1					AP											08014314	0.00000	0.20300	L 187
TR1	R1					AP											08014403	0.00000	0.17600	L 84
TR1	R1					AP											08014404	0.00000	0.17600	L 85
TR1	R1					AP											08014405	0.00000	0.00000	L 86
TR1	R1					AP											08014406	0.00000	0.17600	L 87
TR1	R1					AP											08014409	0.00000	0.00000	L 90
TR1	R1					AP											08014410	0.00000	0.00000	L 91
TR1	R1					AP											08014411	0.00000	0.00000	L 92
TR1	R1					AP											08014415	0.00000	0.00000	L 96
TR1	R1					AP											08014416	0.00000	0.00000	L 97
TR1	R1					AP											08014417	0.00000	0.00000	L 98
TR1	R1					AP											08014418	0.00000	0.00000	L 99
TR1	R1					AP											08014421	0.00000	0.00000	L 102
TR1	R1					AP											08014422	0.00000	0.00000	L 103
TR1	R1					AP											08014423	0.00000	0.16400	L 104
TR1	R1					AP											08014424	11.00000	0.00000	L 105
TR1	R1					AP											08014425	0.00000	0.00000	L 106
TR1	R1					AP											08014428	0.00000	0.00000	L 109
TR1	R1					AP											08014429	0.00000	0.00000	L 110
TR1	R1					AP											08014430	0.00000	0.17700	L 111
TR1	R1					AP											08014431	0.00000	0.00000	L 112
TR1	R1					AP											08014432	0.00000	0.17700	L 113
TR1	R1					AP											08014433	0.00000	0.17600	L 114
TR1	R1					AP											08014434	0.00000	0.17700	L 115
TR1	R1					AP											08014435	0.00000	0.00000	L 116
TR1	R1					AP											08014436	0.00000	0.00000	L 117
TR1	R1					AP											08014437	0.00000	0.00000	L 118
TR1	R1					AP											08014438	0.00000	0.00000	L 119
TR1	R1					AP											08014439	0.00000	0.00000	L 120

TR1	R1					AP											08014440	0.00000	0.00000	L 121
TR1	R1					AP											08014441	0.00000	0.00000	L 122
TR1	R1					AP											08014442	11.00000	0.00000	L 123
TR1	R1					AP											08014443	0.00000	0.17600	L 124
TR1	R1					AP											08014446	0.00000	0.00000	L 127
TR1	R1					AP											08014447	0.00000	0.00000	L 128
TR1	R1					AP											08014448	0.00000	0.00000	L 129
TR1	R1					AP											08014449	0.00000	0.00000	LOT 107 & 108
TR1	R1					AP											08014451	0.00000	0.45000	PM 32/64/A
TR1	R1					AP											08014452	0.00000	0.18000	PM 32/64/B
TR1	R1					AP											08014453	0.00000	0.35300	PM 36/38/A
TR1	R1					AP											08014454	0.00000	0.34000	PM 38/145/1
TR1	R1					AP											08014457	0.00000	0.27000	RS 18/40/1
TR1	R1					AP											08014458	0.00000	0.27000	RS 18/40/2
TR1	R1					AP											08014459	0.00000	0.35000	PM 43/101/1
TR1	R1					AP											08014501	0.00000	0.00000	L 1
TR1	R1					AP											08014502	0.00000	0.00000	L 2
TR1	R1					AP											08014503	11.00000	0.00000	L 3
TR1	R1					AP											08014504	0.00000	0.16100	L 4
TR1	R1					AP											08014505	0.00000	0.00000	L 5
TR1	R1					AP											08014506	0.00000	0.16100	L 6
TR1	R1					AP											08014507	0.00000	0.00000	L 7
TR1	R1					AP											08014508	0.00000	0.00000	L 8
TR1	R1					AP											08014509	0.00000	0.00000	L 9
TR1	R1					AP											08014510	0.00000	0.16100	L 10
TR1	R1					AP											08014511	11.00000	0.00000	L 11
TR1	R1					AP											08014512	0.00000	0.00000	L 12
TR1	R1					AP											08014513	0.00000	0.00000	L 13
TR1	R1					AP											08014514	0.00000	0.00000	L 14
TR1	R1					AP											08014515	0.00000	0.00000	L 15
TR1	R1					AP											08014516	0.00000	0.00000	L 16
TR1	R1					AP											08014517	0.00000	0.00000	L 17
TR1	R1					AP											08014518	0.00000	0.00000	L 18
TR1	R1					AP											08014519	0.00000	0.00000	L 19
TR1	R1					AP											08014520	0.00000	0.00000	L 20
TR1	R1					AP											08014521	0.00000	0.00000	L 21
TR1	R1					AP											08014522	0.00000	0.00000	L 22
TR1	R1					AP											08014523	0.00000	0.00000	L 23
TR1	R1					AP											08014524	0.00000	0.00000	L 24
TR1	R1					AP											08014525	0.00000	0.00000	L 25
TR1	R1					AP											08014601	0.00000	0.00000	L 30
TR1	R1					AP											08014602	0.00000	0.17600	L 31
TR1	R1					AP											08014603	0.00000	0.18000	L 32
TR1	R1					AP											08014604	0.00000	0.00000	L 33
TR1	R1					AP											08014605	0.00000	0.00000	L 34
TR1	R1					AP											08014606	0.00000	0.00000	L 35

TR1	R1					AP											08014607	0.00000	0.18900	L 36
TR1	R1					AP											08014608	0.00000	0.00000	L 37
TR1	R1					AP											08014609	0.00000	0.17200	L 38
TR1	R1					AP											08014610	0.00000	0.00000	L 39
TR1	R1					AP											08014701	0.00000	0.00000	L 188
TR1	R1					AP											08014702	11.00000	0.00000	L 189
TR1	R1					AP											08014703	11.00000	0.00000	L 190
TR1	R1					AP											08014704	0.00000	0.00000	L 191
TR1	R1					AP											08014705	0.00000	0.24000	L 192
TR1	R1					AP											08014706	0.00000	0.00000	L 193
TR1	R1					AP											08014801	0.00000	0.00000	L 194
TR1	R1					AP											08014802	0.00000	0.00000	L 195
TR1	R1					AP											08014803	0.00000	0.00000	L 196
TR1	R1					AP											08014804	0.00000	0.17700	L 197
TR1	R1					AP											08014805	0.00000	0.00000	L 198
TR1	R1					AP											08015101	0.00000	0.00000	L 141
TR1	R1					AP											08015104	0.00000	0.00000	L 144
TR1	R1					AP											08015105	0.00000	0.17300	L 145
TR1	R1					AP											08015106	0.00000	0.17300	L 146
TR1	R1					AP											08015107	0.00000	0.00000	L 147
TR1	R1					AP											08015108	0.00000	0.00000	L 148
TR1	R1					AP											08015109	0.00000	0.00000	L 149
TR1	R1					AP											08015110	0.00000	0.42300	L 150
TR1	R1					AP											08015111	0.00000	0.00000	L 151
TR1	R1					AP											08015112	0.00000	0.00000	L 152
TR1	R1					AP											08015113	0.00000	0.18300	L 153
TR1	R1					AP											08015114	0.00000	0.18300	L 154
TR1	R1					AP											08015115	11.00000	0.00000	L 155
TR1	R1					AP											08015116	0.00000	0.00000	L 156
TR1	R1					AP											08015117	0.00000	0.00000	L 157
TR1	R1					AP											08015118	0.00000	0.18300	L 158
TR1	R1					AP											08015119	0.00000	0.00000	L 159
TR1	R1					AP											08015120	0.00000	0.00000	L 160
TR1	R1					AP											08015121	0.00000	0.00000	L 161
TR1	R1					AP											08015122	0.00000	0.36000	PM 41/104/1
TR1	R1					AP											08015201	0.00000	0.00000	L 71
TR1	R1					AP											08015202	0.00000	0.00000	L 72
TR1	R1					AP											08015203	11.00000	0.00000	L 73
TR1	R1					AP											08015204	11.00000	0.00000	L 74
TR1	R1					AP											08015205	11.00000	0.00000	L 75
TR1	R1					AP											08015206	0.00000	0.00000	L 76
TR1	R1					AP											08015207	0.00000	0.00000	L 77
TR1	R1					AP											08015208	0.00000	0.00000	L 78
TR1	R1					AP											08015209	0.00000	0.00000	L 79
TR1	R1					AP											08015210	0.00000	0.00000	L 80
TR1	R1					AP											08015211	0.00000	0.00000	L 81

TR1	R1					AP											08015212	0.00000	0.00000	L 130
TR1	R1					AP											08015213	0.00000	0.00000	L 131
TR1	R1					AP											08015214	0.00000	0.00000	L 132
TR1	R1					AP											08015215	0.00000	0.21600	L 133
TR1	R1					AP											08015216	0.00000	0.00000	L 134
TR1	R1					AP											08015217	11.00000	0.00000	L 135
TR1	R1					AP											08015218	11.00000	0.00000	L 136
TR1	R1					AP											08015222	0.00000	0.17400	L 140
TR1	R1					AP											08015225	0.00000	0.26500	RS 25/71/A
TR1	R1					AP											08015226	0.00000	0.26400	RS 25/71/B
TR1	R1					AP											08015301	0.00000	0.17700	L 29
TR1	R1					AP											08015302	0.00000	0.00000	L 28
TR1	R1					AP											08015303	0.00000	0.00000	L 27
TR1	R1					AP											08015304	0.00000	0.25000	L 26
TR1	R1					AP											08015307	0.00000	0.00000	L 45
TR1	R1					AP											08015308	0.00000	0.00000	L 44
TR1	R1					AP											08015309	0.00000	0.17700	L 43
TR1	R1					AP											08015310	0.00000	0.00000	L 42
TR1	R1					AP											08015311	0.00000	0.00000	L 41
TR1	R1					AP											08015312	0.00000	0.00000	L 40
TR1	R1					AP											08015313	0.00000	0.00000	L 46 & 47
TR1	R1					AP											08015401	11.00000	0.00000	L 48
TR1	R1					AP											08015402	0.00000	0.00000	L 49
TR1	R1					AP											08015403	0.00000	0.00000	L 50
TR1	R1					AP											08015404	0.00000	0.00000	L 51
TR1	R1					AP											08015405	0.00000	0.17700	L 52
TR1	R1					AP											08015406	0.00000	0.00000	L 53
TR1	R1					AP											08015407	0.00000	0.00000	L 54
TR1	R1					AP											08015408	0.00000	0.00000	L 55
TR1	R1					AP											08015409	0.00000	0.00000	L 56
TR1	R1					AP											08015410	0.00000	0.17700	L 57
TR1	R1					AP											08015411	0.00000	0.00000	L 58
TR1	R1					AP											08015412	0.00000	0.00000	L 59
TR1	R1					AP											08015413	0.00000	0.00000	L 60
TR1	R1					AP											08015414	0.00000	0.00000	L 61
TR1	R1					AP											08015415	0.00000	0.00000	L 62
TR1	R1					AP											08015416	0.00000	0.17700	L 63
TR1	R1					AP											08015417	0.00000	0.00000	L 64
TR1	R1					AP											08015418	11.00000	0.00000	L 65
TR1	R1					AP											08015419	0.00000	0.00000	L 66
TR1	R1					AP											08015420	0.00000	0.17700	L 67
TR1	R1					AP											08015421	0.00000	0.00000	L 68
TR1	R1					AP											08015422	11.00000	0.00000	L 69
TR1	R1					AP											08015423	0.00000	0.00000	L 70
TR1	R1					AP											08015501	0.00000	0.00000	L 199
TR1	R1					AP											08015502	0.00000	0.00000	L 200

TR1	R1					AP											08015503	0.00000	0.00000	L 201
TR1	R1					AP											08015504	0.00000	0.00000	L 202
TR1	R1					AP											08015505	0.00000	0.00000	L 203
TR1	R1					AP											08015508	0.00000	0.00000	L 206
TR1	R1					AP											08015511	0.00000	0.17700	L 209
TR1	R1					AP											08015512	11.00000	0.00000	L 210
TR1	R1					AP											08015513	0.00000	0.00000	L 211
TR1	R1					AP											08015514	0.00000	0.17700	L 212
TR1	R1					AP											08015515	11.00000	0.00000	L 213
TR1	R1					AP											08015516	0.00000	0.00000	L 214
TR1	R1					AP											08015517	0.00000	0.00000	L 215
TR1	R1					AP											08015518	0.00000	0.00000	L 216
TR1	R1					AP											08015519	0.00000	0.00000	L 217
TR1	R1					AP											08015520	0.00000	0.00000	L 218
TR1	R1					AP											08015521	0.00000	0.17400	L 219
TR1	R1					AP											08015522	0.00000	0.00000	L 220
TR1	R1					AP											08015523	0.00000	0.17700	L 221
TR1	R1					AP											08015524	0.00000	0.00000	L 222
TR1	R1					AP											08015525	0.00000	0.00000	L 223
TR1	R1					AP											08015526	0.00000	0.17700	L 224
TR1	R1					AP											08015527	11.00000	0.00000	L 225
TR1	R1					AP											08015528	11.00000	0.00000	L 226
TR1	R1					AP											08015529	0.00000	0.17700	L 227
TR1	R1					AP											08015530	0.00000	0.00000	L 228
TR1	R1					AP											08015531	11.00000	0.00000	L 229
TR1	R1					AP											08015532	0.00000	0.00000	L 230
TR1	R1					AP											08015533	0.00000	0.00000	L 208 & L 207
TR1	R1					AP											08015534	0.00000	0.00000	LOT 204 &LOT 205
TR1	R1					AP											08015601	0.00000	0.00000	L 231
TR1	R1					AP											08015602	0.00000	0.00000	L 232
TR1	R1					AP											08015603	11.00000	0.00000	L 233
TR1	R1					AP											08015604	0.00000	0.00000	L 234
TR1	R1					AP											08015605	11.00000	0.00000	L 235
TR1	R1					AP											08016101	0.00000	0.00000	L 367
TR1	R1					AP											08016104	0.00000	0.17700	L 370
TR1	R1					AP											08016105	0.00000	0.17700	L 371
TR1	R1					AP											08016106	0.00000	0.17800	L 372
TR1	R1					AP											08016107	0.00000	0.00000	L 373
TR1	R1					AP											08016108	0.00000	0.35000	PM 41/85/1
TR1	R1					AP											08016201	0.00000	0.20000	L 319
TR1	R1					AP											08016202	0.00000	0.17000	L 320
TR1	R1					AP											08016203	0.00000	0.00000	L 321
TR1	R1					AP											08016206	0.00000	0.17000	L 324
TR1	R1					AP											08016207	0.00000	0.00000	L 325
TR1	R1					AP											08016208	0.00000	0.17000	L 360
TR1	R1					AP											08016209	0.00000	0.00000	L 361

TR1	R1					AP											08016212	0.00000	0.17000	L 364
TR1	R1					AP											08016213	0.00000	0.00000	L 365
TR1	R1					AP											08016214	0.00000	0.00000	L 366
TR1	R1					AP											08016217	0.00000	0.68200	L322,323,362&363
TR1	R1					AP											08016301	0.00000	0.00000	L 273
TR1	R1					AP											08016302	0.00000	0.00000	L 274
TR1	R1					AP											08016303	0.00000	0.17400	L 275
TR1	R1					AP											08016304	0.00000	0.00000	L 276
TR1	R1					AP											08016305	11.00000	0.00000	L 277
TR1	R1					AP											08016306	0.00000	0.00000	L 278
TR1	R1					AP											08016307	11.00000	0.00000	L 279
TR1	R1					AP											08016308	0.00000	0.36900	L 280
TR1	R1					AP											08016309	0.00000	0.00000	L 281
TR1	R1					AP											08016310	11.00000	0.00000	L 282
TR1	R1					AP											08016311	0.00000	0.00000	L 283
TR1	R1					AP											08016312	0.00000	0.00000	L 291
TR1	R1					AP											08016313	11.00000	0.00000	L 292
TR1	R1					AP											08016314	0.00000	0.00000	L 293
TR1	R1					AP											08016315	0.00000	0.19300	L 294
TR1	R1					AP											08016316	0.00000	0.00000	L 295
TR1	R1					AP											08016317	0.00000	0.00000	L 296
TR1	R1					AP											08016318	0.00000	0.00000	L 297
TR1	R1					AP											08016321	11.00000	0.00000	L 300
TR1	R1					AP											08016322	0.00000	0.00000	L 301
TR1	R1					AP											08016323	11.00000	0.00000	L 302
TR1	R1					AP											08016324	0.00000	0.00000	L 303
TR1	R1					AP											08016325	0.00000	0.00000	L 304
TR1	R1					AP											08016326	0.00000	0.00000	L 305
TR1	R1					AP											08016327	0.00000	0.30700	L 306
TR1	R1					AP											08016328	0.00000	0.23600	L 307
TR1	R1					AP											08016329	0.00000	0.00000	L 308
TR1	R1					AP											08016330	0.00000	0.00000	L 309
TR1	R1					AP											08016331	0.00000	0.00000	L 310
TR1	R1					AP											08016332	0.00000	0.27300	L 311
TR1	R1					AP											08016333	0.00000	0.00000	L 312
TR1	R1					AP											08016334	0.00000	0.00000	L 313
TR1	R1					AP											08016335	0.00000	0.00000	L 314
TR1	R1					AP											08016336	0.00000	0.17300	L 315
TR1	R1					AP											08016337	0.00000	0.17300	L 316
TR1	R1					AP											08016338	0.00000	0.00000	L 317
TR1	R1					AP											08016339	0.00000	0.00000	L 318
TR1	R1					AP											08016340	0.00000	0.74000	LOT 298 &LOT 299
TR1	R1					AP											08016404	0.00000	0.00000	L 239
TR1	R1					AP											08016405	0.00000	0.00000	L 240
TR1	R1					AP											08016406	0.00000	0.17700	L 241
TR1	R1					AP											08016407	0.00000	0.00000	L 242

TR1	R1					AP											08016408	0.00000	0.00000	L 243
TR1	R1					AP											08016411	0.00000	0.00000	L 238 & P L 237
TR1	R1					AP											08016412	0.00000	0.26500	L 236 & P L 237
TR1	R1					AP											08017101	0.00000	0.00000	L 374
TR1	R1					AP											08017104	0.00000	0.00000	L 377
TR1	R1					AP											08017105	0.00000	0.00000	L 378
TR1	R1					AP											08017106	0.00000	0.00000	L 379
TR1	R1					AP											08017107	0.00000	0.00000	L 380
TR1	R1					AP											08017108	0.00000	0.00000	L 381
TR1	R1					AP											08017109	0.00000	0.17700	L 382
TR1	R1					AP											08017110	0.00000	0.00000	L 383
TR1	R1					AP											08017111	0.00000	0.00000	L 384
TR1	R1					AP											08017112	0.00000	0.35000	PM 44/142/1
TR1	R1					AP											08017201	0.00000	0.00000	L 326
TR1	R1					AP											08017202	0.00000	0.17000	L 327
TR1	R1					AP											08017203	0.00000	0.17000	L 328
TR1	R1					AP											08017204	0.00000	0.00000	L 329
TR1	R1					AP											08017205	0.00000	0.00000	L 330
TR1	R1					AP											08017206	0.00000	0.00000	L 331
TR1	R1					AP											08017207	0.00000	0.00000	L 332
TR1	R1					AP											08017208	0.00000	0.17000	L 333
TR1	R1					AP											08017209	0.00000	0.17000	L 334
TR1	R1					AP											08017210	0.00000	0.17000	L 335
TR1	R1					AP											08017211	0.00000	0.00000	L 336
TR1	R1					AP											08017212	0.00000	0.00000	L 349
TR1	R1					AP											08017213	0.00000	0.00000	L 350
TR1	R1					AP											08017214	0.00000	0.17000	L 351
TR1	R1					AP											08017215	0.00000	0.17000	L 352
TR1	R1					AP											08017216	0.00000	0.00000	L 353
TR1	R1					AP											08017217	0.00000	0.00000	L 354
TR1	R1					AP											08017218	0.00000	0.00000	L 355
TR1	R1					AP											08017219	0.00000	0.00000	L 356
TR1	R1					AP											08017220	0.00000	0.00000	L 357
TR1	R1					AP											08017221	0.00000	0.00000	L 358
TR1	R1					AP											08017222	0.00000	0.00000	L 359
TR1	R1					AP											08017303	0.00000	0.00000	L 263
TR1	R1					AP											08017304	0.00000	0.00000	L 264
TR1	R1					AP											08017305	0.00000	0.18600	L 265
TR1	R1					AP											08017306	0.00000	0.20000	L 266
TR1	R1					AP											08017307	0.00000	0.20200	L 267
TR1	R1					AP											08017308	0.00000	0.17200	L 268
TR1	R1					AP											08017309	0.00000	0.00000	L 269
TR1	R1					AP											08017310	0.00000	0.17300	L 270
TR1	R1					AP											08017311	0.00000	0.17500	L 271
TR1	R1					AP											08017312	0.00000	0.00000	L 272
TR1	R1					AP											08017313	0.00000	0.00000	LOT 261&LOT 262

TR1	R1					AP											08017401	0.00000	0.22900	L 284
TR1	R1					AP											08017402	0.00000	0.00000	L 285
TR1	R1					AP											08017403	0.00000	0.00000	L 286
TR1	R1					AP											08017404	0.00000	0.20200	L 287
TR1	R1					AP											08017405	0.00000	0.19200	L 288
TR1	R1					AP											08017406	0.00000	0.00000	L 289
TR1	R1					AP											08017407	11.00000	0.00000	L 290
TR1	R1					AP											08017501	0.00000	0.14900	L 251
TR1	R1					AP											08017502	0.00000	0.00000	L 252
TR1	R1					AP											08017503	0.00000	0.00000	L 253
TR1	R1					AP											08017504	0.00000	0.00000	L 254
TR1	R1					AP											08017505	0.00000	0.17800	L 255
TR1	R1					AP											08017506	0.00000	0.00000	L 256
TR1	R1					AP											08017507	0.00000	0.00000	L 257
TR1	R1					AP											08017508	0.00000	0.00000	L 258
TR1	R1					AP											08017509	0.00000	0.17800	L 259
TR1	R1					AP											08017510	0.00000	0.00000	L 260
TR1	R1					AP											08017601	0.00000	0.17700	L 244
TR1	R1					AP											08017602	11.00000	0.00000	L 245
TR1	R1					AP											08017603	0.00000	0.00000	L 246
TR1	R1					AP											08017604	0.00000	0.00000	L 247
TR1	R1					AP											08017605	0.00000	0.16400	L 248
TR1	R1					AP											08017606	0.00000	0.00000	L 249
TR1	R1					AP											08017607	0.00000	0.16400	L 250
TR1	R1					AP											08017701	0.00000	0.00000	L B
TR1	R1					AP											08018101	0.00000	0.20800	L 385
TR1	R1					AP											08018102	0.00000	0.18300	L 386
TR1	R1					AP											08018103	0.00000	0.00000	L 387
TR1	R1					AP											08018104	0.00000	0.00000	L 388
TR1	R1					AP											08018105	0.00000	0.00000	L 389
TR1	R1					AP											08018106	0.00000	0.00000	L 390
TR1	R1					AP											08018201	0.00000	0.00000	L 391
TR1	R1					AP											08018202	0.00000	0.00000	L 392
TR1	R1					AP											08018203	11.00000	0.00000	L 393
TR1	R1					AP											08018204	11.00000	0.00000	L 394
TR1	R1					AP											08018205	11.00000	0.00000	L 395
TR1	R1					AP											08018301	0.00000	0.20000	L 337
TR1	R1					AP											08018302	0.00000	0.00000	L 338
TR1	R1					AP											08018303	0.00000	0.17700	L 339
TR1	R1					AP											08018304	0.00000	0.17600	L 340
TR1	R1					AP											08018307	0.00000	0.00000	L 343
TR1	R1					AP											08018308	0.00000	0.17700	L 344
TR1	R1					AP											08018309	0.00000	0.17700	L 345
TR1	R1					AP											08018310	0.00000	0.17700	L 346
TR1	R1					AP											08018311	0.00000	0.00000	L 347
TR1	R1					AP											08018312	0.00000	0.00000	L 348

TR1	R1					AP											08018313	0.00000	0.38000	PM 43/37/1
TR1	R1					AP											08018401	0.00000	0.00000	L A
TR1	R1					AP											08018502	11.00000	0.22000	SEC 10 12 18
TR1	R1					AP											08018503	11.00000	0.40000	SEC 10 12 18
TR1	R1					AP											08019101	2.00000	0.00000	COMMON AREA
TR1	R1					AP											08019203	11.00000	0.00000	L 3
TR1	R1					AP											08019204	0.00000	0.00000	L 4
TR1	R1					AP											08019205	0.00000	0.00000	L 5
TR1	R1					AP											08019206	0.00000	0.12400	L 6
TR1	R1					AP											08019207	11.00000	0.00000	L 7
TR1	R1					AP											08019208	11.00000	0.00000	L 8
TR1	R1					AP											08019209	0.00000	0.00000	L 9
TR1	R1					AP											08019210	0.00000	0.00000	L 10
TR1	R1					AP											08019211	0.00000	0.00000	L 11
TR1	R1					AP											08019212	0.00000	0.00000	L 12
TR1	R1					AP											08019213	0.00000	0.00000	L 13
TR1	R1					AP											08019214	11.00000	0.00000	L 14
TR1	R1					AP											08019215	11.00000	0.00000	L 15
TR1	R1					AP											08019216	11.00000	0.00000	L 16
TR1	R1					AP											08019217	11.00000	0.00000	L 17
TR1	R1					AP											08019218	11.00000	0.00000	L 18
TR1	R1					AP											08019221	0.00000	0.00000	L 21
TR1	R1					AP											08019226	0.00000	0.00000	L 26
TR1	R1					AP											08019227	0.00000	0.11700	L 27
TR1	R1					AP											08019228	11.00000	0.00000	L 28
TR1	R1					AP											08019229	2.00000	0.00000	COMMON AREA
TR1	R1					AP											08019230	0.00000	0.00000	LOT 22 & LOT 23
TR1	R1					AP											08019231	0.00000	0.26000	PM 41/142/1
TR1	R1					AP											08019232	0.00000	0.28000	PM 42/49/1
TR1	R1					AP											08019233	0.00000	0.24000	PM 44/117/1
TR1	R1					AP											08019301	2.00000	0.00000	COMMON AREA
TR1	R1					AP											08019302	11.00000	0.00000	L 29
TR1	R1					AP											08019303	11.00000	0.00000	L 30
TR1	R1					AP											08019304	0.00000	0.00000	L 31
TR1	R1					AP											08019305	0.00000	0.00000	L 32
TR1	R1					AP											08019306	0.00000	0.00000	L 33
TR1	R1					AP											08019307	11.00000	0.00000	L 34
TR1	R1					AP											08019310	0.00000	0.00000	L 37
TR1	R1					AP											08019313	0.00000	0.18000	PM 36/19/A
TR1	R1					AP											08019314	0.00000	0.25000	PM 44/59/1
TR1	FR-160					AP											08102003	11.00000	6.43000	SEC 29 12 18
TR1	FR-160					AP											08102004	11.00000	60.30000	S 28 & 29 12 18
TA	FR-160					AP											08103102	6.00000	0.00000	21 12 18RS15-100
TA	FR-160					AP											08103103	11.00000	0.00000	SEC 22 12 18
TA	FR-160					AP											08103104	11.00000	0.00000	21 22 27 28 1218
TA	FR-160					AP											08103105	11.00000	40.00000	POR SEC 27 12 18

TA	FR-160					AP											08103106	11.00000	40.00000	POR SEC 27 12 18
TA	FR-160					AP											08103107	11.00000	32.41000	SEC 21 12 18
TA	FR-160					AP											08103107	11.00000	32.41000	SEC 21 12 18
TA	FR-160					AP											08103108	11.00000	0.00000	SEC 21&22 12 18
TA	FR-160					AP											08103109	11.00000	0.00000	SEC 21 12 18
TA	FR-160					AP											08103110	11.00000	0.00000	SEC 28&33 12 18
TA	FR-160					AP											08103111	11.00000	0.00000	SEC 27&34 12 18
TR1	R1					AP											08104101	11.00000	0.00000	L 1
TR1	R1					AP											08104102	11.00000	0.00000	L 2
TR1	R1					AP											08104103	11.00000	0.00000	L 3
TR1	R1					AP											08104104	0.00000	0.00000	L 4
TR1	R1					AP											08104106	11.00000	0.00000	L 6
TR1	R1					AP											08104107	0.00000	0.00000	L 7
TR1	R1					AP											08104108	0.00000	0.00000	L 8
TR1	R1					AP											08104109	0.00000	0.00000	L 9
TR1	R1					AP											08104110	0.00000	0.00000	L 10
TR1	R1					AP											08104111	0.00000	0.22400	L 11
TR1	R1					AP											08104112	11.00000	0.00000	LOT 5
TR1	R1					AP											08104201	0.00000	0.00000	L 12
TR1	R1					AP											08104202	0.00000	0.00000	L 13
TR1	R1					AP											08104203	0.00000	0.00000	L 14
TR1	R1					AP											08104204	0.00000	0.00000	L 15
TR1	R1					AP											08104205	0.00000	0.00000	L 16
TR1	R1					AP											08104206	0.00000	0.00000	L 17
TR1	R1					AP											08104207	0.00000	0.00000	L 18
TR1	R1					AP											08104208	0.00000	0.00000	L 19
TR1	R1					AP											08104209	0.00000	0.00000	L 20
TR1	R1					AP											08104210	0.00000	0.00000	L 21
TR1	R1					AP											08104211	0.00000	0.00000	L 22
TR1	R1					AP											08104212	0.00000	0.00000	L 23
TR1	R1					AP											08104213	0.00000	0.00000	L 24
TR1	R1					AP											08104214	11.00000	0.00000	L 25
TR1	R1					AP											08104215	11.00000	0.00000	L 26
TR1	R1					AP											08104216	0.00000	0.00000	L 27
TR1	R1					AP											08104217	0.00000	0.00000	L 28
TR1	R1					AP											08104221	0.00000	0.00000	L 31
TR1	R1					AP											08104222	0.00000	0.00000	L 32
TR1	R1					AP											08104223	0.00000	0.00000	L 30
TR1	R1					AP											08104226	0.00000	0.00000	L 29
TR1	R1					AP											08104227	0.00000	0.00000	L 403
TR1	R1					AP											08104301	11.00000	0.00000	L 382
TR1	R1					AP											08104302	0.00000	0.00000	L 381
TR1	R1					AP											08104303	0.00000	0.00000	L 380
TR1	R1					AP											08104304	11.00000	0.00000	L 379
TR1	R1					AP											08104305	0.00000	0.50700	L 378
TR1	R1					AP											08104306	0.00000	0.00000	L 377

TR1	R1					AP											08104307	11.00000	0.00000	L 376
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TR1	R1					AP											08104309	0.00000	0.00000	L 369
TR1	R1					AP											08104310	11.00000	0.00000	L 368
TR1	R1					AP											08104311	0.00000	0.00000	L 367
TR1	R1					AP											08104312	0.00000	0.00000	L 366
TR1	R1					AP											08104313	0.00000	0.00000	L 365
TR1	R1					AP											08104314	0.00000	0.00000	L 364
TR1	R1					AP											08104315	0.00000	0.00000	L 363
TR1	R1					AP											08104316	0.00000	0.31200	L 362
TR1	R1					AP											08105101	0.00000	0.00000	L 33
TR1	R1					AP											08105102	11.00000	0.00000	L 34
TR1	R1					AP											08105103	0.00000	0.00000	L 35
TR1	R1					AP											08105104	0.00000	0.00000	L 36
TR1	R1					AP											08105105	0.00000	0.00000	L 37
TR1	R1					AP											08105106	0.00000	0.00000	L 38
TR1	R1					AP											08105201	0.00000	0.00000	L 374
TR1	R1					AP											08105202	0.00000	0.00000	L 373
TR1	R1					AP											08105203	0.00000	0.00000	L 372
TR1	R1					AP											08105204	0.00000	0.00000	L 371
TR1	R1					AP											08105205	0.00000	0.00000	L 370
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TR1	R1					AP											08105305	0.00000	0.00000	L 353
TR1	R1					AP											08105306	0.00000	0.00000	L 354
TR1	R1					AP											08105307	0.00000	0.00000	L 355
TR1	R1					AP											08105308	0.00000	0.00000	L 356
TR1	R1					AP											08105309	0.00000	0.00000	L 357
TR1	R1					AP											08105310	11.00000	0.00000	L 358
TR1	R1					AP											08105311	11.00000	0.00000	L 359
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TR1	R1					AP											08105313	0.00000	0.00000	L 361
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TR1	R1					AP											08105404	11.00000	0.00000	L 211
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TR1	R1					AP											08106101	0.00000	0.00000	L 39
TR1	R1					AP											08106102	11.00000	0.00000	L 40
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TR1	R1					AP											08106104	0.00000	0.00000	L 42
TR1	R1					AP											08106105	0.00000	0.40400	L 43
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TR1	R1					AP											08106404	0.00000	0.00000	L 190
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TR1	R1					AP											08106408	0.00000	0.00000	L 194
TR1	R1					AP											08106409	0.00000	0.00000	L 215
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TR1	R1					AP											08106413	0.00000	0.00000	L 219
TR1	R1					AP											08106414	0.00000	0.00000	L 220
TR1	R1					AP											08106415	0.00000	0.00000	L 221
TR1	R1					AP											08106416	0.00000	0.00000	L 222
TR1	R1					AP											08106417	0.00000	0.00000	L 223
TR1	R1					AP											08106418	0.00000	0.00000	L 224
TR1	R1					AP											08106419	0.00000	0.37000	PM 28/128/A
TR1	R1					AP											08106421	0.00000	0.18200	L 192
TR1	R1					AP											08106501	0.00000	0.00000	L 345
TR1	R1					AP											08106502	0.00000	0.00000	L 346
TR1	R1					AP											08106503	0.00000	0.00000	L 347
TR1	R1					AP											08106504	0.00000	0.28700	L 348
TR1	R1					AP											08106601	0.00000	0.18400	L 338
TR1	R1					AP											08106602	0.00000	0.18400	L 339
TR1	R1					AP											08106605	11.00000	0.00000	L 342
TR1	R1					AP											08106606	0.00000	0.00000	L 343
TR1	R1					AP											08106607	11.00000	0.00000	L 344
TR1	R1					AP											08106609	0.00000	0.18400	L 340

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TR1	R1					AP											08107101	0.00000	0.00000	L 45
TR1	R1					AP											08107102	0.00000	0.00000	L 46
TR1	R1					AP											08107103	0.00000	0.00000	L 47
TR1	R1					AP											08107104	0.00000	0.00000	L 48
TR1	R1					AP											08107105	0.00000	0.00000	L 49
TR1	R1					AP											08107106	0.00000	0.00000	L 50
TR1	R1					AP											08107107	11.00000	0.00000	L 51
TR1	R1					AP											08107201	0.00000	0.00000	L 88
TR1	R1					AP											08107202	0.00000	0.00000	L 89
TR1	R1					AP											08107203	0.00000	0.00000	L 90
TR1	R1					AP											08107204	0.00000	0.00000	L 91
TR1	R1					AP											08107205	0.00000	0.00000	L 92
TR1	R1					AP											08107206	0.00000	0.18400	L 93
TR1	R1					AP											08107207	0.00000	0.00000	L 94
TR1	R1					AP											08107208	0.00000	0.00000	L 95
TR1	R1					AP											08107209	0.00000	0.00000	L 96
TR1	R1					AP											08107210	0.00000	0.00000	L 97
TR1	R1					AP											08107211	0.00000	0.00000	L 98
TR1	R1					AP											08107212	11.00000	0.00000	L 99
TR1	R1					AP											08107213	11.00000	0.00000	L 100
TR1	R1					AP											08107214	0.00000	0.00000	L 101
TR1	R1					AP											08107215	0.00000	0.00000	L 108
TR1	R1					AP											08107216	0.00000	0.00000	L 109
TR1	R1					AP											08107217	0.00000	0.00000	L 110
TR1	R1					AP											08107218	11.00000	0.00000	L 111
TR1	R1					AP											08107219	0.00000	0.18200	L 112
TR1	R1					AP											08107220	0.00000	0.00000	L 113
TR1	R1					AP											08107221	0.00000	0.18400	L 114
TR1	R1					AP											08107222	0.00000	0.18400	L 115
TR1	R1					AP											08107223	0.00000	0.00000	L 116
TR1	R1					AP											08107224	0.00000	0.18200	L 117
TR1	R1					AP											08107225	0.00000	0.18800	L 118
TR1	R1					AP											08107301	0.00000	0.00000	L 177
TR1	R1					AP											08107302	11.00000	0.00000	L 178
TR1	R1					AP											08107303	0.00000	0.00000	L 179
TR1	R1					AP											08107304	11.00000	0.00000	L 180
TR1	R1					AP											08107305	0.00000	0.00000	L 181
TR1	R1					AP											08107306	11.00000	0.00000	L 182
TR1	R1					AP											08107307	11.00000	0.00000	L 183
TR1	R1					AP											08107308	11.00000	0.00000	L 184
TR1	R1					AP											08107309	11.00000	0.00000	L 185
TR1	R1					AP											08107310	0.00000	0.19300	L 186
TR1	R1					AP											08107311	0.00000	0.00000	L 225
TR1	R1					AP											08107312	0.00000	0.00000	L 226
TR1	R1					AP											08107313	11.00000	0.00000	L 227

TR1	R1					AP											08107314	0.00000	0.19900	L 228
TR1	R1					AP											08107315	11.00000	0.00000	L 229
TR1	R1					AP											08107316	0.00000	0.00000	L 230
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TR1	R1					AP											08107318	0.00000	0.00000	L 232
TR1	R1					AP											08107319	11.00000	0.00000	L 233
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TR1	R1					AP											08107404	0.00000	0.00000	L 330
TR1	R1					AP											08107405	0.00000	0.00000	L 331
TR1	R1					AP											08107406	11.00000	0.00000	L 332
TR1	R1					AP											08107407	11.00000	0.00000	L 333
TR1	R1					AP											08107408	11.00000	0.00000	L 334
TR1	R1					AP											08107409	0.00000	0.00000	L 335
TR1	R1					AP											08107410	0.00000	0.18400	L 336
TR1	R1					AP											08107411	0.00000	0.00000	L 337
TR1	R1					AP											08108101	0.00000	0.00000	L 55
TR1	R1					AP											08108102	11.00000	0.00000	L 54
TR1	R1					AP											08108103	0.00000	0.42100	L 53
TR1	R1					AP											08108104	0.00000	0.00000	L 52
TR1	R1					AP											08108201	0.00000	0.00000	L 80
TR1	R1					AP											08108202	0.00000	0.00000	L 81
TR1	R1					AP											08108203	0.00000	0.00000	L 128
TR1	R1					AP											08108204	0.00000	0.00000	L 129
TR1	R1					AP											08108205	0.00000	0.00000	L 130
TR1	R1					AP											08108301	0.00000	0.00000	L 87
TR1	R1					AP											08108302	0.00000	0.18400	L 86
TR1	R1					AP											08108303	0.00000	0.00000	L 85
TR1	R1					AP											08108304	0.00000	0.00000	L 84
TR1	R1					AP											08108305	0.00000	0.00000	L 83
TR1	R1					AP											08108306	0.00000	0.00000	L 82
TR1	R1					AP											08108307	0.00000	0.00000	L 127
TR1	R1					AP											08108308	0.00000	0.00000	L 126
TR1	R1					AP											08108309	11.00000	0.00000	L 125
TR1	R1					AP											08108310	0.00000	0.00000	L 124
TR1	R1					AP											08108311	11.00000	0.00000	L 123
TR1	R1					AP											08108312	0.00000	0.00000	L 122
TR1	R1					AP											08108313	0.00000	0.00000	L 121
TR1	R1					AP											08108314	11.00000	0.00000	L 120
TR1	R1					AP											08108315	0.00000	0.00000	L 119
TR1	R1					AP											08108402	0.00000	0.20900	L 163
TR1	R1					AP											08108403	0.00000	0.00000	L 164
TR1	R1					AP											08108404	0.00000	0.00000	L 165
TR1	R1					AP											08108501	0.00000	0.00000	L 166

TR1	R1					AP											08108502	0.00000	0.00000	L 167
TR1	R1					AP											08108503	11.00000	0.00000	L 168
TR1	R1					AP											08108504	11.00000	0.00000	L 169
TR1	R1					AP											08108505	11.00000	0.00000	L 170
TR1	R1					AP											08108506	0.00000	0.00000	L 171
TR1	R1					AP											08108507	0.00000	0.00000	L 172
TR1	R1					AP											08108508	0.00000	0.00000	L 173
TR1	R1					AP											08108509	0.00000	0.00000	L 174
TR1	R1					AP											08108510	0.00000	0.00000	L 175
TR1	R1					AP											08108511	11.00000	0.00000	L 176
TR1	R1					AP											08108512	0.00000	0.00000	L 235
TR1	R1					AP											08108513	11.00000	0.00000	L 236
TR1	R1					AP											08108514	11.00000	0.00000	L 237
TR1	R1					AP											08108515	0.00000	0.00000	L 238
TR1	R1					AP											08108516	11.00000	0.00000	L 239
TR1	R1					AP											08108517	11.00000	0.00000	L 240
TR1	R1					AP											08108518	0.00000	0.00000	L 241
TR1	R1					AP											08108519	11.00000	0.00000	L 242
TR1	R1					AP											08108520	11.00000	0.00000	L 243
TR1	R1					AP											08108521	11.00000	0.00000	L 244
TR1	R1					AP											08108522	11.00000	0.00000	L 245
TR1	R1					AP											08108523	11.00000	0.00000	L 246
TR1	R1					AP											08108524	11.00000	0.00000	L 247
TR1	R1					AP											08108525	0.00000	0.00000	L 248
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TR1	R1					AP											08108527	11.00000	0.00000	L 250
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TR1	R1					AP											08108602	0.00000	0.00000	L 322
TR1	R1					AP											08108603	0.00000	0.18400	L 323
TR1	R1					AP											08108604	11.00000	0.00000	L 324
TR1	R1					AP											08108605	11.00000	0.00000	L 325
TR1	R1					AP											08108606	0.00000	0.00000	L 326
TR1	R1					AP											08108701	11.00000	0.00000	L 282
TR1	R1					AP											08108702	11.00000	0.00000	L 283
TR1	R1					AP											08108703	11.00000	0.00000	L 284
TR1	R1					AP											08108704	0.00000	0.00000	L 285
TR1	R1					AP											08108705	0.00000	0.00000	L 286
TR1	R1					AP											08108706	11.00000	0.00000	L 287
TR1	R1					AP											08108707	11.00000	0.00000	L 288
TR1	R1					AP											08108708	11.00000	0.00000	L 289
TR1	R1					AP											08108709	0.00000	0.00000	L 290
TR1	R1					AP											08108712	0.00000	0.00000	POR L 291 & 292
TR1	R1					AP											08108713	11.00000	0.00000	POR L 291 & 292
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TR1	R1					AP											08109103	11.00000	0.00000	L 279

TR1	R1					AP											08109104	0.00000	0.00000	L 280
TR1	R1					AP											08109105	0.00000	0.00000	L 281
TR1	R1					AP											08109106	11.00000	0.00000	L 293
TR1	R1					AP											08109107	0.00000	0.00000	L 294
TR1	R1					AP											08109108	0.00000	0.00000	L 295
TR1	R1					AP											08109109	0.00000	0.00000	L 296
TR1	R1					AP											08109110	11.00000	0.00000	L 297
TR1	R1					AP											08109111	0.00000	0.00000	L 298
TR1	R1					AP											08109112	0.00000	0.00000	L 299
TR1	R1					AP											08109113	11.00000	0.00000	L 300
TR1	R1					AP											08109114	0.00000	0.00000	L 301
TR1	R1					AP											08109115	0.00000	0.00000	L 302
TR1	R1					AP											08109116	0.00000	0.00000	L 303
TR1	R1					AP											08109201	0.00000	0.00000	L 304
TR1	R1					AP											08109202	0.00000	0.00000	L 305
TR1	R1					AP											08109203	11.00000	0.00000	L 306
TR1	R1					AP											08109204	0.00000	0.19200	L 307
TR1	R1					AP											08109205	0.00000	0.00000	L 308
TR1	R1					AP											08109206	0.00000	0.00000	L 309
TR1	R1					AP											08109207	0.00000	0.00000	L 310
TR1	R1					AP											08109208	0.00000	0.00000	L 311
TR1	R1					AP											08109209	11.00000	0.00000	L 312
TR1	R1					AP											08109210	11.00000	0.00000	L 313
TR1	R1					AP											08109211	0.00000	0.00000	L 314
TR1	R1					AP											08109212	0.00000	0.00000	L 315
TR1	R1					AP											08109213	0.00000	0.00000	L 316
TR1	R1					AP											08109214	0.00000	0.00000	L 317
TR1	R1					AP											08109215	11.00000	0.00000	L 318
TR1	R1					AP											08109216	11.00000	0.00000	L 319
TR1	R1					AP											08109217	0.00000	0.00000	L 320
TR1	R1					AP											08109301	0.00000	0.00000	L 436
TR1	R1					AP											08109302	11.00000	0.00000	L 435
TR1	R1					AP											08109303	11.00000	0.00000	L 434
TR1	R1					AP											08109304	11.00000	0.00000	L 433
TR1	R1					AP											08109305	0.00000	0.00000	L 432
TR1	R1					AP											08109306	11.00000	0.00000	L 431
TR1	R1					AP											08109307	0.00000	0.00000	L 430
TR1	R1					AP											08109308	11.00000	0.00000	L 429
TR1	R1					AP											08109309	11.00000	0.00000	L 428
TR1	R1					AP											08109310	11.00000	0.00000	L 427
TR1	R1					AP											08109311	0.00000	0.00000	L 426
TR1	R1					AP											08109312	0.00000	0.00000	L 425
TR1	R1					AP											08109313	11.00000	0.00000	L 424
TR1	R1					AP											08109314	0.00000	0.00000	L 423
TR1	R1					AP											08109315	0.00000	0.00000	L 422
TR1	R1					AP											08109316	0.00000	0.00000	L 421

TR1	R1					AP											08109317	0.00000	0.00000	L 420
TR1	R1					AP											08109401	0.00000	0.00000	L 408
TR1	R1					AP											08109402	0.00000	0.00000	L 409
TR1	R1					AP											08109403	11.00000	0.00000	L 410
TR1	R1					AP											08109404	0.00000	0.00000	L 411
TR1	R1					AP											08109405	11.00000	0.00000	L 412
TR1	R1					AP											08109406	0.00000	0.18500	L 413
TR1	R1					AP											08109407	0.00000	0.00000	L 414
TR1	R1					AP											08109408	0.00000	0.00000	L 415
TR1	R1					AP											08109409	0.00000	0.00000	L 416
TR1	R1					AP											08109410	0.00000	0.00000	L 417
TR1	R1					AP											08109411	0.00000	0.00000	L 418
TR1	R1					AP											08109412	0.00000	0.00000	L 419
TR1	R1					AP											08110101	0.00000	0.00000	L 56
TR1	R1					AP											08110102	0.00000	0.00000	L 57
TR1	R1					AP											08110103	0.00000	0.00000	L 58
TR1	R1					AP											08110104	0.00000	0.00000	L 59
TR1	R1					AP											08110105	0.00000	0.00000	L 60
TR1	R1					AP											08110106	0.00000	0.00000	L 61
TR1	R1					AP											08110107	11.00000	0.00000	L 62
TR1	R1					AP											08110108	0.00000	0.00000	L 63
TR1	R1					AP											08110201	0.00000	0.00000	L 64
TR1	R1					AP											08110202	0.00000	0.00000	L 65
TR1	R1					AP											08110203	0.00000	0.00000	L 66
TR1	R1					AP											08110204	0.00000	0.00000	L 67
TR1	R1					AP											08110205	0.00000	0.00000	L 68
TR1	R1					AP											08110206	0.00000	0.00000	L 69
TR1	R1					AP											08110207	0.00000	0.00000	L 70
TR1	R1					AP											08110208	0.00000	0.00000	L 71
TR1	R1					AP											08110209	0.00000	0.18400	L 72
TR1	R1					AP											08110210	0.00000	0.00000	L 73
TR1	R1					AP											08110211	0.00000	0.19700	L 74
TR1	R1					AP											08110212	0.00000	0.00000	L 75
TR1	R1					AP											08110213	0.00000	0.00000	L 76
TR1	R1					AP											08110214	0.00000	0.00000	L 77
TR1	R1					AP											08110215	0.00000	0.00000	L 78
TR1	R1					AP											08110216	0.00000	0.00000	L 79
TR1	R1					AP											08110217	0.00000	0.00000	L 131
TR1	R1					AP											08110218	0.00000	0.00000	L 132
TR1	R1					AP											08110219	0.00000	0.00000	L 133
TR1	R1					AP											08110220	0.00000	0.00000	L 134
TR1	R1					AP											08110221	0.00000	0.00000	L 135
TR1	R1					AP											08110222	0.00000	0.00000	L 136
TR1	R1					AP											08110223	0.00000	0.00000	L 137
TR1	R1					AP											08110224	0.00000	0.00000	L 138
TR1	R1					AP											08110225	0.00000	0.00000	L 139

TR1	R1					AP											08110226	0.00000	0.00000	L 140
TR1	R1					AP											08110227	0.00000	0.00000	L 141
TR1	R1					AP											08110228	0.00000	0.00000	L 142
TR1	R1					AP											08110229	0.00000	0.00000	L 143
TR1	R1					AP											08110230	11.00000	0.00000	L 144
TR1	R1					AP											08110231	0.00000	0.00000	L 145
TR1	R1					AP											08110232	0.00000	0.00000	L 146
TR1	R1					AP											08110233	0.00000	0.24600	L 147
TR1	R1					AP											08110236	0.00000	0.00000	LOT 148 & 149
TR1	R1					AP											08110301	0.00000	0.00000	L 150
TR1	R1					AP											08110302	11.00000	0.00000	L 151
TR1	R1					AP											08110303	0.00000	0.00000	L 152
TR1	R1					AP											08110304	0.00000	0.00000	L 153
TR1	R1					AP											08110305	0.00000	0.00000	L 154
TR1	R1					AP											08110306	0.00000	0.31800	L 155
TR1	R1					AP											08110307	0.00000	0.31800	L 156
TR1	R1					AP											08110308	0.00000	0.00000	L 157
TR1	R1					AP											08110309	0.00000	0.00000	L 158
TR1	R1					AP											08110310	0.00000	0.00000	L 159
TR1	R1					AP											08110311	0.00000	0.00000	L 160
TR1	R1					AP											08110312	0.00000	0.00000	L 161
TR1	R1					AP											08110313	0.00000	0.00000	L 162
TR1	R1					AP											08110315	0.00000	0.00000	L 253
TR1	R1					AP											08110316	11.00000	0.00000	L 254
TR1	R1					AP											08110317	0.00000	0.00000	L 255
TR1	R1					AP											08110318	0.00000	0.00000	L 256
TR1	R1					AP											08110319	11.00000	0.00000	L 257
TR1	R1					AP											08110320	11.00000	0.00000	L 258
TR1	R1					AP											08110321	11.00000	0.00000	L 259
TR1	R1					AP											08110322	11.00000	0.00000	L 260
TR1	R1					AP											08110323	0.00000	0.00000	L 261
TR1	R1					AP											08110324	11.00000	0.00000	L 262
TR1	R1					AP											08110325	11.00000	0.00000	L 263
TR1	R1					AP											08110326	0.00000	0.60000	PM 43/129/1
TR1	R1					AP											08111101	0.00000	0.00000	L 264
TR1	R1					AP											08111102	11.00000	0.00000	L 265
TR1	R1					AP											08111103	0.00000	0.00000	L 266
TR1	R1					AP											08111104	11.00000	0.00000	L 267
TR1	R1					AP											08111105	11.00000	0.00000	L 268
TR1	R1					AP											08111106	11.00000	0.00000	L 269
TR1	R1					AP											08111107	0.00000	0.00000	L 270
TR1	R1					AP											08111108	11.00000	0.00000	L 271
TR1	R1					AP											08111109	11.00000	0.00000	L 272
TR1	R1					AP											08111110	11.00000	0.00000	L 273
TR1	R1					AP											08111111	11.00000	0.00000	L 274
TR1	R1					AP											08111112	11.00000	0.00000	L 275

TR1	R1					AP											08111113	0.00000	0.00000	L 276
TR1	R1					AP											08111201	0.00000	0.00000	L 383
TR1	R1					AP											08111202	0.00000	0.00000	L 384
TR1	R1					AP											08111203	0.00000	0.00000	L 385
TR1	R1					AP											08111204	0.00000	0.00000	L 386
TR1	R1					AP											08111205	11.00000	0.00000	L 387
TR1	R1					AP											08111206	11.00000	0.00000	L 388
TR1	R1					AP											08111207	0.00000	0.19600	L 389
TR1	R1					AP											08111208	11.00000	0.00000	L 390
TR1	R1					AP											08111209	0.00000	0.00000	L 391
TR1	R1					AP											08111210	11.00000	0.00000	L 392
TR1	R1					AP											08111211	0.00000	0.00000	L 393
TR1	R1					AP											08111212	11.00000	0.00000	L 394
TR1	R1					AP											08111213	11.00000	0.00000	L 395
TR1	R1					AP											08111214	0.00000	0.00000	L 396
TR1	R1					AP											08111215	0.00000	0.00000	L 397
TR1	R1					AP											08111216	0.00000	0.18800	L 398
TR1	R1					AP											08111217	11.00000	0.00000	L 399
TR1	R1					AP											08111218	0.00000	0.00000	L 400
TR1	R1					AP											08111219	11.00000	0.00000	L 401
TR1	R1					AP											08111220	0.00000	0.00000	L 402
TR1	R1					AP											08111301	0.00000	0.00000	L 437
TR1	R1					AP											08111302	11.00000	0.00000	L 438
TR1	R1					AP											08111303	11.00000	0.00000	L 439
TR1	R1					AP											08111304	11.00000	0.00000	L 440
TR1	R1					AP											08111305	0.00000	0.00000	L 441
TR1	R1					AP											08111401	0.00000	0.00000	L 404
TR1	R1					AP											08111402	0.00000	0.18600	L 405
TR1	R1					AP											08111403	0.00000	0.18400	L 406
TR1	R1					AP											08111404	0.00000	0.00000	L 407
TR1	R1					AP											08112101	0.00000	0.00000	L 1
TR1	R1					AP											08112102	0.00000	0.00000	L 2
TR1	R1					AP											08112103	0.00000	0.00000	L 3
TR1	R1					AP											08112104	0.00000	0.00000	L 4
TR1	R1					AP											08112105	0.00000	0.00000	L 5
TR1	R1					AP											08112106	0.00000	0.00000	L 6
TR1	R1					AP											08112107	11.00000	0.00000	L 7
TR1	R1					AP											08112108	11.00000	0.00000	L 8
TR1	R1					AP											08112109	0.00000	0.00000	L 9
TR1	R1					AP											08112110	11.00000	0.00000	L 10
TR1	R1					AP											08112201	0.00000	0.00000	L 45
TR1	R1					AP											08112202	0.00000	0.27100	L 46
TR1	R1					AP											08112203	11.00000	0.00000	L 47
TR1	R1					AP											08112204	0.00000	0.00000	L 48
TR1	R1					AP											08112205	0.00000	0.00000	L 49
TR1	R1					AP											08112206	0.00000	0.00000	L 50

TR1	R1					AP											08113101	0.00000	0.00000	L 31
TR1	R1					AP											08113102	0.00000	0.00000	L 32
TR1	R1					AP											08113103	11.00000	0.00000	L 33
TR1	R1					AP											08113104	0.00000	0.00000	L 34
TR1	R1					AP											08113105	0.00000	0.00000	L 35
TR1	R1					AP											08113106	0.00000	0.00000	L 36
TR1	R1					AP											08113107	0.00000	0.00000	L 37
TR1	R1					AP											08113108	0.00000	0.00000	L 38
TR1	R1					AP											08113109	0.00000	0.00000	L 39
TR1	R1					AP											08113110	0.00000	0.00000	L 40
TR1	R1					AP											08113113	11.00000	0.00000	L 43
TR1	R1					AP											08113114	0.00000	0.00000	L 44
TR1	R1					AP											08113115	0.00000	0.25000	RS 16/29/1
TR1	R1					AP											08113117	0.00000	0.44000	RS 16/29/2
TR1	R1					AP											08113201	0.00000	0.00000	L 11
TR1	R1					AP											08113202	0.00000	0.00000	L 12
TR1	R1					AP											08113203	0.00000	0.00000	L 13
TR1	R1					AP											08113204	0.00000	0.00000	L 14
TR1	R1					AP											08113205	0.00000	0.00000	L 15
TR1	R1					AP											08113206	0.00000	0.00000	L 16
TR1	R1					AP											08113207	11.00000	0.00000	L 17
TR1	R1					AP											08113208	11.00000	0.00000	L 18
TR1	R1					AP											08113209	0.00000	0.00000	L 19
TR1	R1					AP											08113210	0.00000	0.00000	L 20
TR1	R1					AP											08113211	0.00000	0.00000	L 21
TR1	R1					AP											08113212	11.00000	0.00000	L 22
TR1	R1					AP											08113213	0.00000	0.00000	L 23
TR1	R1					AP											08113214	0.00000	0.00000	L 24
TR1	R1					AP											08113215	11.00000	0.00000	L 25
TR1	R1					AP											08113216	11.00000	0.00000	L 26
TR1	R1					AP											08113217	11.00000	0.00000	L 27
TR1	R1					AP											08113218	11.00000	0.00000	L 28
TR1	R1					AP											08113219	11.00000	0.00000	L 29
TR1	R1					AP											08113220	0.00000	0.00000	L 30
TR1	R1					AP											08114101	0.00000	0.00000	L 1
TR1	R1					AP											08114102	0.00000	0.00000	L 2
TR1	R1					AP											08114103	0.00000	0.00000	L 3
TR1	R1					AP											08114104	0.00000	0.00000	L 4
TR1	R1					AP											08114105	0.00000	0.00000	L 5
TR1	R1					AP											08114106	0.00000	0.00000	L 6
TR1	R1					AP											08114107	0.00000	0.00000	L 7
TR1	R1					AP											08114108	0.00000	0.00000	L 8
TR1	R1					AP											08114109	0.00000	0.00000	L 9
TR1	R1					AP											08114110	0.00000	0.00000	L 10
TR1	R1					AP											08114111	0.00000	0.00000	L 11
TR1	R1					AP											08114112	0.00000	0.00000	L 12

TR1	R1					AP											08114114	0.00000	0.00000	L 14
TR1	R1					AP											08114115	0.00000	0.00000	L 15
TR1	R1					AP											08114116	0.00000	0.00000	L 16
TR1	R1					AP											08114117	0.00000	0.00000	L 17
TR1	R1					AP											08114118	0.00000	0.00000	L 18
TR1	R1					AP											08114119	0.00000	0.00000	L 19
TR1	R1					AP											08114120	0.00000	0.24100	L 20
TR1	R1					AP											08114123	0.00000	0.00000	L 23
TR1	R1					AP											08114124	0.00000	0.00000	L 24
TR1	R1					AP											08114125	0.00000	0.00000	L 25
TR1	R1					AP											08114126	0.00000	0.00000	L 26
TR1	R1					AP											08114127	0.00000	0.00000	L 27
TR1	R1					AP											08114128	0.00000	0.00000	L 28
TR1	R1					AP											08114130	0.00000	0.00000	L 13
TR1	R1					AP											08114135	0.00000	0.24100	POR LOTS 21 & 22
TR1	R1					AP											08114136	0.00000	0.00000	POR LOTS 21 & 22
TR1	R1					AP											08114203	0.00000	0.00000	L 31
TR1	R1					AP											08114204	0.00000	0.00000	L 32
TR1	R1					AP											08114207	0.00000	0.00000	L 35
TR1	R1					AP											08114209	0.00000	0.00000	POR L 30
TR1	R1					AP											08114210	0.00000	0.00000	L 33
TR1	R1					AP											08114212	0.00000	0.00000	L 34 POR 30
TR1	R1					AP											08114213	0.00000	0.00000	POR L 29
TR1	R1					AP											08115101	0.00000	0.00000	L 36
TR1	R1					AP											08115102	0.00000	0.00000	L 37
TR1	R1					AP											08115103	0.00000	0.00000	L 38
TR1	R1					AP											08115104	0.00000	0.00000	L 39
TR1	R1					AP											08115105	0.00000	0.00000	L 40
TR1	R1					AP											08115106	0.00000	0.00000	L 41
TR1	R1					AP											08115107	0.00000	0.00000	L 42
TR1	R1					AP											08115108	0.00000	0.00000	L 43
TR1	R1					AP											08115109	0.00000	0.00000	L 44
TR1	R1					AP											08115110	0.00000	0.00000	L 45
TR1	R1					AP											08115111	0.00000	0.00000	L 46
TR1	R1					AP											08115112	0.00000	0.00000	L 47
TR1	R1					AP											08115113	0.00000	0.00000	L 48
TR1	R1					AP											08115114	0.00000	0.00000	L 49
TR1	R1					AP											08115115	0.00000	0.00000	L 50
TR1	R1					AP											08115116	0.00000	0.00000	L 51
TR1	R1					AP											08115117	0.00000	0.00000	L 52
TR1	R1					AP											08115118	0.00000	0.24100	L 53
TR1	R1					AP											08115119	0.00000	0.00000	L 54
TR1	R1					AP											08115120	0.00000	0.00000	L 55
TR1	R1					AP											08115121	0.00000	0.00000	L 56
TR1	R1					AP											08115122	0.00000	0.00000	L 57
TR1	R1					AP											08115123	0.00000	0.00000	L 58

TR1	R1					AP											08115124	11.00000	0.00000	L 59
TR1	R1					AP											08115125	0.00000	0.00000	L 60
TR1	R1					AP											08115126	0.00000	0.00000	L 61
TR1	R1					AP											08115127	11.00000	0.00000	L 62
TR1	R1					AP											08115128	0.00000	0.00000	L 63
TR1	R1					AP											08115129	11.00000	0.00000	L 64
TR1	R1					AP											08115130	0.00000	0.00000	L 65
TR1	R1					AP											08115131	11.00000	0.00000	L 66
TR1	R1					AP											08115132	11.00000	0.00000	L 67
TR1	R1					AP											08115201	0.00000	0.00000	L 68
TR1	R1					AP											08115202	0.00000	0.00000	L 69
TR1	R1					AP											08115203	0.00000	0.00000	L 70
TR1	R1					AP											08115204	0.00000	0.00000	L 71
TR1	R1					AP											08115205	0.00000	0.00000	L 72
TR1	R1					AP											08115206	11.00000	0.00000	L 73
TR1	R1					AP											08115207	0.00000	0.00000	L 74
TR1	R1					AP											08115208	11.00000	0.00000	L 75
TR1	R1					AP											08115209	0.00000	0.00000	L 76
TR1	R1					AP											08115210	0.00000	0.00000	L 77
TR1	R1					AP											08115211	0.00000	0.00000	L 78
TR1	R1					AP											08115212	11.00000	0.00000	L 79
TR1	R1					AP											08115213	0.00000	0.00000	L 80
TR1	R1					AP											08115214	11.00000	0.00000	L 81
TR1	R1					AP											08115215	0.00000	0.00000	L 82
TR1	R1					AP											08115301	11.00000	0.00000	L 83
TR1	R1					AP											08115302	11.00000	0.00000	L 84
TR1	R1					AP											08115303	11.00000	0.00000	L 85
TR1	R1					AP											08115304	0.00000	0.00000	L 86
TR1	R1					AP											08115305	11.00000	0.00000	L 87
TR1	R1					AP											08115306	0.00000	0.00000	L 88
TR1	R1					AP											08115307	0.00000	0.00000	L 89
TR1	R1					AP											08115308	11.00000	0.00000	L 90
TR1	R1					AP											08115309	0.00000	0.00000	L 91
TR1	R1					AP											08115310	0.00000	0.00000	L 92
TR1	R1					AP											08115311	11.00000	0.00000	L 93
R2	RM		DC			MFR						CP					08202407	0.00000	0.30000	SEC 3 9 9
RF	OS					HDR						CP					08218401	11.00000	10.42000	LOT 1073
R1	OS																08219108	0.00000	0.00000	
R1	OS																08220408	0.00000	0.00000	
R2	RM		DC			MFR						CP					08222301	0.00000	0.00000	L 623
R2	RM		DC			MFR						CP					08222302	0.00000	0.00000	L 624
R2	RM		DC			MFR						CP					08222303	0.00000	0.00000	L 625
R2	RM		DC			MFR						CP					08222304	0.00000	0.00000	L 626
RF	RF-H					OS						CP					08226111	11.00000	0.00000	LOT 1520
CP	CL		DC			C						CP					08238101	0.00000	1.01000	L 1
CP	CC		DC			C						CP					08238102	0.00000	1.03000	L 2

CP	CC		DC			C						CP					08238103	0.00000	1.03000	L 3
CP	CC		DC			C						CP					08238104	0.00000	1.00000	L 4
CP	CC		DC			C						CP					08238301	0.00000	1.05000	POR L 9
CP	CL		DC			C						CP					08238309	0.00000	0.44000	PM 42/96/1
CP	CL		DC			C						CP					08238310	0.00000	0.49300	PM 42/96/2
CP	CL		DC			C						CP					08238311	0.00000	0.49900	PM 42/96/3
CP	CL		DC			C						CP					08238312	0.00000	0.43600	PM 42/96/4
CPO	TC		DC			C						CP					08238506	11.00000	0.00000	SEC 4 9 9
R2	RM		DC			MFR						CP					08239102	0.00000	0.58000	L 32
R2	RM		DC			MFR						CP					08239103	0.00000	0.00000	L 33
R2	RM		DC			MFR						CP					08239104	0.00000	0.00000	L 34
R2	RM		DC			MFR						CP					08239105	0.00000	0.49000	L 35
R2	RM		DC			MFR						CP					08239106	0.00000	0.00000	L 36
R2	RM		DC			MFR						CP					08239109	0.00000	0.00000	L 38
R2	RM		DC			MFR						CP					08239111	0.00000	0.00000	L 40
R2	RM		DC			MFR						CP					08239113	0.00000	0.00000	L 42
R2	RM		DC			MFR						CP					08239114	0.00000	0.42000	L 41
R2	RM			PD		MFR						CP					08239115	0.00000	0.20900	PM 45/1/1
R2	RM			PD		MFR						CP					08239116	0.00000	0.15100	PM 45/1/2
R2	RM		DC			MFR						CP					08240101	0.00000	1.94000	L 26
R2	RM		DC			MFR						CP					08240103	0.00000	0.00000	L 27
R2	RM		DC			MFR						CP					08240104	0.00000	0.00000	L 28
R2	RM		DC	PD		MFR						CP					08240105	0.00000	0.00000	L 29
R2	RM		DC	PD		MFR						CP					08240106	0.00000	0.00000	L 30
R2	RM			PD		MFR						CP					08240107	0.00000	0.00000	L 17
R2	RM			PD		MFR						CP					08240108	0.00000	0.00000	L 18
R2	RM		DC			MFR						CP					08240109	0.00000	0.00000	L 19
R2	RM		DC			MFR						CP					08240116	0.00000	0.00000	L25 CP N5&L10 N4
R2	RM		DC			MFR						CP					08240117	0.00000	3.22000	PM 41/109/1
CP	CL		DC			C						CP					08241101	0.00000	0.00000	L 43
CP	CL		DC			C						CP					08241102	0.00000	0.00000	L 44
CP	CC		DC			C						CP					08241103	0.00000	0.00000	L 45
CP	RM		DC			MFR						CP					08241104	0.00000	0.00000	L 46
CP	RM		DC			MFR						CP					08241109	0.00000	0.88000	PM 37/110/B
CP	RM		DC			MFR						CP					08241111	0.00000	1.00000	PM 37/110/A
CP	CL		DC			C						CP					08241205	0.00000	0.00000	L 12
CP	CL		DC			C						CP					08241206	0.00000	0.00000	L 11
CP	CL		DC			C						CP					08241207	0.00000	0.00000	L 10
CP	CL		DC			C						CP					08241208	0.00000	0.00000	L 9
CP	CL		DC			C						CP					08241209	0.00000	0.00000	L 8
CP	CL		DC			C						CP					08241210	0.00000	0.00000	L 7
CP	CL		DC			C						CP					08241212	0.00000	0.65000	PM 35/27/A
CP	CL		DC			C						CP					08241213	0.00000	0.60000	PM 35/27/B
CP	CL		DC			C						CP					08241215	0.00000	0.92000	PM 50/19/A
CP	CL		DC			C						CP					08241216	0.00000	0.62000	PM 50/19/B
CP	CC		DC			C						CP					08242101	0.00000	0.00000	POR L 1

CP	CL		DC			C						CP					08242102	0.00000	0.00000	POR L 2
CP	CL		DC			C						CP					08242103	0.00000	0.76000	POR L 3
CP	CL		DC			C						CP					08242105	0.00000	0.70000	POR L 5
CP	CL		DC			C						CP					08242108	0.00000	0.40000	PM 47/146/1
CP	CC		DC			C						CP					08242109	0.00000	1.00000	PM 47/146/2
CP	CL		DC			C						CP					08242110	0.00000	0.25900	PM 47/147/1
CP	CL		DC			C						CP					08242111	0.00000	0.48100	PM 47/147/2
CP	CR		DC			C						CP					08243004	0.00000	13.14000	PM 47/116/2
R2	RM		DC			MFR						CP					08243005	0.00000	15.81500	PM 47/116/3
R2	RM		DC			MFR						CP					08244101	0.00000	0.00000	L 1
R2	RM		DC			MFR						CP					08244102	0.00000	0.00000	L 2
R2	RM		DC			MFR						CP					08244103	0.00000	0.36000	L 3
R2	RM		DC			MFR						CP					08244104	0.00000	0.29000	L 4
R2	RM		DC			MFR						CP					08244105	0.00000	0.00000	L 5
R2	RM		DC			MFR						CP					08244106	0.00000	0.00000	L 6
R2	RM		DC			MFR						CP					08244108	0.00000	0.74000	L 8 & 9
R2	RM			PD		MFR						CP					08244109	0.00000	0.78000	L 10
R2	RM		DC			MFR						CP					08244201	0.00000	0.00000	L 12
R2	RM		DC			MFR						CP					08244202	0.00000	0.00000	L 13
R2	RM		DC			MFR						CP					08244203	0.00000	0.00000	L 14
R2	RM		DC			MFR						CP					08244206	0.00000	0.00000	L 17
R2	RM		DC			MFR						CP					08244207	0.00000	0.00000	L 18
R2	RM		DC			MFR						CP					08244208	0.00000	0.00000	L 19
R2	RM		DC			MFR						CP					08244209	0.00000	0.00000	L 20
R2	RM		DC			MFR						CP					08244210	0.00000	0.00000	L 21
R2	RM		DC			MFR						CP					08244211	0.00000	0.00000	POR L 16
R2	RM		DC			MFR						CP					08244213	0.00000	0.20000	L 15 & POR L 16
OS	RM					MFR						CP					08244214	0.00000	3.26600	RS 28/145 L 11
R2	RM		DC			MFR						CP					08245003	0.00000	0.84000	SEC 3 9 9
R2	RM		DC			MFR						CP					08246101	0.00000	0.00000	UNIT 1
R2	RM		DC			MFR						CP					08246102	0.00000	0.00000	UNIT 2
R2	RM		DC			MFR						CP					08246103	0.00000	0.00000	UNIT 3
R2	RM		DC			MFR						CP					08246104	0.00000	0.00000	UNIT 4
R2	RM		DC			MFR						CP					08246105	0.00000	0.00000	UNIT 5
R2	RM		DC			MFR						CP					08246106	0.00000	0.00000	UNIT 6
R2	RM		DC			MFR						CP					08246107	0.00000	0.00000	UNIT 7
R2	RM		DC			MFR						CP					08246108	0.00000	0.00000	UNIT 8
R2	RM		DC			MFR						CP					08246109	0.00000	0.00000	UNIT 9
R2	RM		DC			MFR						CP					08246110	0.00000	0.00000	UNIT 10
R2	RM		DC			MFR						CP					08246111	0.00000	0.00000	UNIT 11
R2	RM		DC			MFR						CP					08246112	0.00000	0.00000	UNIT 12
R2	RM		DC			MFR						CP					08246113	0.00000	0.00000	UNIT 13
R2	RM		DC			MFR						CP					08246114	0.00000	0.00000	UNIT 14
R2	RM		DC			MFR						CP					08246115	0.00000	0.00000	UNIT 15
R2	RM		DC			MFR						CP					08246116	0.00000	0.00000	UNIT 16
R2	RM		DC			MFR						CP					08246117	0.00000	0.00000	UNIT 17

R2	RM		DC			MFR					CP					08246118	0.00000	0.00000	UNIT 18
R2	RM		DC			MFR					CP					08246119	0.00000	0.00000	UNIT 19
R2	RM		DC			MFR					CP					08246120	0.00000	0.00000	UNIT 20
R2	RM		DC			MFR					CP					08246121	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08246122	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08246123	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08246124	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08246125	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08247117	0.00000	0.00000	PM 39/134/1
R2	RM		DC			MFR					CP					08247118	0.00000	0.00000	PM 39/134/2
R2	RM		DC			MFR					CP					08247119	0.00000	0.00000	PM 39/134/3
R2	RM		DC			MFR					CP					08247120	2.00000	0.00000	PAR 4 PM39-134AW
R2	RM		DC			MFR					CP					08248101	0.00000	0.00000	L 1
R2	RM		DC			MFR					CP					08248102	0.00000	0.00000	L 2
R2	RM		DC			MFR					CP					08248103	0.00000	0.00000	L 3
R2	RM		DC			MFR					CP					08248104	0.00000	0.00000	L 4
R2	RM		DC			MFR					CP					08248105	0.00000	0.00000	L 5
R2	RM		DC			MFR					CP					08248106	0.00000	0.00000	L 6
R2	RM		DC			MFR					CP					08249101	0.00000	0.00000	L 1
R2	RM		DC			MFR					CP					08249102	0.00000	0.00000	L 2
R2	RM		DC			MFR					CP					08249103	0.00000	0.00000	L 3
R2	RM		DC			MFR					CP					08249104	0.00000	0.00000	L 4
R2	RM		DC			MFR					CP					08249105	0.00000	0.00000	L 5
R2	RM		DC			MFR					CP					08249106	0.00000	0.00000	L 6
R2	RM		DC			MFR					CP					08249107	0.00000	0.00000	L 7
R2	RM		DC			MFR					CP					08249108	0.00000	0.00000	L 8
R2	RM		DC			MFR					CP					08249109	0.00000	0.00000	L 9
R2	RM		DC			MFR					CP					08249110	0.00000	0.00000	L 10
R2	RM		DC			MFR					CP					08249111	0.00000	0.00000	L 11
R2	RM		DC			MFR					CP					08249112	0.00000	0.00000	L 12
R2	RM		DC			MFR					CP					08249113	0.00000	0.00000	L 13
R2	RM		DC			MFR					CP					08249114	0.00000	0.00000	L 14
R2	RM		DC			MFR					CP					08249115	0.00000	0.00000	L 15
R2	RM		DC			MFR					CP					08249116	0.00000	0.00000	L 16
R2	RM		DC			MFR					CP					08249117	0.00000	0.00000	L 17
R2	RM		DC			MFR					CP					08249118	0.00000	0.00000	L 18
R2	RM		DC			MFR					CP					08249119	0.00000	0.00000	L 19
R2	RM		DC			MFR					CP					08249120	0.00000	0.00000	L 20
R2	RM		DC			MFR					CP					08249121	0.00000	0.00000	L 21
R2	RM		DC			MFR					CP					08249122	0.00000	0.00000	L 22
R2	RM		DC			MFR					CP					08249123	0.00000	0.00000	L 23
R2	RM		DC			MFR					CP					08249124	0.00000	0.00000	L 24
R2	RM		DC			MFR					CP					08249125	0.00000	0.00000	L 25
R2	RM		DC			MFR					CP					08249126	0.00000	0.00000	L 26
R2	RM		DC			MFR					CP					08249127	0.00000	0.00000	L 27
R2	RM		DC			MFR					CP					08249128	0.00000	0.00000	L 28

R2	RM		DC			MFR					CP					08249129	0.00000	0.00000	L 29
R2	RM		DC			MFR					CP					08249130	0.00000	0.00000	L 30
R2	RM		DC			MFR					CP					08249131	0.00000	0.00000	L 31
R2	RM		DC			MFR					CP					08249132	0.00000	0.00000	L 32
R2	RM		DC			MFR					CP					08249133	0.00000	0.00000	L 33
R2	RM		DC			MFR					CP					08249134	0.00000	0.00000	L 34
R2	RM		DC			MFR					CP					08249135	0.00000	0.00000	L 35
R2	RM		DC			MFR					CP					08249136	0.00000	0.00000	L 36
R2	RM		DC			MFR					CP					08249137	0.00000	0.00000	L 37
R2	RM		DC			MFR					CP					08249138	0.00000	0.00000	L 38
R2	RM		DC			MFR					CP					08249139	0.00000	0.00000	L 39
R2	RM		DC			MFR					CP					08249140	0.00000	0.00000	L 40
R2	RM		DC			MFR					CP					08249141	0.00000	0.00000	L 41
R2	RM		DC			MFR					CP					08249142	0.00000	0.00000	L 42
R2	RM		DC			MFR					CP					08249143	0.00000	0.00000	L 43
R2	RM		DC			MFR					CP					08249144	0.00000	0.00000	L 44
R2	RM		DC			MFR					CP					08249145	0.00000	0.00000	L 45
R2	RM		DC			MFR					CP					08249146	0.00000	0.00000	L 46
R2	RM		DC			MFR					CP					08249147	0.00000	0.00000	L 47
R2	RM		DC			MFR					CP					08249148	0.00000	0.00000	L 48
R2	RM		DC			MFR					CP					08249149	0.00000	0.00000	L 49
R2	RM		DC			MFR					CP					08249150	0.00000	0.00000	L 50
R2	RM		DC			MFR					CP					08249151	0.00000	0.00000	L 51
R2	RM		DC			MFR					CP					08249152	0.00000	0.00000	L 52
R2	RM		DC			MFR					CP					08249153	0.00000	0.00000	L 53
R2	RM		DC			MFR					CP					08249154	0.00000	0.00000	L 54
R2	RM		DC			MFR					CP					08249155	0.00000	0.00000	L 55
R2	RM		DC			MFR					CP					08249156	0.00000	0.00000	L 56
R2	RM		DC			MFR					CP					08249157	0.00000	0.00000	L 57
R2	RM		DC			MFR					CP					08249158	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08249159	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08249160	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08249161	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08249162	2.00000	0.00000	LOT E
R2	RM		DC			MFR					CP					08249163	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08249164	2.00000	0.00000	COMMON AREA
R2	RM		DC			MFR					CP					08249165	2.00000	0.00000	COMMON AREA
RF	RF-H					OS					CP					08250006	0.00000	6.58000	SEC 4 9 9
RF	RF-H				AA	OS					CP					08250006	0.00000	6.58000	SEC 4 9 9
RF	RF-H				AA	HDR					CP					08250007	0.00000	48.45000	SEC33&34 10 9ADM
RF	RF-H				AA	HDR					CP					08250007	0.00000	48.45000	SEC33&34 10 9ADM
RF	RF-H					OS					CP					08250031	0.00000	86.27000	SEC 3&4 9 9 ADM
RF	RF-H				AA	OS					CP					08250031	0.00000	86.27000	SEC 3&4 9 9 ADM
RF	RF-H				AA	OS					CP					08250031	0.00000	86.27000	SEC 3&4 9 9 ADM
CP	RM		DC			MFR					CP					08251001	2.00000	0.00000	COMMON AREA
CP	RM		DC			MFR					CP					08251002	0.00000	0.00000	UNIT 1

CP	RM		DC			MFR					CP					08251003	0.00000	0.00000	UNIT 2
CP	RM		DC			MFR					CP					08251004	0.00000	0.00000	UNIT 3
CP	RM		DC			MFR					CP					08251005	0.00000	0.00000	UNIT 4
CP	RM		DC			MFR					CP					08251006	0.00000	0.00000	UNIT 5
CP	RM		DC			MFR					CP					08251008	0.00000	0.00000	UNIT 7
CP	RM		DC			MFR					CP					08251009	0.00000	0.00000	UNIT 8
CP	RM		DC			MFR					CP					08251010	0.00000	0.00000	UNIT 9
CP	RM		DC			MFR					CP					08251011	0.00000	0.00000	UNIT 10
CP	RM		DC			MFR					CP					08251012	0.00000	0.00000	UNIT 11
CP	RM		DC			MFR					CP					08251013	0.00000	0.00000	UNIT 12
CP	RM		DC			MFR					CP					08251014	0.00000	0.00000	UNIT 13
CP	RM		DC			MFR					CP					08251015	0.00000	0.00000	UNIT 14
CP	RM		DC			MFR					CP					08251016	0.00000	0.00000	UNIT 15
CP	RM		DC			MFR					CP					08251017	0.00000	0.00000	UNIT 16
CP	RM		DC			MFR					CP					08251018	0.00000	0.00000	UNIT 17
CP	RM		DC			MFR					CP					08251019	0.00000	0.00000	UNIT 18
CP	RM		DC			MFR					CP					08251020	0.00000	0.00000	UNIT 19
CP	RM		DC			MFR					CP					08251021	0.00000	0.00000	UNIT 20
RF	RF-H				AA	PF					CP					08252101	11.00000	0.00000	LOT A
R2	RM		DC		AA	MFR					CP					08252105	0.00000	0.15000	PM 23/68/A
R2	RM		DC		AA	MFR					CP					08252106	0.00000	0.12000	PM 23/68/B
R2	RM		DC		AA	MFR					CP					08252107	0.00000	0.13000	PM 23/68/C
R2	RM		DC		AA	MFR					CP					08252108	2.00000	0.21000	PAR D P/M 23-68
R2	RM		DC		AA	MFR					CP					08252201	0.00000	0.00000	L 188
R2	RM		DC		AA	MFR					CP					08253113	0.00000	0.00000	L 175
R2	RM			PD	AA	MFR					CP					08253114	0.00000	0.00000	L 174
R2	RM			PD	AA	MFR					CP					08253115	0.00000	0.00000	L 173
R2	RM			PD	AA	MFR					CP					08253116	0.00000	0.00000	L 172
R2	RM		DC		AA	MFR					CP					08253118	0.00000	0.00000	L 170
R2	RM			PD	AA	MFR					CP					08253120	0.00000	0.00000	L 160
R2	RM			PD	AA	MFR					CP					08253121	0.00000	0.00000	L 159
R2	RM			PD	AA	MFR					CP					08253122	0.00000	0.00000	L 158
R2	RM		DC		AA	MFR					CP					08253202	0.00000	0.00000	L 193
R2	RM			PD	AA	MFR					CP					08253208	0.00000	0.00000	L A P/M 36-108
R2	RM			PD	AA	MFR					CP					08253209	0.00000	0.00000	L B P/M 36-108
R2	RM		DC		AA	MFR					CP					08253210	0.00000	0.00000	L C P/M 36-108
R2	RM			PD	AA	MFR					CP					08253211	2.00000	0.00000	L D PM 36-108 AW
R2	RM			PD	AA	MFR					CP					08254303	0.00000	0.00000	L 163
R2	RM		DC		AA	MFR					CP					08254305	0.00000	0.00000	L 165
R2	RM			PD	AA	MFR					CP					08254307	0.00000	0.00000	L 167
R2	RM		DC		AA	MFR					CP					08256104	0.00000	0.30500	RS 27/3
R2	RM		DC		AA	MFR					CP					08264101	0.00000	0.00000	UNIT 1
R2	RM		DC		AA	MFR					CP					08264102	0.00000	0.00000	UNIT 2
R2	RM		DC		AA	MFR					CP					08264103	0.00000	0.00000	UNIT 3
R2	RM		DC		AA	MFR					CP					08264104	0.00000	0.00000	UNIT 4
R2	RM		DC		AA	MFR					CP					08264105	2.00000	0.00000	COMMON AREA

R2	RM		DC	PD	AA	MFR					CP					08266102	0.00000	0.00000	L 1
R2	RM		DC	PD	AA	MFR					CP					08266103	0.00000	0.00000	L 2
R2	RM		DC	PD	AA	MFR					CP					08266104	0.00000	0.00000	L 3
R2	RM		DC	PD	AA	MFR					CP					08266105	0.00000	0.00000	L 4
R2	RM		DC	PD	AA	MFR					CP					08266106	0.00000	0.00000	L 5
R2	RM		DC	PD	AA	MFR					CP					08266107	0.00000	0.00000	L 6
R2	RM		DC	PD	AA	MFR					CP					08266108	0.00000	0.00000	L 7
R2	RM		DC	PD	AA	MFR					CP					08266109	0.00000	0.00000	L 8
R2	RM		DC	PD	AA	MFR					CP					08266110	0.00000	0.00000	L 9
R2	RM		DC	PD	AA	MFR					CP					08266111	0.00000	0.00000	L 10
R2	RM		DC	PD	AA	MFR					CP					08266112	0.00000	0.00000	L 11
R2	RM		DC	PD	AA	MFR					CP					08266113	0.00000	0.00000	L 12
R2	RM		DC	PD	AA	MFR					CP					08266114	0.00000	0.00000	L 13
R2	RM		DC	PD	AA	MFR					CP					08266115	0.00000	0.00000	L 14
R2	RM		DC	PD	AA	MFR					CP					08266116	0.00000	0.00000	L 15
R2	RM		DC	PD	AA	MFR					CP					08266117	0.00000	0.00000	L 16
R2	RM		DC	PD	AA	MFR					CP					08266118	0.00000	0.00000	L 17
R2	RM		DC	PD	AA	MFR					CP					08266119	0.00000	0.00000	L 18
R2	RM		DC	PD	AA	MFR					CP					08266120	0.00000	0.00000	L 19
R2	RM		DC	PD	AA	MFR					CP					08266121	0.00000	0.00000	L 20
R2	RM		DC	PD	AA	MFR					CP					08266122	0.00000	0.00000	L 21
R2	RM		DC	PD	AA	MFR					CP					08266123	0.00000	0.00000	L 22
R2	RM		DC	PD	AA	MFR					CP					08266124	0.00000	0.00000	L 23
R2	RM		DC	PD	AA	MFR					CP					08266125	0.00000	0.00000	L 24
R2	RM		DC	PD	AA	MFR					CP					08266126	0.00000	0.00000	L 25
R2	RM		DC	PD	AA	MFR					CP					08266127	0.00000	0.00000	L 26
R2	RM		DC	PD	AA	MFR					CP					08266128	0.00000	0.00000	L 27
R2	RM		DC	PD	AA	MFR					CP					08266129	0.00000	0.00000	L 28
R2	RM		DC	PD	AA	MFR					CP					08266130	0.00000	0.00000	L 29
R2	RM		DC	PD	AA	MFR					CP					08266131	0.00000	0.00000	L 30
R2	RM		DC	PD	AA	MFR					CP					08266132	0.00000	0.00000	L 31
R2	RM		DC	PD	AA	MFR					CP					08266133	0.00000	0.00000	L 32
R2	RM		DC	PD	AA	MFR					CP					08266134	0.00000	0.00000	L 33
R2	RM		DC	PD	AA	MFR					CP					08266135	0.00000	0.00000	L 34
R2	RM		DC	PD	AA	MFR					CP					08266136	0.00000	0.00000	L 35
R2	RM		DC	PD	AA	MFR					CP					08266137	0.00000	0.00000	L 36
R2	RM		DC	PD	AA	MFR					CP					08266138	2.00000	0.00000	LOT A COMM AREA
R2	RM		DC		AA	MFR					CP					08267001	0.00000	0.05000	PM 25/128/1
R2	RM		DC		AA	MFR					CP					08267002	0.00000	0.05000	PM 25/128/2
R2	RM		DC		AA	MFR					CP					08267003	0.00000	0.06000	PM 25/128/3
R2	RM		DC		AA	MFR					CP					08267004	2.00000	0.27000	PAR A P/M 25-128
R2	RM			PD	AA	MFR					CP					08268001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR					CP					08268002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR					CP					08268003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR					CP					08268004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					08268005	0.00000	0.00000	L 5

R2	RM			PD	AA	MFR					CP					08268006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR					CP					08268007	2.00000	0.00000	LOT A
R2	RM		DC	PD		MFR					CP					08269001	0.00000	0.00000	L 1
R2	RM		DC	PD		MFR					CP					08269004	0.00000	0.00000	L 4
R2	RM		DC	PD		MFR					CP					08269005	0.00000	0.00000	L 5
R2	RM		DC	PD		MFR					CP					08269006	0.00000	0.00000	L 6
R2	RM		DC	PD		MFR					CP					08269009	0.00000	0.00000	L 9
R2	RM		DC	PD		MFR					CP					08269014	0.00000	0.00000	L 14
R2	RM		DC	PD		MFR					CP					08269015	0.00000	0.00000	L 15
R2	RM		DC	PD		MFR					CP					08269016	0.00000	0.00000	L 16
R2	RM		DC	PD		MFR					CP					08269017	0.00000	0.00000	L 17
R2	RM		DC	PD		MFR					CP					08269018	0.00000	0.00000	L 18
R2	RM		DC	PD		MFR					CP					08269021	0.00000	0.00000	L 21
R2	RM		DC	PD		MFR					CP					08269022	0.00000	0.00000	L 22
R2	RM		DC	PD		MFR					CP					08269026	0.00000	0.06000	RS 15/61/1
R2	RM		DC	PD		MFR					CP					08269030	0.00000	0.00000	PM 38/139/7
R2	RM		DC	PD		MFR					CP					08269031	0.00000	0.00000	PM 38/139/8
R2	RM		DC	PD		MFR					CP					08269032	0.00000	0.00000	LOT 3 & POR L 2
R2	RM		DC	PD		MFR					CP					08269033	2.00000	0.00000	POR LOT A
R2	RM		DC	PD		MFR					CP					08269037	0.00000	0.00000	PM 38/139/1
R2	RM		DC	PD		MFR					CP					08269039	0.00000	0.00000	PM 38/139/4
R2	RM		DC	PD		MFR					CP					08269040	0.00000	0.00000	PM 38/139/2
R2	RM		DC	PD		MFR					CP					08269042	0.00000	0.00000	PM 38/139/3
R2	RM		DC	PD		MFR					CP					08269044	0.00000	0.00000	PM 38/139/6
R2	RM		DC	PD		MFR					CP					08269045	0.00000	0.00000	PM 38/139/5
R2	RM			PD	AA	MFR					CP					08270013	2.00000	0.30000	LOT A
R2	RM			PD	AA	MFR					CP					08270015	0.00000	0.00000	UNIT 1 & 1A
R2	RM			PD	AA	MFR					CP					08270015	0.00000	0.00000	UNIT 1 & 1A
R2	RM			PD	AA	MFR					CP					08270016	0.00000	0.00000	UNIT 2 & 2A
R2	RM			PD	AA	MFR					CP					08270016	0.00000	0.00000	UNIT 2 & 2A
R2	RM			PD	AA	MFR					CP					08270017	0.00000	0.00000	UNIT 3 & 3A
R2	RM			PD	AA	MFR					CP					08270017	0.00000	0.00000	UNIT 3 & 3A
R2	RM			PD	AA	MFR					CP					08270018	0.00000	0.00000	UNIT 4 & 4A
R2	RM			PD	AA	MFR					CP					08270018	0.00000	0.00000	UNIT 4 & 4A
R2	RM			PD	AA	MFR					CP					08270019	0.00000	0.00000	UNIT 5 & 5A
R2	RM			PD	AA	MFR					CP					08270019	0.00000	0.00000	UNIT 5 & 5A
R2	RM			PD	AA	MFR					CP					08270020	0.00000	0.00000	UNIT 6 & 6A
R2	RM			PD	AA	MFR					CP					08270020	0.00000	0.00000	UNIT 6 & 6A
R2	RM			PD	AA	MFR					CP					08271002	2.00000	0.00000	LOT A
R2	RM			PD	AA	MFR					CP					08271003	0.00000	0.00000	UNIT 1
R2	RM			PD	AA	MFR					CP					08271004	0.00000	0.00000	UNIT 2
R2	RM			PD	AA	MFR					CP					08271005	0.00000	0.00000	UNIT 3
R2	RM			PD	AA	MFR					CP					08271006	0.00000	0.00000	UNIT 4
R2	RM			PD	AA	MFR					CP					08271007	0.00000	0.00000	UNIT 5
R2	RM			PD	AA	MFR					CP					08271008	0.00000	0.00000	UNIT 6
R2	RM			PD	AA	MFR					CP					08271009	0.00000	0.00000	UNIT 7

R2	RM			PD	AA	MFR					CP					08271010	0.00000	0.00000	UNIT 8
R2	RM			PD	AA	MFR					CP					08271011	0.00000	0.00000	UNIT 9
R2	RM			PD	AA	MFR					CP					08271012	0.00000	0.00000	UNIT 10
R2	RM		DC	PD		MFR					CP					08272041	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08273001	0.00000	0.00000	UNIT 1
R2	RM			PD	AA	MFR					CP					08273002	0.00000	0.00000	UNIT 2
R2	RM			PD	AA	MFR					CP					08273003	0.00000	0.00000	UNIT 3
R2	RM			PD	AA	MFR					CP					08273004	0.00000	0.00000	UNIT 4
R2	RM			PD	AA	MFR					CP					08273005	0.00000	0.00000	UNIT 5
R2	RM			PD	AA	MFR					CP					08273006	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08276001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR					CP					08276002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR					CP					08276003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR					CP					08276004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					08276005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR					CP					08276006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR					CP					08276007	0.00000	0.00000	L 7
R2	RM			PD	AA	MFR					CP					08276008	0.00000	0.00000	L 8
R2	RM			PD	AA	MFR					CP					08276009	0.00000	0.00000	L 9
R2	RM			PD	AA	MFR					CP					08276010	0.00000	0.00000	L 10
R2	RM			PD	AA	MFR					CP					08276011	0.00000	0.00000	L 11
R2	RM			PD	AA	MFR					CP					08276012	2.00000	0.00000	LOT A AW
R2	RM		DC		AA	MFR					CP					08277001	0.00000	0.00000	UNIT 1A
R2	RM		DC		AA	MFR					CP					08277002	0.00000	0.00000	UNIT 1B
R2	RM		DC		AA	MFR					CP					08277003	0.00000	0.00000	UNIT 1C
R2	RM		DC		AA	MFR					CP					08277004	0.00000	0.00000	UNIT 1D
R2	RM		DC		AA	MFR					CP					08277006	0.00000	0.00000	UNIT 1F
R2	RM		DC		AA	MFR					CP					08277007	0.00000	0.00000	UNIT 2A
R2	RM		DC		AA	MFR					CP					08277008	0.00000	0.00000	UNIT 2B
R2	RM		DC		AA	MFR					CP					08277009	0.00000	0.00000	UNIT 2C
R2	RM		DC		AA	MFR					CP					08277010	0.00000	0.00000	UNIT 2D
R2	RM		DC		AA	MFR					CP					08277011	0.00000	0.00000	UNIT 2E
R2	RM		DC		AA	MFR					CP					08277012	0.00000	0.00000	UNIT 2F
R2	RM		DC		AA	MFR					CP					08277013	0.00000	0.00000	UNIT 3A
R2	RM		DC		AA	MFR					CP					08277014	0.00000	0.00000	UNIT 3B
R2	RM		DC		AA	MFR					CP					08277015	0.00000	0.00000	UNIT 3C
R2	RM		DC		AA	MFR					CP					08277016	0.00000	0.00000	UNIT 3D
R2	RM		DC		AA	MFR					CP					08277017	0.00000	0.00000	UNIT 3E
R2	RM		DC		AA	MFR					CP					08277018	0.00000	0.00000	UNIT 3F
R2	RM		DC		AA	MFR					CP					08277019	0.00000	0.00000	UNIT 4A
R2	RM		DC		AA	MFR					CP					08277020	0.00000	0.00000	UNIT 4B
R2	RM		DC		AA	MFR					CP					08277021	0.00000	0.00000	UNIT 4C
R2	RM		DC		AA	MFR					CP					08277022	0.00000	0.00000	UNIT 4D
R2	RM			PD	AA	MFR					CP					08277023	0.00000	0.00000	UNIT 5A
R2	RM			PD	AA	MFR					CP					08277024	0.00000	0.00000	UNIT 5B
R2	RM			PD	AA	MFR					CP					08277025	0.00000	0.00000	UNIT 5C

R2	RM			PD	AA	MFR					CP					08277028	0.00000	0.00000	UNIT 5F
R2	RM			PD	AA	MFR					CP					08277029	0.00000	0.00000	UNIT 6A
R2	RM			PD	AA	MFR					CP					08277030	0.00000	0.00000	UNIT 6B
R2	RM			PD	AA	MFR					CP					08277031	0.00000	0.00000	UNIT 6C
R2	RM			PD	AA	MFR					CP					08277032	0.00000	0.00000	UNIT 6D
R2	RM			PD	AA	MFR					CP					08277033	0.00000	0.00000	UNIT 6E
R2	RM			PD	AA	MFR					CP					08277034	0.00000	0.00000	UNIT 6F
R2	RM			PD	AA	MFR					CP					08277035	0.00000	0.00000	UNIT 7A
R2	RM			PD	AA	MFR					CP					08277037	0.00000	0.00000	UNIT 7C
R2	RM			PD	AA	MFR					CP					08277038	0.00000	0.00000	UNIT 7D
R2	RM			PD	AA	MFR					CP					08277039	0.00000	0.00000	UNIT 8A
R2	RM			PD	AA	MFR					CP					08277040	0.00000	0.00000	UNIT 8B
R2	RM			PD	AA	MFR					CP					08277041	0.00000	0.00000	UNIT 8C
R2	RM			PD	AA	MFR					CP					08277043	0.00000	0.00000	UNIT 8E
R2	RM			PD	AA	MFR					CP					08277044	0.00000	0.00000	UNIT 8F
R2	RM			PD	AA	MFR					CP					08277045	2.00000	1.75000	LOT A AW
R2	RM		DC		AA	MFR					CP					08277045	2.00000	1.75000	LOT A AW
R2	RM		DC	PD		MFR					CP					08278001	0.00000	0.00000	L 1
R2	RM		DC	PD		MFR					CP					08278002	0.00000	0.00000	L 2
R2	RM		DC	PD		MFR					CP					08278003	0.00000	0.00000	L 3
R2	RM		DC	PD		MFR					CP					08278004	0.00000	0.00000	L 4
R2	RM		DC	PD		MFR					CP					08278005	0.00000	0.00000	L 5
R2	RM		DC	PD		MFR					CP					08278006	0.00000	0.00000	L 6
R2	RM		DC	PD		MFR					CP					08278007	0.00000	0.00000	L 7
R2	RM		DC	PD		MFR					CP					08278008	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08279001	0.00000	0.00000	UNIT 1
R2	RM			PD	AA	MFR					CP					08279002	0.00000	0.00000	UNIT 2
R2	RM			PD	AA	MFR					CP					08279003	0.00000	0.00000	UNIT 3
R2	RM			PD	AA	MFR					CP					08279004	0.00000	0.00000	UNIT 4
R2	RM			PD	AA	MFR					CP					08279005	0.00000	0.00000	UNIT 5
R2	RM			PD	AA	MFR					CP					08279006	0.00000	0.00000	UNIT 6
R2	RM			PD	AA	MFR					CP					08279007	0.00000	0.00000	UNIT 7
R2	RM			PD	AA	MFR					CP					08279008	0.00000	0.00000	UNIT 8
R2	RM			PD	AA	MFR					CP					08279009	0.00000	0.00000	UNIT 9
R2	RM			PD	AA	MFR					CP					08279010	0.00000	0.00000	UNIT 10
R2	RM			PD	AA	MFR					CP					08279011	0.00000	0.00000	UNIT 11
R2	RM			PD	AA	MFR					CP					08279012	0.00000	0.00000	UNIT 12
R2	RM			PD	AA	MFR					CP					08279013	0.00000	0.00000	UNIT 13
R2	RM			PD	AA	MFR					CP					08279014	0.00000	0.00000	UNIT 14
R2	RM			PD	AA	MFR					CP					08279015	0.00000	0.00000	UNIT 15
R2	RM			PD	AA	MFR					CP					08279016	2.00000	0.00000	L A AW
R2	RM		DC	PD		MFR					CP					08280101	0.00000	0.34500	L 1
R2	RM		DC	PD		MFR					CP					08280102	0.00000	0.34500	L 2
R2	RM		DC	PD		MFR					CP					08280103	0.00000	0.34600	L 3
R2	RM		DC	PD		MFR					CP					08280104	0.00000	0.34500	L 4
R2	RM		DC	PD		MFR					CP					08280105	0.00000	0.34500	L 5

R2	RM		DC	PD		MFR					CP					08280106	0.00000	0.34500	L 6
R2	RM		DC	PD		MFR					CP					08280107	0.00000	0.34500	L 7
R2	RM		DC	PD		MFR					CP					08280201	0.00000	0.35700	L 8
R2	RM		DC	PD		MFR					CP					08280202	0.00000	0.00000	L 9
R2	RM		DC	PD		MFR					CP					08280203	0.00000	0.00000	L 10
R2	RM		DC	PD		MFR					CP					08280204	0.00000	0.00000	L 11
R2	RM		DC	PD		MFR					CP					08280205	0.00000	0.00000	L 12
R2	RM		DC	PD		MFR					CP					08280206	0.00000	0.00000	L 13
R2	RM		DC	PD		MFR					CP					08280207	2.00000	0.00000	LOT B AW
R2	RM		DC	PD		MFR					CP					08280208	0.00000	0.00000	L 14
R2	RM		DC	PD		MFR					CP					08280209	0.00000	0.00000	L 15
R2	RM		DC	PD		MFR					CP					08280210	0.00000	0.00000	L 16
R2	RM		DC	PD		MFR					CP					08280211	0.00000	0.00000	L 17
R2	RM		DC	PD		MFR					CP					08280212	0.00000	0.00000	L 18
R2	RM		DC	PD		MFR					CP					08280213	0.00000	0.00000	L 19
R2	RM		DC	PD		MFR					CP					08280214	0.00000	0.00000	L 20
R2	RM		DC	PD		MFR					CP					08280215	0.00000	0.00000	L 21
R2	RM		DC	PD		MFR					CP					08280216	0.00000	0.00000	L 22
R2	RM		DC	PD		MFR					CP					08280217	0.00000	0.00000	L 23
R2	RM		DC	PD		MFR					CP					08280218	0.00000	0.00000	L 24
R2	RM		DC	PD		MFR					CP					08280219	0.00000	0.00000	L 25
R2	RM		DC	PD		MFR					CP					08280220	2.00000	0.00000	LOT D AW
R2	RM		DC	PD		MFR					CP					08280221	2.00000	0.00000	LOT A AW
R2	RM		DC	PD		MFR					CP					08280301	0.00000	0.00000	L 26
R2	RM		DC	PD		MFR					CP					08280302	0.00000	0.00000	L 27
R2	RM		DC	PD		MFR					CP					08280303	0.00000	0.00000	L 28
R2	RM		DC	PD		MFR					CP					08280304	0.00000	0.00000	L 29
R2	RM		DC	PD		MFR					CP					08280305	0.00000	0.00000	L 30
R2	RM		DC	PD		MFR					CP					08280306	0.00000	0.00000	L 31
R2	RM		DC	PD		MFR					CP					08280307	0.00000	0.00000	L 32
R2	RM		DC	PD		MFR					CP					08280308	0.00000	0.00000	L 33
R2	RM		DC	PD		MFR					CP					08280309	0.00000	0.00000	L 34
R2	RM		DC	PD		MFR					CP					08280310	0.00000	0.00000	L 35
R2	RM		DC	PD		MFR					CP					08280311	0.00000	0.00000	L 36
R2	RM		DC	PD		MFR					CP					08280312	0.00000	0.00000	L 37
R2	RM		DC	PD		MFR					CP					08280313	0.00000	0.00000	L 38
R2	RM		DC	PD		MFR					CP					08280314	0.00000	0.00000	L 39
R2	RM		DC	PD		MFR					CP					08280315	0.00000	0.00000	L 40
R2	RM		DC	PD		MFR					CP					08281011	0.00000	0.00000	PM 43/78/41
R2	RM		DC	PD		MFR					CP					08281012	0.00000	0.00000	PM 43/78/42
R2	RM		DC	PD		MFR					CP					08281013	0.00000	0.00000	PM 43/78/43
R2	RM		DC	PD		MFR					CP					08281014	0.00000	0.00000	PM 43/78/44
R2	RM		DC	PD		MFR					CP					08281015	0.00000	0.00000	PM 43/78/45
R2	RM		DC	PD		MFR					CP					08281016	0.00000	0.00000	PM 43/78/46
R2	RM		DC	PD		MFR					CP					08281017	0.00000	0.00000	PM 43/78/47
R2	RM		DC	PD		MFR					CP					08281018	0.00000	0.00000	PM 43/78/48

R2	RM		DC	PD		MFR					CP					08281019	2.00000	0.00000	C P/M 43-78 AW
R2	RM			PD	AA	MFR					CP					08282001	0.00000	0.02500	L 1
R2	RM			PD	AA	MFR					CP					08282002	0.00000	0.02500	L 2
R2	RM			PD	AA	MFR					CP					08282003	0.00000	0.02500	L 3
R2	RM			PD	AA	MFR					CP					08282004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					08282005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR					CP					08282006	2.00000	0.28000	LOT A AW
R2	RM			PD	AA	MFR					CP					08283001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR					CP					08283002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR					CP					08283003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR					CP					08283004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					08283005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR					CP					08283006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR					CP					08283007	0.00000	0.00000	L 7
R2	RM			PD	AA	MFR					CP					08283008	2.00000	0.00000	LOT 8 AW
R2	RM			PD	AA	MFR					CP					08284001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR					CP					08284002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR					CP					08284003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR					CP					08284004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					08284005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR					CP					08284006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR					CP					08284007	0.00000	0.00000	L 7
R2	RM			PD	AA	MFR					CP					08284008	0.00000	0.00000	L 8
R2	RM			PD	AA	MFR					CP					08284009	0.00000	0.00000	L 9
R2	RM			PD	AA	MFR					CP					08284010	0.00000	0.00000	L 10
R2	RM			PD	AA	MFR					CP					08284011	0.00000	0.00000	L 11
R2	RM			PD	AA	MFR					CP					08284012	0.00000	0.00000	L 12
R2	RM			PD	AA	MFR					CP					08284013	2.00000	0.00000	LOT A AW
R2	RM			PD		MFR					CP					08285001	0.00000	0.71000	L 1
R2	RM			PD		MFR					CP					08285002	0.00000	0.00000	L 2
R2	RM			PD		MFR					CP					08285003	0.00000	0.00000	L 3
R2	RM			PD		MFR					CP					08285004	0.00000	0.00000	L 4
R2	RM			PD		MFR					CP					08285005	0.00000	0.00000	L 5
R2	RM			PD		MFR					CP					08285006	0.00000	0.00000	L 6
R2	RM			PD		MFR					CP					08285007	0.00000	0.00000	L 7
R2	RM			PD		MFR					CP					08285008	0.00000	0.00000	L 8
R2	RM			PD		MFR					CP					08285009	0.00000	0.00000	L 9
R2	RM			PD		MFR					CP					08285010	0.00000	0.00000	L 10
R2	RM			PD		MFR					CP					08285011	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08286001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR					CP					08286002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR					CP					08286003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR					CP					08286004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					08286005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR					CP					08286006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR					CP					08286007	0.00000	0.00000	L 7

R2	RM			PD	AA	MFR						CP					08286008	0.00000	0.00000	L 8
R2	RM			PD	AA	MFR						CP					08286009	0.00000	0.00000	L 9
R2	RM			PD	AA	MFR						CP					08286010	0.00000	0.00000	L 10
R2	RM			PD	AA	MFR						CP					08286011	2.00000	0.00000	LOT A AW
R2	RM			PD		MFR						CP					08287001	0.00000	0.29200	PM 46/15/1
R2	RM			PD		MFR						CP					08287002	0.00000	0.00000	PM 46/15/2
R2	RM			PD		MFR						CP					08287003	2.00000	0.29000	PM 46/15/A AW
R2	RM		DC			MFR						CP					08288001	0.00000	0.27300	L 1
R2	RM		DC			MFR						CP					08288002	0.00000	0.19300	L 2
R2	RM		DC			MFR						CP					08288003	0.00000	0.17300	L 3
R2	RM		DC			MFR						CP					08288004	0.00000	0.18000	L 4
R2	RM		DC			MFR						CP					08288005	0.00000	1.08000	BROOKS EST REM
CP	RM			PD		MFR						CP					08289001	0.00000	0.00000	UNIT 1
CP	RM			PD		MFR						CP					08289002	0.00000	0.00000	UNIT 2
CP	RM			PD		MFR						CP					08289003	0.00000	0.00000	UNIT 3
CP	RM			PD		MFR						CP					08289004	0.00000	0.00000	UNIT 4
CP	RM			PD		MFR						CP					08289005	0.00000	0.00000	UNIT 5
CP	RM			PD		MFR						CP					08289006	0.00000	0.00000	UNIT 6
CP	RM			PD		MFR						CP					08289007	0.00000	0.00000	UNIT 7
CP	RM			PD		MFR						CP					08289008	0.00000	0.00000	UNIT 8
CP	RM			PD		MFR						CP					08289009	0.00000	0.00000	UNIT 9
CP	RM			PD		MFR						CP					08289010	0.00000	0.00000	UNIT 10
CP	RM			PD		MFR						CP					08289011	0.00000	0.00000	UNIT 11
CP	RM			PD		MFR						CP					08289012	0.00000	0.00000	UNIT 12
CP	RM			PD		MFR						CP					08289013	2.00000	0.44000	L A AW
R2	RM			PD		MFR						CP					08290001	0.00000	0.03800	L 1
R2	RM			PD		MFR						CP					08290002	0.00000	0.03800	L 2
R2	RM			PD		MFR						CP					08290003	0.00000	0.03800	L 3
R2	RM			PD		MFR						CP					08290004	0.00000	0.03800	L 4
R2	RM			PD		MFR						CP					08290005	2.00000	0.41000	L A
RE-10	OS			PD		OS		EP				CP					08301001	11.00000	117.37000	SEC 2 & 3 9 9
RE-10	OS			PD	AA	OS		EP				CP					08301001	11.00000	117.37000	SEC 2 & 3 9 9
RF	RF-H				AA	PF						CP					08302002	11.00000	0.23000	SEC 33 10 9
RE-10	OS				AA	OS		EP				CP					08302011	11.00000	28.00000	SEC 34 10 9
RE-10	OS				AA	OS		EP				CP					08302018	11.00000	17.33000	SEC 34 10 9
RF	RF-H				AA	PF						CP					08302024	11.00000	0.00000	SEC 33 10 9
RE-10	OS				AA	OS		EP				CP					08302028	11.00000	49.08000	PM 46/75/1 ADM
CP	CR		DC		AA	C						CP					08302029	0.00000	10.54000	PM 46/75/2
RE-10	OS					OS		EP				CP					08302030	11.00000	89.15000	POR SEC 34 10 9
RE-10	OS				AA	OS		EP				CP					08302030	11.00000	89.15000	POR SEC 34 10 9
RE-10	OS					OS		EP				CP					08302031	11.00000	62.80000	POR SEC 34 10 9
RE-10	OS				AA	OS		EP				CP					08302031	11.00000	62.80000	POR SEC 34 10 9
RE-10	OS			PD		OS		EP				CP					08302031	11.00000	62.80000	POR SEC 34 10 9
RF	RF-H				AA	PF						CP					08302037	11.00000	12.60000	POR SEC 33 10 9
C	CL		DC		AA	C						CP					08303101	0.00000	0.06000	SEC 28 10 9
C	CL		DC		AA	C						CP					08303104	0.00000	0.90700	PM 29/100/A

C	CL		DC		AA	C						CP					08303105	0.00000	0.91000	PM 29/100/B
C	CL		DC		AA	C						CP					08303106	0.00000	1.00600	PM 29/100/C
C	CL		DC		AA	C						CP					08303107	0.00000	0.90700	PM 29/100/D
R2	RM			PD	AA	MFR						CP					08303113	0.00000	1.64100	POR SEC 28 10 9
CP	CL		DC		AA	C						CP					08304101	0.00000	0.00000	L 275
MP	RM		DC		AA	MFR						CP					08304102	0.00000	13.99300	L 277
R2	RM		DC		AA	MFR						CP					08305101	0.00000	2.22100	L 278
R2	RM		DC		AA	MFR						CP					08305202	0.00000	0.29200	PM 25/59/A
R2	RM		DC		AA	MFR						CP					08305203	0.00000	0.32000	PM 25/59/B
R2	RM		DC		AA	MFR						CP					08305204	0.00000	0.30000	PM 25/59/C
R2	RM		DC		AA	MFR						CP					08305205	0.00000	0.37000	PM 25/59/D
R2	RM		DC		AA	MFR						CP					08305206	0.00000	0.30000	PM 25/59/E
R2	RM		DC		AA	MFR						CP					08305207	0.00000	0.25000	PM 25/59/F
R2	RM		DC		AA	MFR						CP					08305208	0.00000	0.26000	PM 25/59/G
R2	RM		DC		AA	MFR						CP					08305209	0.00000	0.25000	PM 25/59/H
R2	RM		DC		AA	MFR						CP					08305210	0.00000	0.24000	PM 25/59/I
R2	RM		DC		AA	MFR						CP					08305211	0.00000	0.26000	PM 25/59/J
R1	RM				AA	MFR						CP					08305302	0.00000	0.00000	L 54
R2	RM			PD	AA	MFR						CP					08305305	0.00000	1.84000	PM 25/149/C
R2	RM			PD	AA	MFR						CP					08305306	0.00000	1.84000	PM 25/149/D
R2	RM		DC		AA	MFR						CP					08305308	0.00000	1.00000	PM 32/102/1
R2	RM		DC		AA	MFR						CP					08305309	0.00000	2.68000	PM 32/102/2
R2	RM		DC		AA	MFR						CP					08305401	0.00000	0.00000	L 280
C	CL		DC		AA	C						CP					08311209	0.00000	0.50000	PM 31/100/5
C	CL		DC		AA	C						CP					08311210	0.00000	0.48000	PM 31/100/6
C	CL		DC		AA	C						CP					08311211	0.00000	0.41000	PM 31/100/7
C	CC		DC		AA	C						CP					08311218	0.00000	2.01800	PM 42/102/1
R2	RM		DC		AA	MFR						CP					08312204	0.00000	2.79000	PM 24/129/C
R2	RM		DC		AA	MFR						CP					08312206	0.00000	1.39000	PM 35/22/1
R2	RM		DC		AA	MFR						CP					08312207	0.00000	1.39900	PM 35/22/2
CP	CL		DC		AA	C						CP					08312209	0.00000	0.42000	PM 40/51/1
CP	CL		DC		AA	C						CP					08312210	0.00000	0.77000	PM 40/51/2
CP	CL		DC		AA	C						CP					08312211	0.00000	0.62000	PM 40/51/3
CP	CL		DC		AA	C						CP					08312212	0.00000	0.38000	PM 40/51/4
CP	CL		DC		AA	C						CP					08312213	0.00000	0.56000	PM 40/51/5
CP	CL		DC		AA	C						CP					08312214	0.00000	0.47000	PM 40/51/6
CP	CL		DC		AA	C						CP					08312215	0.00000	0.41000	PM 40/51/7
CP	CL		DC		AA	C						CP					08312216	0.00000	0.40000	PM 40/51/8
CP	CL		DC		AA	C						CP					08312217	0.00000	0.54000	PM 40/51/9
CP	CL		DC		AA	C						CP					08313201	0.00000	0.00000	L 270
CP	CC		DC		AA	C						CP					08313202	0.00000	4.20000	L 271
R2	RM		DC		AA	MFR						CP					08314118	0.00000	0.00000	L 176
R2	RM		DC		AA	MFR						CP					08314123	0.00000	0.64500	POR L 178
R2	RM		DC		AA	MFR						CP					08315102	0.00000	0.00000	L 181
R2	RM		DC		AA	MFR						CP					08315106	0.00000	0.00000	L 185
R2	RM		DC		AA	MFR						CP					08315107	0.00000	0.00000	L 186

R2	RM		DC		AA	MFR					CP					08315113	0.00000	0.16000	PM 32/12/1
R2	RM		DC		AA	MFR					CP					08315115	0.00000	0.15000	PM 32/146/A
R2	RM		DC		AA	MFR					CP					08315116	0.00000	0.10000	PM 32/146/B
CG	TC		DC		AA	C					CP					08318202	11.00000	0.00000	LOT 261
TC	R1				AA	HDR					CP					08321106	11.00000	0.00000	POR LOT 110
R2	RM		DC		AA	MFR					CP					08322117	0.00000	0.00000	L 17
R2	RM		DC		AA	MFR					CP					08322118	0.00000	0.00000	L 18
R2	RM		DC		AA	MFR					CP					08322120	0.00000	0.00000	L 20
R2	RM		DC		AA	MFR					CP					08322130	0.00000	0.33000	PM 32/117/A
R2	RM		DC		AA	MFR					CP					08322131	0.00000	0.36000	PM 32/117/B
R2	RM		DC		AA	MFR					CP					08322132	0.00000	0.39000	PM 32/117/C
R2	RM			PD	AA	MFR					CP					08322139	0.00000	0.37000	PM 36/74/B
R2	RM		DC	PD	AA	MFR					CP					08322141	0.00000	0.31000	PM 36/74/C
R2	RM		DC		AA	MFR					CP					08322144	0.00000	0.00000	PM 38/12/A
R2	RM		DC		AA	MFR					CP					08322145	0.00000	0.00000	PM 38/12/B
R2	RM		DC		AA	MFR					CP					08322146	0.00000	0.00000	PM 38/12/C
R2	RM		DC		AA	MFR					CP					08322147	0.00000	0.07500	PM 42/45/1
R2	RM		DC		AA	MFR					CP					08322148	0.00000	0.08800	PM 42/45/2
R2	RM		DC		AA	MFR					CP					08322149	0.00000	0.07200	PM 42/45/3
R2	RM		DC		AA	MFR					CP					08322150	2.00000	0.06500	PM 42/45/4 AW
R2	RM			PD	AA	MFR					CP					08322151	0.00000	0.17400	PM 43/38/1
R2	RM			PD	AA	MFR					CP					08322152	0.00000	0.22000	PM 43/38/2
R2	RM		DC		AA	MFR					CP					08322154	0.00000	0.63000	TR A PM 48/134
R2	RM		DC		AA	MFR					CP					08322156	0.00000	0.56000	PM 48/134/1
R2	RM		DC		AA	MFR					CP					08322157	0.00000	0.53000	PM 48/134/2
R2	RM		DC		AA	MFR					CP					08322158	0.00000	1.33000	PM 48/134/3
RF	RF-H					PF					CP					08332101	11.00000	0.00000	LOT 294
R2	RM		DC		AA	MFR					CP					08333101	0.00000	0.00000	L 1
R2	RM		DC		AA	MFR					CP					08333102	0.00000	0.00000	L 2
R2	RM		DC		AA	MFR					CP					08333103	0.00000	0.00000	L 3
R2	RM		DC		AA	MFR					CP					08333104	0.00000	0.00000	L 4
R2	RM		DC		AA	MFR					CP					08333105	0.00000	0.00000	L 5
R2	RM		DC		AA	MFR					CP					08333106	0.00000	0.00000	L 6
R2	RM		DC		AA	MFR					CP					08333107	0.00000	0.00000	L 7
R2	RM		DC		AA	MFR					CP					08333108	0.00000	0.00000	L 8
R2	RM		DC		AA	MFR					CP					08333109	0.00000	0.00000	L 9
R2	RM		DC		AA	MFR					CP					08333110	0.00000	0.00000	L 10
R2	RM		DC		AA	MFR					CP					08333111	0.00000	0.00000	L 11
R2	RM		DC		AA	MFR					CP					08333112	0.00000	0.00000	L 12
R2	RM		DC		AA	MFR					CP					08333113	0.00000	0.00000	L 13
R2	RM		DC		AA	MFR					CP					08333114	0.00000	0.00000	L 14
R2	RM		DC		AA	MFR					CP					08333115	0.00000	0.00000	L 15 POR 16
R2	RM		DC		AA	MFR					CP					08333116	0.00000	0.00000	L 17 POR 16
R2	RM		DC		AA	MFR					CP					08333117	0.00000	0.00000	L 18
R2	RM		DC		AA	MFR					CP					08333118	0.00000	0.00000	L 19
R2	RM		DC		AA	MFR					CP					08333119	0.00000	0.00000	L 20

R2	RM		DC		AA	MFR					CP					08333120	0.00000	0.00000	L 21
R2	RM		DC		AA	MFR					CP					08333121	0.00000	0.00000	L 22
R2	RM		DC		AA	MFR					CP					08333122	0.00000	0.00000	L 23
R2	RM		DC		AA	MFR					CP					08333123	0.00000	0.00000	L 24
CP	CC		DC			C					CP					08334001	0.00000	0.42000	SEC 3 9 9
CP	CC		DC			C					CP					08334007	0.00000	0.49200	SEC 3 9 9
CP	CC		DC			C					CP					08334014	0.00000	0.67900	RS 15/24/1
CP	CC		DC			C					CP					08335009	0.00000	0.48000	PM 6/87/B
R2	RM		DC	PD		MFR					CP					08335051	0.00000	8.55500	SEC 3 9 9
C	CC			PD		C					CP					08335052	11.00000	0.32000	POR PM 49/111/2
C	CC			PD		C					CP					08335053	0.00000	13.79000	POR PM 49/111/2
RE-10	CC			PD		C					CP					08335054	11.00000	0.36000	POR PM 49/111/1
RE-10	RM			PD		MFR					CP					08335055	0.00000	40.81000	POR PM 49/111/1
RE-10	RM					MFR					CP					08345102	2.00000	0.00000	LOT A AW
C	CL		DC	PD		C					CP					08345301	11.00000	0.00000	SEC 3 9 9
C	CC		DC	PD		C					CP					08345309	0.00000	0.46900	PM 42/21/4
C	CC		DC	PD		C					CP					08345310	0.00000	0.47900	PM 42/21/5
C	CC		DC	PD		C					CP					08345311	0.00000	0.54500	PM 42/21/6
C	CC		DC	PD		C					CP					08345312	0.00000	0.51900	PM 42/21/7
C	CC		DC	PD		C					CP					08345313	0.00000	0.48700	PM 42/21/8
C	CC		DC	PD		C					CP					08345314	0.00000	0.57200	PM 42/21/9
C	CC		DC	PD		C					CP					08345317	2.00000	0.48400	PM 42/21/12 AW
C	CC		DC			C					CP					08345318	0.00000	1.77000	PM 42/21/13
C	CC		DC	PD		C					CP					08345321	0.00000	2.33600	PM 50/29/A
C	CC		DC	PD		C					CP					08345322	0.00000	0.43100	PM 50/29/B
C	CC		DC			C					CP					08345403	0.00000	16.13300	LOTS 6 & 7
R2	CC		DC			C					CP					08345403	0.00000	16.13300	LOTS 6 & 7
R2	RM		DC			MFR					CP					08345501	0.00000	1.83000	L 8
R2	CC		DC			C					CP					08345601	0.00000	4.22000	L 9
RT	CC		DC			C					CP					08345602	0.00000	4.67000	L 10
C	CC			PD		C					CP					08345610	0.00000	4.13900	PM 38/138/1
C	CC		DC			C					CP					08345611	0.00000	3.05400	PM 38/138/2
C	CC		DC			C					CP					08345612	0.00000	1.19900	PM 38/138/3
C	CC		DC			C					CP					08345613	0.00000	0.61400	PM 38/138/4
C	CC		DC			C					CP					08345614	0.00000	0.58300	PM 38/138/5
C	CC		DC			C					CP					08345615	0.00000	0.48000	PM 38/138/6
C	CC		DC			C					CP					08345617	0.00000	1.49000	PM 38/138/8
C	CC		DC			C					CP					08345618	0.00000	0.91100	PM 44/10/A
C	CC		DC			C					CP					08345619	0.00000	1.58400	PM 44/10/B
C	CL		DC		AA	C					CP					08346101	0.00000	0.82000	L 1
R2	RM			PD	AA	MFR					CP					08346303	0.00000	0.48000	L 8
R2	RM			PD	AA	MFR					CP					08346410	0.00000	0.32000	L 19
R2	RM			PD	AA	MFR					CP					08346525	0.00000	2.84000	PM 40/45/1
R1	RM				AA	MFR					CP					08346527	0.00000	0.84300	PM 44/144/1
R1	RM				AA	MFR					CP					08346528	0.00000	2.24800	PM 44/144/2
R1	RM				AA	MFR					CP					08346529	0.00000	0.34200	PM 45/102/1

R1	RM				AA	MFR					CP					08346530	0.00000	0.31000	PM 45/102/2
R1	RM				AA	MFR					CP					08346531	0.00000	0.36000	PM 45/102/3
R2	RM			PD	AA	MFR					CP					08346607	0.00000	0.60000	L 42
R2	RM			PD	AA	MFR					CP					08346608	0.00000	0.63000	L 43
R2	RM			PD	AA	MFR					CP					08346609	0.00000	0.60000	L 44
RF	RF-H				AA	PF					CP					08346610	11.00000	10.00000	L A
R2	RM		DC	PD	AA	MFR					CP					08347003	0.00000	0.00000	L 1
R2	RM		DC	PD	AA	MFR					CP					08347004	0.00000	0.00000	L 2
R2	RM		DC	PD	AA	MFR					CP					08347005	0.00000	0.00000	L 3
R2	RM		DC	PD	AA	MFR					CP					08347006	0.00000	0.00000	L 4
R2	RM		DC	PD	AA	MFR					CP					08347007	0.00000	0.00000	L 5
R2	RM		DC	PD	AA	MFR					CP					08347008	0.00000	0.00000	L 6
R2	RM		DC	PD	AA	MFR					CP					08347009	0.00000	0.00000	L 7
R2	RM		DC	PD	AA	MFR					CP					08347010	0.00000	0.00000	L 8
R2	RM		DC	PD	AA	MFR					CP					08347011	0.00000	0.00000	L 9
R2	RM		DC	PD	AA	MFR					CP					08347012	0.00000	0.00000	L 10
R2	RM		DC	PD	AA	MFR					CP					08347013	0.00000	0.00000	L 11
R2	RM		DC	PD	AA	MFR					CP					08347014	0.00000	0.00000	L G10 AW
R2	RM		DC	PD	AA	MFR					CP					08347015	2.00000	1.06000	LOT A AW
R2	RM			PD	AA	MFR					CP					08348001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR					CP					08348002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR					CP					08348003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR					CP					08348004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					08348005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR					CP					08348006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR					CP					08348007	0.00000	0.00000	L 7
R2	RM			PD	AA	MFR					CP					08348008	0.00000	0.00000	L 8
R2	RM			PD	AA	MFR					CP					08348009	0.00000	0.00000	L 9
R2	RM			PD	AA	MFR					CP					08348010	0.00000	0.00000	L 10
R2	RM			PD	AA	MFR					CP					08348011	0.00000	0.00000	L 11
R2	RM			PD	AA	MFR					CP					08348012	0.00000	0.00000	L 12
R2	RM			PD	AA	MFR					CP					08348013	0.00000	0.00000	L 13
R2	RM			PD	AA	MFR					CP					08348014	0.00000	0.00000	L 14
R2	RM			PD	AA	MFR					CP					08348015	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08348017	2.00000	0.00000	LOT C AW
R2	RM			PD	AA	MFR					CP					08348018	0.00000	0.00000	L 15
R2	RM			PD	AA	MFR					CP					08348019	2.00000	0.00000	L D AW
R2	RM			PD	AA	MFR					CP					08348020	2.00000	0.00000	LOT B AW
R2	RM			PD	AA	MFR					CP					08351001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR					CP					08351002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR					CP					08351003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR					CP					08351004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					08351005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR					CP					08351006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR					CP					08351007	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08352001	0.00000	0.00000	UNIT 1B

R2	RM			PD	AA	MFR					CP					08352002	0.00000	0.00000	UNIT 2B
R2	RM			PD	AA	MFR					CP					08352003	0.00000	0.00000	UNIT 3B
R2	RM			PD	AA	MFR					CP					08352004	0.00000	0.00000	UNIT 4A
R2	RM			PD	AA	MFR					CP					08352005	0.00000	0.00000	UNIT 5A
R2	RM			PD	AA	MFR					CP					08352006	0.00000	0.00000	UNIT 6A
R2	RM			PD	AA	MFR					CP					08352007	0.00000	0.00000	UNIT 7A
R2	RM			PD	AA	MFR					CP					08352008	2.00000	0.00000	L A AW
R2	RM			PD	AA	MFR					CP					08353001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR					CP					08353002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR					CP					08353003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR					CP					08353004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					08353005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR					CP					08353006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR					CP					08353007	2.00000	0.34000	LOT A
R2	RM			PD	AA	MFR					CP					08354101	0.00000	0.00000	UNIT 1
R2	RM			PD	AA	MFR					CP					08354102	0.00000	0.00000	UNIT 2
R2	RM			PD	AA	MFR					CP					08354103	0.00000	0.00000	UNIT 3
R2	RM			PD	AA	MFR					CP					08354104	0.00000	0.00000	UNIT 4
R2	RM			PD	AA	MFR					CP					08354105	0.00000	0.00000	UNIT 5
R2	RM			PD	AA	MFR					CP					08354106	0.00000	0.00000	UNIT 6
R2	RM			PD	AA	MFR					CP					08354107	0.00000	0.00000	UNIT 7
R2	RM			PD	AA	MFR					CP					08354108	0.00000	0.00000	UNIT 8
R2	RM			PD	AA	MFR					CP					08354109	0.00000	0.00000	UNIT 9
R2	RM			PD	AA	MFR					CP					08354110	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08356001	0.00000	0.05000	L 1
R2	RM			PD	AA	MFR					CP					08356002	0.00000	0.07300	L 2
R2	RM			PD	AA	MFR					CP					08356003	0.00000	0.06600	L 3
R2	RM			PD	AA	MFR					CP					08356004	0.00000	0.06800	L 4
R2	RM			PD	AA	MFR					CP					08356005	0.00000	0.06300	L 5
R2	RM			PD	AA	MFR					CP					08356006	0.00000	0.06200	L 6
R2	RM			PD	AA	MFR					CP					08356007	0.00000	0.05600	L 7
R2	RM			PD	AA	MFR					CP					08356008	0.00000	0.05400	L 8
R2	RM			PD	AA	MFR					CP					08356009	0.00000	0.05900	L 9
R2	RM			PD	AA	MFR					CP					08356010	0.00000	0.06700	L 10
R2	RM			PD	AA	MFR					CP					08356011	0.00000	0.06000	L 11
R2	RM			PD	AA	MFR					CP					08356012	0.00000	0.06000	L 12
R2	RM			PD	AA	MFR					CP					08356013	0.00000	0.06900	L 13
R2	RM			PD	AA	MFR					CP					08356014	0.00000	0.00000	L 14
R2	RM			PD	AA	MFR					CP					08356015	0.00000	0.08200	L 15
R2	RM			PD	AA	MFR					CP					08356016	0.00000	0.05900	L 16
R2	RM			PD	AA	MFR					CP					08356017	0.00000	0.08000	L 17
R2	RM			PD	AA	MFR					CP					08356018	0.00000	0.09300	L 18
R2	RM			PD	AA	MFR					CP					08356019	0.00000	0.05000	L 19
R2	RM			PD	AA	MFR					CP					08356020	0.00000	0.05400	L 20
R2	RM			PD	AA	MFR					CP					08356021	0.00000	0.08200	L 21
R2	RM			PD	AA	MFR					CP					08356022	0.00000	0.06100	L 22

R2	RM			PD	AA	MFR					CP					08356023	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08356024	2.00000	0.00000	LOT B AW
R2	RM			PD	AA	MFR					CP					08356026	2.00000	0.00000	LOT D AW
R2	RM			PD	AA	MFR					CP					08356027	2.00000	0.00000	LOT E AW
R2	RM			PD	AA	MFR					CP					08359001	0.00000	0.10100	L 23
R2	RM			PD	AA	MFR					CP					08359002	0.00000	0.06100	L 24
R2	RM			PD	AA	MFR					CP					08359003	0.00000	0.06100	L 25
R2	RM			PD	AA	MFR					CP					08359004	0.00000	0.06100	L 26
R2	RM			PD	AA	MFR					CP					08359005	0.00000	0.06900	L 27
R2	RM			PD	AA	MFR					CP					08359006	0.00000	0.07400	L 28
R2	RM			PD	AA	MFR					CP					08359007	0.00000	0.05900	L 29
R2	RM			PD	AA	MFR					CP					08359008	0.00000	0.05900	L 30
R2	RM			PD	AA	MFR					CP					08359009	0.00000	0.05900	L 31
R2	RM			PD	AA	MFR					CP					08359010	0.00000	0.07700	L 32
R2	RM			PD	AA	MFR					CP					08359011	2.00000	0.24600	LOT H AW
R2	RM			PD	AA	MFR					CP					08359012	0.00000	0.07900	L 33
R2	RM			PD	AA	MFR					CP					08359013	0.00000	0.06400	L 34
R2	RM			PD	AA	MFR					CP					08359014	0.00000	0.06400	L 35
R2	RM			PD	AA	MFR					CP					08359015	0.00000	0.07300	L 36
R2	RM			PD	AA	MFR					CP					08359016	0.00000	0.10700	L 37
R2	RM			PD	AA	MFR					CP					08359017	0.00000	0.06100	L 82
R2	RM			PD	AA	MFR					CP					08359018	0.00000	0.06100	L 83
R2	RM			PD	AA	MFR					CP					08359019	0.00000	0.06100	L 84
R2	RM			PD	AA	MFR					CP					08359020	0.00000	0.06100	L 85
R2	RM			PD	AA	MFR					CP					08359021	0.00000	0.06800	L 86
R2	RM			PD	AA	MFR					CP					08359022	0.00000	0.06800	L 87
R2	RM			PD	AA	MFR					CP					08359023	0.00000	0.06100	L 88
R2	RM			PD	AA	MFR					CP					08359024	0.00000	0.06200	L 89
R2	RM			PD	AA	MFR					CP					08359025	0.00000	0.06200	L 90
R2	RM			PD	AA	MFR					CP					08359026	0.00000	0.07100	L 91
R2	RM			PD	AA	MFR					CP					08359027	0.00000	0.08900	L 92
R2	RM			PD	AA	MFR					CP					08359028	0.00000	0.11300	L 93
R2	RM			PD	AA	MFR					CP					08359029	0.00000	0.07600	L 94
R2	RM			PD	AA	MFR					CP					08359030	2.00000	0.08600	LOT G AW
R2	RM			PD	AA	MFR					CP					08359031	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08359031	2.00000	0.00000	LOT A AW
R2	RM			PD	AA	MFR					CP					08360001	0.00000	0.08900	L 38
R2	RM			PD	AA	MFR					CP					08360002	0.00000	0.08200	L 39
R2	RM			PD	AA	MFR					CP					08360003	0.00000	0.07400	L 40
R2	RM			PD	AA	MFR					CP					08360004	0.00000	0.07400	L 41
R2	RM			PD	AA	MFR					CP					08360005	0.00000	0.09100	L 42
R2	RM			PD	AA	MFR					CP					08360006	0.00000	0.09100	L 43
R2	RM			PD	AA	MFR					CP					08360007	0.00000	0.10700	L 44
R2	RM			PD	AA	MFR					CP					08360008	0.00000	0.07900	L 45
R2	RM			PD	AA	MFR					CP					08360009	0.00000	0.10300	L 46
R2	RM			PD	AA	MFR					CP					08360010	0.00000	0.09900	L 47

R2	RM			PD	AA	MFR						CP					08360011	0.00000	0.08300	L 48
R2	RM			PD	AA	MFR						CP					08360012	0.00000	0.10600	L 49
R2	RM			PD	AA	MFR						CP					08360013	0.00000	0.08000	L 50
R2	RM			PD	AA	MFR						CP					08360014	0.00000	0.05900	L 51
R2	RM			PD	AA	MFR						CP					08360015	0.00000	0.05700	L 52
R2	RM			PD	AA	MFR						CP					08360016	0.00000	0.06700	L 53
R2	RM			PD	AA	MFR						CP					08360017	0.00000	0.06000	L 54
R2	RM			PD	AA	MFR						CP					08360018	0.00000	0.07400	L 55
R2	RM			PD	AA	MFR						CP					08360019	0.00000	0.07800	L 56
R2	RM			PD	AA	MFR						CP					08360020	0.00000	0.06700	L 57
R2	RM			PD	AA	MFR						CP					08360021	0.00000	0.11700	L 58
R2	RM			PD	AA	MFR						CP					08360022	0.00000	0.06800	L 59
R2	RM			PD	AA	MFR						CP					08360023	0.00000	0.06800	L 60
R2	RM			PD	AA	MFR						CP					08360024	0.00000	0.06800	L 61
R2	RM			PD	AA	MFR						CP					08360025	0.00000	0.07800	L 62
R2	RM			PD	AA	MFR						CP					08360026	0.00000	0.06900	L 63
R2	RM			PD	AA	MFR						CP					08360027	0.00000	0.07500	L 64
R2	RM			PD	AA	MFR						CP					08360028	0.00000	0.10000	L 80
R2	RM			PD	AA	MFR						CP					08360029	0.00000	0.10700	L 65
R2	RM			PD	AA	MFR						CP					08360030	0.00000	0.07300	L 66
R2	RM			PD	AA	MFR						CP					08360031	0.00000	0.07300	L 67
R2	RM			PD	AA	MFR						CP					08360032	0.00000	0.07300	L 68
R2	RM			PD	AA	MFR						CP					08360033	0.00000	0.07300	L 69
R2	RM			PD	AA	MFR						CP					08360034	0.00000	0.07300	L 70
R2	RM			PD	AA	MFR						CP					08360035	0.00000	0.07000	L 71
R2	RM			PD	AA	MFR						CP					08360036	0.00000	0.07400	L 72
R2	RM			PD	AA	MFR						CP					08360037	0.00000	0.06600	L 73
R2	RM			PD	AA	MFR						CP					08360038	0.00000	0.05900	L 74
R2	RM			PD	AA	MFR						CP					08360039	0.00000	0.05900	L 75
R2	RM			PD	AA	MFR						CP					08360040	0.00000	0.05900	L 76
R2	RM			PD	AA	MFR						CP					08360041	0.00000	0.05900	L 77
R2	RM			PD	AA	MFR						CP					08360042	0.00000	0.05900	L 78
R2	RM			PD	AA	MFR						CP					08360043	0.00000	0.06100	L 79
R2	RM			PD	AA	MFR						CP					08360044	2.00000	0.00000	L A RDWY AW
R2	RM			PD	AA	MFR						CP					08360045	2.00000	0.02700	L B AW
R2	RM			PD	AA	MFR						CP					08360046	2.00000	0.15400	L J AW
R2	RM			PD	AA	MFR						CP					08360047	2.00000	0.03900	L K AW
R2	RM			PD	AA	MFR						CP					08360048	2.00000	0.04500	L L AW
R2	RM			PD	AA	MFR						CP					08360049	2.00000	0.10200	L M AW
R2	RM			PD	AA	MFR						CP					08360050	2.00000	0.02600	L N AW
R2	RM			PD	AA	MFR						CP					08360051	2.00000	0.03200	L P AW
C	CC			PD		C						CP					08361001	0.00000	0.24000	PM 49/99/1
C	CC			PD		C						CP					08361002	0.00000	0.15000	PM 49/99/2
C	CC			PD		C						CP					08361003	0.00000	0.20000	PM 49/99/3
C	CC			PD		C						CP					08361004	0.00000	0.20000	PM 49/99/4
C	CC			PD		C						CP					08361005	0.00000	0.20000	PM 49/99/5

C	CC			PD		C					CP					08361006	2.00000	3.71000	PM 49/99/6 AW
R2	RM			PD		MFR					CP					08362001	0.00000	0.07300	L 1
R2	RM			PD		MFR					CP					08362002	0.00000	0.08200	L 2
R2	RM			PD		MFR					CP					08362003	0.00000	0.07300	L 3
R2	RM			PD		MFR					CP					08362004	0.00000	0.08300	L 4
R2	RM			PD		MFR					CP					08362005	0.00000	0.07400	L 5
R2	RM			PD		MFR					CP					08362006	0.00000	0.08300	L 6
R2	RM			PD		MFR					CP					08362007	0.00000	0.08400	L 7
R2	RM			PD		MFR					CP					08362008	0.00000	0.08400	L 8
R2	RM			PD		MFR					CP					08362009	0.00000	0.07300	L 9
R2	RM			PD		MFR					CP					08362010	0.00000	0.08200	L 10
R2	RM			PD		MFR					CP					08362011	0.00000	0.08200	L 11
R2	RM			PD		MFR					CP					08362012	0.00000	0.07600	L 12
R2	RM			PD		MFR					CP					08362013	0.00000	0.09000	L 13
R2	RM			PD		MFR					CP					08362014	0.00000	0.08400	L 14
R2	RM			PD		MFR					CP					08362015	0.00000	0.08600	L 15
R2	RM			PD		MFR					CP					08362016	0.00000	0.08400	L 16
R2	RM			PD		MFR					CP					08362017	0.00000	0.08600	L 17
R2	RM			PD		MFR					CP					08362018	0.00000	0.08300	L 18
R2	RM			PD		MFR					CP					08362019	0.00000	0.06800	L 19
R2	RM			PD		MFR					CP					08362020	0.00000	0.07500	L 20
R2	RM			PD		MFR					CP					08362021	0.00000	0.09600	L 21
R2	RM			PD		MFR					CP					08362022	0.00000	0.06300	L 22
R2	RM			PD		MFR					CP					08362023	0.00000	0.07200	L 23
R2	RM			PD		MFR					CP					08362024	0.00000	0.06400	L 24
R2	RM			PD		MFR					CP					08362025	0.00000	0.07300	L 25
R2	RM			PD		MFR					CP					08362026	0.00000	0.06400	L 26
R2	RM			PD		MFR					CP					08362027	0.00000	0.07300	L 27
R2	RM			PD		MFR					CP					08362028	0.00000	0.07300	L 28
R2	RM			PD		MFR					CP					08362029	0.00000	0.07300	L 29
R2	RM			PD		MFR					CP					08362030	0.00000	0.06400	L 30
R2	RM			PD		MFR					CP					08362031	0.00000	0.07300	L 31
R2	RM			PD		MFR					CP					08362032	0.00000	0.06300	L 32
R2	RM			PD		MFR					CP					08362033	0.00000	0.07200	L 33
R2	RM			PD		MFR					CP					08362034	0.00000	0.07200	L 34
R2	RM			PD		MFR					CP					08362035	0.00000	0.07800	L 35
R2	RM			PD		MFR					CP					08362036	0.00000	0.06300	L 36
R2	RM			PD		MFR					CP					08362037	0.00000	0.08100	L 37
R2	RM			PD		MFR					CP					08362038	0.00000	0.06300	L 38
R2	RM			PD		MFR					CP					08362039	0.00000	0.08500	L 39
R2	RM			PD		MFR					CP					08362040	0.00000	0.06800	L 40
R2	RM			PD		MFR					CP					08362041	0.00000	0.07800	L 41
R2	RM			PD		MFR					CP					08362042	0.00000	0.06600	L 42
R2	RM			PD		MFR					CP					08362043	0.00000	0.07500	L 43
R2	RM			PD		MFR					CP					08362044	0.00000	0.06600	L 44
R2	RM			PD		MFR					CP					08362045	0.00000	0.07500	L 45

R2	RM			PD		MFR						CP					08362046	0.00000	0.06500	L 46
R2	RM			PD		MFR						CP					08362047	0.00000	0.07200	L 47
R2	RM			PD		MFR						CP					08362048	0.00000	0.06300	L 48
R2	RM			PD		MFR						CP					08362049	0.00000	0.07400	L 49
R2	RM			PD		MFR						CP					08362050	0.00000	0.07600	L 50
R2	RM			PD		MFR						CP					08362051	0.00000	0.06700	L 51
R2	RM			PD		MFR						CP					08362052	0.00000	0.07600	L 52
R2	RM			PD		MFR						CP					08362053	0.00000	0.06700	L 53
R2	RM			PD		MFR						CP					08362054	0.00000	0.07600	L 54
R2	RM			PD		MFR						CP					08362055	0.00000	0.07800	L 55
R2	RM			PD		MFR						CP					08362056	0.00000	0.07000	L 56
R2	RM			PD		MFR						CP					08362057	0.00000	0.08000	L 57
R2	RM			PD		MFR						CP					08362058	0.00000	0.07000	L 58
R2	RM			PD		MFR						CP					08362059	0.00000	0.07900	L 59
R2	RM			PD		MFR						CP					08362060	0.00000	0.07100	L 60
R2	RM			PD		MFR						CP					08362061	0.00000	0.08900	L 61
R2	RM			PD		MFR						CP					08362062	0.00000	0.09900	L 62
R2	RM			PD		MFR						CP					08362063	0.00000	0.09300	L 63
R2	RM			PD		MFR						CP					08362064	0.00000	0.06800	L 64
R2	RM			PD		MFR						CP					08362065	2.00000	2.06800	L A AW
R2	RM			PD		MFR						CP					08362066	2.00000	1.15700	L B AW
R2	RM			PD		MFR						CP					08362067	2.00000	3.59600	L Y AW
R2	RM			PD		MFR						CP					08362068	2.00000	0.00000	L R RDWY AW
RE-10	RL-40					NR											08401101	0.00000	136.63000	SEC 6 11 11
RE-10	RL-40					NR											08401102	0.00000	36.42000	SEC 6 11 11
RE-10	RL-40					NR											08401103	11.00000	127.65000	S6 11 11RS14-130
RE-10	RL-40					NR											08401105	11.00000	312.05000	6&7 11 11RS14130
RE-10	RL-40					NR											08401106	11.00000	1.70000	S6 11 11RS14-130
RE-10	RL-10					RR											08401107	0.00000	10.00000	SEC 6 11 11
RE-10	RL-10					RR											08401108	0.00000	10.24000	SEC 6 11 11
RE-10	RL-10					RR											08401110	0.00000	10.01000	PM 21/68/A
RE-10	RL-10					RR											08401111	0.00000	10.01000	PM 21/68/B
RE-10	RL-10					RR											08401112	0.00000	10.00700	PM 21/68/C
RE-10	RL-10					RR											08401114	0.00000	10.86000	PM 24/64/A
RE-10	RL-10					RR											08401115	0.00000	10.04000	PM 15/87/2
RE-10	RL-10					RR											08401116	0.00000	10.04000	PM 15/87/3
RE-10	RL-10					RR											08401117	0.00000	10.85800	PM 24/64/B
RE-10	RL-40					NR											08401118	0.00000	39.50000	SEC 7 11 11
RE-10	RL-10					RR											08401120	0.00000	10.28000	PM 19/129/A
RE-10	RL-10					RR											08401121	0.00000	11.00000	PM 19/129/B
RE-10	RL-40					NR											08401122	0.00000	20.88000	PM 12/83/3
RE-10	RL-40					NR											08401124	0.00000	20.65000	SEC 7 11 11
RE-10	RL-40					NR				MR							08401125	0.00000	20.60000	SEC 7 11 11
RE-10	RL-10					RR											08401126	0.00000	10.57000	SEC 7 11 11
RE-10	RL-10					RR											08401128	0.00000	10.17000	SEC 7 11 11
RE-10	RL-10					RR											08401129	0.00000	14.45000	SEC 7 11 11

RE-10	RL-10					RR											08401130	0.00000	10.81000	SEC 7 11 11
RE-10	RL-10					RR											08401131	0.00000	11.71000	PM 22/148/B
RE-10	RL-40					NR											08401132	0.00000	23.00000	PM 24/77/1
RE-10	RL-40					NR											08401133	0.00000	10.22000	P 2 21/140 AMND
RE-10	RL-10					RR											08401135	0.00000	11.30400	PM 17/49/1
RE-10	RL-10					RR											08401136	0.00000	11.39900	PM 17/49/2
RE-10	RL-40					NR											08401137	0.00000	22.53000	PM 17/49/3
RE-10	RL-40					NR											08401138	0.00000	22.62000	PM 21/41/1
RE-10	RL-40					NR											08401139	0.00000	22.19000	PM 21/41/2
RE-10	RL-10					RR											08401140	0.00000	6.49500	L13S7 1111RS18-8
RE-10	RL-10					RR											08401141	0.00000	5.00000	SEC 7 11 11
RE-10	RL-10					RR											08401142	0.00000	5.00000	SEC 7 11 11
RE-10	RL-10					RR											08401143	0.00000	5.00000	SEC 7 11 11
RE-10	RL-40					NR											08401146	0.00000	22.40000	PM 21/41/3
RE-10	RL-40					NR											08401147	0.00000	21.96000	PM 21/41/4
U	RL-40					NR											08401148	0.00000	60.00000	SEC 5 11 11
U	RL-40					NR											08401149	0.00000	27.06000	PM 21/149/A
U	RL-40					NR											08401150	0.00000	69.25000	SEC 5 11 11
U	RL-40					NR											08401151	0.00000	19.38000	PM 21/149/B
U	RL-40					NR											08401152	0.00000	29.07000	PM 21/149/C
U	RL-40					NR											08401153	0.00000	93.70000	SEC 5 11 11
U	RL-40					NR											08401154	0.00000	60.00000	RS 14/20 S51111
U	RL-40					NR											08401155	0.00000	24.04000	PM 21/149/D
U	RL-40					NR											08401156	0.00000	74.09000	RS 21/40/1
U	RL-40					NR											08401157	0.00000	74.13000	SEC 5 11 11
U	RL-40					NR											08401158	0.00000	40.00000	SEC 5 11 11
U	RL-40					NR											08401159	0.00000	114.34000	RS 16/65/1
A	FR-40					NR											08401160	11.00000	0.00000	POR SEC 8 11 11
A	FR-40					NR											08401161	11.00000	0.00000	POR SEC 8 11 11
A	FR-40					NR											08401162	11.00000	761.00000	S4 11 11 RS11-79
A	FR-40					NR											08401163	11.00000	0.00000	POR SEC 4 11 11
U	RL-40					NR											08401164	0.00000	22.00000	SEC 9 11 11
RA-40	RL-40					NR											08401166	0.00000	160.00000	SEC 9 11 11
U	RL-40					NR											08401166	0.00000	160.00000	SEC 9 11 11
RE-10	RL-10					RR											08401167	0.00000	12.04600	PORPAR 4 PM15-87
RE-10	RL-40					NR											08401169	0.00000	50.89000	SEC 7 11 11
RE-10	RL-40					NR											08401170	0.00000	40.04000	SEC 7 11 11
OS	RL-40					NR											08401171	0.00000	219.93000	SEC 9 11 11
RA-40	FR-40					NR											08401171	0.00000	219.93000	SEC 9 11 11
U	RL-40					NR											08401171	0.00000	219.93000	SEC 9 11 11
RE-10	RL-40					NR											08401173	0.00000	38.30700	POR SEC 6 11 11
RE-10	RL-40					NR											08401175	0.00000	10.32000	SEC 6&7 11 11
RE-10	RL-40					NR											08402001	0.00000	40.00000	SEC 18 11 11
RE-10	RL-10					RR											08402002	0.00000	17.21000	SEC 18 11 11
RE-10	RL-10					RR											08402004	0.00000	20.00000	SEC 18 11 11
RE-10	RL-10					RR											08402005	0.00000	20.00000	SEC 18 11 11

U	RL-40					NR											08402006	0.00000	20.00000	SEC 16 11 11
OS	RL-40					NR											08402009	0.00000	40.00000	SEC 16 11 11
RA-40	RL-40					NR											08402009	0.00000	40.00000	SEC 16 11 11
U	RF-L					OS											08402013	0.00000	124.99000	RS 32/148/1
RE-10	RL-10					RR											08402014	0.00000	15.00000	SEC 19 11 11
RE-10	RL-10					RR											08402015	0.00000	25.00000	SEC 19 11 11
RE-10	RL-10					RR											08402016	0.00000	20.00000	SEC 19 11 11
RE-10	RL-10					RR											08402017	0.00000	20.00000	SEC 19 11 11
RA-20	RL-40					NR											08402023	0.00000	61.00000	SEC 19 11 11
RA-20	RL-40					NR											08402024	0.00000	19.00000	SEC 19 11 11
U	RL-10					RR					PL						08402026	6.00000	1.00000	SEC 20 11 11
U	RL-10					RR					PL						08402028	0.00000	10.00000	SEC 20 11 11
U	RL-40					NR											08402030	0.00000	20.00000	SEC 20 11 11
U	RL-10					RR					PL						08402033	0.00000	4.00000	SEC 20 11 11
U	RL-10					RR					PL						08402034	0.00000	6.00000	SEC 20 11 11
RE-10	RL-10					RR											08402035	0.00000	20.00000	PM 20/100/1
RE-10	RL-10					RR											08402036	0.00000	20.00000	PM 20/100/2
RE-10	RL-10					RR											08402037	0.00000	20.00000	PM 20/100/3
RE-10	RL-10					RR											08402038	0.00000	17.64000	PM 20/100/4
U	RL-40					NR											08402041	0.00000	38.19000	RS 8/8/1
U	RL-40					NR											08402042	0.00000	20.42000	RS 8/8/2
U	RL-10					RR					PL						08402043	0.00000	9.73000	RS 8/26/1
U	RL-10					RR					PL						08402044	0.00000	9.73000	RS 8/26/2
U	RL-10					RR					PL						08402045	0.00000	9.73000	RS 8/26/3
U	RL-10					RR					PL						08402046	0.00000	9.73000	RS 8/26/4
U	RL-40					NR											08402047	0.00000	40.00000	SEC 16 11 11
U	RL-40					NR											08402048	0.00000	40.00000	SEC 16 11 11
RA-20	RL-40					NR											08402053	0.00000	161.75000	RS 10/80 S211111
U	RL-40					NR											08402053	0.00000	161.75000	RS 10/80 S211111
U	RL-10					RR					PL						08402057	0.00000	9.31300	SEC 20 11 11
U	RL-40					NR											08402061	0.00000	80.00000	SEC 20 11 11
U	RL-40					NR											08402062	0.00000	40.00000	SEC 20 11 11
RE-10	OS					NR											08402063	11.00000	372.81000	18&191111 14-130
U	OS					NR											08402063	11.00000	372.81000	18&191111 14-130
U	RL-40					NR											08402064	11.00000	0.00000	NW 1/4 S20 11 11
U	RL-40					NR											08402065	11.00000	0.00000	NW 1/4 S20 11 11
U	RL-40					NR											08402066	11.00000	0.00000	SW 1/4 S20 11 11
RA-20	RL-40					NR											08402067	11.00000	0.00000	SW 1/4 S20 11 11
U	RL-40					NR											08402068	11.00000	0.00000	SE 1/4 S20 11 11
U	RL-10					RR					PL						08402071	0.00000	9.51500	POR SEC 20 11 11
RE-5	RL-40					NR											08402073	0.00000	40.04000	PM 49/12/1
RE-5	RL-40					NR											08402074	0.00000	40.04000	PM 49/12/2
OS	RL-40					NR											08402075	0.00000	160.18000	PM 49/12/3
RA-40	RL-40					NR											08402075	0.00000	160.18000	PM 49/12/3
RE-5	RL-40					NR											08402075	0.00000	160.18000	PM 49/12/3
RA-40	LA-40					NR											08402076	0.00000	120.10000	PM 49/12/4

RE-5	LA-40					NR											08402076	0.00000	120.10000	PM 49/12/4
RE-10	RL-10					RR											08402077	0.00000	20.00000	SEC 18 11 11
RA-20	RL-40					NR											08403001	0.00000	38.00000	SEC 30 11 11
RA-20	RL-40					NR											08403002	0.00000	8.00000	SEC 30 11 11 ADM
RA-20	RL-40					NR											08403003	0.00000	8.50000	SEC 30 11 11 ADM
RA-20	RL-40					NR											08403004	0.00000	9.00000	SEC 30 11 11 ADM
RA-20	RL-40					NR											08403005	0.00000	9.50000	SEC 30 11 11 ADM
RA-20	RL-40					NR											08403006	0.00000	2.00000	SEC 30 11 11 ADM
RA-20	RL-40					NR											08403007	0.00000	1.50000	SEC 30 11 11 ADM
RA-20	RL-40					NR											08403008	0.00000	1.00000	SEC 30 11 11 ADM
RA-20	RL-40					NR											08403009	0.00000	0.50000	SEC 30 11 11 ADM
RA-20	RL-40					NR											08403010	0.00000	20.00000	SEC 29 11 11 ADM
U	TPZ					NR											08403012	0.00000	80.00000	SEC 29 11 11
RA-20	RL-40					NR											08403013	0.00000	40.00000	SEC 28 11 11
U	RL-40					NR											08403013	0.00000	40.00000	SEC 28 11 11
RA-20	LA-40					NR											08403014	0.00000	20.28000	RS 19/73/1
U	LA-40					NR											08403014	0.00000	20.28000	RS 19/73/1
RA-20	RL-40					NR											08403015	0.00000	60.00000	SEC 28 11 11
U	RL-40					NR											08403015	0.00000	60.00000	SEC 28 11 11
RA-20	RL-40					NR											08403020	0.00000	79.54000	SEC 32 11 11
RE-10	RL-10					RR											08403021	0.00000	40.00000	SEC 32 11 11
RE-10	RL-20					AL	A										08403023	0.00000	21.18000	SEC 33 11 11
AE	PA-20					AL	A										08403025	0.00000	57.70000	SEC 33 11 11
SA-10	PA-20					AL	A										08403025	0.00000	57.70000	SEC 33 11 11
AE	PA-20					AL	A										08403031	0.00000	78.61000	SEC 33 11 11
RA-20	OS					OS											08403039	11.00000	0.00000	NE 1/4 30 11 11
RA-20	OS					OS											08403040	11.00000	0.00000	S 1/2 S30 11 11
RA-40	OS					OS											08403041	11.00000	0.00000	SW 1/4 S30 11 11
RA-20	RL-40					NR											08403042	11.00000	0.00000	L 1 & 2 30 11 11
RA-20	RL-40					NR											08403042	11.00000	0.00000	L 1 & 2 30 11 11
RA-20	RL-20					RR											08403043	11.00000	0.00000	N 1/2 S32 11 11
RA-20	RL-40					NR											08403044	11.00000	0.00000	NW 1/4 S28 11 11
U	RL-40					NR											08403044	11.00000	0.00000	NW 1/4 S28 11 11
U	RL-40					NR											08403045	11.00000	0.00000	N 1/2 28 11 11
RA-20	RL-40					NR											08403046	11.00000	0.00000	N 1/2 S28 11 11
U	RL-40					NR											08403046	11.00000	0.00000	N 1/2 S28 11 11
RA-20	RL-20					RR											08403047	0.00000	20.00000	PM 36/88/A
RA-20	LA-10					RR											08403048	0.00000	20.00000	PM 36/88/B
RA-20	RL-20					RR											08403049	0.00000	20.00000	PM 36/88/C
RA-20	RL-20					RR											08403050	0.00000	18.59000	PM 36/88/D
RA-20	RL-40					NR											08403051	0.00000	10.09000	PM 40/133/1
RA-20	RL-10					RR											08403052	0.00000	10.38000	PM 40/133/2
RA-20	RL-20					RR											08403053	0.00000	20.00000	PM 40/133/3
RA-20	RL-40					NR											08403054	0.00000	40.00000	SEC 29 11 11
RA-20	LA-40					NR											08403055	0.00000	260.00000	SEC 29 11 11 ADM
RA-20	LA-40					NR											08403055	0.00000	260.00000	SEC 29 11 11 ADM

RE-10	RL-10					RR											08404010	0.00000	10.00000	SEC 18 11 11
RE-10	RL-10					RR											08404011	0.00000	2.42000	RS 13/57 S181111
RE-10	RL-10					RR											08404012	0.00000	2.47000	RS 13/57 S181111
RE-10	RL-10					RR											08404013	0.00000	2.39000	RS 13/57 S181111
RE-10	RL-10					RR											08404014	0.00000	2.41000	RS 13/57 S181111
RE-10	RL-10					RR											08404015	0.00000	10.00000	SEC 18 11 11
RE-10	RL-10					RR											08404024	0.00000	26.70000	PM 6/35/2
RE-10	RL-10					RR											08404027	0.00000	4.68000	SEC 18 11 11
RE-10	RL-10					RR											08404028	0.00000	4.71000	SEC 18 11 11
RE-10	RL-10					RR											08404029	0.00000	4.74000	SEC 18 11 11
RE-10	RL-10					RR											08404030	0.00000	4.77000	SEC 18 11 11
RE-10	RL-10					RR											08404031	0.00000	5.00000	SEC 18 11 11
RE-10	RL-10					RR											08404032	0.00000	5.00000	SEC 18 11 11
RE-10	RL-10					RR											08404033	0.00000	10.00000	SEC 18 11 11
RE-10	RL-10					RR											08404035	0.00000	10.00000	SEC 18 11 11
RE-10	RL-10					RR											08404036	0.00000	10.00000	SEC 18 11 11
RE-10	RL-10					RR											08404037	0.00000	2.76000	PM 12/121/A
RE-10	RL-10					RR											08404038	0.00000	2.96000	PM 12/121/B
RE-10	RL-10					RR											08404039	0.00000	1.87000	PM 12/121/C
RE-10	RL-10					RR											08404040	0.00000	2.26000	PM 12/121/D
RE-10	RL-10					RR											08404041	0.00000	10.00000	SEC 18 11 11
RE-10	RL-10					RR											08404042	0.00000	5.00000	SEC 18 11 11
RE-10	RL-10					RR											08404043	0.00000	2.50000	SEC 18 11 11
RE-10	RL-10					RR											08404044	0.00000	2.50000	SEC 18 11 11
RE-10	RL-10					RR											08404045	0.00000	5.00000	SEC 18 11 11
RE-10	RL-10					RR											08404046	0.00000	5.00000	SEC 18 11 11
RE-10	RL-10					RR											08404047	0.00000	18.60000	PM 15/100/A
RE-10	RL-10					RR											08404048	0.00000	10.01000	PM 15/100/B
RE-10	RL-10					RR											08404049	0.00000	10.02000	PM 15/100/C
RE-10	RL-10					RR											08404054	0.00000	10.00000	PM 24/149/1
RE-10	RL-10					RR											08404055	0.00000	9.02000	PM 24/149/2
RE-10	RL-10					RR											08404056	0.00000	10.00600	PM 24/149/3
RE-10	RL-10					RR											08404057	0.00000	9.02000	PM 24/149/4
U	RL-40					NR											08405002	0.00000	26.50000	PPM19/99/REM ADM
U	RL-40					NR											08405005	0.00000	10.00000	PM 4/45/3
U	RL-40					NR											08405008	0.00000	112.03000	PPM19/99/REM ADM
U	RL-40					NR											08405009	0.00000	10.03000	PM 19/99/1
U	RL-40					NR											08405010	0.00000	11.99100	RS 18/71/2
U	RL-40					NR											08405013	0.00000	8.00000	RS 18/71/1
U	RL-40					NR											08405014	0.00000	121.65500	SEC 17 11 11
U	RL-10					RR					PL						08406004	0.00000	5.61000	SEC 17 11 11
U	RL-10					RR					PL						08406005	0.00000	5.61000	SEC 17 11 11
U	RL-40					NR											08406006	0.00000	113.00000	SEC 17 11 11 ADM
U	RL-40					NR											08406007	0.00000	37.00000	SEC 17 11 11 ADM
U	RL-40					NR											08406009	0.00000	53.21000	PM 31/67/A
U	RL-40					NR											08406012	0.00000	10.00000	SEC 17 11 11

U	RL-10					RR					PL						08406014	0.00000	11.29000	SEC 17 11 11
U	RL-40					NR											08406015	0.00000	43.75400	PM 31/67/B
U	RL-40					NR											08406021	0.00000	32.84000	PM 31/67/D
U	RL-40					NR											08406023	0.00000	20.16000	PM 31/67/C
RE-10	RL-10					RR											08407002	0.00000	5.00000	SEC 19 11 11
RE-10	RL-10					RR											08407003	0.00000	5.00000	SEC 19 11 11
RE-10	RL-10					RR											08407007	0.00000	8.10000	SEC 19 11 11
RE-10	RL-10					RR											08407008	0.00000	5.00000	SEC 19 11 11
RE-10	RL-10					RR											08407009	0.00000	5.00000	SEC 19 11 11
RE-10	RL-10					RR											08407010	0.00000	8.11000	SEC 19 11 11
RE-10	RL-10					RR											08407013	0.00000	10.00000	SEC 19 11 11
RE-10	RL-10					RR											08407017	0.00000	5.00000	SEC 19 11 11
RE-10	RL-10					RR											08407020	0.00000	4.90000	RS 22/132/5
RE-10	RL-10					RR											08407021	0.00000	2.45000	RS 22/132/4
RE-10	RL-10					RR											08407022	0.00000	2.50000	RS 22/132/3
RE-10	RL-10					RR											08407023	0.00000	5.00000	SEC 19 11 11
RE-10	RL-10					RR											08407024	0.00000	4.89000	RS 22/132/2
RE-10	RL-10					RR											08407025	0.00000	5.00000	SEC 19 11 11
RE-10	RL-10					RR											08407026	0.00000	4.89000	RS 22/132/1
RE-10	RL-10					RR											08407028	0.00000	5.00000	SEC 19 11 11
RE-10	RL-10					RR											08407030	0.00000	10.00000	SEC 19 11 11
RE-10	RL-10					RR											08407031	0.00000	5.00000	SEC 19 11 11
RE-10	RL-10					RR											08407033	0.00000	5.54000	SEC 19 11 11
RE-10	RL-10					RR											08407034	0.00000	13.73000	SEC 19 11 11
RE-10	RL-10					RR											08407035	0.00000	1.60000	SEC 19 11 11
RE-10	RL-10					RR											08407036	0.00000	6.22000	SEC 19 11 11
RE-10	RL-10					RR											08407037	0.00000	5.00000	PM 26/137/1
RE-10	RL-10					RR											08407038	0.00000	9.41000	PM 26/137/2
RE-10	RL-10					RR											08407039	0.00000	5.00000	PM 26/137/3
RA-20	RL-20					RR											08407040	0.00000	20.00000	SEC 19 11 11
RA-20	LA-10					RR											08407041	0.00000	20.00000	SEC 19 11 11
RE-10	RL-10					RR											08407044	0.00000	23.62000	RS 31/124/1
RE-10	RL-10					RR											08407045	0.00000	13.52000	RS 31/124/2
RE-10	RL-10					RR											08407046	0.00000	24.32000	SEC 19 11 11
RE-10	RL-10					RR											08407047	0.00000	5.00000	SEC 19 11 11
U	RL-40					NR											08408001	11.00000	0.00000	L 42 S 20 11 11
U	RL-40					NR											08408002	11.00000	0.00000	L 41 S 20 11 11
AE	RL-40					NR											08409002	0.00000	0.55000	SEC 16 11 11
AE	AG-40					NR											08409004	0.00000	30.45000	S 16 & 21 11 11
AE	AG-40					NR											08409005	0.00000	40.65000	S 16 & 21 11 11
AE	AG-40					NR											08409005	0.00000	40.65000	S 16 & 21 11 11
AE	AG-40					NR											08409005	0.00000	40.65000	S 16 & 21 11 11
U	RL-10					RR					PL						08410001	0.00000	5.00000	PM 5/87/1
U	RL-10					RR					PL						08410002	0.00000	5.00000	PM 5/87/2
U	RL-10					RR					PL						08410003	0.00000	5.01000	PM 5/87/3
U	RL-10					RR					PL						08410004	0.00000	5.02000	PM 5/87/4

U	RL-10					RR					PL						08410005	0.00000	5.01000	PM 5/88/1
U	RL-10					RR					PL						08410006	0.00000	5.01000	PM 5/88/2
U	RL-10					RR					PL						08410007	0.00000	5.02000	PM 5/88/3
U	RL-10					RR					PL						08410008	0.00000	5.02000	PM 5/88/4
U	RL-40					NR											08410011	0.00000	69.35000	SEC 21 11 11
U	RL-40					NR											08410012	0.00000	65.34000	RS 9/129/A
U	RL-10					RR					PL						08410013	0.00000	10.35000	RS 9/129/B
RE-10	RL-40					NR											08411004	0.00000	43.30000	SEC 30 11 11
RE-10	RL-10					RR											08411005	0.00000	10.62000	SEC 30 11 11
RE-10	RL-10					RR											08411007	0.00000	10.62000	SEC 30 11 11
RE-10	RL-10					RR											08411008	0.00000	10.62000	SEC 30 11 11
RE-10	RL-10					RR											08411009	0.00000	22.06000	SEC 30 11 11
RE-10	RL-10					RR											08411010	0.00000	10.62000	SEC 30 11 11
RE-10	RL-10					RR											08411011	0.00000	21.24000	SEC 30 11 11
RE-10	RL-10					RR											08411013	0.00000	2.98000	RS 11/87 S301111
RE-10	RL-10					RR											08411015	0.00000	2.91000	RS 11/87 S301111
RE-10	RL-10					RR											08411016	0.00000	5.51000	RS 11/87 S301111
RE-10	RL-10					RR											08411017	0.00000	10.00000	RS 11/87 S301111
RE-10	RL-10					RR											08411019	0.00000	1.84000	RS 11/87 S301111
RE-10	RL-10					RR											08411020	0.00000	7.99000	RS 11/87 S301111
RE-10	RL-10					RR											08411021	0.00000	11.40000	RS 11/87 S301111
RA-20	RL-40					NR											08412002	6.00000	21.97000	SEC 31 11 11
RA-40	LA-40					NR											08412003	0.00000	31.85000	SEC 31 11 11
RA-40	RL-40					NR											08412008	0.00000	58.50000	SEC 31 11 11
RA-20	RL-40					NR											08412009	6.00000	22.54000	SEC 31 11 11
RA-40	RL-40					NR											08412009	6.00000	22.54000	SEC 31 11 11
RA-20	RL-40					NR											08412010	6.00000	3.73000	SEC 30 11 11
RA-40	RL-40					NR											08412011	6.00000	7.46000	SEC 30 11 11
RA-40	RL-40					NR											08412012	0.00000	22.24000	RS 19/19/1
RA-40	RL-40					NR											08412013	0.00000	21.33000	SEC 31 11 11
RA-40	RL-40					NR											08412015	0.00000	43.20000	SEC 31 11 11
RA-20	RL-40					NR											08412019	0.00000	4.00000	SEC 31 11 11
RA-40	RL-40					NR											08412020	0.00000	17.44000	SEC 31 11 11
RA-20	RL-40					NR											08413026	0.00000	3.20000	SEC 31 11 11
RA-20	RL-40					NR											08413027	0.00000	4.12000	SEC 31 11 11
RA-20	RL-40					NR											08413028	0.00000	7.73000	SEC 31 11 11
RA-20	RL-40					NR											08413029	0.00000	2.02000	SEC 31 11 11
RA-20	RL-40					NR											08413032	0.00000	5.68000	SEC 31 11 11
RA-20	RL-40					NR											08413033	0.00000	0.42000	SEC 31 11 11
RA-20	RL-40					NR											08413034	0.00000	24.64000	SEC 31 11 11
RA-20	RL-40					NR											08413037	0.00000	2.75000	SEC 31 11 11
RA-20	RL-40					NR											08413044	6.00000	7.48000	S 31 & 32 11 11
RA-40	RL-40					NR											08413045	0.00000	16.10000	SEC 31 11 11
RA-20	RL-40					NR											08413046	0.00000	1.29000	SEC 31 11 11
RA-20	RL-40					NR											08413047	6.00000	5.12000	SEC 31 11 11
RA-40	RL-40					NR											08414004	0.00000	20.19000	RS 29/28/1

RA-20	LA-10					RR											08414006	0.00000	0.43000	SEC 31 11 11
RA-40	RL-40					NR											08414007	0.00000	19.89000	SEC 31 11 11
RE-10	RE-5					LDR											08414012	0.00000	36.00000	SEC 31 11 11
RA-40	RL-40					NR											08414016	0.00000	10.00000	SEC 31 11 11
RA-40	LA-40					NR											08414017	0.00000	10.00000	SEC 31 11 11
RA-20	RL-10					RR											08414019	0.00000	10.00000	SEC 31 11 11
RA-40	RL-40					NR											08414024	0.00000	10.00000	PM 4/84/B
RE-10	RL-10					RR											08414027	0.00000	7.03000	PM 22/110/1
RE-10	RL-10					RR											08414028	0.00000	5.55200	PM 22/110/2
RE-10	RL-10					RR											08414029	0.00000	7.19500	PM 22/110/3
RA-20	RL-10					RR											08414031	0.00000	10.05000	PM 26/40/A
RA-20	RL-10					RR											08414032	0.00000	10.31400	PM 26/40/B
RA-20	RL-10					RR											08414033	0.00000	10.67000	PM 26/40/C
RA-20	RL-20					RR											08414039	0.00000	16.03000	POR PM 4/84/A&D
RA-20	LA-10					RR											08414040	0.00000	13.97000	PM4/84/C&POR A&
RA-40	LA-10					RR											08414040	0.00000	13.97000	PM4/84/C&POR A&
RE-10	RL-10					RR											08415001	0.00000	40.00000	SEC 32 11 11 ADM
RE-10	RL-20					AL	A										08417028	2.00000	0.04000	SEC 33 11 11
RE-10	RL-20					AL	A										08417029	0.00000	1.02000	SEC 33 11 11
RE-10	RL-20					AL	A										08417029	0.00000	1.02000	SEC 33 11 11
RE-10	RL-10					RR	A										08419002	0.00000	2.06000	SEC 32 11 11
RE-10	LA-10					RR	A										08419003	0.00000	10.74000	SEC 32 11 11
RE-10	RL-10					RR	A										08419004	0.00000	4.43000	RS 26/98
RE-5	LA-10					RR	A										08419006	0.00000	15.16000	PM 22/52/1
RE-5	LA-10					RR	A										08419007	0.00000	26.98000	PM 22/52/2
RE-5	RL-10					RR	A										08419008	0.00000	20.00000	PM 22/52/3
RE-5	RL-10					RR	A										08419012	0.00000	5.17000	PM 34/89/C
RE-5	RL-10					RR	A										08419013	0.00000	6.64000	PM 34/89/D
RE-5	RL-10					RR	A										08419015	0.00000	5.10000	PM 36/54/1
RE-5	RL-10					RR	A										08419016	0.00000	5.84000	PM 36/54/2
RE-5	LA-10					RR											08420012	0.00000	10.00000	PM 13/29/C
AP	LA-20					RR	A										08420013	0.00000	10.00000	PM 13/29/D
RE-10	RL-10					RR											08420014	0.00000	10.00000	PM 16/60/1
RE-10	RL-10					RR											08420015	0.00000	10.00200	PM 16/60/2
RE-5	RL-10					RR											08420016	0.00000	10.00000	PM 16/60/3
AP	LA-20					RR											08420017	0.00000	10.00200	PM 16/60/4
RE-10	RL-10					RR											08420019	0.00000	2.82000	PRS 16/33/1 ADM
RE-10	RL-10					RR											08420022	0.00000	17.68000	PM 23/8/B
RE-10	RL-10					RR											08420023	0.00000	10.01000	PM 23/8/C
RE-10	RL-10					RR											08420024	0.00000	10.03000	PM 23/8/D
RE-10	RL-10					RR											08420025	0.00000	10.40000	RS 16/33/2
RE-10	RL-10					RR											08420026	0.00000	7.31000	PRS 16/33/1 ADM
RE-10	RL-10					RR											08420027	0.00000	7.37000	PPM 23/8/A ADM
RE-10	RL-10					RR											08420028	0.00000	2.63000	SEC 29 11 11 ADM
RE-10	RL-10					RR											08420029	0.00000	10.00000	PM 34/78/1
RE-10	RL-10					RR											08420030	0.00000	9.08000	PM 34/78/2

RE-10	RL-10					RR											08420031	0.00000	10.00000	PM 34/78/3
RE-10	RL-10					RR											08420032	0.00000	7.34500	PPM 34/78/4 ADM
RE-10	RL-10					RR											08420033	0.00000	2.66000	PPM 34/78/4 ADM
RE-5	RL-10					RR	A										08420041	0.00000	5.87000	PM 40/64/1
RE-10	RL-10					RR	A										08420042	0.00000	10.00000	PM 40/64/2
RE-10	RL-10					RR	A										08420043	0.00000	10.00000	PM 40/64/3
RA-20	RL-40					NR											08420048	0.00000	40.01000	RS 17/72/1
RE-5	RL-10					RR	A										08420049	0.00000	5.00000	PM 43/142/1
RE-5	RL-10					RR	A										08420050	0.00000	5.00000	PM 43/142/2
RE-5	RL-10					RR	A										08420051	0.00000	5.00000	PM 43/142/3
RE-5	RL-10					RR	A										08420052	0.00000	5.00000	PM 43/142/4
RE-5	RL-10					RR											08420053	0.00000	8.85000	PM 43/148/1
RE-5	RL-10					RR											08420054	0.00000	6.12000	PM 43/148/2
RE-5	RL-10					RR											08420055	0.00000	6.18000	PM 43/148/3
RE-5	RL-10					RR	A										08420056	0.00000	6.57000	PM 43/148/4
RA-20	LA-10					RR											08420057	0.00000	31.92500	PM 13/29/B
RE-5	LA-40					NR											08420057	0.00000	31.92500	PM 13/29/B
AE	PA-20					AL	A										08421001	0.00000	200.00000	S 28 & 33 11 11
RE-10	RL-10					RR											08421003	0.00000	12.46000	PM 20/20/1
RE-10	RL-10					RR											08421004	0.00000	11.69100	PM 20/20/2
RE-10	RL-10					RR	A										08422001	0.00000	5.00000	SEC 33 11 11
RE-10	RL-10					RR	A										08422002	0.00000	15.00000	SEC 33 11 11
RE-10	RL-10					RR	A										08422006	0.00000	10.00100	PM 11/35/B
RE-10	RL-10					RR	A										08422007	0.00000	10.00400	PM 11/35/C
RE-10	RL-10					RR	A										08422009	0.00000	8.91000	PM 12/120/1
RE-10	RL-10					RR	A										08422010	0.00000	10.00000	PM 12/120/2
RE-10	LA-10					RR	A										08422011	0.00000	10.00000	PM 12/120/3
AP	LA-20					RR	A										08422013	0.00000	5.00000	PM 43/150/1
RE-5	RL-10					RR	A										08422014	0.00000	6.23000	PM 43/150/2
RE-5	RL-10					AL	A										08425002	0.00000	5.76000	SEC 33 11 11
RE-5	RL-10					AL	A										08425004	0.00000	2.48000	SEC 33 11 11
RE-5	RL-10					AL	A										08425005	0.00000	5.10000	SEC 33 11 11
RE-5	RL-10					AL	A										08425007	0.00000	4.17000	SEC 33 11 11
RE-5	RL-10					AL	A										08425009	0.00000	8.32000	SEC 33 11 11
RE-5	RL-10					AL	A										08425010	0.00000	6.51000	SEC 33 11 11
RE-5	RL-10					AL	A										08425012	0.00000	6.15000	SEC 33 11 11
RE-5	RL-10					AL	A										08425013	0.00000	5.22000	SEC 33 11 11
RE-5	RL-10					AL	A										08425015	0.00000	6.21000	SEC 33 11 11
RE-5	RL-10					AL	A										08425016	0.00000	5.72000	PM 32/118/A
RE-5	RL-10					AL	A										08425018	0.00000	6.60000	PM 32/118/B
U	RL-40					NR											08426003	0.00000	60.00000	SEC 16 &21 11 11
RA-20	RL-40					NR											08426007	0.00000	40.00000	RS 10/80 S211111
U	RL-40					NR											08426009	0.00000	40.00000	RS 10/80 S211111
U	RL-10					RR					PL						08426012	0.00000	10.00000	PM 31/125/A
U	RL-10					RR					PL						08426013	0.00000	10.00000	PM 31/125/B
U	RL-10					RR					PL						08426014	0.00000	10.00000	PM 31/125/C

U	RL-40					NR											08426015	0.00000	10.00000	PM 31/125/D
U	RL-40					NR											08426016	0.00000	20.27000	RS 30/75
U	RL-10					RR					PL						08426024	0.00000	10.19000	PM 34/92/A
U	RL-10					RR					PL						08426025	0.00000	10.10000	PM 34/92/B
U	RL-10					RR					PL						08426026	0.00000	10.43000	PM 34/92/C
U	RL-10					RR					PL						08426027	0.00000	10.45000	PM 34/92/D
U	RL-10					RR					PL						08426028	0.00000	19.22000	PM 34/140/A
U	RL-10					RR					PL						08426029	0.00000	10.00000	PM 34/140/B
U	RL-10					RR					PL						08426030	0.00000	5.00000	PM 34/140/C
U	RL-10					RR					PL						08426031	0.00000	5.00000	PM 34/140/D
U	RL-10					RR					PL						08426033	0.00000	5.07000	PM 35/125/1
U	RL-10					RR					PL						08426034	0.00000	5.02000	PM 35/125/2
U	RL-10					RR					PL						08426035	0.00000	5.00000	PM 35/125/3
U	RL-10					RR					PL						08426036	0.00000	5.18000	PM 35/125/4
U	RL-10					RR					PL						08426037	0.00000	10.00000	PM 42/48/1
U	RL-10					RR					PL						08426038	0.00000	10.52000	PM 42/48/2
U	RL-10					RR					PL						08426039	0.00000	10.00000	PM 42/48/3
U	RL-10					RR					PL						08426040	0.00000	10.00000	PM 42/48/4
RE-5	RL-10					RR											08427001	0.00000	6.97000	PM 43/147/1
RE-10	RL-10					RR											08427002	0.00000	12.88000	PPM 43/147/2 ADM
RE-10	RL-10					RR											08427003	0.00000	13.60000	PPM 43/147/2 ADM
R2A	RE-5					LDR											08428001	0.00000	2.83100	L 1
R2A	RE-5					LDR											08428002	0.00000	2.01000	L 2
R2A	RE-5					LDR											08428003	0.00000	2.01200	L 3
R2A	RE-5					LDR											08428004	0.00000	3.68000	L 4
R2A	RE-5					LDR											08428005	0.00000	2.65100	L 5
R2A	RE-5					LDR											08428006	0.00000	2.16000	L 6
R2A	RE-5					LDR											08428007	0.00000	2.66500	L 7
R2A	RE-5					LDR											08428008	0.00000	2.62000	L 8
R2A	RE-5					LDR											08428009	0.00000	2.68200	L 9
R2A	RE-5					LDR											08428010	0.00000	2.23200	L 10
R2A	RE-5					LDR											08428011	0.00000	2.08200	L 11
R2A	RE-5					LDR											08428012	0.00000	2.01500	L 12
R2A	RE-5					LDR											08428013	0.00000	2.01100	L 13
R2A	RE-5					LDR											08428014	0.00000	2.19800	L 14
R2A	RE-5					LDR											08428015	0.00000	2.00000	L 15
R2A	RE-5					LDR											08429001	0.00000	3.71000	L 16
R2A	RE-5					LDR											08429002	0.00000	4.90400	L 17
R2A	RE-5					LDR											08429003	0.00000	3.23300	L 18
R2A	RE-5					LDR											08429004	0.00000	4.00100	L 19
R2A	RE-5					LDR											08429005	0.00000	2.21200	L 20
R2A	RE-5					LDR											08429006	0.00000	3.05400	L 21
R2A	RE-5					LDR											08429007	0.00000	2.62600	L 22
R2A	RE-5					LDR											08429008	0.00000	2.56100	L 23
R2A	RE-5					LDR											08429009	0.00000	2.17500	L 24
R2A	RE-5					LDR											08429010	0.00000	2.88200	L 25

R2A	RE-5					LDR											08429011	0.00000	2.25100	L 26
R2A	RE-5					LDR											08429012	0.00000	2.21300	L 27
R2A	RE-5					LDR											08429013	0.00000	2.51700	L 28
U	RL-40					NR											08501003	0.00000	38.14000	SEC 10 11 11
U	RL-40					NR											08501004	0.00000	39.95000	SEC 10 11 11
U	RL-40					NR											08501005	0.00000	19.80000	RS 12/11 S101111
U	RL-40					NR											08501006	0.00000	39.75000	RS 12/11S101111
U	RL-40					NR											08501008	0.00000	6.49000	RS 12/11S101111
U	FR-160					NR											08501010	0.00000	40.00000	SEC 12 11 11
U	FR-40					RR					PL						08501011	0.00000	20.00000	SEC 12 11 11
U	FR-40					RR					PL						08501012	0.00000	10.28800	RS 32/78/1
U	FR-40					RR					PL						08501013	0.00000	10.00000	RS 12/33 S121111
U	FR-160					NR											08501014	0.00000	30.50000	SEC 12 11 11
U	FR-40					RR					PL						08501015	0.00000	9.50000	SEC 12 11 11
A	FR-40					NR											08501016	11.00000	0.00000	NW 1/4 S2 11 11
A	FR-160					NR											08501017	11.00000	0.00000	POR SEC 2 11 11
A	FR-40					NR											08501018	11.00000	0.00000	SEC 10 11 11
A	FR-160					NR											08501019	11.00000	0.00000	POR SEC 12 11 11
U	FR-160					NR											08501019	11.00000	0.00000	POR SEC 12 11 11
A	RL-40					NR											08501024	0.00000	13.46000	RS 17/90 S10&11
U	RL-40					NR											08501024	0.00000	13.46000	RS 17/90 S10&11
A	FR-40					NR											08501025	11.00000	0.00000	S10&11 RS 17-90
U	FR-40					NR											08501025	11.00000	0.00000	S10&11 RS 17-90
U	RE-5					MDR					PL						08502001	0.00000	40.00000	SEC 15 11 11
AE	AG-40					NR											08502002	0.00000	27.50000	SEC 15 11 11
AE	RL-40					NR											08502003	0.00000	0.00000	POR SEC 15 11 11
AE	AG-40					NR											08502004	0.00000	68.87100	S 15 & 22 11 11
U	RE-5					MDR					PL						08502005	0.00000	20.34000	RS 13/64 S141111
U	RL-10					RR					PL						08502008	0.00000	19.51000	RS 12/43 S221111
U	RL-10					RR					PL						08502009	0.00000	19.75000	SEC 22 11 11
U	RL-10					RR					PL						08502010	0.00000	10.08000	SEC 22 11 11
U	RL-10					RR					PL						08502011	0.00000	10.08000	SEC 22 11 11
U	RL-10					RR					PL						08502012	0.00000	20.00000	SEC 22 11 11
U	RL-10					RR					PL						08502013	0.00000	20.00000	SEC 22 11 11
U	RL-10					RR					PL						08502015	0.00000	20.00000	SEC 23 11 11
U	RL-40					NR											08502017	0.00000	40.00000	SEC 23 11 11
U	RL-40					NR											08502018	0.00000	100.00000	SEC 23 11 11
U	RL-10					RR					PL						08502019	0.00000	20.00000	SEC 23 11 11
U	RL-10					RR					PL						08502021	0.00000	20.00000	SEC 23 11 11
U	RL-10					RR					PL						08502022	0.00000	20.00000	SEC 23 11 11
U	RL-10					RR					PL						08502023	0.00000	20.00000	SEC 23 11 11
U	RL-10					RR					PL						08502024	0.00000	20.00000	SEC 23 11 11
U	RL-40					NR											08502025	0.00000	20.00000	SEC 23 11 11
U	RL-40					NR											08502026	0.00000	40.00000	SEC 24 11 11
TPZ	RL-40					NR											08502027	0.00000	88.05000	SEC 24 11 11
U	RL-40					NR											08502027	0.00000	88.05000	SEC 24 11 11

U	RL-40					NR											08502027	0.00000	88.05000	SEC 24 11 11
U	RL-40					NR											08502027	0.00000	88.05000	SEC 24 11 11
U	RL-40					NR											08502028	0.00000	31.00000	SEC 24 11 11
U	RL-40					NR											08502029	0.00000	0.00000	POR SEC 24 11 11
U	RL-40					NR											08502030	0.00000	0.00000	19 12&24 11 11
U	RE-5					MDR					PL						08502031	0.00000	10.00000	RS 8/105/1
U	RE-5					MDR					PL						08502032	0.00000	5.00000	RS 8/105/2
U	RL-10					RR					PL						08502033	0.00000	5.00000	PM 21/45/A
U	RL-10					RR					PL						08502034	0.00000	15.34000	PM 21/45/B
U	RL-10					RR					PL						08502035	0.00000	5.00000	PM 24/41/A
U	RL-10					RR					PL						08502036	0.00000	13.21000	PM 24/41/B
U	RL-40					NR											08502037	0.00000	80.00000	SEC 14 11 11
U	RL-160					NR											08502038	11.00000	0.00000	S 1/2 S23 11 11
U	RL-40					NR											08503002	0.00000	40.00000	SEC 26 11 11
U	RL-40					NR											08503003	0.00000	80.00000	SEC 25 11 11
SA-10	PA-20					AL	A										08503006	0.00000	20.00000	SEC 26 11 11
SA-10	PA-20					AL	A										08503008	0.00000	17.28000	RS 12/15 S261111
SA-10	PA-20					AL	A										08503009	0.00000	41.00000	SEC 26 11 11
PA-20	OS					OS	A										08503011	11.00000	30.00000	SEC 34 11 11
AE	PA-20					AL	A										08503026	0.00000	30.00000	SEC 34 11 11
PA-20	OS					OS	A										08503029	11.00000	12.64000	SEC 34 11 11
SA-10	PA-20					AL	A										08503035	0.00000	91.35000	RS 6/76 S341111
PA-20	OS					OS	A										08503036	11.00000	0.38000	S341111 RS 6-76
U	RL-160					NR											08503039	11.00000	0.00000	SEC 26 11 11
RA-40	RL-40					NR											08503040	11.00000	0.00000	SEC 26 11 11
RA-40	RL-40					NR											08503041	11.00000	0.00000	SEC 26 11 11
SA-10	PA-20					AL	A										08503050	0.00000	12.78000	SEC 26 11 11
SA-10	PA-20					AL	A										08503051	0.00000	5.19000	SEC 26 11 11
AE	PA-20					AL	A										08503057	0.00000	30.04000	PM 50/64/1
AE	PA-20					AL	A										08503058	0.00000	20.02000	PM 50/64/2
AE	PA-20					AL	A										08503059	0.00000	20.00000	PM 50/64/3
U	R3A					MDR					PL						08504008	0.00000	2.78000	RS 28/100/1
U	R3A					MDR					PL						08504009	0.00000	8.72000	SEC 9 11 11
U	R3A					MDR					PL						08504010	0.00000	2.01000	SEC 9 11 11
U	R3A					MDR					PL						08504011	0.00000	2.50000	SEC 9 11 11
U	R3A					MDR					PL						08504012	0.00000	2.49000	SEC 9 11 11
U	R3A					MDR					PL						08504013	0.00000	2.80000	SEC 9 11 11
U	R3A					MDR					PL						08504015	0.00000	3.74000	SEC 9 11 11
U	R3A					MDR					PL						08504016	0.00000	3.52000	SEC 9 11 11
U	R3A					MDR					PL						08504017	0.00000	3.48000	SEC 9 11 11
U	R3A					MDR					PL						08504018	0.00000	2.34000	SEC 9 11 11
U	R3A					MDR					PL						08504020	0.00000	3.52000	SEC 9 11 11
U	R3A					MDR					PL						08504022	0.00000	3.19000	SEC 9 11 11
U	R3A					MDR					PL						08504023	0.00000	3.51000	SEC 9 11 11
U	R3A					MDR					PL						08504024	0.00000	3.26000	SEC 9 11 11
U	R3A					MDR					PL						08504026	0.00000	4.26000	SEC 9 11 11

U	R3A					MDR					PL						08504028	0.00000	7.52000	SEC 9 11 11
U	R3A					MDR					PL						08504030	0.00000	3.00000	SEC 9 11 11
U	R3A					MDR					PL						08504032	0.00000	3.00000	SEC 9 11 11
U	R3A					MDR					PL						08504033	0.00000	2.43000	SEC 9 11 11
U	R3A					MDR					PL						08504034	0.00000	3.45000	SEC 9 11 11
U	R3A					MDR					PL						08504035	0.00000	2.09000	SEC 9 11 11
U	R3A					MDR					PL						08504036	0.00000	3.15000	SEC 9 11 11
U	R3A					MDR					PL						08504038	0.00000	10.79000	SEC 9 11 11
U	R3A					MDR					PL						08504039	0.00000	3.37000	SEC 9 11 11
U	R3A					MDR					PL						08504040	0.00000	3.35000	SEC 9 11 11
U	R3A					MDR					PL						08504041	0.00000	2.90000	SEC 9 11 11
U	R3A					MDR					PL						08504042	0.00000	5.03000	SEC 9 11 11
U	R3A					MDR					PL						08504044	0.00000	6.65000	SEC 9 11 11
U	R3A					MDR					PL						08504046	0.00000	2.31000	SEC 9 11 11
U	R3A					MDR					PL						08504048	0.00000	2.05000	SEC 9 11 11
U	R3A					MDR					PL						08504049	0.00000	2.09000	SEC 9 11 11
U	R3A					MDR					PL						08504050	0.00000	2.68000	SEC 9 11 11
U	R3A					MDR					PL						08504051	0.00000	4.04000	SEC 9 11 11
U	R3A					MDR					PL						08504052	0.00000	3.02000	SEC 9 11 11
U	R3A					MDR					PL						08504053	0.00000	2.20000	SEC 9 11 11
U	R3A					MDR					PL						08507001	1.00000	5.73000	S 14 & 15 11 11
U	R3A					MDR					PL						08507004	0.00000	2.60000	SEC 14 11 11
U	R3A					MDR					PL						08507005	0.00000	2.35000	SEC 14 11 11
U	R3A					MDR					PL						08507008	0.00000	2.28000	SEC 14 11 11
U	R3A					MDR					PL						08507009	0.00000	2.35000	SEC 14 11 11
U	R3A					MDR					PL						08507010	0.00000	2.31000	SEC 14 11 11
U	R3A					MDR					PL						08507013	0.00000	2.35000	SEC 14 11 11
U	R3A					MDR					PL						08507017	0.00000	4.24000	SEC 15 11 11
U	R3A					MDR					PL						08507018	0.00000	3.26000	SEC 15 11 11
U	R3A					MDR					PL						08507019	0.00000	2.53000	SEC 15 11 11
U	R3A					MDR					PL						08507020	0.00000	3.29000	SEC 15 11 11
U	R3A					MDR					PL						08507021	0.00000	4.77000	SEC 15 11 11
U	R3A					MDR					PL						08507023	0.00000	3.91000	SEC 15 11 11
U	R3A					MDR					PL						08507024	0.00000	5.06000	S 14 & 15 11 11
U	R3A					MDR					PL						08507025	0.00000	3.00000	SEC 15 11 11
U	R3A					MDR					PL						08507026	0.00000	3.38000	SEC 15 11 11
U	R3A					MDR					PL						08507027	0.00000	4.84000	SEC 15 11 11
U	R3A					MDR					PL						08507028	0.00000	3.01000	SEC 15 11 11
U	R3A					MDR					PL						08507029	0.00000	3.53000	SEC 15 11 11
R2A	CC					C							MO				08508301	0.00000	2.08500	L 9
R2A	CC					C							MO				08508401	0.00000	2.00500	L 1
R2A	CC					C							MO				08508404	0.00000	2.12600	L 4
R2A	CC					C							MO				08508405	0.00000	2.05400	L 5
U	R2A					MDR					PL						08510002	0.00000	3.03300	RS 24/94/1
U	RL-10					RR					PL						08512001	0.00000	1.81000	S 15 & 22 11 11
U	RL-10					RR					PL						08512002	0.00000	1.83000	S 15 & 16 11 11

U	RL-10					RR					PL						08512004	0.00000	8.35000	PM 1/42/B
U	RL-10					RR					PL						08512005	0.00000	10.09000	PM 42/62/1
U	RL-10					RR					PL						08512006	0.00000	11.07000	PM 42/62/2
A	OS					OS											08513305	2.00000	11.83200	COMMON AREA
A	R2A					MDR					PL						08514207	2.00000	0.00000	COMMON AREA
R2A	RF-L					OS					PL						08515103	0.00000	2.42700	L 74
A	OS					OS											08519101	2.00000	10.52700	COMMON AREA
A	R2A					MDR					PL						08524110	2.00000	0.00000	COMMON AREA
A	R2A					MDR					PL						08526108	2.00000	5.27000	COMMON AREA
A	R2A					MDR					PL						08526204	2.00000	0.00000	COMMON AREA
A	R2A					MDR					PL						08528314	2.00000	0.00000	COMMON AREA
U	RL-10					RR					PL						08530005	0.00000	10.01000	SEC 24 11 11
U	RL-10					RR					PL						08530007	0.00000	6.91000	SEC 24 11 11
U	RL-10					RR					PL						08530008	0.00000	10.00000	SEC 24 11 11
U	RL-10					RR					PL						08530009	0.00000	10.03000	SEC 24 11 11
U	RE-5					MDR					PL						08530015	11.00000	0.55000	S24 11 11RS13-19
U	R2A					MDR					PL						08530020	0.00000	2.25000	PM 32/113/2
U	R2A					MDR					PL						08530021	0.00000	2.25000	PM 32/113/3
U	R2A					MDR					PL						08530022	0.00000	2.29000	PM 32/113/1
U	RE-5					MDR					PL						08530023	0.00000	24.75000	POR P/M 32-113
U	RE-5					MDR					PL						08531001	0.00000	6.44000	SEC 13 11 11
U	RE-5					MDR					PL						08531002	0.00000	4.60000	SEC 13 11 11
U	RE-5					MDR					PL						08531003	0.00000	5.00000	SEC 13 11 11
U	RE-5					MDR					PL						08531004	0.00000	3.96000	SEC 13 11 11
U	RE-5					MDR					PL						08531007	0.00000	2.50000	SEC 13 11 11
U	RE-5					MDR					PL						08531009	0.00000	2.00000	SEC 13 11 11
U	RE-5					MDR					PL						08531010	0.00000	5.97000	RS 33/6/1
U	RE-5					MDR					PL						08531011	0.00000	1.50000	SEC 13 11 11
U	RE-5					MDR					PL						08531013	0.00000	4.00000	SEC 13 11 11
U	RE-5					MDR					PL						08531014	0.00000	1.95000	PM 9/20/A
U	RE-5					MDR					PL						08531015	0.00000	2.00000	PM 9/20/B
A	OS					NR											08532104	2.00000	0.00000	COMMON AREA L H
A	OS					NR											08541101	2.00000	73.35000	COMMON AREA L D
U	R2A					MDR					PL						08542001	0.00000	1.00000	SEC 22 11 11
U	RL-10					RR					PL						08542003	0.00000	10.40000	SEC 22 11 11
U	R2A					MDR					PL						08542005	0.00000	0.96000	SEC 22 11 11
U	RL-10					RR					PL						08542007	0.00000	8.00000	SEC 22 11 11
U	RL-10					RR					PL						08542008	0.00000	13.73000	SEC 22 11 11
U	RL-10					RR					PL						08542010	0.00000	15.36000	SEC 22 11 11
U	RL-10					RR					PL						08542011	0.00000	5.00000	PM 41/102/1
U	RL-10					RR					PL						08542012	0.00000	18.53000	PM 41/102/2
C	CC					C							MO				08542013	0.00000	6.01000	PM 41/102/3
U	CC					C							MO				08542013	0.00000	6.01000	PM 41/102/3
U	RL-10					RR					PL						08543001	0.00000	4.98000	SEC 22 11 11
U	RL-10					RR					PL						08543003	0.00000	15.55000	SEC 22 11 11
U	RL-10					RR					PL						08543004	0.00000	9.57000	PM 10/135/A

U	RL-10					RR					PL						08543005	0.00000	10.10000	PM 10/135/B
U	RL-10					RR					PL						08543006	0.00000	7.29000	PM 10/135/C
U	RL-10					RR					PL						08543007	0.00000	6.75000	PM 10/135/D
U	RL-40					NR											08544008	0.00000	43.03000	RS 14/107/1
U	RL-40					NR											08544009	0.00000	42.65000	RS 14/107/2
U	RL-10					RR					PL						08544010	0.00000	10.05000	PM 39/149/1
U	RL-10					RR					PL						08544011	0.00000	10.02000	PM 39/149/2
U	RL-10					RR					PL						08544012	0.00000	10.01100	PM 39/148/1
U	RL-10					RR					PL						08544013	0.00000	10.00000	PM 39/148/2
U	RL-10					RR					PL						08544014	0.00000	13.91700	PM 37/38/2
U	RL-10					RR					PL						08544015	0.00000	11.18100	PM 37/38/1
U	RL-10					RR					PL						08544016	0.00000	20.09000	PM 35/37/D
U	RL-40					NR											08544017	0.00000	44.28800	POR RS 7/17 W1/2
U	RL-40					NR											08544018	0.00000	44.28800	POR RS 7/17 E1/2
U	RL-40					NR											08545002	0.00000	7.50000	SEC 27 11 11 ADM
RA-20	RL-40					NR											08545005	0.00000	43.50000	SEC 27 11 11 ADM
RA-20	LA-10					RR											08545006	0.00000	11.00000	PM 21/56/1
RA-20	LA-20					RR	A										08545007	0.00000	10.00000	PM 21/56/2
SA-10	PA-20					AL	A										08545008	0.00000	17.06000	PM 21/56/3
SA-10	PA-20					AL	A										08545009	0.00000	10.00000	PM 21/56/4
RE-10	RL-10					RR	A										08545011	0.00000	16.35000	PM 47/99/1
RE-10	RL-10					RR	A										08545012	0.00000	10.50000	PM 47/99/2
RE-10	RL-10					RR	A										08545013	0.00000	10.00000	PM 47/99/3
RE-10	RL-10					RR	A										08545014	0.00000	10.24000	PM 47/99/4
SA-10	PA-20					AL	A										08546004	0.00000	6.20000	PM 16/106/B
SA-10	PA-20					AL	A										08546005	0.00000	5.19000	PM 16/106/C
SA-10	PA-20					AL	A										08546016	0.00000	11.00000	PM 47/7/2
SA-10	PA-20					AL	A										08546020	0.00000	11.21000	POR PM 16/106/A
SA-10	PA-20					AL	A										08546021	0.00000	27.17300	47/7/1& RS 28/49
SA-10	PA-20					AL	A										08547002	0.00000	0.92000	SEC 34 11 11
SA-10	PA-20					AL	A										08547003	0.00000	10.00000	SEC 34 11 11
SA-10	PA-20					AL	A										08547005	0.00000	1.73100	SEC 34 11 11
SA-10	PA-20					AL	A										08547006	0.00000	6.27000	SEC 34 11 11
SA-10	PA-20					AL	A										08547007	0.00000	1.95000	SEC 34 11 11
SA-10	PA-20					AL	A										08547008	0.00000	1.14000	SEC 34 11 11
SA-10	PA-20					AL	A										08547013	0.00000	2.00000	SEC 34 11 11
SA-10	PA-20					AL	A										08547018	0.00000	9.53000	SEC 34 11 11
SA-10	PA-20					AL	A										08547019	0.00000	9.56000	SEC 34 11 11
SA-10	PA-20					AL	A										08547021	0.00000	2.00000	PM 16/64/1
SA-10	PA-20					AL	A										08547022	0.00000	1.93000	PM 16/64/2
SA-10	PA-20					AL	A										08547023	0.00000	0.50000	SEC 34 11 11
SA-10	PA-20					AL	A										08547024	0.00000	10.26000	SEC 34 11 11
SA-10	PA-20					AL	A										08547025	0.00000	10.20000	PM 25/132/A
SA-10	PA-20					AL	A										08547026	0.00000	10.37000	PM 25/132/B
SA-10	PA-20					AL	A										08547027	0.00000	11.00000	PM 25/132/C
SA-10	PA-20					AL	A										08547028	0.00000	10.30000	PM 25/132/D

SA-10	PA-20					AL	A										08547034	0.00000	12.71000	SEC 34 11 11
SA-10	PA-20					AL	A										08547035	0.00000	10.00000	PM 39/128/1
SA-10	PA-20					AL	A										08547036	0.00000	10.00000	PM 39/128/2
SA-10	PA-20					AL	A										08547037	0.00000	10.05000	PM 39/128/3
SA-10	PA-20					AL	A										08547042	0.00000	5.82000	RS 23-54
SA-10	PA-20					AL	A										08547043	0.00000	1.80000	RS 23-54
SA-10	PA-20					AL	A										08547045	0.00000	5.95900	POR SEC 34 11 11
SA-10	PA-20					AL	A										08547046	0.00000	0.91000	RS 24/78
RE-5	RL-10					AL	A										08548004	0.00000	3.34000	SEC 34 11 11
RE-5	RL-10					AL	A										08548005	0.00000	4.81000	S 33 & 34 11 11
SA-10	PA-20					AL	A										08548006	0.00000	17.50000	SEC 33 11 11
SA-10	PA-20					AL	A										08548012	0.00000	11.05000	SEC 34 11 11
PA-20	OS					OS	A										08548014	11.00000	29.95000	SEC 34 11 11
SA-10	PA-20					AL	A										08548016	2.00000	0.01000	SEC 33 11 11
AE	PA-20					AL	A										08548017	0.00000	64.60000	S 33 & 34 11 11
SA-10	PA-20					AL	A										08548020	0.00000	2.24000	RS 4/143/1
SA-10	PA-20					AL	A										08548026	0.00000	10.01000	PAR A 23-36 AMND
SA-10	PA-20					AL	A										08548027	0.00000	10.01000	PAR B 23-36 AMND
SA-10	PA-20					AL	A										08548028	0.00000	10.00000	PAR C 23-36 AMND
SA-10	PA-20					AL	A										08548029	0.00000	10.03000	PAR D 23-36 AMND
SA-10	PA-20					AL	A										08548031	0.00000	8.15000	PM 41/146/1
SA-10	PA-20					AL	A										08548032	0.00000	13.24000	PM 41/146/2
SA-10	PA-20					AL	A										08548033	0.00000	3.20000	PM 41/146/3
AE	PA-20					AL	A										08550002	0.00000	25.26000	SEC 26 11 11
SA-10	PA-20					AL	A										08550003	0.00000	2.00000	SEC 26 11 11
SA-10	PA-20					AL	A										08550004	0.00000	3.12000	SEC 26 11 11
SA-10	PA-20					AL	A										08550005	0.00000	5.61000	SEC 26 11 11
SA-10	PA-20					AL	A										08550006	0.00000	0.91800	RS 24/133/1
SA-10	PA-20					AL	A										08550007	0.00000	2.27000	SEC 26 11 11
SA-10	PA-20					AL	A										08550009	0.00000	8.75000	SEC 26 11 11
SA-10	PA-20					AL	A										08550010	0.00000	1.78000	RS 23/35/1
SA-10	PA-20					AL	A										08550012	0.00000	3.62000	SEC 26 11 11
SA-10	PA-20					AL	A										08550013	0.00000	2.00000	SEC 26 11 11
SA-10	PA-20					AL	A										08550014	0.00000	0.83000	SEC 26 11 11
SA-10	PA-20					AL	A										08550015	0.00000	0.55000	SEC 26 11 11
SA-10	PA-20					AL	A										08550016	0.00000	10.22000	SEC 26 11 11
SA-10	PA-20					AL	A										08550017	0.00000	11.03000	SEC 26 11 11
SA-10	PA-20					AL	A										08550021	0.00000	2.00000	PM 49/17/1
SA-10	PA-20					AL	A										08550022	0.00000	12.49000	PM 49/17/2
SA-10	PA-20					AL	A										08551003	0.00000	1.00000	SEC 35 11 11
SA-10	PA-20					AL	A										08551004	0.00000	1.00000	SEC 35 11 11
AE	PA-20					AL	A										08551012	0.00000	20.03000	PM 50/114/1
AE	PA-20					AL	A										08551013	0.00000	10.00000	PM 50/114/2
SA-10	PA-20					AL	A										08552001	0.00000	10.41000	SEC 35 11 11
SA-10	PA-20					AL	A										08552001	0.00000	10.41000	SEC 35 11 11
SA-10	PA-20					AL	A										08552004	0.00000	10.00000	SEC 35 11 11

SA-10	PA-20					AL	A										08552005	0.00000	12.66000	SEC 35 11 11
SA-10	PA-20					AL	A										08552006	0.00000	10.25000	SEC 35 11 11
SA-10	PA-20					AL	A										08552007	0.00000	1.00000	SEC 35 11 11
SA-10	PA-20					AL	A										08552008	0.00000	1.00000	SEC 35 11 11
SA-10	PA-20					AL	A										08552009	0.00000	1.00000	SEC 35 11 11
SA-10	PA-20					AL	A										08552010	0.00000	0.94000	SEC 35 11 11
SA-10	PA-20					AL	A										08552012	0.00000	22.94000	SEC 35 11 11
SA-10	PA-20					AL	A										08553004	0.00000	2.00000	SEC 35 11 11
SA-10	PA-20					AL	A										08553005	0.00000	4.00000	RS 25/80/1
SA-10	PA-20					AL	A										08553006	0.00000	6.84800	RS 26/63
SA-10	PA-20					AL	A										08553007	0.00000	4.00000	SEC 35 11 11
SA-10	PA-20					AL	A										08553009	0.00000	2.00000	PM 46/135/1
SA-10	PA-20					AL	A										08553011	0.00000	20.11000	PM 46/135/2+
SA-10	PA-20					AL	A										08554005	0.00000	10.58000	SEC 35 11 11
SA-10	PA-20					AL	A										08554014	0.00000	4.00000	SEC 35 11 11
SA-10	PA-20					AL	A										08554015	0.00000	2.53000	SEC 35 11 11
SA-10	PA-20					AL	A										08554039	0.00000	6.85400	PM 18/146/1
SA-10	PA-20					AL	A										08554042	0.00000	2.00000	PM 20/27/1
SA-10	PA-20					AL	A										08554048	0.00000	6.02000	SEC 35 11 11
SA-10	PA-20					AL	A										08554054	0.00000	20.00000	PM 40/6/1
AE	PA-20					AL	A										08554055	0.00000	10.00000	PM 40/6/2
SA-10	PA-20					AL	A										08554056	0.00000	10.01000	PM 40/6/3
SA-10	PA-20					AL	A										08554057	0.00000	31.75000	PM 40/6/4
SA-10	PA-20					AL	A										08554060	0.00000	8.58000	PM 40/66/1
SA-10	PA-20					AL	A										08554061	0.00000	10.10000	PM 40/66/2
SA-10	PA-20					AL	A										08554062	0.00000	10.19300	RS 17/67/1
SA-10	PA-20					AL	A										08554064	0.00000	10.03700	RS 17/67/2
SA-10	PA-20					AL	A										08554068	0.00000	5.00000	PM 44/31/1
SA-10	PA-20					AL	A										08554069	0.00000	5.00000	PM 44/31/2
AE	PA-20					AL	A										08554071	0.00000	22.96700	POR SEC 35 11 11
SA-10	PA-20					AL	A										08555006	0.00000	6.71000	RS 9/39 S261111
U	RL-40					NR											08555008	0.00000	8.96000	PPM 48/149/1 ADM
SA-10	PA-20					AL	A										08555010	0.00000	11.61500	RS 29/77/1
SA-10	PA-20					AL	A										08555011	0.00000	17.31000	SEC 26 11 11
RE-10	RL-40					NR											08555020	11.00000	42.35000	RS 19/54/1
RE-10	RL-40					NR											08555021	0.00000	38.12000	RS 19/54/2
RA-20	RL-40					NR											08555023	0.00000	31.21000	PPM 48/149/1 ADM
RA-20	RL-40					NR											08555024	0.00000	7.26000	PM 48/149/2
SA-10	PA-20					AL	A										08556001	0.00000	4.60000	SEC 25 11 11
SA-10	PA-20					AL	A										08556002	0.00000	3.40000	SEC 36 11 11
SA-10	PA-20					AL	A										08556003	0.00000	1.19000	SEC 36 11 11
SA-10	PA-20					AL	A										08556005	0.00000	1.00000	PM 1/92/C
SA-10	PA-20					AL	A										08556006	0.00000	1.00000	PM 1/92/D
SA-10	PA-20					AL	A										08556007	0.00000	3.08000	SEC 36 11 11
SA-10	PA-20					AL	A										08556008	0.00000	0.11000	SEC 36 11 11
SA-10	PA-20					AL	A										08556009	0.00000	2.52000	PM 3/168/1

SA-10	PA-20					AL	A										08556010	0.00000	5.17000	PM 3/168/4
SA-10	PA-20					AL	A										08556017	0.00000	1.14000	SEC 36 11 11
SA-10	PA-20					AL	A										08556021	0.00000	2.26700	PM 47/106/A
SA-10	PA-20					AL	A										08556022	0.00000	2.18200	PM 47/106/B
RE-5	RL-10					AL	A										08557008	0.00000	5.36000	SEC 36 11 11
RE-5	RL-10					AL	A										08557009	0.00000	21.74000	PM 10/107/1
SA-10	PA-20					AL	A										08557011	0.00000	10.02000	PM 22/13/A
SA-10	PA-20					AL	A										08557016	0.00000	10.02000	PM 25/111/1
SA-10	PA-20					AL	A										08557017	0.00000	10.02000	PM 25/111/2
SA-10	PA-20					AL	A										08557018	0.00000	10.02000	PM 25/111/3
SA-10	PA-20					AL	A										08557020	0.00000	14.86000	PM 32/139/1
SA-10	PA-20					AL	A										08557021	0.00000	11.68000	PM 32/139/2
SA-10	PA-20					AL	A										08557022	0.00000	10.14000	RS 16/37/1
SA-10	PA-20					AL	A										08557023	0.00000	10.10000	RS 16/37/2
SA-10	PA-20					AL	A										08557024	0.00000	10.11000	RS 16/37/3
SA-10	PA-40					NR											08557025	0.00000	24.87000	RS 16/37/4
SA-10	PA-20					AL	A										08557027	0.00000	1.58000	PPM 45/78/1 ADM
SA-10	PA-20					AL	A										08557028	0.00000	7.00000	PPM 45/78/2 ADM
SA-10	PA-20					AL	A										08557028	0.00000	7.00000	PPM 45/78/2 ADM
SA-10	PA-20					AL	A										08557029	0.00000	18.55000	PPM 45/78/1 ADM
SA-10	PA-20					AL	A										08557030	0.00000	35.03000	PPM 45/78/2 ADM
RE-5	RL-10					AL	A										08560033	0.00000	25.62000	SEC 6 10 12
R2A	RL-10					RR	A										08560041	0.00000	6.02000	6 10 12&36 11 11
R2A	RL-10					RR	A										08560079	0.00000	6.02400	PM 6/134/A
SA-10	PA-20					AL	A										08562001	0.00000	0.57000	SEC 36 11 11
SA-10	PA-20					AL	A										08562003	0.00000	6.00000	PM 1/43/1
U	CC					C							MO				08572215	11.00000	1.46000	LOT A
SA-10	PA-20			PD		AL	A										08574001	0.00000	10.00000	L 1
SA-10	PA-20			PD		AL	A										08574002	0.00000	10.00000	L 2
SA-10	PA-20			PD		AL	A										08574003	0.00000	14.74000	L 3
SA-10	PA-20			PD		AL	A										08574008	0.00000	10.12000	L 8
RE-10	RL-10			PD		RR											08574009	0.00000	20.10000	L 9
RE-10	RL-10			PD		RR											08574010	0.00000	20.05000	L 10
RE-10	RL-10			PD		RR											08574011	0.00000	20.07000	L 11
RE-10	RL-10			PD		RR											08574012	0.00000	10.02000	L 12
RE-10	RL-10			PD		RR											08574013	0.00000	5.28000	L 13
RE-10	RL-10			PD		RR											08574014	0.00000	5.05000	L 14
RE-10	RL-10			PD		RR	A										08574017	0.00000	5.05000	L 17
RE-10	RL-10			PD		RR	A										08574018	0.00000	5.00000	L 18
RE-10	RL-10			PD		RR											08574019	0.00000	5.00000	L 19
RE-10	RL-10			PD		RR											08574020	0.00000	5.00000	L 20
RE-10	RL-10			PD		RR	A										08574021	0.00000	10.00000	L 21
SA-10	PA-20			PD		AL	A										08574022	0.00000	10.70000	L 22
AE	PA-20					AL	A										08574023	0.00000	10.70000	L 23
SA-10	PA-20			PD		AL	A										08574023	0.00000	10.70000	L 23
RE-10	RL-10			PD		RR											08574031	0.00000	5.00000	POR L15 & L16

RE-10	RL-10			PD		RR											08574032	0.00000	5.00000	POR L 15 & L 16
AE	PA-20					AL	A										08574034	0.00000	20.00000	RS 23/68/1
RE-10	RL-20			PD		AL	A										08574035	0.00000	3.70000	L 4 TR1 R/S27-20
RE-10	RL-20					AL	A										08574035	0.00000	3.70000	L 4 TR1 R/S27-20
AE	AG-40					AL											08701002	0.00000	325.55000	SEC 6 & 7 8 9
AE	AG-40					AL											08701003	0.00000	44.93000	SEC 6 8 9
AE	AG-40					AL											08701005	0.00000	494.30000	SEC 5 8 9
RA-40	RL-40					RR											08701006	0.00000	74.02000	RS 6/94
AE	AG-40					AL											08701007	0.00000	579.14000	SEC 4 5 & 9 8 9
AE	AG-40					AL											08701008	0.00000	80.00000	SEC 7 8 9
RA-40	RL-40					RR											08701011	0.00000	40.00000	RS 6/94
RA-40	RL-40					RR											08701012	0.00000	353.98000	RS 6/94
RA-40	LA-10					RR											08701013	0.00000	27.70000	SEC 9 8 9
RA-40	RL-40					RR											08701016	0.00000	236.39000	RS 6/94
AE	RL-40					AL											08701017	0.00000	228.10000	SEC 6 & 7 8 9
AE	RL-40					AL											08701018	0.00000	40.00000	SEC 6 8 9
AE	TC					AL											08701019	11.00000	0.00000	SEC 4&5 8 9
RA-40	TC					AL											08701019	11.00000	0.00000	SEC 4&5 8 9
RA-40	TC					RR											08701020	11.00000	0.00000	SEC 9 8 9
RA-80	RL-80					RR											08701021	0.00000	71.12000	SEC 6 8 9
RE-10	RL-10					RR											08702101	0.00000	10.24000	PM 46/108/1
RE-10	RL-10					RR											08702102	0.00000	10.01000	PM 46/108/2
RE-10	RL-10					RR											08702103	0.00000	10.02000	PM 46/108/3
RE-10	RL-10					RR											08702104	0.00000	10.02000	PM 46/108/4
AE	RL-10					RR											08702105	0.00000	45.69000	RS 19/26/2
AE	PA-20					AL											08702110	0.00000	323.52000	S 2&11 8 9
AE	PA-20					AL											08702110	0.00000	323.52000	S 2&11 8 9
AE	PA-20					AL											08702110	0.00000	323.52000	S 2&11 8 9
RA-40	RL-10					RR											08702111	0.00000	14.92000	POR SEC 1 8, 9
RA-40	LA-10					RR											08702112	0.00000	47.52000	PM 46/76/3
RA-40	LA-10					RR											08702117	0.00000	94.67000	PM 46/76/4
AE	AG-40					AL											08702118	0.00000	108.49000	SEC 1 8 9
AE	AG-40					AL											08702120	0.00000	7.00000	SEC 1 8 9
AE	AG-40					AL											08702123	0.00000	160.00000	SEC 1 8 9
RA-80	RL-80					RR											08702124	0.00000	195.00000	SEC 12 8 9
RA-80	LA-10					RR											08702126	0.00000	128.88000	SEC 12 8 9
AE	AG-40					AL											08702127	0.00000	267.07000	SEC 11 & 12 8 9
AE	AG-40					AL											08702128	0.00000	18.50000	SEC 11 & 12 8 9
AE	RL-10					RR											08702129	0.00000	7.93000	SEC 11 8 9
AE	AG-40					AL											08702130	0.00000	226.40000	SEC 11 & 12 8 9
RA-40	LA-10					RR											08702131	0.00000	40.00000	SEC 11 8 9
RA-40	LA-10					RR											08702132	0.00000	20.60900	RS 24/74/4
RA-40	RL-40					RR											08702133	0.00000	60.38200	RS 24/74/5
RA-40	RL-40					RR											08702134	0.00000	56.00000	POR TR1 R/S24-74
RA-40	LA-10					RR											08702135	0.00000	9.86800	RS 24/74/3
RA-40	RL-40					RR											08702136	0.00000	29.39600	RS 24/74/2

AE	PA-20					AL											08702137	0.00000	80.00000	POR RS 12/8
AE	PA-20					AL											08702138	0.00000	40.00000	POR RS 12/8
AE	AG-40					AL											08702139	0.00000	80.00000	POR RS 12/8+
AE	AG-40					AL											08702142	0.00000	31.13000	SEC 10 8 9
RE-10	RL-10					RR											08702143	0.00000	6.50000	SEC 10 8 9
RE-10	RL-10					RR											08702144	0.00000	6.82000	SEC 10 8 9
RE-10	RL-10					RR											08702145	0.00000	5.74000	SEC 10 8 9
AE	TC					AL											08702149	11.00000	0.00000	POR SEC 10 8 9
AE	TC					AL											08702150	11.00000	0.00000	POR SEC 2 8 9
AE	TC					RR											08702151	11.00000	0.00000	POR SEC 2 8 9
AE	TC					RR											08702153	11.00000	0.00000	SEC 2 8 9
RA-40	TC					RR											08702154	11.00000	0.00000	SEC 2 8 9
AE	AG-40					AL											08702156	0.00000	221.89000	POR S3&10 8N 9E
AE	AG-40					AL											08702157	0.00000	105.90000	POR S3 8N 9E
AE	AG-40					AL											08702157	0.00000	105.90000	POR S3 8N 9E
AE	AG-40					AL											08702158	0.00000	178.75000	POR S10 8N 9E
RA-40	LA-10					RR											08702163	0.00000	71.60000	RS 27/26/A
RA-40	RL-40					RR											08702164	0.00000	60.29000	RS 27/26/B
AE	LA-10					RR											08702165	0.00000	46.32000	PM 50/11/1
AE	LA-10					RR											08702166	0.00000	56.80000	PM 50/11/2
AE	RE-10					RR											08702167	11.00000	3.53000	PM 50/11/R
RA-40	LA-10					RR											08702168	0.00000	61.60000	PM 46/76/2
RA-40	LA-10					RR											08702169	0.00000	155.20000	PM 46/76/1
RA-80	LA-10					RR											08702169	0.00000	155.20000	PM 46/76/1
AE	AG-40					AL											08703002	0.00000	260.00000	SEC 18 8 9
RA-40	RL-40					RR											08703003	0.00000	81.12000	SEC 18 8 9
RA-40	LA-10					RR											08703006	0.00000	40.00000	SEC 17 8 9
RA-20	RL-20					RR											08703008	0.00000	20.00000	SEC 16 8 9
RA-40	RL-40					RR											08703010	0.00000	123.44000	SEC 19 8 9
RA-40	RL-40					RR											08703012	0.00000	60.00000	SEC 19 8 9
AE	AG-40					AL											08703017	0.00000	360.00000	SEC 21 8 9
RA-20	RL-20					RR											08703032	0.00000	106.73000	RS 6/94
RA-40	RL-40					RR											08703035	0.00000	160.16000	S 17 20 21 8 9
RA-40	LA-10					RR											08703036	0.00000	160.25000	RS 6/103/4
RA-40	RL-40					RR											08703041	0.00000	40.25000	RS 6/94
RA-40	RL-40					PF											08703042	11.00000	10.01000	SEC 16 8 9
RA-40	RL-40					RR											08703044	0.00000	40.08000	SEC 17 8 9
RA-40	RL-40					RR											08703046	0.00000	40.77000	RS 7/11/A
RA-40	LA-10					RR											08703047	0.00000	40.12600	RS 7/11/D
RA-40	LA-10					RR											08703049	0.00000	40.32000	RS 7/10/A
RA-40	LA-10					RR											08703050	0.00000	40.04000	RS 7/10/B
RA-40	RL-40					RR											08703051	0.00000	40.07000	RS 7/10/C
RA-40	RL-40					RR											08703052	0.00000	40.07000	RS 7/10/D
AE	PA-20					AL											08703055	0.00000	80.00000	POR TR 1RS19-105
AE	RL-10					RR											08703056	0.00000	300.00000	POR TR 1RS19-105
AE	PA-20					AL											08703058	0.00000	40.00000	SEC 18 8 9

AE	PA-20					AL											08703059	0.00000	40.00000	SEC 18 8 9
AE	RL-10					RR											08703060	0.00000	40.00000	SEC 18 8 9
AE	RL-10					RR											08703061	0.00000	40.00000	SEC 20 8 9
AE	PA-20					AL											08703062	0.00000	160.00000	SEC 20 8 9
AE	RL-10					RR											08703063	0.00000	160.00000	SEC 20 8 9
AE	RL-10					RR											08703064	0.00000	40.00000	SEC 20 8 9
AE	RL-40					AL											08703067	0.00000	120.72000	SEC 18 8 9
RA-40	RL-40					RR											08703069	0.00000	344.96600	POR S 15 &16 8 9
RA-40	RL-40					RR											08703070	0.00000	159.65000	POR S 21 &22 8 9
RA-40	LA-10					RR											08703071	0.00000	40.00000	POR SEC 22 8 9
RA-40	RL-40					RR											08703072	0.00000	137.19000	POR SEC 21 8 9
RA-40	RL-40					RR											08703073	0.00000	40.08400	PM 50/85/1
RA-40	RL-40					RR											08703074	0.00000	41.09600	PM 50/85/2
AE	AG-40					AL											08704004	0.00000	355.08000	SEC 15 16 22 8 9
AE	AG-40					AL											08704005	0.00000	18.00000	SEC 15 8 9
AE	AG-40					AL											08704006	0.00000	6.00000	SEC 15 8 9
AE	AG-40					AL											08704007	0.00000	125.10000	SEC 14 & 15 8 9
AE	AG-40					AL											08704009	0.00000	273.13000	SEC 14 & 23 8 9
AE	AG-40					AL											08704010	0.00000	149.10000	S 14 22 & 23 8 9
RA-40	LA-10					RR											08704011	0.00000	120.00000	SEC 14 8 9
RA-80	LA-10					RR											08704012	0.00000	180.00000	SEC 13 8 9
AE	AG-40					AL											08704015	0.00000	23.00000	SEC 22 8 9
RA-40	RL-40					RR											08704016	0.00000	114.76000	SEC 22 8 9
RA-80	RL-80					RR											08704024	0.00000	80.00000	SEC 24 8 9
RA-80	LA-10					RR											08704025	0.00000	70.67000	13&24 8 9RS6-112
RA-80	RL-80					RR											08704026	0.00000	0.00000	40 A SEC 24 8 9
RA-80	LA-80					RR											08704027	0.00000	40.00000	SEC 24 8 9
RA-80	RL-80					RR											08704028	0.00000	18.23000	SEC 24 8 9
AE	AG-40					AL											08704035	0.00000	127.95000	SEC 15 8 9
RA-80	RL-80					RR											08704040	0.00000	40.00000	SEC 13 8 9
RA-20	RL-20					RR											08704055	0.00000	39.03000	RS 9/63/3
RA-40	RL-40					RR											08704063	0.00000	40.09000	RS 11/29 S2489
RA-40	RL-40					RR											08704064	0.00000	41.58000	RS 11/29 S2489
RA-20	LA-10					RR											08704068	0.00000	20.00000	PM 32/48/A
RA-20	RL-20					RR											08704069	0.00000	20.00000	PM 32/48/B
RA-20	RL-20					RR											08704070	0.00000	20.00000	PM 32/142/A
RA-20	RL-20					RR											08704071	0.00000	20.00000	PM 32/142/B
RA-20	RL-20					RR											08704072	0.00000	20.56400	PM 33/58/A
RA-20	RL-20					RR											08704073	0.00000	20.70000	PM 33/58/B
AE	AG-40					AL											08704075	0.00000	206.87000	RS 4/75 S1489
RA-20	RL-20					RR											08704082	0.00000	20.63000	PM 46/85/1
RA-20	RL-20					RR											08704083	0.00000	20.00000	PM 46/85/2
AE	AG-40					AL											08704089	0.00000	8.78700	15 8 9
AE	AG-40					AL											08704091	0.00000	130.38300	SEC 15 8 9
RA-40	RL-40					RR											08705001	0.00000	262.90000	SEC 30 8 9
RA-40	LA-10					RR											08705004	0.00000	40.00000	SEC 28 8 9

RA-40	LA-40					NR											08705005	0.00000	350.06000	S 29 30 & 32 8 9
RA-40	LA-40					NR											08705006	0.00000	100.06000	SEC 31 8 9
RA-40	LA-40					NR											08705007	0.00000	21.64000	SEC 32 8 9
RA-80	LA-40					NR											08705008	0.00000	40.00000	SEC 28 8 9
RA-80	LA-40					NR											08705009	0.00000	84.74000	SEC 28 8 9
AE	RL-10					RR											08705015	0.00000	80.00000	SEC 29 8 9
AE	RL-10					RR											08705016	0.00000	160.00000	SEC 29 8 9
AE	PA-20					AL											08705017	0.00000	40.00000	SEC 29 8 9
AE	RL-10					RR											08705019	0.00000	80.00000	SEC 28 8 9
AE	RL-40					NR											08705021	0.00000	156.59000	SEC 28 8 9
AE	RL-10					RR											08705022	0.00000	160.00000	SEC 28 8 9
AE	PA-20					AL											08705023	0.00000	160.00000	SEC 20&29 8 9
RA-80	LA-40					NR											08706005	0.00000	50.00000	SEC 25 8 9
RA-80	RL-80					NR											08706006	0.00000	2.00000	SEC 25 8 9
RA-80	LA-40					NR											08706007	0.00000	5.00000	SEC 25 8 9
RA-80	LA-40					NR											08706008	0.00000	25.00000	SEC 25 8 9
RA-80	LA-40					NR											08706010	0.00000	12.00000	SEC 25 8 9
RA-20	RL-40					NR											08706023	0.00000	40.50000	RS 11/106/1
RA-80	RL-80					NR											08706023	0.00000	40.50000	RS 11/106/1
RA-80	RL-40					NR											08706025	0.00000	57.00000	RS 20/7 SEC2589
RA-80	RL-80					NR											08706026	0.00000	1.00000	SEC 25 8 9
RA-20	RL-40					NR											08706030	0.00000	73.73000	22&27 8 9RS14-81
RA-40	RL-40					NR											08706030	0.00000	73.73000	22&27 8 9RS14-81
RA-80	RL-80					NR											08706030	0.00000	73.73000	22&27 8 9RS14-81
RA-20	RL-40					NR											08706031	0.00000	35.02000	RS 16/112/1
RA-20	RL-40					NR											08706033	0.00000	105.32500	S 22 & 27 8 9
RA-40	RL-40					NR											08706033	0.00000	105.32500	S 22 & 27 8 9
RA-80	RL-80					NR											08706033	0.00000	105.32500	S 22 & 27 8 9
RA-80	RL-40					NR											08706037	0.00000	120.00000	POR SEC 27 8 9
RA-80	RL-40					NR											08706038	0.00000	63.64000	POR SEC 27 8 9
RA-80	RL-40					NR											08706039	0.00000	40.00000	POR SEC 27 8 9
RA-80	RL-40					NR											08706040	0.00000	80.00000	POR SEC 27 8 9
AE	RL-40					AL											08707004	0.00000	13.06000	SEC 13 8 8
RA-40	RL-40					AL											08707004	0.00000	13.06000	SEC 13 8 8
AE	RL-40					AL											08707005	0.00000	173.86000	SEC 12 8 8
AE	RL-40					AL											08707006	0.00000	370.91000	SEC 1 8 8
RA-80	RL-80					RR											08707007	0.00000	119.00000	SEC 1 8 8
RA-40	LA-10					RR											08708101	0.00000	40.00000	L 8&POR L 9 B 10
RA-40	RL-40					RR											08709101	0.00000	38.71000	POR L5 B2 RS5-72
RA-40	RE-5					MDR							LA				08709102	0.00000	2.70000	POR B 2&S 9 8 9
RE-10	RE-5					MDR							LA				08709102	0.00000	2.70000	POR B 2&S 9 8 9
RE-10	TC					MDR							LA				08709103	11.00000	0.00000	POR LOT 7 BLK 2
RE-10	RE-5					MDR							LA				08709104	0.00000	2.02800	POR L 5 B 2
RA-40	RM					MFR							LA				08710102	0.00000	0.00000	L 5 B 10
RA-40	RL-10					RR											08710105	0.00000	0.00000	L 1 B 10
RA-40	RL-10					RR											08710112	0.00000	3.74700	POR L 9 B 10

RA-40	RE-5					MDR							LA				08710114	0.00000	5.38000	POR TR1 R/S13-54
RA-40	RL-40					RR											08710115	0.00000	41.40000	POR L 9 B 10
RA-40	RL-10					RR											08710116	0.00000	0.17000	L 4 B 10
RA-40	RL-10					RR											08710117	0.00000	2.94000	L 2 B 10
RE-10	CL					C							LA				08712102	0.00000	0.00000	L 3 & 4 B 2
RE-10	R1A					HDR							LA				08712103	0.00000	0.00000	POR L 2 B 2
RE-10	R1A					HDR							LA				08712104	0.00000	0.00000	L 1 2&POR 5 B 2
RE-10	R1A					HDR							LA				08712201	0.00000	0.00000	L 1 B 1
AE	AG-40					AL											08712301	0.00000	8.18000	L 1 2 & 3 B 3
RE-10	CC					C							LA				08713101	0.00000	0.00000	L 4 B 5
RE-10	CL					C							LA				08713102	0.00000	0.00000	L 1 2 & 3 B 5
RE-10	R1A					HDR							LA				08713202	11.00000	0.00000	POR LOT 3 BLK4NA
RE-10	CL					C							LA				08713204	0.00000	0.00000	L 2 B 4
RE-10	CC					C							LA				08713205	0.00000	0.00000	POR L 1 B 4
RE-10	R1A					HDR							LA				08713206	0.00000	0.00000	POR L 1 B 4
RE-10	CL					C							LA				08713207	0.00000	0.00000	POR L 3 B 4
RE-10	R1A					HDR							LA				08713211	11.00000	0.04000	POR L 5 BLK 4
RE-10	R1A					HDR							LA				08713223	0.00000	1.58000	RS 20/48/1
RE-10	R1A					HDR							LA				08713224	0.00000	0.84000	RS 20/48/2
RE-10	R1A					HDR							LA				08713225	0.00000	1.21000	RS 20/48/3
RE-10	R1A					HDR							LA				08713226	0.00000	0.61000	RS 20/48/4
RE-10	R1A					HDR							LA				08713227	0.00000	0.59000	RS 20/48/5
RE-10	CL					C							LA				08713301	0.00000	0.00000	L 1 B 9
RE-10	CL					C							LA				08713401	0.00000	0.00000	L 1 B 8
RE-10	R1A					HDR							LA				08713501	0.00000	0.00000	L 4 B 7
RE-10	R1A					HDR							LA				08713502	0.00000	0.00000	L 3 B 7
RE-10	R1A					HDR							LA				08713503	0.00000	0.00000	L 2 B 7
RE-10	R1A					HDR							LA				08713509	0.00000	0.88500	PM 49/41/1
RE-10	R1A					HDR							LA				08713510	0.00000	0.18000	PM 49/41/2
RE-10	R1A					HDR							LA				08713601	0.00000	0.00000	L 2 B 6
RE-10	RL-10					RR											08713602	0.00000	8.68000	B 6 & 10 8 9
RA-40	LA-40					AL											08715003	0.00000	40.00000	SEC 14 8 9
RA-40	RL-10					RR											08716004	0.00000	1.41000	SEC 2 8 9
RA-40	RL-10					RR											08716005	0.00000	11.02000	SEC 2 8 9
RA-40	LA-10					RR											08716006	0.00000	16.66000	RS 30/51/1
RA-40	RL-40					RR											08716007	0.00000	31.93700	RS 28/5/1
RA-40	RL-10					RR											08716008	0.00000	6.13000	SEC 2 8 9
RA-40	TC					RR											08716009	1.00000	0.00000	POR SEC 1&2 9 9
RA-40	RL-10					RR											08716010	0.00000	2.74300	SEC 2 8 9&35 9 9
RE-10	RL-10					RR											08716010	0.00000	2.74300	SEC 2 8 9&35 9 9
RA-80	RL-80					RR											08717002	0.00000	43.88000	SEC 13 8 9
RA-80	LA-10					RR											08717003	0.00000	11.12000	SEC 13 8 9
RA-80	RL-80					RR											08717004	0.00000	40.00000	SEC 13 8 9
RA-80	RL-80					RR											08717006	0.00000	10.01000	PM 12/69/B
RA-80	RL-80					RR											08717007	0.00000	10.00000	PM 12/69/C
RA-80	RL-80					RR											08717008	0.00000	27.63000	PM 12/69/D

RA-80	LA-10					RR											08717009	0.00000	40.00000	SEC 13 8 9
RA-80	RL-80					RR											08717011	0.00000	10.00000	PM 15/57/1
RA-80	RL-80					RR											08717012	0.00000	10.00000	PM 15/57/2
RA-80	RL-80					RR											08717013	0.00000	13.00000	PM 15/57/3
RA-80	RL-80					RR											08717014	0.00000	12.67000	PM 15/57/4
RA-80	RL-80					RR											08717015	0.00000	40.01000	RS 14/34/1
RA-80	RL-80					RR											08717016	0.00000	60.24000	RS 14/34/2
RA-20	LA-10					RR											08718101	0.00000	21.67000	PM 17/61/1
RA-20	LA-10					RR											08718102	0.00000	21.12000	PM 17/61/3
RA-20	LA-10					RR											08718103	0.00000	20.55000	PM 17/61/13
RA-20	RL-20					RR											08718104	0.00000	22.19000	PM 17/61/12
RA-20	RL-20					RR											08718105	0.00000	21.35000	PM 17/61/11
RA-20	RL-20					RR											08718106	0.00000	20.84000	PM 17/61/4
RA-20	LA-10					RR											08718107	0.00000	20.51000	PM17/61/5RS33/13
RA-20	LA-10					RR											08718108	0.00000	20.12000	PM 17/61/6
RA-20	LA-10					RR											08718109	0.00000	20.02000	PM 17/61/7
RA-20	RL-20					RR											08718110	0.00000	20.00000	RS 21/47/1
RA-20	RL-40					NR											08718111	0.00000	20.00000	RS 9/89 S26&2789
RA-20	RL-40					NR											08718113	0.00000	20.02000	PM 17/61/30
RA-20	RL-40					NR											08718114	0.00000	20.01000	PM 17/61/29
RA-20	RL-40					NR											08718115	0.00000	20.00000	PM 17/61/28
RA-20	RL-20					RR											08718116	0.00000	20.03000	PM 23/30/B
RA-20	RL-20					RR											08718118	0.00000	20.34000	PM 17/61/8
RA-20	LA-10					RR											08718119	0.00000	21.53000	PM 17/61/10
RA-20	RL-10					RR											08718120	0.00000	10.34000	PM 18/73/A
RA-20	LA-10					RR											08718122	0.00000	10.24000	PM 18/73/D
RA-20	LA-10					RR											08718123	0.00000	20.42000	POR PAR C 18-73
RA-20	LA-10					RR											08718124	0.00000	10.74000	POR PAR C 18-73
RA-20	LA-10					RR											08718125	0.00000	22.74000	PM 17/61/9
RA-20	LA-10					RR											08718126	0.00000	21.10000	PM 17/61/20
RA-20	RL-20					RR											08718129	0.00000	21.40000	PM 17/61/18
RA-20	RL-20					RR											08718130	0.00000	20.50000	PM 17/61/17
RA-20	RL-40					NR											08718131	0.00000	21.27000	PM 17/61/16
RA-20	RL-40					NR											08718132	0.00000	36.35000	SEC 23&26 8 9
RA-20	RL-40					NR											08718134	0.00000	20.03000	PM 17/61/23
RA-20	LA-10					RR											08718135	0.00000	20.22000	PM 17/61/27
RA-20	LA-10					RR											08718136	0.00000	20.04000	PM 17/61/26
RA-20	RL-20					RR											08718137	0.00000	20.64000	PM 17/61/21
RA-20	RL-20					RR											08718138	0.00000	20.78000	PM 17/61/22
RA-20	RL-10					RR											08718139	0.00000	10.49200	PORPAR B PM18-73
RA-20	RE-10					RR											08718140	11.00000	0.29800	PORPAR B PM18-73
RA-20	RL-40					NR											08718141	0.00000	20.23000	PM 45/2/1
RA-20	RL-40					NR											08718142	0.00000	20.04000	PM 45/2/2
RA-20	RL-20					RR											08718143	0.00000	27.15000	PM 17/61/19
RA-20	LA-40					NR											08718144	0.00000	21.81000	S23,24,25&26 8 9
RA-20	LA-10					RR											08718147	0.00000	20.01000	RS 32/9/1

RA-20	RL-20					RR											08718148	0.00000	60.25000	RS 32/9/2
RA-20	RL-20					RR											08719002	0.00000	40.14000	PM 22/76/1
RA-20	LA-10					RR											08719003	0.00000	40.13000	PM 22/76/2
RA-40	LA-10					RR											08719006	0.00000	40.02000	PM 22/76/5
RA-40	LA-10					RR											08719007	0.00000	40.04000	PM 22/76/6
RA-40	RL-40					RR											08719008	0.00000	40.03000	PM 22/76/7
RA-40	RL-40					RR											08719009	0.00000	40.04000	PM 22/76/8
RA-40	RL-40					RR											08719010	0.00000	40.03000	PM 22/76/9
RA-40	RL-40					RR											08719011	0.00000	40.06000	PM 22/76/10
RA-40	LA-10					RR											08719012	0.00000	40.05000	PM 22/76/11
RA-40	RL-40					RR											08719013	0.00000	40.04000	PM 22/76/12
RA-40	RL-40					RR											08719014	0.00000	40.05000	PM 22/76/13
RA-40	RL-40					RR											08719015	0.00000	40.03000	PM 22/76/14
RA-40	LA-10					RR											08719016	0.00000	40.04600	PM 22/76/15
RA-40	RL-40					RR											08719017	0.00000	40.04000	PM 22/76/16
RE-10	RL-10					RR											08719018	0.00000	40.01000	PM 22/76/17
RA-20	RL-20					RR											08719020	0.00000	40.10000	PM 22/76/19
RA-20	RL-20					RR											08719021	0.00000	40.08000	PM 22/76/20
RA-40	RL-10					RR											08719021	0.00000	40.08000	PM 22/76/20
RA-40	RL-10					RR											08719021	0.00000	40.08000	PM 22/76/20
RA-40	RL-10					RR											08719022	0.00000	40.25900	PM 22/76/21
RA-40	RL-10					RR											08719022	0.00000	40.25900	PM 22/76/21
RA-40	RL-10					RR											08719022	0.00000	40.25900	PM 22/76/21
RA-40	RL-10					RR											08719022	0.00000	40.25900	PM 22/76/21
RE-10	RL-10					RR											08719022	0.00000	40.25900	PM 22/76/21
RA-40	RL-40					RR											08719023	0.00000	40.04000	PM 22/76/22
RE-10	RL-10					RR											08719023	0.00000	40.04000	PM 22/76/22
RE-10	RL-10					RR											08719023	0.00000	40.04000	PM 22/76/22
RA-40	RL-40					RR											08719024	0.00000	40.17000	PM 22/76/23
RA-20	RL-10					RR											08719026	0.00000	10.04000	PM 23/127/A
RA-20	LA-10					RR											08719027	0.00000	10.03000	PM 23/127/B
RA-20	RL-10					RR											08719028	0.00000	10.03000	PM 23/127/C
RA-20	RL-10					RR											08719029	0.00000	10.03200	PM 23/127/D
RA-20	LA-10					RR											08719030	0.00000	20.13600	PM 34/26/A
RA-20	RL-20					RR											08719031	0.00000	20.00200	PM 34/26/B
RA-20	RL-20					RR											08719032	0.00000	20.03000	PM 34/90/A
RA-20	RL-20					RR											08719033	0.00000	20.02000	PM 34/90/B
RE-10	RL-10					RR											08720001	0.00000	10.00000	PM 21/75/A
RE-10	RL-10					RR											08720002	0.00000	10.00000	PM 21/75/B
RE-10	RL-10					RR											08720003	0.00000	10.00000	PM 21/75/C
RE-10	RL-10					RR											08720004	0.00000	30.00000	PM 21/75/D
RE-10	RL-10					RR											08720005	0.00000	10.00000	PM 21/76/A
RE-10	RL-10					RR											08720006	0.00000	10.00000	PM 21/76/B
RE-10	RL-10					RR											08720007	0.00000	10.00000	PM 21/76/C
RE-10	RL-10					RR											08720009	0.00000	10.00000	PM 21/77/A
RE-10	RL-10					RR											08720011	0.00000	10.02000	PM 21/77/C

RE-10	RL-10					RR											08720012	0.00000	10.00000	PM 21/77/D
RE-10	RL-10					RR											08720014	0.00000	10.00000	PM 21/78/B
RE-10	RL-10					RR											08720015	0.00000	10.00000	PM 21/78/C
RE-10	RL-10					RR											08720016	0.00000	10.00000	PM 21/78/D
RE-10	RL-10					RR											08720017	0.00000	10.00000	PM 21/87/A
RE-10	RL-10					RR											08720019	0.00000	10.00000	PM 21/87/C
RE-10	RL-10					RR											08720020	0.00000	30.01000	PM 21/87/D
RE-10	RL-10					RR											08720021	0.00000	10.00000	PM 21/106/A
RE-10	RL-10					RR											08720023	0.00000	10.00000	PM 21/106/C
RE-10	RL-10					RR											08720024	0.00000	10.00000	PM 21/106/D
RE-10	RL-10					RR											08720025	0.00000	10.00000	PM 21/107/A
RE-10	RL-10					RR											08720026	0.00000	10.00000	PM 21/107/B
RE-10	RL-10					RR											08720027	0.00000	10.00000	PM 21/107/C
RA-40	RL-10					RR											08720028	0.00000	30.00000	PM 21/107/D
RE-10	RL-10					RR											08720029	0.00000	10.00000	PM 22/27/A
RE-10	RL-10					RR											08720030	0.00000	10.00000	PM 22/27/B
RE-10	RL-10					RR											08720031	0.00000	10.00000	PM 22/27/C
RE-10	RL-10					RR											08720033	0.00000	10.00000	PM 22/47/A
RE-10	RL-10					RR											08720034	0.00000	21.30000	PM 22/47/B
RE-10	RL-10					RR											08720035	0.00000	10.03000	PM 22/47/C
RE-10	RL-10					RR											08720038	0.00000	10.07000	PM 22/126/B
RE-10	RL-10					RR											08720040	0.00000	10.00000	PM 22/126/D
RE-10	RL-10					RR											08720041	0.00000	10.39000	PM 23/81/1
RE-10	RL-10					RR											08720042	0.00000	10.18000	PM 23/81/2
RE-10	RL-10					RR											08720043	0.00000	10.00000	PM 23/81/3
RE-10	RL-10					RR											08720044	0.00000	10.00000	PM 23/90/1
RE-10	RL-10					RR											08720045	0.00000	10.00000	PM 23/90/2
RE-10	RL-10					RR											08720046	0.00000	10.00000	PM 23/90/3
RE-10	RL-10					RR											08720047	0.00000	10.00000	PM 24/38/1
RE-10	RL-10					RR											08720048	0.00000	10.00000	PM 24/38/2
RE-10	RL-10					RR											08720049	0.00000	10.00000	PM 24/38/3
RE-10	RL-10					RR											08720051	0.00000	10.00000	PM 25/142/B
RE-10	RL-10					RR											08720052	0.00000	10.00000	PM 25/142/C
RE-10	RL-10					RR											08720053	0.00000	10.00000	PM 25/142/D
RE-10	RL-10					RR											08720054	0.00000	10.00000	POR PAR D 22-47
RE-10	RL-10					RR											08720055	0.00000	10.04000	PPM 22/47/D
RE-10	RL-10					RR											08720056	0.00000	10.00000	POR PAR D 22-47
RE-10	RL-10					RR											08720057	0.00000	10.00000	POR PAR D 22-47
RE-10	RL-10					RR											08720058	0.00000	10.10000	RS 11/132/3
RE-10	RL-10					RR											08720059	0.00000	10.10000	RS 11/132/2
RE-10	RL-10					RR											08720060	0.00000	10.10000	RS 11/132/1
RE-10	RL-10					RR											08720068	0.00000	10.00000	PM 32/41/2
RE-10	RL-10					RR											08720069	0.00000	10.06200	PM 33/102/1
RE-10	RL-10					RR											08720070	0.00000	10.06100	PM 33/102/2
RE-10	RL-10					RR											08720071	0.00000	10.01000	PM 33/103/1
RE-10	RL-10					RR											08720073	0.00000	10.70000	PM 33/103/3

OS	MV-TM					LDR											08720074	0.00000	160.00000	RS 17/45 S2099
RE-5	MV-TM			PD		LDR											08720074	0.00000	160.00000	RS 17/45 S2099
RE-5	MV-TM			PD		LDR											08720074	0.00000	160.00000	RS 17/45 S2099
RE-5	MV-TM			PD		LDR											08720074	0.00000	160.00000	RS 17/45 S2099
RE-10	RL-10					RR											08720075	0.00000	10.00000	PM 14/46/1
RE-10	RL-10					RR											08720076	0.00000	10.00000	PM 14/46/2
RE-10	RL-10					RR											08720077	0.00000	10.00000	PM 14/46/3
RE-10	RL-10					RR											08720078	0.00000	10.00000	SEC 20 9 9
RE-10	RL-10					RR											08720079	0.00000	10.00000	SEC 20 9 9
RE-10	RL-10					RR											08720080	0.00000	10.00000	SEC 20 9 9
RE-10	RL-10					RR											08720085	0.00000	10.48000	RS 15/117/2
RE-10	RL-10					RR											08720086	0.00000	10.00000	RS 15/117/1
RE-10	RL-10					RR											08720087	0.00000	10.01800	PM 50/59/A
RE-10	RL-10					RR											08720088	0.00000	10.00400	PM 50/59/B
RE-10	RL-10					RR											08721002	0.00000	20.01000	RS 23-140
RE-10	RL-10					RR											08721003	0.00000	10.00000	PM 20/88/C
RE-10	RL-10					RR											08721004	0.00000	10.00000	PM 20/88/D
RE-10	RL-10					RR											08721006	0.00000	20.00000	PM 22/45/B
RE-10	RL-10					RR											08721007	0.00000	10.00000	PM 22/45/C
RE-10	RL-10					RR											08721008	0.00000	10.00000	PM 22/45/D
RE-10	RL-10					RR											08721009	0.00000	10.00000	PM 22/46/A
RE-10	RL-10					RR											08721010	0.00000	10.00000	PM 22/46/B
RE-10	RL-10					RR											08721011	0.00000	10.00000	PM 22/46/C ADM
RE-10	RL-10					RR											08721012	0.00000	30.00000	PM 22/46/D
RE-10	RL-10					RR											08721013	0.00000	10.00000	PM 23/107/1
RE-10	RL-10					RR											08721015	0.00000	10.00000	PM 27/75/1
RE-10	RL-10					RR											08721016	0.00000	10.00000	PM 27/75/2
RE-10	RL-10					RR											08721018	0.00000	10.01000	PM 18/94/B
RE-10	RL-10					RR											08721019	0.00000	10.00000	PM 18/94/3
RE-10	RL-10					RR											08721020	0.00000	9.71000	PM 11/58/2
RE-10	RL-10					RR											08721021	0.00000	10.02400	PM 11/58/3
RE-10	RL-10					RR											08721022	0.00000	10.05000	PM 11/58/4
RE-10	RL-10					RR											08721023	0.00000	10.02000	PM 11/58/1
RE-10	RL-10					RR											08721025	0.00000	10.00000	PM 41/82/1
RE-10	RL-10					RR											08721029	0.00000	10.00000	PM 41/133/1
RE-10	RL-10					RR											08721030	0.00000	10.00000	PM 41/133/2
RE-10	RL-10					RR											08721031	0.00000	5.76700	PPM 18/94/1 ADM
RE-10	RL-10					RR											08721032	0.00000	14.03600	POR PM 18/94/1
RE-10	RL-10					RR											08722001	0.00000	10.00000	PM 16/103/1
RE-10	RL-10					RR											08722002	0.00000	10.09000	PM 16/103/2
RE-10	RL-10					RR											08722003	0.00000	10.15000	PM 16/103/3
RE-10	RL-10					RR											08722004	0.00000	10.00300	PM 14/81/B
RE-10	RL-10					RR											08722005	0.00000	10.01000	PM 16/103/4
RE-10	RL-10					RR											08722006	0.00000	20.00000	PM 14/81/C
RE-10	RL-10					RR											08722007	0.00000	40.00000	SEC 29 9 9
RE-10	RL-10					RR											08722008	0.00000	10.01000	PM 12/38/4

RE-10	RL-10					RR											08722009	0.00000	9.70000	PM 12/38/3
RE-10	RL-10					RR											08722012	0.00000	10.19000	PM 14/47/C
RE-10	RL-10					RR											08722013	0.00000	10.19400	PM 16/124/3
RE-10	RL-10					RR											08722014	0.00000	10.20000	PM 16/124/2
RE-10	RL-10					RR											08722015	0.00000	10.18000	PM 14/47/B
RE-10	RL-10					RR											08722016	0.00000	10.19000	PM 14/47/A
RE-10	RL-10					RR											08722017	0.00000	10.20500	PM 16/124/1
RE-10	RL-10					RR											08722018	0.00000	10.18000	PM 16/21/D
RE-10	RL-10					RR											08722019	0.00000	10.00000	PM 16/21/B
RE-10	RL-10					RR											08722020	0.00000	10.04000	PM 16/21/A
RE-10	RL-10					RR											08722021	0.00000	30.04000	PM 16/21/C
RE-10	RL-10					RR											08722027	0.00000	10.00200	PM 33/75/B
RE-10	RL-10					RR											08722029	0.00000	10.00200	PM 33/75/A
RA-40	LA-10					RR											08722030	0.00000	10.51000	SEC 29 9 9
RE-10	LA-10					RR											08722030	0.00000	10.51000	SEC 29 9 9
RE-10	RL-10					RR											08723002	0.00000	10.02000	L 31
RE-10	RL-10					RR											08723003	0.00000	10.02000	L 32
RE-10	RL-10					RR											08723004	0.00000	10.02000	L 33
RE-10	RL-10					RR											08723005	0.00000	10.02000	L 34
RE-10	RL-10					RR											08723006	0.00000	10.02000	L 35
RE-10	RL-10					RR											08723007	0.00000	10.02000	L 36
RE-10	RL-10					RR											08723008	0.00000	10.29000	L 37
RE-10	RL-10					RR											08723009	0.00000	10.36000	L 38
RE-10	RL-10					RR											08723010	0.00000	11.53000	L 39
RE-10	RL-10					RR											08723011	0.00000	10.03000	L 40
RE-10	RL-10					RR											08723012	0.00000	10.03000	L 41
RE-10	RL-10					RR											08723013	0.00000	10.04000	L 42
RE-10	RL-10					RR											08723014	0.00000	10.04000	L 43
RE-10	RL-10					RR											08723015	0.00000	10.03000	L 44
RE-10	RL-10					RR											08723016	0.00000	10.03000	L 45
RE-10	RL-10					RR											08723017	0.00000	10.03000	L 46
RE-10	RL-10					RR											08723018	0.00000	10.03000	L 47
RE-10	RL-10					RR											08723019	0.00000	10.04000	L 48
RE-10	RL-10					RR											08723020	0.00000	10.07000	L 49
RE-10	RL-10					RR											08723021	0.00000	10.18000	L 50
RE-10	RL-10					RR											08723022	0.00000	10.07000	L 51
RE-10	RL-10					RR											08723023	0.00000	10.12000	L 52
RE-10	RL-10					RR											08723024	0.00000	16.20000	L 53
RE-10	RL-10					RR											08723025	0.00000	10.06000	L 54
RE-10	RL-10					RR											08723026	0.00000	10.22000	L 55
RE-10	RL-10					RR											08723027	0.00000	10.71000	L 56
RE-10	RL-10					RR											08723028	0.00000	10.75000	L 57
RE-10	RL-10					RR											08723029	0.00000	10.22000	L 58
RE-10	RL-10					RR											08723030	0.00000	10.23000	L 59
RE-10	RL-10					RR											08723031	0.00000	12.94000	L 60
RE-10	RL-10					RR											08723032	0.00000	10.01000	L 61

RE-10	RL-10					RR											08723033	0.00000	10.01000	L 62
RE-10	RL-10					RR											08724001	0.00000	10.18000	L 1
RE-10	RL-10					RR											08724002	0.00000	10.03000	L 2
RE-10	RL-10					RR											08724003	0.00000	10.03000	L 3
RE-10	RL-10					RR											08724004	0.00000	10.03000	L 4
RE-10	RL-10					RR											08724005	0.00000	10.03000	L 5
RE-10	RL-10					RR											08724006	0.00000	10.04000	L 6
RE-10	RL-10					RR											08724007	0.00000	10.04000	L 7
RE-10	RL-10					RR											08724008	0.00000	10.39000	L 8
RE-10	RL-10					RR											08724009	0.00000	10.40000	L 9
RE-10	RL-10					RR											08724010	0.00000	10.03000	L 10
RE-10	RL-10					RR											08724011	0.00000	10.03000	L 11
RE-10	RL-10					RR											08724012	0.00000	10.03000	L 12
RE-10	RL-10					RR											08724013	0.00000	10.03000	L 13
RE-10	RL-10					RR											08724014	0.00000	10.03000	L 14
RE-10	RL-10					RR											08724015	0.00000	10.15000	L 15
RE-10	RL-10					RR											08724016	0.00000	10.10000	L 16
RE-10	RL-10					RR											08724018	0.00000	10.03000	L 18
RE-10	RL-10					RR											08724019	0.00000	10.03000	L 19
RE-10	RL-10					RR											08724021	0.00000	10.03000	L 21
RE-10	RL-10					RR											08724022	0.00000	10.03000	L 22
RE-10	RL-10					RR											08724023	0.00000	10.03000	L 23
RE-10	RL-10					RR											08724024	0.00000	10.03000	L 24
RE-10	RL-10					RR											08724025	0.00000	10.03000	L 25
RE-10	RL-10					RR											08724026	0.00000	10.03000	L 26
RE-10	RL-10					RR											08724027	0.00000	10.10000	L 27
RE-10	RL-10					RR											08724028	0.00000	10.11000	L 28
RE-10	RL-10					RR											08724029	0.00000	10.01000	L 29
RE-10	RL-10					RR											08724030	0.00000	10.01000	L 30
RE-10	RL-10					RR											08724031	0.00000	10.12000	L 20
RE-10	RL-10					RR											08724033	0.00000	10.00000	L 17
RE-10	RL-10					RR											08725002	0.00000	10.28000	PM 19/37/2
RE-10	RL-10					RR											08725003	0.00000	10.00200	PM 19/37/3
RE-10	RL-10					RR											08725004	0.00000	10.00000	PM 19/37/4
RE-10	RL-10					RR											08725006	0.00000	10.01000	POR PAR D 18-70
RE-10	RL-10					RR											08725007	0.00000	10.97000	POR PAR D 18-70
RE-10	RL-10					RR											08725008	0.00000	11.00000	PM 12/100/1
RE-10	RL-10					RR											08725009	0.00000	11.08900	PM 12/100/2
RE-10	RL-10					RR											08725010	0.00000	10.01000	PM 12/100/3
RE-10	RL-10					RR											08725011	0.00000	10.33000	PM 18/70/A
RE-10	RL-10					RR											08725012	0.00000	10.33100	PM 18/70/B
RE-10	RL-10					RR											08725013	0.00000	14.52000	PM 13/18/A
RE-10	RL-10					RR											08725014	0.00000	10.00000	PM 13/18/B
RE-10	RL-10					RR											08725015	0.00000	12.08000	PM 13/18/C
RE-10	RL-10					RR											08725016	0.00000	10.50000	PM 16/143/1
RE-10	RL-10					RR											08725017	0.00000	10.52000	PM 16/143/2

RE-10	RL-10					RR											08725018	0.00000	10.50000	PM 16/143/3
RE-10	RL-10					RR											08725019	0.00000	10.48000	PM 16/143/4
RE-10	RL-10					RR											08725020	0.00000	10.00500	PM 13/4/B
RE-10	RL-10					RR											08725021	0.00000	12.00000	PM 13/4/C
RE-10	RL-10					RR											08725022	0.00000	10.00000	PM 13/4/D
RE-10	RL-10					RR											08725023	0.00000	10.01000	PM 18/69/2
RE-10	RL-10					RR											08725024	0.00000	10.26200	PM 18/69/3
RE-10	RL-10					RR											08725025	0.00000	10.34000	PM 18/69/4
RE-10	RL-10					RR											08725026	0.00000	12.83000	PM 18/69/1
RE-10	RL-10					RR											08725027	0.00000	10.00000	PM 13/35/C
RE-10	RL-10					RR											08725028	0.00000	10.00000	PM 13/35/B
RE-10	RL-10					RR											08725029	0.00000	10.00100	PM 13/35/A
RE-10	RL-10					RR											08725033	0.00000	10.00000	PM 37/61/1
RE-10	RL-10					RR											08725034	0.00000	10.28000	PM 37/61/2
RE-10	RL-10					RR											08725035	0.00000	10.07000	PM 37/61/3
RE-10	RL-10					RR											08725036	0.00000	10.00000	PM 37/61/4
RE-10	RL-10					RR											08725037	0.00000	10.05200	PM 38/113/1
RE-10	RL-10					RR											08725038	0.00000	10.00000	PM 38/113/2
RE-10	RL-10					RR											08725039	0.00000	10.00200	PM 38/113/3
RE-10	RL-10					RR											08725040	0.00000	10.00000	PM 38/113/4
RE-10	RL-10					RR											08725041	0.00000	11.37000	PM 38/112/1
RE-10	RL-10					RR											08725042	0.00000	10.00000	PM 38/112/2
RE-10	RL-10					RR											08725043	0.00000	10.00000	PM 38/112/3
RE-10	RL-10					RR											08725044	0.00000	10.00000	PM 38/112/4
RE-10	RL-10					RR											08725045	0.00000	10.01000	POR PM 18/70/D
RA-80	RL-80					RR											08726002	0.00000	2.06000	SEC 31 9 9
RA-40	LA-10					RR											08726006	0.00000	42.41000	RS 21/84/1
RA-40	LA-10					RR											08726006	0.00000	42.41000	RS 21/84/1
RA-20	RL-20					RR											08726007	0.00000	220.00000	SEC 32 & 33 9 9
RA-40	RL-40					RR											08726007	0.00000	220.00000	SEC 32 & 33 9 9
RA-40	RE-10					RR											08726010	11.00000	1.17500	S 29 9 9 RS14-13
RA-40	RE-10					RR											08726011	11.00000	0.40000	RS 14/13 S3099
RA-40	LA-10					RR											08726012	0.00000	126.56500	S 32 9 9
RA-40	RE-10					RR											08726013	11.00000	0.69000	S 32 9 9
RA-40	TC					RR											08726014	11.00000	0.00000	POR SEC 32 9 9
RA-40	TC					RR											08726015	11.00000	0.00000	SEC 29 9 9
RA-40	TC					RR											08726016	11.00000	0.00000	SEC 32 9 9
RA-40	LA-10					RR											08726017	0.00000	159.44900	SEC 32 9 9
RA-40	LA-10					RR											08726018	0.00000	27.66000	SEC 32 9 9
RA-40	LA-10					RR											08726019	0.00000	6.06000	SEC 32 9 9
RA-40	LA-10					RR											08726020	0.00000	74.49100	SEC 32 9 9
RA-40	LA-10					RR											08726021	0.00000	49.90000	SEC 32 9 9
RA-40	LA-10					RR											08726022	0.00000	119.12000	SEC 31 9 9
RA-80	LA-10					RR											08726022	0.00000	119.12000	SEC 31 9 9
RA-40	LA-10					RR											08726023	0.00000	365.02000	SEC 31 9 9
RA-80	LA-10					RR											08726023	0.00000	365.02000	SEC 31 9 9

RA-40	LA-10					RR											08726024	0.00000	80.45300	SEC 32 9 9
RA-40	LA-10					RR											08726025	0.00000	40.00000	SEC 30&31 9 9
RA-40	LA-10					RR											08726025	0.00000	40.00000	SEC 30&31 9 9
RA-80	LA-10					RR											08726025	0.00000	40.00000	SEC 30&31 9 9
RA-40	LA-10					RR											08726026	0.00000	25.60000	SEC 29&32 9 9
A	LA-10					RR											08727001	0.00000	10.00000	PM 31/8/A
A	RL-10					RR											08727002	0.00000	10.00000	PM 31/8/B
A	LA-10					RR											08727003	0.00000	9.64000	PM 31/8/C
A	RL-10					RR											08727004	0.00000	10.00000	PM 22/61/1
A	RL-10					RR											08727005	0.00000	10.00000	PM 22/61/2
A	LA-10					RR											08727006	0.00000	10.00000	PM 22/61/3
A	RL-10					RR											08727007	0.00000	10.00000	PM 22/62/1
A	RL-10					RR											08727008	0.00000	10.02000	PM 22/62/2
A	RL-10					RR											08727009	0.00000	10.00000	PM 22/62/3
A	LA-10					RR											08727010	0.00000	9.68000	PM 31/135/A
A	LA-10					RR											08727011	0.00000	10.00000	PM 31/135/B
A	RL-10					RR											08727012	0.00000	10.00000	PM 31/135/C
A	LA-10					RR											08727013	0.00000	10.00000	PM 22/64/2
A	LA-10					RR											08727015	0.00000	10.00000	PM 34/110/A
A	LA-10					RR											08727016	0.00000	9.87000	PM 34/110/B
A	LA-10					RR											08727017	0.00000	10.00000	PM 34/110/C
A	LA-10					RR											08727018	0.00000	10.00000	PM 34/110/D
A	LA-10					RR											08727019	0.00000	10.00000	PM 22/63/2
A	RL-10					RR											08727020	0.00000	10.00000	PM 22/63/3
A	LA-10					RR											08727021	0.00000	30.03000	PM 30/66/A
A	LA-10					RR											08727022	0.00000	10.00000	PM 30/66/B
AE	RL-10					RR											08727026	0.00000	20.02000	PM 16/104/1
AE	RL-10					RR											08727028	0.00000	20.02000	PM 16/104/3
AE	LA-10					RR											08727032	0.00000	20.07000	PM 17/36/3
AE	LA-10					RR											08727039	0.00000	20.01700	PM 16/134/3
A	RL-10					RR											08727045	0.00000	10.00000	PM 22/64/1
RE-10	RL-10					RR											08727047	0.00000	10.05000	PM 37/85/A
RE-10	RL-10					RR											08727049	0.00000	10.05000	PM 37/85/C
RE-10	RL-10					RR											08727050	0.00000	11.90000	PM 37/85/D
RE-10	RL-10					RR											08727051	0.00000	10.02500	PM 39/27/1
RE-10	RL-10					RR											08727052	0.00000	10.02500	PM 39/27/2
AE	RE-5					LDR			IBC								08727057	0.00000	5.00000	PM 39/98/1
AE	RE-5					LDR			IBC								08727058	0.00000	5.00600	PM 39/98/2
AE	RE-5					LDR			IBC								08727059	0.00000	5.00200	RS 26/25/1
AE	RE-5					LDR			IBC								08727060	0.00000	5.01000	PM 39/98/4
RE-10	RL-10					RR											08727062	0.00000	14.71000	PM 41/79/2
RE-10	RL-10					RR											08727063	0.00000	10.00000	PM 41/79/3
A	RL-10					RR											08727072	0.00000	10.00000	PM 42/69/1
A	RL-10					RR											08727073	0.00000	10.00000	PM 42/69/2
A	LA-10					RR											08727075	0.00000	10.06200	PM 42/69/4
RE-10	RL-10					RR											08727076	0.00000	10.02000	PM 42/112/1

RE-10	RL-10					RR											08727077	0.00000	10.00900	PM 42/112/2
RE-10	RL-10					RR											08727078	0.00000	10.02000	PM 44/35/1
RE-10	RL-10					RR											08727079	0.00000	10.02000	PM 44/35/2
AE	RL-10					RR											08727080	0.00000	10.00000	PM 44/107/1
AE	RL-10					RR											08727081	0.00000	12.81000	PM 44/107/2
AE	TC					I											08727083	11.00000	0.00000	SEC 26 9 9
I	TC					I											08727083	11.00000	0.00000	SEC 26 9 9
RE-10	RL-10					RR											08727084	0.00000	10.05000	PM 49/140/1
RE-10	RL-10					RR											08727085	0.00000	10.01000	PM 49/140/2
RE-10	RL-10					RR											08727086	0.00000	10.00000	PM 41/79/1
A	RL-10					RR											08727087	0.00000	9.63400	PM 42/69/3
RE-10	RL-10					RR											08729015	0.00000	21.61000	POR PAR 1 23-27
RE-10	RL-10					RR											08729016	0.00000	10.01000	POR PAR 1 23-27
RE-10	RL-10					RR											08729017	0.00000	10.01000	POR PAR 1 23-27
RE-10	RL-10					RR											08729018	0.00000	10.00000	PM 23/24/2
RE-10	RL-10					RR											08729019	0.00000	10.00000	PM 23/24/4
RE-10	RL-10					RR											08729021	0.00000	10.00000	PM 25/22/A
RE-10	RL-10					RR											08729022	0.00000	10.01000	PM 23/27/2
RE-10	RL-10					RR											08729024	0.00000	10.01000	PM 23/27/3
RE-10	RE-5					MDR					PL						08729032	0.00000	1.44000	SEC 26 9 9
RE-10	RE-5					MDR					PL						08729033	0.00000	1.32000	RS 33/32/1
RE-10	RE-5					MDR					PL						08729034	0.00000	1.22000	RS 33/32/2
RE-10	RE-5					MDR					PL						08729035	0.00000	1.25000	SEC 26 9 9
RE-10	RE-5					MDR					PL						08729036	0.00000	1.10000	SEC 26 9 9
RE-10	RE-5					MDR					PL						08729037	0.00000	1.00000	SEC 26 9 9
RE-10	RE-5					MDR					PL						08729038	0.00000	1.01000	SEC 26 9 9
RE-10	RE-5					MDR					PL						08729039	0.00000	1.08000	SEC 26 9 9
RE-10	RL-10					RR											08729044	0.00000	5.00000	SEC 26 9 9
RE-10	TC					LDR											08729048	11.00000	0.00000	SEC 26 9 9
RE-5	TC					LDR											08729048	11.00000	0.00000	SEC 26 9 9
RE-10	RL-10					RR											08729050	0.00000	10.00700	PM 48/63/1
RE-10	RL-10					RR											08729051	0.00000	10.00200	PM 48/63/2
A	RL-10					RR											08730001	0.00000	10.00800	PM 18/96/A
A	RL-10					RR											08730002	0.00000	10.01000	PM 18/96/B
A	RL-10					RR											08730003	0.00000	10.01000	PM 18/96/C
RE-10	RL-10					RR											08730006	0.00000	20.00000	PM 18/95/3
RE-10	RL-10					RR											08730007	0.00000	20.00400	PM 18/95/4
RE-10	RL-10					RR											08730008	0.00000	10.00000	PM 18/53/A
RE-10	RL-10					RR											08730009	0.00000	10.00000	PM 18/53/B
RE-10	RL-10					RR											08730010	0.00000	10.00000	PM 18/53/C
RE-10	RL-10					RR											08730012	0.00000	10.00000	PM 19/13/A
RE-10	RL-10					RR											08730013	0.00000	10.00000	PM 19/13/B
RE-10	RL-10					RR											08730014	0.00000	10.00000	PM 19/13/C
RE-10	RL-10					RR											08730017	0.00000	10.00000	PM 19/14/B
RE-10	RL-10					RR											08730018	0.00000	10.00000	PM 19/14/C
RE-10	RL-10					RR											08730019	0.00000	10.00000	PM 19/14/D

RE-10	RL-10					RR											08730020	0.00000	10.01000	PM 19/15/A
RE-10	RL-10					RR											08730021	0.00000	10.00000	PM 19/15/B
RE-10	RL-10					RR											08730022	0.00000	10.00000	PM 19/15/C
RE-10	RL-10					RR											08730024	0.00000	10.00000	SEC 34 9 9
RE-10	RL-10					RR											08730025	0.00000	9.45000	SEC 34 9 9
RE-10	RL-10					RR											08730026	0.00000	10.00000	SEC 34 9 9
A	RL-10					RR											08730027	0.00000	10.00000	PM 19/90/1
A	LA-10					RR											08730028	0.00000	10.10000	PM 19/90/2
A	LA-10					RR											08730029	0.00000	10.00000	PM 19/90/3
RE-10	RL-10					RR											08730031	0.00000	10.00200	PM 19/117/1
RE-10	RL-10					RR											08730033	0.00000	10.00000	PM 19/117/3
RE-10	RL-10					RR											08730034	0.00000	10.19400	PM 19/117/4
RE-10	RL-10					RR											08730035	0.00000	10.00000	PM 19/118/1
RE-10	RL-10					RR											08730036	0.00000	10.00000	PM 19/118/2
A	RL-10					RR											08730038	0.00000	10.00000	PM 19/135/D
A	RL-10					RR											08730040	0.00000	10.00000	PM 19/135/B
RE-10	RL-10					RR											08730041	0.00000	20.02000	SEC 34 9 9
RE-10	RL-10					RR											08730042	0.00000	10.00000	SEC 34 9 9
RE-10	RL-10					RR											08730043	0.00000	10.00000	RS 12/115/2
RE-10	RL-10					RR											08730044	0.00000	20.00000	RS 12/115/1
A	RL-10					RR											08730045	0.00000	10.00000	PM 22/65/1
A	RL-10					RR											08730046	0.00000	10.00000	PM 22/65/2
A	LA-10					RR											08730047	0.00000	10.00000	PM 22/65/3
RE-10	RL-10					RR											08730049	0.00000	10.03000	PM 23/62/1
RE-10	RL-10					RR											08730050	0.00000	10.03000	PM 23/62/2
RE-10	RL-10					RR											08730051	0.00000	10.03000	PM 23/62/3
A	LA-10					RR											08730052	0.00000	10.00600	PM 23/101/1
A	RL-10					RR											08730053	0.00000	10.01000	PM 23/101/2
A	LA-10					RR											08730054	0.00000	10.01000	PM 23/101/3
RE-10	RL-10					RR											08730056	0.00000	10.00000	PM 25/17/A
RE-10	RL-10					RR											08730058	0.00000	10.00000	PM 25/17/C
A	LA-10					RR											08730059	0.00000	10.00000	PM 26/51/A
A	RL-10					RR											08730060	0.00000	10.02000	PM 26/51/B
A	LA-10					RR											08730061	0.00000	10.00000	PM 26/51/C
RE-10	RL-10					RR											08730062	0.00000	9.96000	RS 21/57/1
RE-10	RL-10					RR											08730063	0.00000	9.98000	POR PAR B 25-17
RE-10	RL-10					RR											08730064	0.00000	4.17000	SEC 35 9 9
RE-10	RL-10					RR											08730065	0.00000	1.77000	SEC 35 9 9
A	RL-10					RR											08730066	0.00000	10.05000	PM 15/81/2
A	RL-10					RR											08730067	0.00000	10.05000	PM 15/81/3
A	LA-10					RR											08730068	0.00000	10.02000	PM 15/81/4
RE-10	RL-10					RR											08730070	0.00000	10.00000	PM 7/66/A
RE-10	RL-10					RR											08730072	0.00000	17.35000	PM 15/51/B
RE-10	RL-10					RR											08730073	0.00000	10.00000	PM 15/51/D
A	RL-10					RR											08730074	0.00000	10.00000	PM 37/109/A
A	RL-10					RR											08730075	0.00000	10.00000	PM 37/109/B

A	RL-10					RR											08730076	0.00000	9.82000	PM 37/109/C
RE-10	RL-10					RR											08730077	0.00000	21.59000	RS 19/117/1
RE-10	RL-10					RR											08730079	0.00000	20.04000	RS 19/117/2
A	LA-10					RR											08730080	0.00000	10.36200	RS 24/10
RE-10	RL-10					RR											08730081	0.00000	10.00000	PM 19/117/2
RE-10	RL-10					RR											08731011	0.00000	10.00000	PM 43/114/1
RE-10	RL-10					RR											08731016	0.00000	10.00100	PM 43/114/4
RE-10	RL-10					RR											08731021	0.00000	12.00000	PM 46/55/2
RE-10	RL-10					RR											08731062	0.00000	10.00100	PM 43/114/3
RE-10	RL-10					RR											08731063	0.00000	12.79700	PM 46/55/1
AE	RL-10					RR											08731064	0.00000	134.05000	S 35 9 9 & 2 8 9
RE-10	RL-10			PD		RR											08733001	0.00000	40.03000	L 1
RE-10	RL-10			PD		RR											08733002	0.00000	5.02000	L 2
RE-10	RL-10			PD		RR											08733003	0.00000	5.40000	L 3
RE-10	RL-10			PD		RR											08733004	0.00000	5.24000	L 4
RE-10	RL-10			PD		RR											08733005	0.00000	5.11000	L 5
RE-10	RL-10			PD		RR											08733006	0.00000	5.11000	L 6
RE-10	RL-10			PD		RR											08733009	0.00000	6.00000	L 9
RE-10	RL-10			PD		RR											08733010	0.00000	5.02000	L 10
RE-10	RL-10			PD		RR											08733011	0.00000	7.06000	L 11
RE-10	RL-10			PD		RR											08733012	0.00000	7.20000	L 12
RE-10	RL-10			PD		RR											08733013	0.00000	9.85000	L 13
RE-10	RL-10			PD		RR											08733017	0.00000	5.51000	L 17
RE-10	RL-10			PD		RR											08733018	0.00000	5.03000	L 18
RE-10	RL-10			PD		RR											08733019	0.00000	6.21000	L 19
RE-10	RL-10			PD		RR											08733020	0.00000	5.51000	L 20
RE-10	RL-10			PD		RR											08733021	0.00000	9.81000	L 21
RE-10	RL-10			PD		RR											08733022	0.00000	7.10000	L 22
RE-10	RL-10			PD		RR											08733023	0.00000	6.27000	L 23
RE-10	RL-10			PD		RR											08733024	0.00000	6.65000	L 24
RE-10	RL-10			PD		RR											08733025	0.00000	5.63000	L 25
RE-10	RL-10			PD		RR											08733026	0.00000	8.30000	L 26
RE-10	RL-10			PD		RR											08733027	0.00000	5.60000	L 27
RE-10	RL-10			PD		RR											08733028	0.00000	6.40000	L 28
RE-10	RL-10			PD		RR											08733029	0.00000	5.27000	L 50
RE-10	RL-10			PD		RR											08733030	0.00000	5.22000	L 51
RE-10	RL-10			PD		RR											08733031	0.00000	10.07000	L 52
RE-10	RL-10			PD		RR											08733032	0.00000	6.31000	L 53
RE-10	RL-10			PD		RR											08733033	0.00000	8.09000	L 54
RE-10	RL-10			PD		RR											08733034	0.00000	9.10000	L 55
RE-10	RL-10			PD		RR											08733035	0.00000	7.86000	L 56
RE-10	RL-10			PD		RR											08733036	0.00000	8.44000	L 57
RE-10	RL-10			PD		RR											08733040	0.00000	5.01000	RS 19/144/4
RE-10	RL-10			PD		RR											08733042	0.00000	6.70000	RS 19/144/5
RE-10	RL-10			PD		RR											08733046	0.00000	5.81000	RS 19/144/3
RE-10	RL-10			PD		RR											08733048	0.00000	10.72000	RS 19/144/2

RE-10	RL-10			PD		RR											08733049	0.00000	5.01000	RS 19/144/1
RE-10	RL-10			PD		RR											08733050	0.00000	22.19000	POR L 34
RE-10	RL-10			PD		RR											08733051	2.00000	17.97000	POR L 34 ADM AW
RE-10	RL-10			PD		RR											08733053	0.00000	8.55000	RS 24/10
RE-10	RL-10			PD		RR											08734001	0.00000	5.02000	L 29
RE-10	RL-10			PD		RR											08734002	0.00000	6.42000	L 30
RE-10	RL-10			PD		RR											08734003	0.00000	5.43000	L 31
RE-10	RL-10			PD		RR											08734004	0.00000	5.02000	L 32
RE-10	RL-10			PD		RR											08734006	0.00000	6.38000	L 35
RE-10	RL-10			PD		RR											08734007	0.00000	5.33000	L 36
RE-10	RL-10			PD		RR											08734008	0.00000	5.96000	L 37
RE-10	RL-10			PD		RR											08734009	0.00000	5.19000	L 38
RE-10	RL-10			PD		RR											08734010	0.00000	5.02000	L 39
RE-10	RL-10			PD		RR											08734011	0.00000	6.83000	L 40
RE-10	RL-10			PD		RR											08734012	0.00000	5.02000	L 41
RE-10	RL-10			PD		RR											08734013	0.00000	5.01000	L 42
RE-10	RL-10			PD		RR											08734014	0.00000	5.02000	L 43
RE-10	RL-10			PD		RR											08734015	0.00000	40.49000	L 44
RE-10	RL-10			PD		RR											08734016	0.00000	5.50000	L 45
RE-10	RL-10			PD		RR											08734017	0.00000	5.27000	L 46
RE-10	RL-10			PD		RR											08734018	0.00000	6.14000	L 47
RE-10	RL-10			PD		RR											08734019	0.00000	40.04000	L 48
RE-10	RL-10			PD		RR											08734021	2.00000	40.15000	LOT A ADM AW
RE-10	RL-10			PD		RR											08734023	0.00000	35.30400	POR LOT 49
RE-10	RL-10			PD		RR											08734024	0.00000	5.02000	LOT 33 POR LOT49
RE-10	RL-10					RR											08735001	0.00000	10.90000	L 1
RE-10	RL-10					RR											08735002	0.00000	10.93000	L 2
RE-10	RL-10					RR											08735003	0.00000	10.14000	L 3
RE-10	RL-10					RR											08735004	0.00000	10.06000	L 4
RE-10	RL-10					RR											08735005	0.00000	10.05000	L 5
RE-10	RL-10					RR											08735006	0.00000	10.03000	L 6
RE-10	RL-10					RR											08735007	0.00000	10.04000	L 7
RE-10	RL-10					RR											08735008	0.00000	10.14000	L 8
RE-10	RL-10					RR											08735009	0.00000	10.20000	L 9
RE-10	RL-10					RR											08735012	0.00000	10.17000	L 12
RE-10	RL-10					RR											08735013	0.00000	10.06000	L 13
RE-10	RL-10					RR											08735014	0.00000	10.17000	L 14
RE-10	RL-10					RR											08735015	0.00000	10.93000	L 15
RE-10	RL-10					RR											08735016	0.00000	10.52000	L 16
RE-10	RL-10					RR											08735017	0.00000	10.12000	L 17
RE-10	RL-10					RR											08735018	0.00000	10.04000	L 18
RE-10	RL-10					RR											08735019	0.00000	10.04000	L 19
RE-10	RL-10					RR											08735020	0.00000	10.04000	L 20
RE-10	RL-10					RR											08735021	0.00000	10.04000	L 21
RE-10	RL-10					RR											08735022	0.00000	10.04000	L 22
RE-10	RL-10					RR											08735027	0.00000	10.14000	L 10

RE-10	RL-10					RR											08735028	0.00000	11.24000	L 11
RE-10	RL-10					RR											08736001	0.00000	13.38000	L 23
RE-10	RL-10					RR											08736002	0.00000	10.06000	L 24
RE-10	RL-10					RR											08736003	0.00000	10.57000	L 25
RE-10	RL-10					RR											08736004	0.00000	10.14000	L 26
RE-10	RL-10					RR											08736005	0.00000	10.12000	L 27
RE-10	RL-10					RR											08736006	0.00000	11.41000	L 28
RE-10	RL-10					RR											08736007	0.00000	10.04000	L 29
RE-10	RL-10					RR											08736008	0.00000	10.04000	L 30
RE-10	RL-10					RR											08736009	0.00000	10.19000	L 31
RE-10	RL-10					RR											08736010	0.00000	10.06000	L 32
RE-10	RL-10					RR											08736011	0.00000	10.35000	L 33
RE-10	RL-10					RR											08736012	0.00000	10.05000	L 34
RE-10	RL-10					RR											08736013	0.00000	12.45000	L 35
RE-10	RL-10					RR											08736014	0.00000	10.43000	L 36
RE-10	RL-10					RR											08736015	0.00000	10.91000	L 37
RE-10	RL-10					RR											08736016	0.00000	10.08000	L 38
RE-10	TC					RR											08736017	11.00000	0.00000	POR SEC 35 9 9
RA-20	RE-10					LDR											08801002	0.00000	17.44000	RS 31/39/1
AE	PA-20					AL											08801003	0.00000	13.00000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08801005	0.00000	85.66000	SEC 5 11 10
RA-20	RL-20					RR			IBC								08801014	0.00000	40.00000	SEC 8 11 10
RA-20	RL-10					RR											08801020	0.00000	10.25000	SEC 7 11 10
RA-20	RL-10					RR											08801021	0.00000	4.57000	SEC 7 11 10
RA-20	RL-10					RR			IBC								08801025	0.00000	7.19000	PM 25/92/A
RA-20	RL-10					RR			IBC								08801026	0.00000	6.00000	PM 25/92/B
RA-20	RL-10					RR			IBC								08801027	0.00000	5.20800	PPM 47/79/2 ADM
RE-10	LA-10					RR			IBC								08801040	0.00000	43.27000	RS 11/84/3
RA-20	RL-20					RR											08801042	11.00000	0.00000	W 1/2 S 6 11 10
RA-20	RL-20					RR											08801043	11.00000	0.00000	E 1/2 S 6 11 10
RA-20	OS					OS			IBC								08801045	11.00000	40.00000	NW1/4 S 8 11 10
RA-20	RL-20					RR											08801048	0.00000	20.00000	PM 45/126/1
RA-20	RL-20					RR											08801049	0.00000	20.23000	PM 45/126/2
RA-20	LA-10					RR											08801051	0.00000	81.34300	POR SEC 7 11 10
RA-20	RE-10					RR											08801052	11.00000	2.61000	POR SEC 7 11 10
RA-20	RL-20					RR			IBC								08801053	0.00000	20.00000	PM 47/79/1
RA-20	LA-10					RR			IBC								08801054	0.00000	23.07600	PPM 47/79/2 ADM
AE	AG-40					AL			IBC								08801059	0.00000	302.83000	RS 26/107/2
AE	AG-40					AL											08801060	0.00000	123.86000	RS 26/107/1
AE	RL-10					LDR											08801064	0.00000	175.04000	SEC 6 11 10
AE	RL-10					LDR											08801065	0.00000	80.04000	SEC 7 11 10
AE	RL-10					LDR											08801066	0.00000	63.76000	SEC 7 11 10
AE	RL-10					LDR											08801066	0.00000	63.76000	SEC 7 11 10
AE	RL-10					LDR											08801067	0.00000	39.53000	SEC 7 11 10
AE	RL-10					LDR											08801068	0.00000	35.50000	SEC 7 11 10
RE-10	RL-20					AL	A		IBC	MR							08802001	0.00000	52.22000	SEC 3 11 10

RE-10	RL-10					RR											08802004	0.00000	32.01000	SEC 12 11 10
RE-10	RL-10					RR											08802007	0.00000	38.85000	SEC 12 11 10
RE-10	RL-10					RR											08802009	0.00000	0.13000	SEC 12 11 10
RE-10	RL-10					RR			IBC								08802010	0.00000	2.69000	S 11 & 12 11 10
RE-10	RL-10					RR			IBC	MR							08802011	0.00000	2.00000	SEC 11 11 10
RE-10	LA-20					AL			IBC								08802013	0.00000	108.51000	SEC 2 & 11 11 10
RE-10	LA-20					AL			IBC								08802013	0.00000	108.51000	SEC 2 & 11 11 10
RE-10	RL-10					RR			IBC	MR							08802015	0.00000	63.00000	SEC 11 11 10
RE-10	RL-10					RR			IBC	MR							08802016	0.00000	44.85000	SEC 2 & 11 11 10
RE-10	RL-10					RR			IBC	MR							08802016	0.00000	44.85000	SEC 2 & 11 11 10
RE-10	RL-10					RR			IBC								08802019	0.00000	10.88000	S 10 & 15 11 10
RE-10	RL-10					RR			IBC								08802020	0.00000	10.00000	SEC 10 11 10
RE-10	RL-10					RR			IBC	MR							08802025	0.00000	18.66000	SEC 2 11 10
RE-5	RL-10					RR			IBC	MR							08802025	0.00000	18.66000	SEC 2 11 10
RE-10	RL-10					RR			IBC	MR							08802026	0.00000	14.12000	SEC 2 11 10
RE-5	RL-10					RR			IBC	MR							08802026	0.00000	14.12000	SEC 2 11 10
RE-5	RL-10					RR			IBC	MR							08802027	0.00000	2.61000	SEC 2 11 10
AE	PA-20					AL	A		IBC								08802029	0.00000	137.50000	SEC 2 11 10
RE-10	RL-10					RR			IBC	MR							08802030	0.00000	10.04000	SEC 2 11 10
RE-10	RL-20					AL	A										08802032	0.00000	93.73000	SEC 1 11 10
RE-10	RL-20					AL	A										08802033	0.00000	10.00000	SEC 1 11 10
RE-10	RE-5					MDR							GV				08802034	11.00000	0.00000	W 1/2 S 10 11 10
RE-10	RE-5					MDR							GV				08802034	11.00000	0.00000	W 1/2 S 10 11 10
AE	PA-20					AL	A		IBC	MR							08802035	11.00000	0.00000	SEC 2&3 11 10
RE-10	RL-10					RR			IBC	MR							08802043	0.00000	37.29000	RS 12/82 S111110
RE-10	RL-10					RR											08802044	0.00000	2.62000	L 19 S12 11 10
RE-10	RL-10					RR			IBC	MR							08802045	0.00000	42.20000	RS 15/37/1
RE-10	RL-10					RR			IBC	MR							08802046	0.00000	39.64000	RS 15/37/2
RE-10	RL-20					AL											08802047	0.00000	35.48900	RS 15/37/3
RE-10	RL-20					AL											08802048	0.00000	37.32000	RS 15/37/4
RE-5	RE-10					RR			IBC	MR							08802050	11.00000	14.81000	SEC 2&3 11 10
RE-10	RL-10					RR			IBC	MR							08802058	0.00000	40.00000	SEC 11 11 10
RE-10	RL-10					RR											08802061	0.00000	37.52200	SEC 12 11 10
RE-10	RL-10					RR											08802063	0.00000	3.78600	SEC 12 11 10
RE-10	OS					AL											08802064	11.00000	0.00000	POR SEC 12 11 10
RE-10	OS					AL											08802064	11.00000	0.00000	POR SEC 12 11 10
RE-10	OS					AL											08802064	11.00000	0.00000	POR SEC 12 11 10
RE-10	OS					AL											08802064	11.00000	0.00000	POR SEC 12 11 10
RE-10	RL-10					RR			IBC	MR							08802067	0.00000	72.05900	SEC 11 11 10
RE-10	RL-10					RR			IBC	MR							08802068	0.00000	47.21000	SEC 11 11 10
AE	PA-20					AL	A		IBC								08802072	0.00000	101.48000	POR SEC 2 11 10
RE-10	RL-10					RR			IBC								08802075	0.00000	160.00000	SEC 10 11 10
RE-10	RL-10					RR			IBC								08802076	0.00000	40.00000	SEC 11 11 10
RE-5	RL-10					RR	A		IBC	MR							08802077	0.00000	9.27000	SEC 2 & 3 11 10
AE	PA-20					AL	A		IBC								08802079	0.00000	169.85000	PM 49/70/1
AE	PA-20					AL	A		IBC								08802081	0.00000	25.53000	PM 49/70/3

AE	PA-20					AL	A		IBC	MR						08802082	0.00000	10.65000	PM 49/70/4
AE	AG-40					AL	A		IBC							08802084	0.00000	61.54000	PM 49/124/1
AE	AG-40					AL	A		IBC	MR						08802085	0.00000	51.84000	PM 49/124/2
RE-10	RL-10					RR			IBC	MR						08802090	0.00000	5.16400	RS 31/99/A
RE-10	RL-10					RR			IBC	MR						08802092	0.00000	7.24800	PM 50/61/1
RE-10	RL-10					RR			IBC	MR						08802093	0.00000	10.00400	PM 50/61/2
RE-10	RL-10					RR			IBC	MR						08802094	0.00000	10.03900	PM 50/61/3
RE-10	RL-10					RR			IBC	MR						08802095	0.00000	5.00000	PM 50/61/4
RE-10	RL-10					RR										08802096	0.00000	49.93000	SEC 12 11 10
RE-10	RL-10					RR			IBC							08803101	0.00000	59.84000	RS 30/109
RE-10	RL-10					RR			IBC	MR						08803102	0.00000	14.61000	SEC 14 11 10
RE-10	RL-10					RR			IBC	MR						08803103	0.00000	74.49000	SEC 14 11 10
RE-10	RL-10					RR			IBC	MR						08803105	0.00000	30.68000	SEC 14 11 10
RE-10	RL-10					RR			IBC	MR						08803106	0.00000	41.14000	SEC 24 11 10
RE-10	RL-10					RR				MR						08803107	0.00000	19.96000	SEC 24 11 10
RE-10	RL-10					RR				MR						08803108	0.00000	10.31000	RS 8/24 S241110
RE-10	RL-10					RR			IBC	MR						08803109	0.00000	8.00000	SEC 24 11 10
RE-10	RL-10					RR			IBC	MR						08803110	0.00000	8.00000	SEC 24 11 10
RE-10	RL-10					RR			IBC	MR						08803111	0.00000	8.00000	SEC 24 11 10
RE-10	RL-10					RR			IBC	MR						08803156	0.00000	0.00000	
RE-10	RL-10					RR			IBC	MR						08803113	0.00000	32.78800	RS 27/1/1
RE-10	RL-10					RR				MR						08803114	0.00000	16.65000	RS 30/120/1
RE-10	RL-10					RR			IBC	MR						08803117	0.00000	19.29000	SEC 24 11 10
RE-10	RL-10					RR			IBC	MR						08803118	0.00000	18.29000	SEC 24 11 10
RE-10	RL-10					RR			IBC							08803120	0.00000	13.22000	SEC 23 11 10
RE-10	RL-10					RR			IBC							08803121	0.00000	1.84000	SEC 23 11 10
RE-10	RL-10					RR										08803124	0.00000	122.39000	SEC 22 11 10
RE-10	RL-10					RR			IBC	MR						08803125	0.00000	10.00000	SEC 14 11 10
RE-10	RL-10					RR			IBC	MR						08803126	0.00000	30.00000	SEC 14 11 10
RE-10	RL-10					RR			IBC	MR						08803127	0.00000	36.50000	SEC 14 11 10
RE-10	RL-10					RR			IBC	MR						08803128	0.00000	36.22000	L3 S14 RS17-108
MR	RL-40					NR				MR						08803130	0.00000	11.97000	RS 3/69 MS 3956
MR	RL-40					NR				MR						08803131	0.00000	13.04000	RS 3/69 POR L 37
MR	RL-40					NR				MR						08803131	0.00000	13.04000	RS 3/69 POR L 37
RA-20	RL-20					RR			IBC							08803132	0.00000	50.00000	SEC 22 11 10
RE-10	RL-10					RR			IBC							08803132	0.00000	50.00000	SEC 22 11 10
RE-10	RL-10					RR			IBC							08803133	0.00000	10.00000	SEC 22 11 10
RE-10	RL-10					RR			IBC							08803134	0.00000	10.00000	SEC 22 11 10
RA-20	RL-20					RR			IBC							08803135	0.00000	20.00000	SEC 22 11 10
RA-20	RL-20					RR			IBC							08803136	0.00000	20.00000	SEC 22 11 10
RE-10	RL-10					RR			IBC							08803137	0.00000	10.00000	SEC 22 11 10
RA-20	OS					OS										08803139	11.00000	0.00000	POR SEC 22 11 10
RE-10	OS					OS										08803139	11.00000	0.00000	POR SEC 22 11 10
RE-10	OS					OS			IBC							08803140	11.00000	0.00000	POR SEC 23 11 10
RE-10	OS					OS			IBC							08803140	11.00000	0.00000	POR SEC 23 11 10
RE-10	OS					OS			IBC	MR						08803141	11.00000	0.00000	POR SEC 24 11 10

RE-10	OS					OS			IBC	MR							08803141	11.00000	0.00000	POR SEC 24 11 10
RA-20	OS					OS											08803143	11.00000	0.00000	SEC 24 11 10
RE-10	OS					OS											08803143	11.00000	0.00000	SEC 24 11 10
RE-10	OS					OS											08803144	11.00000	0.00000	POR SEC 22 11 10
RE-10	OS					OS				MR							08803145	11.00000	0.00000	POR SEC 24 11 10
RE-10	OS					OS				MR							08803146	11.00000	0.00000	POR SEC 24 11 10
RE-10	OS					OS				MR							08803147	11.00000	0.00000	POR SEC 24 11 10
RE-10	OS					OS				MR							08803148	11.00000	0.00000	POR SEC 24 11 10
RE-10	OS					OS				MR							08803149	11.00000	40.00000	POR SEC 24 11 10
RE-10	OS					OS				MR							08803150	11.00000	0.00000	POR SEC 24 11 10
RE-10	RL-10					RR			IBC								08803151	0.00000	80.00000	SEC 14 11 10
RE-10	RL-10					RR			IBC								08803152	0.00000	120.00000	SEC 14 11 10
RE-10	RL-10					RR			IBC	MR							08803155	0.00000	8.53000	RS 29/127/1&2
RE-10	RL-10					RR			IBC								08804001	0.00000	11.85000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08804003	0.00000	12.17900	RS 18/96/1
RE-10	RL-10					RR			IBC								08804004	0.00000	12.24000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08804005	0.00000	5.01900	PM 2/65/1
RE-10	RL-10					RR			IBC								08804006	0.00000	5.03100	PM 2/65/2
RE-10	RL-10					RR			IBC								08804007	0.00000	10.51000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08804008	0.00000	2.75000	PM 1/99/1
RE-10	RL-10					RR			IBC								08804009	0.00000	2.75000	PM 1/99/2
RE-10	RL-10					RR			IBC								08804010	0.00000	5.83000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08804013	0.00000	8.00000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08804014	0.00000	3.00000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08804015	0.00000	20.00000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08804016	0.00000	1.39800	PM 10/33/A
RE-10	RL-10					RR			IBC								08804017	0.00000	4.50000	PM 10/33/B
RE-10	RL-10					RR			IBC								08804018	0.00000	6.83000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08804020	0.00000	4.10000	PM 11/51/1
RE-10	RL-10					RR			IBC								08804021	0.00000	4.00000	PM 11/51/2
RE-10	RL-10					RR			IBC								08804022	0.00000	14.60000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08804023	0.00000	6.75000	RS 9/46/2 S51110
RE-10	RL-10					RR			IBC								08804024	0.00000	6.44000	RS 9/46/1 S51110
RE-10	RL-10					RR			IBC								08805039	0.00000	10.00000	PM 24/26/A
RE-10	RL-10					RR			IBC								08805040	0.00000	10.00000	PM 24/26/B
RE-10	RL-10					RR			IBC								08805041	0.00000	7.95000	PM 24/26/C
RE-10	RL-10					RR			IBC								08805042	0.00000	10.00000	PM 24/26/D
RE-10	RL-10					RR			IBC								08805043	0.00000	20.00000	PM 19/133/1
RE-10	RL-10					RR			IBC								08805045	0.00000	10.00000	PM 19/133/3
RE-10	RE-5					LDR			IBC								08805062	0.00000	52.80000	POR SEC 4 11 10
RE-10	RL-10					RR			IBC								08805063	0.00000	8.34600	POR SEC 4 11 10
RE-5	I					I			IBC								08805065	0.00000	2.70000	SEC 5 11 10
RE-10	RL-10					RR			IBC								08806005	0.00000	32.41000	PM 21/62/2
RE-10	RL-10					RR			IBC								08806006	0.00000	32.40800	PM 21/62/3
RE-10	RL-10					RR			IBC								08806007	0.00000	15.00000	SEC 4 11 10
RE-10	RL-10					RR			IBC								08806020	0.00000	8.97000	SEC 9 11 10

RE-10	RL-10					RR			IBC								08806021	0.00000	10.34000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08806030	0.00000	21.04000	SEC 4 11 10
RE-10	RL-10					RR			IBC								08806031	0.00000	4.42400	PM 15/85/A
RE-10	RL-10					RR			IBC								08806032	0.00000	4.40900	PM 15/85/B
RE-10	RL-10					RR			IBC								08806033	0.00000	4.40800	PM 15/85/C
RE-10	RL-10					RR			IBC								08806034	0.00000	4.41000	PM 15/85/D
RE-10	RL-10					RR			IBC								08806035	0.00000	21.41000	PM 30/56/A
RE-10	RL-10					RR			IBC								08806039	0.00000	10.21000	S 4 & 9 11 10
RE-10	RL-10					RR			IBC								08806040	0.00000	10.22000	SEC 4&9 11 10
RE-10	RL-10					RR			IBC								08806043	0.00000	14.61200	POR P1 P/M 21-62
RE-10	RL-10					RR			IBC								08806045	0.00000	21.60700	SEC 4 11 10
RE-5	RL-10					RR			IBC								08806045	0.00000	21.60700	SEC 4 11 10
RE-10	RL-10					RR			IBC								08807003	0.00000	12.50000	SEC 4 11 10
RE-10	RL-10					RR			IBC								08807008	0.00000	19.68000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807009	0.00000	10.00000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807010	0.00000	10.00000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807011	0.00000	20.60000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807031	0.00000	7.73000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807032	0.00000	4.26000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807033	0.00000	13.70000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807034	0.00000	12.60000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807035	0.00000	0.36000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807036	0.00000	5.31000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807037	0.00000	5.12000	RS 10/124 S91110
RE-10	RL-10					RR			IBC								08807038	0.00000	5.39600	RS 26/34
RE-10	RL-10					RR			IBC								08807039	0.00000	10.07000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807040	0.00000	5.00000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807041	0.00000	5.86000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08807042	0.00000	8.68000	PPM 36/40/1 ADM
RE-5	RL-10					RR			IBC								08807044	0.00000	3.37000	PPM 36/40/1 ADM
RE-10	RL-10					RR			IBC								08807046	0.00000	16.89000	SEC 4&9 11 10
RE-10	RL-10					RR			IBC								08807047	0.00000	12.05000	PM 36/40/2
RE-10	RL-10					RR			IBC								08808001	0.00000	10.76000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808002	0.00000	5.00000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808003	0.00000	5.10000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808004	0.00000	5.00000	RS 33/14/1
RE-10	RL-10					RR			IBC								08808005	0.00000	5.05000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808006	0.00000	5.10000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808007	0.00000	10.91000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808008	0.00000	12.70000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808009	0.00000	10.00000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808010	0.00000	5.95000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808011	0.00000	10.02000	PM 9/65/2
RE-10	RL-10					RR			IBC								08808012	0.00000	10.22000	POR PAR 1 9-65
RE-10	RL-10					RR			IBC								08808013	0.00000	3.56000	RS 6/46 S91110
RE-10	RL-10					RR			IBC								08808014	0.00000	5.50000	SEC 9 11 10

RE-10	RL-10					RR			IBC								08808015	0.00000	4.84000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808016	0.00000	10.74000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808017	0.00000	3.25000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808018	0.00000	3.25000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808019	0.00000	2.80000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808020	0.00000	1.00000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808021	0.00000	5.00000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808022	0.00000	10.22000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808023	0.00000	1.80000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808032	0.00000	8.44000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808034	0.00000	5.98000	PM 21/81/1
RE-10	RL-10					RR			IBC								08808035	0.00000	3.66000	PM 21/81/2
RE-10	RL-10					RR			IBC								08808038	0.00000	4.52000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808041	0.00000	10.83000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808044	0.00000	10.00000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808045	0.00000	13.80000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808046	0.00000	7.89000	RS 27/54
RE-10	RL-10					RR			IBC								08808047	0.00000	6.13000	RS 32/87/1
RE-10	RL-10					RR			IBC								08808048	0.00000	6.38000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808049	0.00000	7.42000	SEC 9 11 10
RE-10	RL-10					RR			IBC								08808050	0.00000	3.83000	PM 26/13/A
RE-10	RL-10					RR			IBC								08808054	0.00000	10.50000	PM26/13/B&P16/53
RE-10	RL-10					RR			IBC								08808057	0.00000	10.00000	RS 19/6/2
RE-10	RL-10					RR			IBC								08808061	0.00000	8.89000	RS 19/6/1
RE-10	RL-10					RR			IBC								08808069	0.00000	6.29000	RS 24/108
RE-10	RL-10					RR			IBC								08808070	0.00000	3.13000	RS 24/108
RA-20	RL-20					RR											08809001	0.00000	24.72000	SEC 7 11 10
RE-10	RL-10					RR											08809001	0.00000	24.72000	SEC 7 11 10
RA-20	LA-10					RR			IBC								08809002	0.00000	15.00000	SEC 7 11 10
RA-20	RL-10					RR			IBC								08809003	0.00000	3.00000	RS 22/8/1
RE-10	RL-10					RR											08809004	0.00000	6.18000	SEC 7 11 10
RE-10	RL-10					RR											08809018	0.00000	5.03000	PM 31/7/1
RE-10	RL-10					RR											08809019	0.00000	5.87000	PM 31/7/2
RE-10	RL-10					RR	A		IBC								08811002	0.00000	2.71000	PM 9/64/1
RE-10	RL-10					RR	A		IBC								08811003	0.00000	2.41000	PM 9/64/2
RE-10	RL-10					RR	A		IBC								08811004	0.00000	1.51000	PM 9/64/3
RE-10	RL-10					RR	A		IBC								08811005	0.00000	2.02000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811006	0.00000	3.14000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811007	0.00000	2.30000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811008	0.00000	2.41000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811009	0.00000	9.70000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811010	0.00000	10.30000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811011	0.00000	0.46000	POR RS 12/52/1
RE-10	RL-10					RR	A		IBC								08811012	0.00000	5.69000	POR RS 12/52/1
RE-10	RL-10					RR	A										08811013	0.00000	1.71000	SEC 1 11 10
RE-10	RL-10					RR	A										08811014	0.00000	4.96000	SEC 1 11 10

RE-10	RL-10					RR	A										08811015	0.00000	4.27000	SEC 1 11 10
RE-10	RL-10					RR	A										08811016	0.00000	8.59000	SEC 1 11 10
RE-10	RL-10					RR	A										08811017	0.00000	2.88100	SEC 1 11 10
RE-10	RL-10					RR	A										08811018	0.00000	7.15900	SEC 1 11 10
RE-10	RL-10					RR	A										08811019	0.00000	4.04000	SEC 1 11 10
RE-10	RL-10					RR	A										08811020	0.00000	3.53000	SEC 1 11 10
RE-10	RL-10					RR	A										08811022	0.00000	3.00000	SEC 1 11 10
RE-10	RL-10					RR	A										08811023	0.00000	3.55000	RS 9/85 SEC11110
RE-10	RL-10					RR	A		IBC								08811024	0.00000	3.00000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811025	0.00000	3.29000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811026	0.00000	4.33000	SEC 1 11 10
AE	PA-20					AL	A										08811031	0.00000	51.99300	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811033	0.00000	2.75100	PM 46/34/1
RE-10	RL-10					RR	A										08811034	0.00000	1.98000	PM 46/34/2
RE-10	RL-10					RR	A		IBC								08811036	0.00000	4.11000	RS 32/76/2
RE-10	RL-10					RR	A		IBC								08811037	0.00000	4.31000	RS 32/76/1
RE-10	RL-10					RR	A		IBC								08811038	0.00000	11.57600	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08811039	0.00000	3.44000	SEC 1 11 10
RE-10	RL-10					RR	A										08812002	0.00000	20.00000	SEC 1 11 10
RE-10	RL-10					RR	A										08812003	0.00000	6.00000	SEC 1 11 10
RE-10	RL-10					RR	A										08812004	0.00000	4.00000	SEC 1 11 10
RE-10	RL-10					RR	A										08812005	0.00000	4.16000	SEC 1 11 10
RE-10	RL-10					RR	A										08812007	0.00000	0.75000	SEC 1 11 10
RE-10	RL-10					RR	A										08812008	0.00000	1.00000	SEC 1 11 10
RE-10	RL-10					RR	A										08812009	0.00000	2.00000	SEC 1 11 10
RE-10	RL-10					RR	A										08812010	0.00000	1.90000	SEC 1 11 10
RE-10	RL-10					RR	A										08812011	0.00000	3.45000	SEC 1 11 10
RE-10	RL-10					RR	A										08812011	0.00000	3.45000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08812012	0.00000	1.35000	RS 30/150/1
RE-10	RL-10					RR	A		IBC								08812013	0.00000	1.00000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08812014	0.00000	4.20000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08812015	0.00000	6.15000	SEC 1 11 10
RE-10	RL-10					RR	A										08812018	0.00000	3.75000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08812019	0.00000	3.44000	RS 11/67/1
RE-10	RL-10					RR	A		IBC								08812020	0.00000	3.27000	RS 11/67/3
RE-10	RL-10					RR	A		IBC								08812021	0.00000	3.56000	RS 11/67/2
RE-10	RL-10					RR	A		IBC								08812023	0.00000	1.67000	RS 11/67/4
RE-10	RL-10					RR	A		IBC								08812028	0.00000	2.50000	RS 11/67/5
RE-10	RL-10					RR	A		IBC								08812029	0.00000	1.20000	RS 11/67/6
RE-10	RL-20					AL	A										08813001	0.00000	40.00000	SEC 1 11 10
RE-10	RL-20					AL	A										08813002	0.00000	18.33000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08813003	0.00000	11.53000	SEC 1 11 10
RE-10	RL-10					RR	A		IBC								08813004	0.00000	5.00000	SEC 1 11 10
RE-10	RL-10					RR			IBC								08814001	0.00000	4.99000	SEC 11 11 10
RE-10	RL-10					RR			IBC								08814002	0.00000	5.03000	SEC 11 11 10
RE-10	RL-10					RR				MR							08814003	0.00000	2.16000	S 11 & 12 11 10

RE-10	RL-10					RR			IBC	MR							08814004	0.00000	6.44000	SEC 11 11 10
RE-10	RL-10					RR			IBC	MR							08814005	0.00000	1.88000	SEC 11 11 10
RE-10	RL-10					RR			IBC								08814006	0.00000	5.00000	SEC 11 11 10
RE-10	RL-10					RR	A										08815101	0.00000	0.00000	L 11
RE-10	RL-10					RR	A										08815102	0.00000	0.00000	L 10
RE-10	RL-10					RR	A										08815103	0.00000	0.00000	L 9
RE-10	RL-10					RR	A										08815104	0.00000	0.00000	L 8
RE-10	RL-10					RR	A										08815105	0.00000	0.00000	L 7
RE-10	RL-10					RR	A										08815106	0.00000	3.01000	L 6
RE-10	RL-10					RR	A										08815107	0.00000	3.08000	L 5
RE-10	RL-10					RR	A										08815108	0.00000	2.73000	L 4
RE-10	RL-10					RR	A										08815109	0.00000	0.00000	L 3
RE-10	RL-10					RR	A										08815110	0.00000	3.10000	L 2
RE-10	RL-10					RR	A										08815111	0.00000	2.92000	L 1
RE-10	RL-10					RR	A										08816001	0.00000	0.80000	SEC 1 11 10
RE-10	LA-10					RR	A										08816002	0.00000	15.48000	SEC 1 11 10
RE-10	RL-10					RR	A										08816003	0.00000	7.20000	SEC 1 11 10
RE-10	RL-10					RR	A										08816004	0.00000	7.20000	SEC 1 11 10
RE-10	RL-10					RR	A										08816005	0.00000	7.20000	SEC 1 11 10
RE-10	RL-10					RR	A										08816006	0.00000	7.20000	SEC 1 11 10
RE-10	RL-10					RR	A										08816007	1.00000	3.50000	SEC 1 11 10 ROAD
RE-10	RL-10					RR	A										08816008	0.00000	4.00000	SEC 1 11 10
RE-10	RL-10					RR	A										08816009	0.00000	4.00000	SEC 1 11 10
RE-10	RL-10					RR	A										08816010	0.00000	4.06000	SEC 1 11 10
RE-10	RL-10					RR	A										08816011	0.00000	9.07000	SEC 1 11 10
RE-10	RL-10					RR	A										08816012	0.00000	6.04000	SEC 1 11 10
RE-10	RL-10					RR											08816014	0.00000	10.79000	PM 2/78/1
RE-10	RL-10					RR											08816015	0.00000	10.00000	PM 2/78/2
RE-10	RL-10					RR	A										08816016	0.00000	5.00000	SEC 1 11 10
RE-10	RL-10					RR	A										08816017	0.00000	10.70000	SEC 1 11 10
RE-10	RL-10					RR	A										08816018	0.00000	10.02000	SEC 1 11 10
RE-10	LA-10					RR	A										08816019	0.00000	10.19000	SEC 1 11 10
RE-10	RL-10					RR	A										08816020	0.00000	12.30000	SEC 1 11 10
RE-10	LA-10					RR	A										08816021	0.00000	31.16000	SEC 1 11 10
RE-10	RL-10					RR	A										08816022	0.00000	8.39000	S 1 11 10
RE-10	RL-10					RR											08817010	0.00000	1.04000	RS 10/109 S11110
RE-10	RL-10					RR											08817011	0.00000	0.73000	RS 10/109 S11110
RE-10	RL-10					RR											08817015	0.00000	0.38000	RS 12/107/2
RE-10	RL-10					RR											08817017	0.00000	0.57000	SEC 12 11 10
RE-10	RL-10					RR											08817018	0.00000	6.04000	SEC 12 11 10
RE-10	RL-10					RR											08817019	0.00000	3.19000	SEC 12 11 10
RE-10	RL-10					RR											08817020	0.00000	15.04000	SEC 12 11 10
RE-10	RL-10					RR											08817021	0.00000	12.79000	SEC 12 11 10
RE-10	RL-10					RR											08817022	0.00000	4.16000	SEC 1 11 10
RE-10	RL-10					RR											08817023	0.00000	0.28000	RS 22/118
RE-10	RL-10					RR											08817030	0.00000	2.97700	SEC 1 & 12 11 10

AE	PA-20					RR											08817032	0.00000	17.47000	PM 46/120/1
RE-10	RL-10					RR											08817033	0.00000	6.06200	PM 46/120/2
RE-10	RL-10					RR											08818007	0.00000	70.14000	SEC 12 11 10 ADM
RE-10	RL-10					RR											08818008	0.00000	7.80000	SEC 12 11 10
RE-10	RL-10					RR											08818009	0.00000	5.47000	SEC 12 11 10
RE-10	RL-10					RR											08818010	0.00000	9.18000	SEC 12 11 10
RE-10	RL-10					RR											08818011	0.00000	8.24000	SEC 12 11 10
RE-10	RL-10					RR											08818012	0.00000	0.55000	SEC 12 11 10
RE-10	RL-10					RR											08818014	0.00000	22.00000	SEC 12 11 10
RE-10	RL-10					RR											08818015	0.00000	5.91000	SEC 12 11 10
RE-10	RL-10					RR											08818016	0.00000	10.08000	SEC 12 11 10
RE-10	RL-10					RR											08818020	0.00000	3.38300	SEC 12 11 10
RE-10	RL-10					RR											08818021	0.00000	3.00000	SEC 12 11 10
RE-10	RL-10					RR											08818022	0.00000	10.00000	PM 27/33/A
RE-10	RL-10					RR											08818023	0.00000	9.39000	PM 27/33/B
RE-10	RL-10					RR											08818024	0.00000	4.20000	RS 18/144 ADM
RE-10	RL-10					RR											08818025	0.00000	12.94400	POR SEC 12 11 10
RE-10	RL-10					RR			IBC	MR							08819001	0.00000	10.00700	PM 15/113/A
RE-10	RL-10					RR			IBC	MR							08819002	0.00000	6.47000	PM 15/113/B
RE-10	RL-10					RR			IBC	MR							08819003	0.00000	10.00000	PM 15/113/C
RE-10	RL-10					RR			IBC	MR							08819005	0.00000	5.00000	PM 21/9/A
RE-10	RL-10					RR			IBC	MR							08819007	0.00000	5.00000	PM 28/141/1
RE-10	RL-10					RR			IBC	MR							08819008	0.00000	10.54000	PM 28/141/2
RE-5	RL-10					RR			IBC	MR							08820001	0.00000	5.00000	SEC 3 11 10
RE-5	RL-10					RR			IBC	MR							08820002	0.00000	5.00000	SEC 3 11 10
RE-5	RL-10					RR			IBC	MR							08820003	0.00000	1.28000	SEC 3 11 10
RE-10	RL-10					RR	A		IBC	MR							08820006	0.00000	8.68000	PM 21/18/1
RE-10	RL-10					RR	A		IBC	MR							08820008	0.00000	11.79000	PM 12/145/C
RE-5	RL-10					RR	A		IBC	MR							08820009	0.00000	3.14000	PM 16/10/B
RE-5	RL-10					RR	A		IBC	MR							08820010	0.00000	5.02000	PM 16/10/C
RE-5	RL-10					RR	A		IBC	MR							08820011	0.00000	3.32000	PM 16/10/A
RE-5	RL-10					RR	A		IBC	MR							08820012	0.00000	12.63000	PM 16/10/D
RE-5	RL-10					RR	A		IBC	MR							08820014	0.00000	4.99000	PM 16/8/C
RE-5	RL-10					RR	A		IBC	MR							08820015	0.00000	4.99000	PM 16/8/B
RE-5	RL-10					RR	A		IBC	MR							08820016	0.00000	5.93000	PM 16/8/A
RE-10	RL-10					RR			IBC	MR							08820017	0.00000	11.42000	SEC 3 11 10
RE-5	RL-10					RR			IBC	MR							08820017	0.00000	11.42000	SEC 3 11 10
RE-5	RL-10					RR			IBC	MR							08820022	0.00000	25.12000	SEC 3 11 10
RE-5	RL-10					RR			IBC	MR							08820023	0.00000	1.81000	PM 17/56/2
RE-5	RL-10					RR	A		IBC	MR							08820024	0.00000	1.41000	SEC 3 11 10
RE-5	RL-10					RR	A		IBC	MR							08820025	0.00000	3.47000	PM 12/145/D
RE-5	RL-10					RR			IBC	MR							08820026	0.00000	7.78000	PM 10/3/2
RE-5	RL-10					RR			IBC	MR							08820027	0.00000	6.79000	PM 17/56/1
RE-5	RL-10					RR			IBC	MR							08820028	0.00000	5.00000	SEC 3 11 10
RE-5	RL-10					RR			IBC	MR							08820029	0.00000	4.98100	PM 10/3/1
RE-5	RL-10					RR			IBC	MR							08820031	0.00000	1.00000	PM 8/46/4

RE-5	RL-10					RR			IBC	MR							08820032	0.00000	3.21000	PM 8/46/3
RE-5	RL-10					RR			IBC	MR							08820036	0.00000	4.25000	PM 8/46/1
RE-5	RL-10					RR			IBC	MR							08820037	0.00000	5.00000	SEC 3 11 10
RE-10	LA-10					RR	A		IBC	MR							08820042	0.00000	10.07000	PM 26/93/A
RE-10	RL-10					RR	A		IBC	MR							08820043	0.00000	10.23000	PM 26/93/B
RE-10	RL-10					RR	A		IBC	MR							08820044	0.00000	12.70000	PM 26/93/C
RE-10	RL-10					RR	A		IBC	MR							08820045	0.00000	10.98000	PM 26/93/D
RE-5	RL-10					RR			IBC	MR							08820047	0.00000	5.21000	PM 30/113/A
RE-5	RL-10					RR			IBC	MR							08820048	0.00000	5.21000	PM 30/113/B
RE-5	RL-10					RR			IBC	MR							08820049	0.00000	5.00000	PM 30/113/C
RE-5	RL-10					RR			IBC	MR							08820050	0.00000	5.50000	PM 30/113/D
RE-5	RL-10					RR			IBC	MR							08820053	0.00000	5.00000	RS 14/1/2
RE-5	RL-10					RR			IBC	MR							08820055	0.00000	8.37000	RS 14/1/1
RE-10	RL-10					RR	A		IBC	MR							08820056	0.00000	1.40100	SEC 3 11 10
RE-5	RL-10					RR			IBC	MR							08820061	0.00000	2.70000	RS 19/9/2
RE-5	RL-10					RR			IBC	MR							08820062	0.00000	0.89300	RS 19/9/1
RE-5	RL-10					RR			IBC	MR							08820063	0.00000	1.40500	PM 8/46/2
RE-10	RL-10					RR	A		IBC	MR							08820064	0.00000	7.98600	POR PM 16/8/D
RE-5	RL-10					RR	A		IBC	MR							08820064	0.00000	7.98600	POR PM 16/8/D
RE-10	RL-10					RR	A		IBC	MR							08820065	11.00000	0.22000	POR PM 16/8/D
RE-5	RL-10					RR	A		IBC	MR							08820065	11.00000	0.22000	POR PM 16/8/D
RE-5	RL-10					RR			IBC	MR							08820070	0.00000	3.53000	RS 23/123/1
RE-5	RL-10					RR			IBC	MR							08820071	0.00000	4.56100	RS 23/123/2
RE-5	RL-10					RR	A		IBC	MR							08821004	0.00000	4.64000	PM 9/19/4
RE-5	RL-10					RR	A		IBC	MR							08821007	0.00000	3.00000	PRS 10/111/2 ADM
RE-10	RL-10					RR	A		IBC	MR							08821010	0.00000	10.85000	PPM 6/153/D ADM
RE-5	RL-10					RR	A		IBC	MR							08821011	0.00000	1.00000	PPM 6/153/D ADM
RE-5	RL-10					RR	A		IBC	MR							08821015	0.00000	5.51000	RS 10/111/1
RE-5	RL-10					RR	A		IBC	MR							08821016	0.00000	2.01000	PRS 10/111/2 ADM
RE-10	RL-10					RR	A		IBC	MR							08821018	0.00000	16.76200	SEC 3 11 10
RE-5	LA-10					RR	A		IBC	MR							08821019	0.00000	11.23000	PM 6/153/C
RE-10	RL-10					RR	A		IBC	MR							08821020	0.00000	20.00000	SEC 3 11 10
RE-10	OS					OS							GV				08826204	2.00000	0.00000	COMMON AREA
RE-10	OS					OS							GV				08826302	2.00000	0.00000	COMMON AREA
RE-10	OS					OS							GV				08827206	2.00000	0.00000	COMMON AREA
RE-10	RL-10					RR			IBC	MR							08829007	0.00000	10.31000	SEC 13 11 10
RE-10	RL-10					RR			IBC								08829009	0.00000	10.00000	PM 12/130/1
RE-10	RL-10					RR			IBC								08829011	0.00000	10.00700	PM 12/130/2
RE-10	RL-10					RR			IBC								08829012	0.00000	10.00000	PM 12/130/3
MP	R1					HDR							KE				08829017	0.00000	16.51000	SEC 13 11 10
RE-10	RL-10					RR			IBC								08829018	0.00000	12.06200	PM 25/60/A
RE-10	RL-10					RR			IBC								08829019	0.00000	10.00000	PM 25/60/B
RE-10	RL-10					RR			IBC								08829020	0.00000	7.53000	RS 8/14
RE-10	RL-10					RR			IBC								08829021	0.00000	22.22000	PM 29/105/1
RE-10	RL-10					RR			IBC	MR							08829022	0.00000	10.00000	PM 29/105/2
RE-10	RL-10					RR			IBC								08829023	0.00000	20.00000	PM 29/105/3

RE-10	RL-10					RR			IBC								08829024	0.00000	20.00000	PM 29/105/4
CP	CL					C							KE				08831015	0.00000	0.26000	SEC 24 11 10
CP	CL					C							KE				08831016	0.00000	0.44300	SEC 13 10 10
RE-5	CL					C							KE				08831018	0.00000	0.99000	SEC 13 11 10
RE-5	CL					C							KE				08831019	0.00000	0.74000	SEC 13 11 10
RE-5	CL					C							KE				08831020	11.00000	0.17000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08831024	0.00000	27.37000	SEC 23 11 10
RE-10	RE-5					MDR							KE				08831025	2.00000	0.00000	RDWY AW S1323&2
RE-10	RL-10					RR			IBC	MR							08831026	0.00000	10.33500	PM 14/41/A
RE-10	RL-10					RR			IBC	MR							08831027	0.00000	10.79000	PM 14/41/B
RE-10	RL-10					RR			IBC	MR							08831032	0.00000	11.03000	PM 29/21/A
RE-10	RL-10					RR			IBC	MR							08831033	0.00000	11.03000	PM 29/21/B
CP	CL					C							KE				08831034	0.00000	0.20000	SEC 24 11 10
RE-10	RL-10					RR			IBC	MR							08832001	0.00000	37.01000	RS 12/60/2
RE-10	RL-10					RR			IBC								08832004	0.00000	24.73000	SEC 13 11 10
RE-10	RL-10					RR			IBC								08832005	0.00000	20.00000	RS 17/38/1
RE-10	RL-10					RR			IBC								08832006	0.00000	9.16000	SEC 13 11 10
RE-10	RL-10					RR			IBC								08832007	0.00000	10.54000	SEC 13 11 10
RE-10	RL-10					RR			IBC								08832010	0.00000	5.80000	SEC 13 11 10
RE-10	RL-10					RR			IBC								08832011	0.00000	8.66000	SEC 13 11 10
RE-10	RL-10					RR			IBC								08832012	0.00000	38.93000	PM 3/14/1
RE-10	RL-10					RR			IBC								08832013	0.00000	5.00000	PM 3/14/2
RE-10	RL-10					RR			IBC								08832014	0.00000	5.00000	PM 3/14/3
RE-10	RL-10					RR			IBC	MR							08832015	0.00000	27.04000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832016	0.00000	4.57000	PM 16/45/2
RE-10	RL-10					RR			IBC	MR							08832017	0.00000	4.59000	PM 16/45/1
RE-10	RL-10					RR			IBC								08832018	0.00000	9.35000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832019	0.00000	9.41000	RS 14/138/1
RE-10	RL-10					RR			IBC	MR							08832020	0.00000	9.36000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832021	0.00000	9.36000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832022	0.00000	8.21000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832023	0.00000	8.91000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832025	0.00000	18.00000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832026	0.00000	9.07000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832027	0.00000	8.21000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832030	0.00000	12.21000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08832031	0.00000	5.01000	SEC 13 11 10
RE-10	RL-10					RR			IBC								08832032	0.00000	11.79000	PM 32/45/1
RE-10	RL-10					RR			IBC								08832033	0.00000	10.00000	PM 32/45/2
RE-10	RL-10					RR			IBC								08832034	0.00000	10.00000	PM 32/45/3
RE-10	RL-10					RR			IBC								08832035	0.00000	10.00000	PM 32/45/4
RE-10	RL-10					RR			IBC								08832036	0.00000	15.02000	SEC 13 11 10
RE-10	RL-10					RR			IBC	MR							08833001	0.00000	4.99000	SEC 24 11 10
RE-10	RL-10					RR			IBC	MR							08833002	0.00000	4.99000	SEC 24 11 10
RE-10	RL-10					RR			IBC	MR							08833003	0.00000	4.99000	SEC 24 11 10
RE-10	RL-10					RR			IBC	MR							08833004	0.00000	4.29000	SEC 24 11 10

RE-10	RL-10					RR				MR						08834001	0.00000	2.62000	SEC 24 11 10
RE-10	RL-10					RR				MR						08834002	0.00000	8.61000	SEC 24 11 10
RE-10	RL-10					RR				MR						08834003	0.00000	1.37800	SEC 24 11 10
RE-10	RL-10					RR				MR						08834004	0.00000	8.01000	SEC 24 11 10
RE-10	RL-10					RR			IBC							08835018	0.00000	18.07000	PM 5/111/2
RE-10	RL-10					RR			IBC							08835030	0.00000	57.07000	SEC 23 11 10
RE-10	RL-10					RR			IBC	MR						08836001	0.00000	40.30000	PM 12/68/4
RE-10	RL-10					RR			IBC	MR						08836002	0.00000	29.52000	PM 12/68/3
RE-10	RL-10					RR			IBC	MR						08836003	0.00000	13.02000	SEC 23 11 10
RE-10	RL-10					RR			IBC	MR						08836004	0.00000	5.54000	SEC 23 11 10
RE-10	RL-10					RR			IBC	MR						08836005	0.00000	29.47000	PM 12/68/1
RE-10	RL-10					RR			IBC							08836006	0.00000	29.45000	PM 12/68/2
RE-10	RL-10					RR			IBC							08837001	0.00000	12.14500	SEC 22 11 10
RE-10	RL-10					RR			IBC							08837002	0.00000	3.94800	SEC 22 11 10
RE-10	RL-10					RR			IBC							08837003	0.00000	16.09200	SEC 22 11 10
RE-10	RL-10					RR			IBC							08837004	0.00000	0.34000	SEC 15 11 10
RE-10	RL-10					RR			IBC							08837005	0.00000	32.18000	SEC 22 11 10
RE-10	RL-10					RR			IBC							08837006	0.00000	8.20000	SEC 22 11 10
RE-10	RL-10					RR			IBC							08837007	0.00000	7.90000	SEC 22 11 10
RE-10	RL-10					RR			IBC							08837009	0.00000	32.18000	SEC 22 11 10
RE-10	RL-10					RR			IBC							08837010	0.00000	16.09000	SEC 22 11 10
RE-10	RL-10					RR			IBC							08838001	0.00000	6.00000	SEC 15 11 10
RE-10	RL-10					RR			IBC							08838003	0.00000	40.00000	SEC 14 11 10
RE-10	RL-10					RR			IBC							08839001	0.00000	38.76300	RS 26/128/1
RE-10	RL-10					RR			IBC							08839003	0.00000	10.00000	PM 16/32/A
RE-10	RL-10					RR			IBC							08839004	0.00000	10.00000	PM 16/32/B
RE-10	RL-10					RR			IBC							08839007	0.00000	12.00000	SEC 15 11 10
RE-10	RL-10					RR			IBC							08839013	0.00000	17.28000	SEC 15 11 10
RE-10	RL-10					RR			IBC							08839015	0.00000	10.00000	SEC 15 11 10
RE-10	RL-10					RR			IBC							08839019	0.00000	5.09000	PM 29/66/1
RE-10	RL-10					RR			IBC							08839021	0.00000	5.01000	PM 29/66/3
RE-10	RL-10					RR			IBC							08839025	0.00000	5.27000	PM 30/112/A
RE-10	RL-10					RR			IBC							08839027	0.00000	20.14000	SEC 15 11 10
RE-10	RL-10					RR			IBC							08839028	0.00000	22.73000	RS 9/22 S151110
RE-10	RL-10					RR			IBC							08839030	0.00000	31.42000	RS 9/22 S151110
RE-10	RL-10					RR			IBC							08839032	0.00000	12.10700	RS 20/40 S151110
RE-10	RL-10					RR			IBC							08840005	0.00000	24.09000	SEC 15 11 10
RE-10	RL-10					RR			IBC							08840007	0.00000	28.97000	SEC 15 11 10
RE-10	RL-10					RR			IBC							08840008	0.00000	37.88000	SEC 15 11 10
RE-10	RL-10					RR			IBC							08840027	0.00000	22.55000	RS 16/52/2
RE-10	RL-10					RR			IBC							08840036	0.00000	55.83000	PM 49/100/1
RE-10	RL-10					RR			IBC							08840037	0.00000	14.78000	PM 49/100/2
RE-10	RL-10					RR			IBC	MR						08841001	0.00000	10.16000	PM 24/48/A
RE-10	RL-10					RR			IBC	MR						08841002	0.00000	10.00000	PM 24/48/B
RE-10	RL-10					RR			IBC	MR						08841003	0.00000	10.00000	PM 24/48/C
RE-10	RL-10					RR			IBC	MR						08841004	0.00000	5.45000	PM 24/48/D

RE-10	RL-10					RR			IBC	MR							08841005	0.00000	10.00300	PM 24/56/1
RE-10	RL-10					RR			IBC	MR							08841006	0.00000	10.00000	PM 24/56/2
RE-10	RL-10					RR			IBC	MR							08841007	0.00000	10.00000	PM 24/56/3
RE-10	RL-10					RR			IBC	MR							08841008	0.00000	7.38000	PM 24/56/4
RE-10	RL-10					RR			IBC								08841009	0.00000	11.62000	PM 25/122/1
RE-10	RL-10					RR			IBC								08841010	0.00000	6.38000	PM 25/122/2
RE-10	RL-10					RR			IBC								08841011	0.00000	10.33000	PM 25/122/3
RE-10	RL-10					RR			IBC	MR							08841013	0.00000	8.84000	RS 8/74 S241110
RE-10	RL-10					RR			IBC	MR							08841014	0.00000	6.84000	RS 8/74 S241110
RE-10	RL-10					RR			IBC	MR							08841015	0.00000	10.00000	RS 8/74 S241110
RE-10	RL-10					RR			IBC	MR							08841016	0.00000	8.00000	RS 8/74 S241110
RE-10	RL-10					RR			IBC								08841017	0.00000	10.21000	POR PAR 4 25-122
RE-10	RL-10					RR			IBC								08841018	0.00000	10.22000	POR PAR 4 25-122
RE-10	RL-10					RR			IBC								08842001	0.00000	5.09300	PM 22/18/A
RE-10	RL-10					RR			IBC								08842002	0.00000	5.52000	PM 22/18/B
RE-10	RL-10					RR			IBC								08842003	0.00000	5.00500	PM 22/18/C
RE-10	RL-10					RR			IBC								08842004	0.00000	5.31400	PM 22/18/D
RE-10	RL-10					RR			IBC								08842005	0.00000	6.03700	PM 24/59/A
RE-10	RL-10					RR			IBC								08842006	0.00000	5.03300	PM 24/59/B
RE-10	RL-10					RR			IBC								08842007	0.00000	5.03000	PM 24/59/C
RE-10	RL-10					RR			IBC								08842009	0.00000	5.47000	PM 24/78/A
RE-10	RL-10					RR			IBC								08842010	0.00000	5.56000	PM 24/78/B
RE-10	RL-10					RR			IBC								08842011	0.00000	7.40900	PM 24/78/C
RA-20	RL-20					RR			IBC								08842012	0.00000	13.62000	PM 24/115/A
RA-20	RL-10					RR			IBC								08842013	0.00000	5.08200	PM 24/115/B
RA-20	RL-10					RR			IBC								08842014	0.00000	5.08000	PM 24/115/C
RA-20	RL-10					RR			IBC								08842015	0.00000	10.10000	PM 26/86/A
RA-20	RL-10					RR			IBC								08842016	0.00000	10.10000	PM 26/86/B
RA-20	RL-10					RR			IBC								08842017	0.00000	10.10000	PM 26/86/C
RA-20	RL-10					RR			IBC								08842019	0.00000	5.64000	POR PAR D 26-86
RA-20	RL-10					RR			IBC								08842020	0.00000	5.65000	RS 12/71/2
RA-20	RL-10					RR			IBC								08842021	0.00000	10.82000	RS 12/71/1
RE-10	RL-10					RR			IBC								08842022	0.00000	10.02000	PM 29/106/1
RE-10	RL-10					RR			IBC								08842023	0.00000	10.02000	PM 29/106/2
RE-10	RL-10					RR			IBC								08842024	0.00000	1.46000	PM 18/62/3
RA-20	LA-10					RR			IBC								08842025	0.00000	10.10000	PM 30/102/A
RA-20	RL-10					RR			IBC								08842026	0.00000	11.54000	PM 30/102/B
RA-20	RL-10					RR			IBC								08842027	0.00000	10.25000	PM 30/102/C
RE-10	RL-10					RR			IBC								08842029	0.00000	3.25000	PPM 32/103/D ADM
RE-10	RL-10					RR			IBC								08842030	0.00000	10.00000	PM 32/103/A
RE-10	RL-10					RR			IBC								08842031	0.00000	10.00000	PM 32/103/B
RE-10	RL-10					RR			IBC								08842032	0.00000	10.00000	PM 32/103/C
RE-10	RL-10					RR			IBC								08842033	0.00000	6.74700	PPM 32/103/D ADM
RE-10	RL-10					RR			IBC								08842034	0.00000	10.06000	PM 33/108/1
RE-10	RL-10					RR			IBC								08842035	0.00000	10.02000	PM 33/108/2
RE-10	RL-10					RR			IBC								08842036	0.00000	10.02000	PM 33/108/3

RE-10	RL-10					RR			IBC								08842037	0.00000	10.03000	PM 33/108/4
RE-10	RL-10					RR			IBC								08843002	0.00000	10.38000	SEC 8 11 10
RE-10	RL-10					RR			IBC								08843003	0.00000	10.67000	SEC 8 11 10
RE-10	RL-10					RR			IBC								08843006	0.00000	10.00000	SEC 8 11 10
RE-10	RL-10					RR			IBC								08843007	0.00000	10.00000	SEC 8 11 10
RE-10	RL-10					RR			IBC								08843008	0.00000	10.01000	RS 25/112/1
RE-10	RL-10					RR			IBC								08843009	0.00000	10.01000	RS 17/149 S81110
RE-10	RL-10					RR			IBC								08843010	0.00000	10.01000	RS 25/112/2
RE-10	RL-10					RR			IBC								08843011	0.00000	10.00000	SEC 8 11 10
RE-10	RL-10					RR			IBC								08843012	0.00000	30.00000	SEC 8 11 10 ADM
RA-20	RL-20					RR			IBC								08843013	0.00000	73.50000	SEC 8 11 10 ADM
RA-20	RL-20					RR											08844007	0.00000	20.00000	RS 19/129/3
RA-20	RL-20					RR											08844008	0.00000	20.00000	RS 19/129/2
RA-20	RL-20					RR											08844012	0.00000	24.82500	PM 44/136/1
PA	RL-20					RR											08844013	0.00000	40.01000	PM 44/136/2
RA-20	RL-20					RR											08846001	0.00000	32.06000	PM 49/1/1
RA-20	RL-20					RR											08846002	0.00000	32.06000	PM 49/1/2
RA-20	RE-5					MDR					PL						08846003	0.00000	34.29000	PM 49/1/3
RE-10	RE-5					MDR					PL						08846003	0.00000	34.29000	PM 49/1/3
RE-10	RL-10					RR											08846004	0.00000	11.46000	PM 49/1/4
AE	AG-40					AL	A										08901002	0.00000	40.00000	SEC 30 11 10
AE	AG-40					AL	A										08901004	0.00000	61.26000	SEC 30 11 10
AE	PA-20					AL	A										08901005	11.00000	10.00000	SEC 29 11 10
AE	AG-40					AL	A										08901008	0.00000	77.19800	RS 29/130/1
AE	PA-20					AL	A										08901013	0.00000	48.00000	SEC 33 11 10
AE	PA-20					AL	A										08901014	0.00000	37.00000	SEC 33 11 10
AE	PA-20					AL	A										08901023	0.00000	1.77000	RS 11/97 S321110
AE	AG-40					AL											08901027	0.00000	60.68900	SEC 30 11 10
AE	AG-40					AL	A										08901029	0.00000	60.31100	SEC 30 11 10
AE	PA-20					AL	A										08901032	0.00000	130.21400	SEC 29 11 10
RE-10	RL-20					AL	A										08901032	0.00000	130.21400	SEC 29 11 10
AE	PA-20					AL	A										08901033	0.00000	65.82000	SEC 29 11 10
AE	PA-20					AL	A										08901034	0.00000	40.00000	SEC 28&29 11 10
AE	RE-10					RR	A										08901036	11.00000	2.07000	SEC 28 11 10
AE	PA-20					AL	A										08901037	0.00000	132.51000	SEC 28 11 10
AE	PA-20					AL	A										08901038	0.00000	40.85000	SEC 28 11 10
AE	PA-20					AL	A										08901040	0.00000	159.48100	POR S28&33 11 10
AE	PA-20					AL	A										08901040	0.00000	159.48100	POR S28&33 11 10
AE	PA-20					AL	A										08901041	0.00000	2.37900	RS 25/22/1
AE	AG-40					AL											08901043	0.00000	139.50000	POR SEC 30 11 10
AE	AG-40					AL											08901044	0.00000	39.20000	POR SEC 30 11 10
AE	AG-40					AL											08901045	0.00000	22.91000	POR SEC 30 11 10
AE	AG-40					AL											08901046	0.00000	0.60000	POR SEC 30 11 10
AE	AG-40					AL											08901047	0.00000	6.99000	POR SEC 30 11 10
AE	PA-20					AL	A										08901052	0.00000	116.86000	SEC 32&33 11 10
AE	PA-20					AL	A										08901054	0.00000	22.70000	PM 48/113/1

AE	PA-20					AL	A										08901057	0.00000	21.01000	PM 49/135/A
AE	PA-20					AL	A										08901058	0.00000	21.43000	PM 49/135/B
AE	AG-40					AL	A										08901059	0.00000	106.21000	SEC 29 11 10
AE	AG-40					AL	A										08901060	0.00000	45.00000	SEC 29&32 11 10
AE	AG-40					AL	A										08901061	0.00000	29.00000	SEC 32 11 10
AE	AG-40					AL	A										08901062	0.00000	30.00000	SEC 29 11 10
AE	AG-40					AL	A										08901063	0.00000	12.00000	SEC 29 11 10
AE	PA-20					AL	A										08901064	0.00000	36.00000	SEC 29 11 10
AE	PA-20					AL	A										08901064	0.00000	36.00000	SEC 29 11 10
AE	AG-40					AL	A										08901065	0.00000	45.00000	SEC 29 11 10
RA-20	OS					OS											08902001	11.00000	40.00000	SEC 27 11 10
RA-20	OS					OS											08902002	11.00000	290.65000	SEC 27 11 10
RA-40	OS					OS											08902002	11.00000	290.65000	SEC 27 11 10
RA-20	OS					OS											08902003	11.00000	189.35000	SEC 27 11 10
RA-20	RL-40					NR											08902005	0.00000	40.00000	SEC 26 11 10
RA-20	LA-40					NR											08902006	0.00000	40.00000	SEC 26 11 10
RA-20	RL-40					NR											08902008	11.00000	22.26000	SEC 26 11 10
RA-40	RL-40					NR											08902010	11.00000	22.00000	SEC 26 11 10
RA-40	RL-40					NR											08902012	6.00000	49.17000	S 25 & 26 11 10
RA-20	RL-40					NR											08902013	6.00000	65.78000	S 25 & 36 11 10
AE	RL-10					RR											08902015	0.00000	189.05000	SEC 36 11 10
RA-20	RL-20					RR											08902017	0.00000	18.60700	RS 14/62 S361110
RA-20	RL-20					RR											08902018	0.00000	20.00000	SEC 36 11 10
AE	PA-20					AL	A										08902020	0.00000	110.24000	S 33 & 34 11 10
RA-20	RL-40					NR											08902025	11.00000	77.66000	SEC 26 11 10
RA-20	OS					OS											08902026	11.00000	1.34000	SEC 26 11 10
RA-20	RL-40					NR											08902027	11.00000	71.37000	SEC 26 11 10
RA-20	OS					OS											08902028	11.00000	2.37000	SEC 26 11 10
RA-20	OS					OS											08902029	11.00000	0.00000	SW 1/4 S26 11 10
RA-40	OS					OS											08902030	11.00000	0.00000	SW 1/4 S26 11 10
RA-20	LA-20					RR	A										08903001	0.00000	7.20000	SEC 29 11 10
RE-10	RL-10					RR	A										08903002	0.00000	5.78000	SEC 29 11 10
RE-10	RL-20					AL	A										08903003	0.00000	13.37000	SEC 29 11 10
RE-10	RL-20					AL	A										08903008	0.00000	4.00000	SEC 29 11 10
RE-5	RL-10					AL	A										08903009	0.00000	10.57000	SEC 29 11 10
RE-5	RL-10					RR	A										08903010	0.00000	0.11000	SEC 29 11 10
RE-5	RL-10					RR	A										08903012	0.00000	1.75000	SEC 29 11 10
RA-20	LA-20					RR	A										08903013	0.00000	10.36000	SEC 29 11 10
RA-20	LA-20					RR	A										08903014	0.00000	5.92000	SEC 29 11 10
RE-5	RL-10					RR	A										08903015	0.00000	5.08000	PM 35/19/1
RE-5	RL-10					RR	A										08903016	0.00000	6.36000	PM 35/19/2
AE	PA-20					AL	A										08903023	0.00000	41.52000	PM 48/97/A
RE-10	RL-20					AL	A										08903024	0.00000	20.00000	PM 48/97/B
RE-10	RL-20					AL	A										08903025	0.00000	20.00000	PM 48/97/C
AE	LA-10					RR	A										08904001	0.00000	0.32000	SEC 28 11 10
AE	LA-10					RR	A										08904002	0.00000	1.25000	SEC 28 11 10

RE-10	RE-5					MDR					PL						08905015	0.00000	3.21000	PM 14/112/B
RE-10	RE-5					MDR					PL						08905016	0.00000	2.00000	PM 14/112/A
RE-10	RE-5					MDR					PL						08905019	0.00000	2.48000	PM 17/41/A
RE-10	RE-5					MDR					PL						08905020	0.00000	2.65000	PM 17/41/B
R2A	RL-10					RR											08905027	0.00000	37.64000	S 27 & 34 11 10
RE-10	RL-10					RR											08905039	0.00000	6.93000	PM 4/103/A
RE-10	RL-10					RR											08905045	0.00000	14.21000	PM 32/66/A
RE-10	RL-10					RR											08905046	0.00000	12.39000	PM 32/66/B
RE-10	RL-10					RR											08905047	0.00000	7.23100	PM 32/66/C
RE-5	RL-10					AL	A										08906001	0.00000	49.00000	SEC 33 11 10
RE-5	RL-10					AL	A										08906002	0.00000	23.80000	PM 7/45/2
RE-5	LA-10					RR	A										08906003	0.00000	15.01000	PM 11/145/A
RE-5	LA-10					RR	A										08906004	0.00000	10.00000	PM 11/145/B
RE-5	RL-10					RR	A										08906007	0.00000	14.18000	SEC 33 11 10
RE-5	RL-10					RR	A										08906008	0.00000	7.24000	SEC 33 11 10
RE-5	RL-10					RR	A										08906010	0.00000	3.27000	SEC 33 11 10
RE-5	LA-10					RR	A										08906011	0.00000	9.80000	RS 8/122 S331110
RE-5	RL-10					RR	A										08906012	0.00000	1.37000	PM 2/111/1
RE-5	RL-10					RR	A										08906013	0.00000	1.98700	PM 2/111/2
RE-5	RL-10					RR	A										08906014	0.00000	1.80300	PM 2/111/3
RE-5	RL-10					RR	A										08906015	0.00000	4.80100	PM 1/84/1
RE-5	RL-10					RR	A										08906016	0.00000	2.24500	PM 1/84/2
AE	RL-20					AL	A										08906018	0.00000	1.21000	SEC 33 11 10
RE-5	RL-10					AL	A										08906018	0.00000	1.21000	SEC 33 11 10
RE-5	RL-10					RR	A										08906019	0.00000	5.14000	RS 12/76/3
RE-5	RL-10					RR	A										08906021	0.00000	5.00000	RS 12/76/2
RE-5	RL-10					RR	A										08906022	0.00000	5.00000	RS 12/76/1
RE-5	RL-10					RR	A										08906023	0.00000	5.41200	RS 9-42&PM39-127
RE-5	RL-10					AL	A										08906025	0.00000	40.14000	PM 44/84/1
RE-5	RL-10					RR	A										08906026	0.00000	7.06000	PM 44/84/2
RE-10	RL-10					RR	A										08907001	0.00000	0.96000	SEC 31 11 10
RE-5	RL-10					RR	A		IBC								08907004	0.00000	1.20000	RS 24/97/1
RE-5	RL-10					RR	A		IBC								08907005	0.00000	4.80000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907006	0.00000	1.11000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907007	0.00000	1.99000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907008	0.00000	13.32000	PM 7/133/A
RE-5	RL-10					RR	A		IBC								08907011	0.00000	4.25000	PM 7/133/D
RE-5	RL-10					RR	A		IBC								08907012	0.00000	4.16000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907013	0.00000	4.14000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907014	0.00000	0.28000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907016	0.00000	6.79000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907017	0.00000	3.61000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907018	0.00000	3.02000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907019	0.00000	3.04000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907020	0.00000	1.03000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907021	0.00000	4.00000	SEC 32 11 10

RE-5	RL-10					RR	A		IBC								08907022	0.00000	3.87000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907023	0.00000	0.45000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907024	0.00000	10.21000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907025	0.00000	0.92000	SEC 32 11 10
AE	PA-20					AL	A										08907026	0.00000	2.92000	32 11 10RS13-109
AE	PA-20					AL	A										08907027	0.00000	0.80000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907028	0.00000	8.28000	SEC 32 11 10
RE-5	RL-10					RR	A		IBC								08907029	0.00000	5.00000	SEC 32 11 10
RE-10	LA-10					RR	A		IBC								08907031	0.00000	13.06200	PM 41/60/1
RE-10	RL-10					RR	A		IBC								08907032	0.00000	2.36900	PM 41/60/2
RE-5	RL-10					RR	A		IBC								08907034	0.00000	2.66000	PM 50/8/1
RE-5	RL-10					RR	A		IBC								08907035	0.00000	3.14400	PM 50/8/2
AE	PA-20					AL	A										08908004	0.00000	1.25000	SEC 32 11 10
AE	PA-20					AL	A										08909001	0.00000	24.45000	SEC 32 11 10
RE-10	RL-20					AL	A										08909002	0.00000	2.49000	SEC 32 11 10
AE	AG-40					AL	A										08909003	0.00000	43.19000	S 29 & 32 11 10
AE	PA-20					AL	A										08909004	0.00000	15.53000	SEC 32 11 10
RE-10	RL-20					AL	A										08909005	0.00000	3.49000	SEC 32 11 10
AE	PA-20					AL	A										08909006	0.00000	17.11700	SEC 32 11 10
RE-10	RL-20					AL	A										08909007	0.00000	4.25000	SEC 32 11 10
AE	PA-20					AL	A										08909008	0.00000	70.99000	RS 10/64 S321110
RE-10	RL-20					AL	A										08909008	0.00000	70.99000	RS 10/64 S321110
RE-5	RL-10					RR	A		IBC								08911006	0.00000	14.69000	SEC 31 11 10
RE-10	RL-20					AL	A										08911007	0.00000	50.07000	SEC 31 11 10
AE	PA-20					AL	A										08911008	0.00000	93.37000	S 31 & 32 11 10
AE	PA-20					AL	A										08911009	0.00000	20.00000	S 31 & 32 11 10
PA	PA-20					AL	A										08911010	0.00000	25.00000	SEC 31 11 10
PA	PA-10					RR	A		IBC								08911011	0.00000	14.28000	SEC 31 11 10
RE-5	RL-10					RR	A		IBC								08911020	0.00000	4.55000	SEC 31 11 10
RE-5	RL-10					RR	A		IBC								08911028	0.00000	7.52000	SEC 31 11 10
RE-5	R3A					MDR			IBC		PL						08911029	0.00000	2.68000	SEC 31 11 10
RE-5	RL-10					RR	A		IBC								08911032	0.00000	7.50000	SEC 31 11 10
RE-5	RL-10					RR	A		IBC								08911054	0.00000	15.06000	PM 42/19/2
RE-5	RL-10					RR	A		IBC								08911055	0.00000	10.31000	PM 42/19/3
RA-20	LA-10					LDR			IBC								08911057	0.00000	46.08300	PM 45/139/2
RE-10	LA-10					LDR			IBC								08911057	0.00000	46.08300	PM 45/139/2
RE-5	LA-10					LDR			IBC								08911057	0.00000	46.08300	PM 45/139/2
RE-10	RE-5					LDR			IBC								08911058	1.00000	0.30000	PAR A P/M 45/139
RA-20	RE-10					LDR			IBC								08911062	0.00000	79.94300	RS 22/86/2
RA-20	LA-10					RR			IBC								08912016	0.00000	25.40000	SEC 31 11 10
AE	PA-20					AL	A		IBC								08912030	0.00000	75.16700	PM 49/83/2
AE	PA-20					AL			IBC								08912031	0.00000	42.95900	PM 49/83/1
MR	RL-40					NR				MR							08913002	0.00000	17.76000	RS 3/69 L 58
RA-20	RL-40					NR				MR							08913006	0.00000	16.63000	RS 3/69 L 59
MR	RL-20					NR				MR							08913007	0.00000	24.48000	RS 3/69 POR L 37
RA-20	RL-40					NR				MR							08913007	0.00000	24.48000	RS 3/69 POR L 37

RA-20	RL-40					NR				MR							08913009	0.00000	44.94000	RS 14/67/1
RA-20	RL-40					NR											08913010	0.00000	41.05000	RS 14/67/2
RE-10	RL-40					NR											08913010	0.00000	41.05000	RS 14/67/2
RA-20	RL-40					NR											08913011	0.00000	42.30000	RS 14/67/3
RA-20	RL-40					NR											08913012	0.00000	76.21000	PRS 14/68/1 ADM
RA-20	RL-40					NR											08913013	0.00000	36.07000	PRS 14/68/2 ADM
RA-20	RL-40					NR											08913014	0.00000	4.80000	PRS 14/68/1 ADM
RA-20	RL-40					NR											08913015	0.00000	4.40000	PRS 14/68/2 ADM
RA-20	RL-40					NR				MR							08913017	0.00000	77.24900	RS 24/118/1
RA-20	RL-40					NR				MR							08913017	0.00000	77.24900	RS 24/118/1
RA-20	RL-40					NR				MR							08914001	0.00000	5.00000	SEC 25 11 10
RA-20	RL-40					NR				MR							08914003	0.00000	3.47000	SEC 36 11 10
RA-20	RL-40					NR											08914006	0.00000	40.95000	RS 14/68/3
RA-20	RL-40					NR											08914007	0.00000	37.51000	PRS 14/68/4
RA-20	LA-10					RR											08915002	0.00000	13.00000	PM 21/22/A
RA-40	LA-10					RR											08915002	0.00000	13.00000	PM 21/22/A
RA-20	RL-10					RR											08915003	0.00000	13.00000	PM 21/22/B
RA-40	RL-10					RR											08915003	0.00000	13.00000	PM 21/22/B
RA-20	RL-10					RR											08915004	0.00000	14.00000	PM 21/22/C
RA-40	RL-10					RR											08915004	0.00000	14.00000	PM 21/22/C
RA-40	RL-40					NR				MR							08915006	0.00000	10.01000	POR PM 15/107/A
RA-20	LA-10					RR											08915010	0.00000	12.39000	PM 22/130/B
RA-20	RL-10					RR											08915011	0.00000	10.00000	PM 22/130/C
RA-20	RL-10					RR											08915012	0.00000	10.00000	PM 22/130/D
RA-20	LA-10					RR											08915014	0.00000	10.45200	PM 20/118/3
RA-20	RL-10					RR				MR							08915015	0.00000	10.00000	PM 20/118/4
RA-20	RL-10					RR				MR							08915017	0.00000	9.05000	PM 22/50/D
RA-20	RL-10					RR				MR							08915018	0.00000	9.01000	PM 22/50/C
RA-20	RL-10					RR				MR							08915019	0.00000	10.01000	PM 22/50/B
RA-20	RL-10					RR				MR							08915020	0.00000	10.01000	PM 22/50/A
RA-40	RL-40					NR				MR							08915021	0.00000	64.48000	POR PM 15/94/2
RA-40	LA-40					NR				MR							08915022	0.00000	10.00000	POR PM 15/94/2
RA-40	LA-40					NR				MR							08915024	0.00000	11.30700	PM 26/111/B
RA-40	RL-40					NR											08915025	0.00000	11.19000	PM 26/111/C
RA-40	RL-40					NR				MR							08915026	0.00000	20.09000	PM 26/111/D
RA-20	LA-10					RR				MR							08915030	0.00000	12.61000	PPM15/107& 26/47
RA-20	LA-10					RR				MR							08915031	0.00000	10.00000	POPM15/107&26/47
RA-40	RL-40					NR											08915035	0.00000	51.71000	RS 17/29
RA-20	LA-10					RR				MR							08915037	0.00000	11.27000	20-118&POR15-107
RA-20	RL-10					RR											08915038	0.00000	11.55000	PM 26/111/A
RA-20	RL-10					RR											08915039	0.00000	10.00000	PM 22/130/A
RA-40	RL-40					NR											08915040	0.00000	65.26000	PM 15/107/B+
RA-40	OS					OS											08916002	11.00000	1.14000	SEC 35 11 10
RA-40	RE-5					LDR					PL						08916005	0.00000	2.18000	SEC 36 11 10
RA-40	RE-5					LDR					PL						08916007	0.00000	1.05000	SEC 36 11 10
RA-40	RE-5					LDR					PL						08916010	0.00000	1.50000	SEC 36 11 10

MR	RL-40					NR											08916011	0.00000	39.00600	SEC 36 11 10 ADM
MR	OS					OS											08916012	11.00000	0.51000	SEC 36 11 10
RA-20	RL-40					NR											08916013	0.00000	0.22000	SEC 36 11 10 ADM
RA-20	OS					OS											08916014	11.00000	0.45000	SEC 36 11 10
RA-20	RL-40					NR				MR							08917002	0.00000	0.50000	SEC 25 11 10
RA-20	RL-40					NR				MR							08917002	0.00000	0.50000	SEC 25 11 10
RA-20	RL-40					NR				MR							08917003	0.00000	5.56000	SEC 25 11 10 ADM
RA-20	RL-40					NR				MR							08917003	0.00000	5.56000	SEC 25 11 10 ADM
RA-20	RL-40					NR				MR							08917003	0.00000	5.56000	SEC 25 11 10 ADM
RA-20	RL-40					NR				MR							08917005	6.00000	13.93000	SEC 25 11 10
RA-40	RL-40					NR				MR							08917006	6.00000	6.57000	SEC 25 11 10
RA-40	RL-40					NR				MR							08917007	0.00000	23.50000	SEC 25 11 10 ADM
RA-20	RF-L					TR				MR							08917009	2.00000	0.68000	SEC 25 11 10
RA-40	RL-40					NR											08917013	0.00000	28.33000	SEC 25 11 10
RA-20	RL-40					NR											08917014	0.00000	34.44000	SEC 25 11 10
RA-20	RL-40					NR											08917015	0.00000	33.00000	SEC 25 11 10
RA-20	RF-L					TR											08918006	0.00000	0.40600	RS 28/141/1
RA-20	LA-40					NR											08918015	0.00000	22.28000	RS 11/91 S261110
RA-20	RL-40					NR											08918016	0.00000	1.32000	RS 11/91 S261110
RA-20	OS					OS											08918020	11.00000	0.05000	S 25 11 10
RA-20	RF-L					HDR					PL						08918023	0.00000	3.88000	SEC 26 11 10
RA-20	OS					OS											08918026	11.00000	0.23000	SEC 25 11 10
RA-20	RL-40					NR											08918027	0.00000	0.33400	SEC 25 11 10
RA-20	OS					OS											08918029	11.00000	0.12000	SEC 25 11 10
RA-20	OS					OS											08918031	11.00000	1.11000	SEC 25 11 10
RA-20	OS					OS											08918033	11.00000	0.32000	SEC 25 11 10
RA-20	OS					OS											08918035	11.00000	0.78000	SEC 25 11 10
RA-20	OS					OS											08918036	11.00000	0.96000	SEC 25 11 10
RA-20	R1A					HDR					PL						08918037	11.00000	13.97200	S 25 26&35 11 10
RA-20	R1A					HDR					PL						08918037	11.00000	13.97200	S 25 26&35 11 10
RA-20	R1A					HDR					PL						08918037	11.00000	13.97200	S 25 26&35 11 10
RA-40	RL-40					NR											08919001	0.00000	99.31000	SEC 35 11 10
RA-40	LA-40					NR											08919002	0.00000	19.83000	RS 16/76/1
RA-40	RE-5					LDR					PL						08919005	0.00000	3.00000	SEC 35 11 10
RA-40	RE-10					LDR					PL						08919006	0.00000	10.31000	PM 8/126/A
RA-40	RE-10					LDR					PL						08919007	0.00000	21.00000	SEC 35 11 10
RE-10	OS					OS											08919019	11.00000	1.33000	SEC 35 11 10
RA-40	LA-40					NR											08919038	0.00000	25.38000	RS 18/36 S26&35
RA-40	RL-40					NR											08919040	0.00000	21.55000	S 35 11 10
RE-10	R2A					MDR					PL						08919043	0.00000	2.25000	SEC 35 11 10
R1A	RE-5					LDR					PL						08920205	0.00000	5.00000	PM 16/97/1
R1A	RE-5					LDR					PL						08920209	0.00000	5.00000	PM 16/97/2
RE-5	R1A					MDR					PL						08920212	0.00000	1.00000	SEC 35 11 10
RA-20	LA-20					AL	A										08920221	0.00000	24.64000	SEC 35 11 10
RE-10	RL-20					AL	A										08920221	0.00000	24.64000	SEC 35 11 10
RE-10	RE-5					MDR					PL						08920225	0.00000	1.24900	POR PAR 3PM2-134

I	R2A					MDR					PL						08920226	0.00000	1.96000	PM 2/134/1
R1A	RE-5					LDR					PL						08920227	0.00000	6.17000	SEC 35 11 10
RE-10	RE-5					MDR					PL						08920228	0.00000	2.64000	RS 19/149/1
RE-10	RE-5					MDR					PL						08920229	0.00000	1.46000	RS 19/149/2
RA-20	RE-5					MDR					PL						08920233	0.00000	3.99000	SEC 35 11 10
RE-5	R1A					MDR					PL						08920236	0.00000	2.86000	PM 38/108/1
RA-20	RE-5					MDR					PL						08920266	0.00000	7.99000	PM 32/21/1
RA-20	RE-5					MDR					PL						08920267	0.00000	2.12000	PM 32/21/2
RA-20	RE-5					MDR					PL						08920268	0.00000	1.95000	PM 32/21/3
RA-20	RE-5					MDR					PL						08920269	0.00000	5.77000	PM 32/21/4
RA-20	RE-5					MDR					PL						08921017	0.00000	3.01000	SEC 35 11 10
RA-20	R2A					MDR					PL						08921024	0.00000	2.68000	SEC 35 11 10
RA-20	RE-5					MDR					PL						08921027	0.00000	3.86000	SEC 35 11 10
RA-20	RE-5					MDR					PL						08921032	0.00000	2.59000	SEC 35 11 10
RA-20	RE-5					MDR					PL						08921033	0.00000	2.90000	SEC 35 11 10
RE-5	R1A					MDR					PL						08921056	0.00000	1.03000	PM 28/98/D
RA-20	RE-5					MDR					PL						08921061	0.00000	3.74000	RS 14/69 S2&35
RE-10	RL-10					RR	A										08922002	0.00000	9.68000	POR PAR B 1-132
RE-5	RL-10					RR	A										08922003	0.00000	9.12000	POR PAR B 1-132
RE-10	RL-20					AL	A										08922006	0.00000	10.00000	PM 14/58/1
RE-10	RL-20					AL	A										08922007	0.00000	1.47000	PPM 14/58/2 ADM
AE	PA-20					AL	A										08922008	0.00000	21.14000	PM 33/7/1
AE	PA-20					AL	A										08922009	0.00000	40.37000	PPM 33/7/2 ADM
RE-10	RL-10					RR	A										08922010	0.00000	19.83000	PM 44/119/1
RA-20	RL-40					NR											08924001	0.00000	50.00000	SEC 34 11 10
RA-40	RL-40					NR											08924001	0.00000	50.00000	SEC 34 11 10
RA-40	RL-40					NR											08924004	11.00000	37.46000	SEC 34 11 10
RA-40	R2A					MDR					PL						08924006	0.00000	2.24000	SEC 34 11 10
RA-40	RL-40					NR											08924009	11.00000	79.72000	SEC 34 11 10
RE-10	RE-5					MDR					PL						08924010	11.00000	14.00000	SEC 34 11 10
RE-10	RE-5					MDR					PL						08926003	0.00000	2.30000	SEC 34 11 10
RE-10	RE-5					MDR					PL						08926004	0.00000	4.11000	SEC 34 11 10
AE	LA-10					RR	A										08926005	0.00000	4.77000	SEC 34 11 10
AE	PA-20					AL	A										08926007	0.00000	25.45000	PRS 11/74/1 ADM
RE-5	RL-10					RR	A										08926008	0.00000	9.59000	PM 12/110/B
RE-5	RL-10					RR	A										08926009	0.00000	5.01000	PM 12/110/A
RE-5	RL-10					RR	A										08926010	0.00000	0.37000	SEC 33 11 10
RE-5	RL-10					RR	A										08926011	0.00000	7.06000	PM 20/89/2
RE-5	RL-10					RR	A										08926012	0.00000	5.10000	PM 20/89/1
RE-5	RL-10					RR	A										08926013	0.00000	5.00000	PM 9/3/3
RE-5	RL-10					RR	A										08926014	0.00000	5.00000	PM 9/3/2
RE-5	RL-10					RR	A										08926015	0.00000	4.99000	PM 9/3/1&RS30/60
RE-5	RL-10					RR	A										08926016	0.00000	3.02000	SEC 33 11 10
RE-10	RE-5					MDR					PL						08926017	0.00000	4.76000	SEC 34 11 10
RA-20	RL-10					RR											08927004	0.00000	5.01000	SEC 36 11 10
RA-20	RL-10					RR											08927005	0.00000	5.00000	SEC 36 11 10

RA-20	RL-10					RR											08927006	0.00000	7.12000	SEC 36 11 10
RA-20	LA-10					RR											08927007	0.00000	4.48000	SEC 36 11 10
RA-20	RL-10					RR											08927011	0.00000	5.61000	SEC 36 11 10
RA-20	RL-10					RR											08927012	0.00000	5.70000	SEC 36 11 10
RA-20	RL-10					RR											08927013	0.00000	4.95700	RS 22/92
AE	RL-10					RR											08927014	0.00000	34.63000	L79&PORSS36 1110
RE-10	RL-10					RR			IBC								08929022	0.00000	10.00000	PM 30/100/1
RE-10	RL-10					RR			IBC								08929023	0.00000	10.00000	PM 30/100/2
RE-10	RL-10					RR			IBC								08929025	0.00000	10.00000	PM 30/100/4
RE-10	RL-10					RR			IBC								08929028	0.00000	10.00000	PM 30/131/1
RE-10	RL-10					RR			IBC								08929029	0.00000	10.00000	PM 30/131/2
RE-10	RL-10					RR			IBC								08929030	0.00000	10.17000	PM 30/131/3
RE-10	RL-10					RR			IBC								08929031	0.00000	20.08000	PM 30/131/4
RE-10	RL-10					RR			IBC								08929033	0.00000	10.00000	PM 30/132/2
RE-10	RL-10					RR			IBC								08929034	0.00000	10.05000	PM 30/132/3
RE-10	RL-10					RR			IBC								08929035	0.00000	10.15000	PM 30/132/4
RE-10	RL-10					RR			IBC								08929036	0.00000	10.00000	PM 30/133/1
RE-10	RL-10					RR			IBC								08929037	0.00000	10.00000	PM 30/133/2
RE-10	RL-10					RR			IBC								08929038	0.00000	10.00000	PM 30/133/3
RE-10	RL-10					RR			IBC								08929039	0.00000	20.01000	PM 30/133/4
RE-10	RL-10					RR			IBC								08929040	0.00000	10.00000	PM 38/9/A
RE-10	RL-10					RR			IBC								08929041	0.00000	10.00000	PM 38/9/B
RE-10	RL-10					RR			IBC								08929042	0.00000	10.02000	RS 16/44/1
RE-10	RL-10					RR			IBC								08929044	0.00000	10.64000	RS 16/44/2
PD	RL-10					RR											08930003	0.00000	15.34000	L 3
PD	RL-10					RR											08930004	0.00000	9.62000	L 4
PD	RL-10					RR											08930005	0.00000	13.86000	L 5
PD	RL-10					RR											08930006	0.00000	10.81400	L 6
PD	RL-10					RR											08930007	0.00000	23.83100	L 7
PD	RL-10					RR											08930008	0.00000	10.29400	L 8
PD	RL-10					RR											08930009	0.00000	11.84100	L 9
PD	RL-10					RR											08930011	0.00000	4.94500	L 11
PD	RL-10					RR											08930012	0.00000	3.42000	L 12
PD	RL-10					RR											08930013	0.00000	5.07000	L 13
PD	RL-10					RR											08930014	0.00000	6.91000	L 14
PD	RL-10					RR											08930015	0.00000	6.98000	L 15
PD	RL-10					RR											08930016	0.00000	4.33000	L 16
PD	RL-10					RR											08930017	0.00000	4.20900	L 17
PD	RL-10					RR											08930018	0.00000	3.25000	L 18
PD	RL-10					RR											08930019	0.00000	4.28000	L 19
PD	RL-10					RR											08930020	0.00000	5.27000	L 20
PD	RL-10					RR											08930021	0.00000	4.94000	L 21
PD	RL-10					RR											08930022	0.00000	5.65400	L 22
PD	RL-10					RR											08930023	0.00000	4.53000	L 23
PD	RL-10					RR											08930024	0.00000	3.07000	L 24
PD	RL-10					RR											08930025	0.00000	3.07000	L 25

PD	RL-10					RR											08930026	0.00000	3.44000	L 26
PD	RL-10					RR											08930027	0.00000	4.67000	L 27
PD	RL-10					RR											08930028	0.00000	3.35000	L 28
PD	RL-10					RR											08930029	0.00000	4.41200	L 29
PD	RL-10					RR											08930030	0.00000	4.28000	L 30
PD	RL-10					RR											08930031	0.00000	5.41800	L 31
PD	RL-10					RR											08930032	0.00000	7.20000	L 32
PD	RL-10					RR											08930033	0.00000	9.14000	L 33
PD	RL-10					RR											08930036	0.00000	10.47900	L 36
PD	RL-10					RR											08930037	0.00000	6.07000	L 37
PD	RL-10					RR											08930038	0.00000	6.72000	L 38
PD	RL-10					RR											08930039	0.00000	5.71000	L 39
PD	RL-10					RR											08930040	0.00000	5.26000	L 40
PD	RL-10					RR											08930041	0.00000	4.26600	L 41
PD	RL-10					RR											08930042	0.00000	3.58600	L 42
PD	RL-10					RR											08930043	0.00000	5.82100	L 43
PD	RL-10					RR											08930044	0.00000	6.57900	L 44
PD	RL-10					RR											08930045	0.00000	4.48400	L 45
PD	RL-10					RR											08930046	0.00000	3.94700	L 46
RA-20	OS					OS											08930047	2.00000	117.44000	POR L A ADM AW
RE-10	RL-10					RR											08930048	0.00000	1.15000	L B
AE	RL-10					RR											08930049	2.00000	0.00000	ROADWAY AW
PD	RL-10					RR											08930050	2.00000	0.00000	ROADWAY AW
PD	RL-10					RR											08930051	2.00000	10.82000	POR L A ADM AW
PD	OS					OS											08930054	2.00000	8.63000	POR L A ADM AW
PD	RL-10					RR											08930055	0.00000	13.16200	L 1
PD	RL-10					RR											08930056	0.00000	12.85000	L 2
PD	RL-10					RR											08930062	0.00000	12.20800	L 10
PD	RL-10					RR											08930063	0.00000	12.24700	LOT 34&POR LOT35
PD	RL-10					RR											08930064	0.00000	8.23600	LOT 35&POR LOT34
RE-10	RL-20					AL	A										08931001	0.00000	10.00000	PM 34/6/1
RE-10	RL-20					AL	A										08931002	0.00000	10.00000	PM 34/6/2
RE-10	RL-20					AL	A										08931003	0.00000	10.00000	PM 34/6/3
RE-10	RL-20					AL	A										08931004	0.00000	10.12000	PM 34/6/4
AE	PA-20					AL	A										08931005	0.00000	8.75000	SEC 32 11 10
RE-10	RL-20					AL	A										08931007	0.00000	7.48000	SEC 32 11 10
RE-10	RL-20					AL	A										08931009	11.00000	1.73000	32 11 10RS14-136
RE-10	RL-20					AL	A										08931010	11.00000	0.29000	SEC 32 11 10
RE-10	RL-20					AL	A										08931014	0.00000	4.41000	PM 48/7/1
RE-10	RL-20					AL	A										08931015	0.00000	4.22900	PM 48/7/2
AE	PA-20					AL	A										08932003	0.00000	28.14000	PM 41/13/2
AE	PA-20					AL	A										08932006	0.00000	40.09500	RS 22/66
AE	AG-40					AL	A										08932008	0.00000	32.24500	RS 22/66
AE	PA-20					AL	A										08932010	0.00000	45.15000	PPM 41/13/1
AE	PA-20					AL	A										08932011	0.00000	72.24000	RS 23-24
RF	RF-H					C						SS					09004001	11.00000	0.91000	SEC 6 9 10 PARK

R1A	RF-H					C						SS					09004002	11.00000	0.08000	POR L1B3 6-12
R1A	RF-H					C						SS					09004003	2.00000	0.22000	SEC 6 9 10 AW
C	RF-H					C						SS					09004004	0.00000	0.00000	L 6 7 & 8 B 3
C	RF-H					C						SS					09004005	11.00000	0.00000	POR B 3
C	RF-H					C						SS					09004006	11.00000	0.00000	L 1 B 3 L 6 - 12
C	RF-H					C						SS					09004007	11.00000	0.00000	L 5 B 4
C	RF-H					C						SS					09004008	11.00000	0.00000	L 4 B 4
C	RF-H					C						SS					09004009	11.00000	0.05700	L 3 B 4
C	RF-H					C						SS					09004010	11.00000	0.00000	L 2 B 4
C	RF-H					C						SS					09004011	11.00000	0.00000	L 1 B 4
C	CC					C						SS					09004014	0.00000	0.00000	L 10 11 12 B 5
C	CC					C						SS					09004015	0.00000	0.17200	L 7 8 & 9 B 5
C	CC					C						SS					09004016	0.00000	0.23000	L 3 4 5 & 6 B 5
C	CC					C						SS					09004017	0.00000	0.00000	L 1 & 2 B 5 & ST
C	CC					C						SS					09004018	0.00000	0.00000	L 9 10 11 12 B 6
C	CC					C						SS					09004019	0.00000	0.04600	L 8 B 6
C	CC					C						SS					09004020	0.00000	0.00000	L 7 B 6
C	CC					C						SS					09004021	0.00000	0.00000	POR L 1-6 B 6
C	CC					C						SS					09004022	0.00000	0.51000	POR RS 10/59
PD	CC					C						SS					09004022	0.00000	0.51000	POR RS 10/59
R1A	CC					C						SS					09004024	11.00000	0.57800	RS 25/83/1
CG	TC					C						SS					09004026	11.00000	0.84000	PAR A P/M 22-102
R1A	RF-H					C						SS					09004029	11.00000	0.00000	SEC 6 9 10
CG	TC					C						SS					09004031	11.00000	0.40000	PAR 1 P/M 40-94
CG	TC					C						SS					09004032	11.00000	0.88000	PAR 2 P/M 40-94
CG	TC					C						SS					09004040	11.00000	5.04100	PM 40/94/REM+
RE-5	R3A					MDR						SS					09006005	0.00000	9.92000	SEC 6 9 10
R1A	RE-5					LDR			IBC								09006008	0.00000	7.46000	RS 30/7/1
RE-5	R3A					MDR						SS					09006011	0.00000	5.07800	SEC 6910 &311010
R1A	RE-10					LDR			IBC								09006018	0.00000	42.64000	RS 22/148/1
R1A	TC					LDR			IBC								09006019	11.00000	0.00000	POR SEC 6 9 10
RE-5	TC					LDR			IBC								09006019	11.00000	0.00000	POR SEC 6 9 10
RE-5	R1A					MDR						SS					09007005	0.00000	0.00000	POR SEC 5 9 10
RF	RF-L					MDR						SS					09007006	2.00000	0.00000	COMMON AREA
R1A	RE-5					LDR			IBC								09007013	0.00000	6.45000	PM 34/81/1
R1	R1A					MDR						SS					09012101	0.00000	0.00000	L 15
R1	R1A					MDR						SS					09012102	0.00000	0.00000	L 14
R1	R1A					MDR						SS					09012103	0.00000	0.00000	L 13
R1	R1A					MDR						SS					09012201	0.00000	0.00000	L 32
R1	R1A					MDR						SS					09012202	0.00000	0.00000	L 33
R1	R1A					MDR						SS					09012203	0.00000	0.78500	L 34
R1	R1A					MDR						SS					09012204	0.00000	0.00000	L 35
R1	R1A					MDR						SS					09012205	0.00000	0.00000	L 36
R1	R1A					MDR						SS					09012206	0.00000	0.65300	L 16
R1	R1A					MDR						SS					09012207	0.00000	0.00000	L 17
R1	R1A					MDR						SS					09012208	0.00000	0.00000	L 18

R1	R1A					MDR						SS					09012209	0.00000	0.00000	L 19
R1	R1A					MDR						SS					09012210	0.00000	0.00000	L 20
R1	R1A					MDR						SS					09012301	0.00000	1.43500	L 12
R1	R1A					MDR						SS					09012302	0.00000	0.00000	L 11
R1	R1A					MDR						SS					09012303	0.00000	0.00000	L 10
R1	R1A					MDR						SS					09012304	0.00000	0.00000	L 9
R1	R1A					MDR						SS					09012305	0.00000	0.00000	L 8
R1	R1A					MDR						SS					09013101	0.00000	0.00000	L 31
R1	R1A					MDR						SS					09013102	0.00000	0.00000	L 30
R1	R1A					MDR						SS					09013103	0.00000	0.62900	L 29
R1	R1A					MDR						SS					09013104	0.00000	0.50000	L 28
R1	R1A					MDR						SS					09013105	0.00000	0.64000	L 24
R1	R1A					MDR						SS					09013106	0.00000	0.00000	L 23
R1	R1A					MDR						SS					09013107	0.00000	0.00000	L 22
R1	R1A					MDR						SS					09013108	0.00000	0.00000	L 21
R1	R1A					MDR						SS					09013201	0.00000	0.00000	L 25
R1	R1A					MDR						SS					09013202	0.00000	0.00000	L 26
R1	R1A					MDR						SS					09013203	0.00000	0.00000	L 27
R1	R1A					MDR						SS					09013204	0.00000	0.00000	L 2
R1	R1A					MDR						SS					09013205	0.00000	0.00000	L 1
R1	R1A					MDR						SS					09013206	0.00000	0.00000	L 3
R1	R1A					MDR						SS					09013207	0.00000	0.00000	L 4
R1	R1A					MDR						SS					09013208	0.00000	0.00000	L 5
R1	R1A					MDR						SS					09013209	0.00000	0.00000	L 6
R1	R1A					MDR						SS					09013210	0.00000	0.00000	L 7
RE-5	R1A					MDR						SS					09015001	0.00000	1.00000	PM 13/150/A
RE-5	R1A					MDR						SS					09015002	0.00000	1.33000	PM 13/150/B
RE-5	R1A					MDR						SS					09016101	0.00000	0.00000	L 1
RE-5	R1A					MDR						SS					09016102	0.00000	0.83000	L 2
RE-5	R1A					MDR						SS					09016103	0.00000	0.00000	L 3
RE-5	R1A					MDR						SS					09016104	0.00000	0.88900	L 4
RE-5	R1A					MDR						SS					09016105	0.00000	0.00000	L 5
RE-5	R1A					MDR						SS					09016106	0.00000	0.00000	L 6
RE-5	R1A					MDR						SS					09016107	0.00000	0.00000	L 7
RE-5	R1A					MDR						SS					09016108	0.00000	0.00000	L 8
RE-5	R1A					MDR						SS					09017101	0.00000	0.00000	L 9
RE-5	R1A					MDR						SS					09017102	0.00000	0.00000	L 10
RE-5	R1A					MDR						SS					09017103	0.00000	0.00000	L 11
RE-5	R1A					MDR						SS					09017104	0.00000	0.00000	L 12
RE-5	R1A					MDR						SS					09017105	0.00000	0.00000	L 13
RE-5	R1A					MDR						SS					09017106	0.00000	0.00000	L 14
RE-5	R1A					MDR						SS					09017107	0.00000	0.00000	L 15
RE-5	R1A					MDR						SS					09017108	0.00000	0.00000	L 16
AE	RE-10					LDR						SS					09019001	0.00000	286.60000	SEC 7 9 10
RE-10	RL-10					RR			IBC								09020006	0.00000	15.00000	SEC 8 9 10
RE-10	RL-10					RR			IBC								09020008	0.00000	7.06000	SEC 8 9 10

RE-10	RL-10					RR			IBC								09020009	0.00000	8.45000	SEC 8 9 10
RE-10	RL-10					RR			IBC								09020012	0.00000	15.73000	SEC 8 9 10
RE-10	RL-10					RR			IBC								09020013	0.00000	14.15000	SEC 8 9 10
RE-10	RL-10					RR			IBC								09020014	0.00000	10.12000	SEC 8 9 10
RE-10	RL-10					RR			IBC								09020021	0.00000	10.20000	PM 10/122/2
RE-10	RL-10					RR			IBC								09020024	0.00000	10.10000	PM 10/133/1
RE-10	RL-10					RR			IBC								09020025	0.00000	10.01000	PM 10/133/2
RE-10	RL-10					RR			IBC								09020026	0.00000	10.13000	PM 10/133/3
RE-10	RL-10					RR			IBC								09020030	0.00000	12.15000	PM 12/16/C
RE-10	RL-10					RR			IBC								09020032	0.00000	10.11000	PM 11/149/A
RE-10	RL-10					RR			IBC								09020033	0.00000	10.11000	PM 11/149/B
RE-10	RL-10					RR			IBC								09020036	0.00000	11.03000	SEC 8 9 10
RE-10	RL-10					RR			IBC								09020037	0.00000	10.02000	SEC 8 9 10
RE-10	RL-10					RR			IBC								09020052	0.00000	10.01000	PM 12/16/D
RE-10	RL-10					RR			IBC								09020053	0.00000	10.09000	RS 15/65/A
RE-10	RL-10					RR			IBC								09020056	0.00000	10.30000	PM 41/36/1
RE-10	RL-10					RR			IBC								09020058	0.00000	10.01000	PM 42/8/1
RE-10	RL-10					RR			IBC								09020059	0.00000	10.00000	PM 42/8/2
RE-10	RL-10					RR			IBC								09020061	0.00000	5.23600	PM 45/148/1
RE-10	RL-10					RR			IBC								09020062	0.00000	5.00300	PM 45/148/2
RE-10	RL-10					RR			IBC								09020063	0.00000	10.11000	PM 11/149/C
RE-10	RL-10					RR			IBC								09020064	0.00000	10.00000	PM 47/84/1
RE-10	RL-10					RR			IBC								09020065	0.00000	11.66000	PM 47/84/2
RE-10	RL-10					RR			IBC								09022018	0.00000	12.41000	SEC 5 9 10
RE-10	RL-10					RR			IBC								09022019	0.00000	10.08000	RS 12/96/2
RE-10	RL-10					RR			IBC								09022020	0.00000	10.23000	RS 12/96/1
RE-10	RL-10					RR			IBC								09022021	0.00000	10.40000	SEC 5 9 10
RE-10	RL-10					RR			IBC								09022045	0.00000	10.00000	PM 28/132/2
RE-10	RL-10					RR			IBC								09022046	0.00000	10.00000	PM 28/132/3
RE-10	RL-10					RR			IBC								09022047	0.00000	10.00000	PM 28/132/4
RE-10	RL-10					RR			IBC								09022050	0.00000	10.26800	PM 11/36/C
RE-10	RL-10					RR			IBC								09022061	0.00000	6.22000	PM 47/34/1
RE-10	RL-10					RR			IBC								09022062	0.00000	5.78000	PM 47/34/2
RE-10	RL-10					RR			IBC								09023001	0.00000	1.00000	SEC 9 9 10
RE-10	RL-10					RR			IBC								09023002	0.00000	8.94000	SEC 9 9 10
RE-10	RL-10					RR			IBC								09023004	0.00000	9.94000	SEC 9 9 10
RE-10	RL-10					RR			IBC								09023005	0.00000	9.93000	SEC 9 9 10
RE-10	RL-10					RR			IBC								09023006	0.00000	10.07000	SEC 9 9 10
RE-10	RL-10					RR			IBC								09023007	0.00000	10.00000	SEC 9 9 10
RE-10	RL-10					RR			IBC								09023008	0.00000	10.15000	RS 21/10/1
RE-10	RL-10					RR			IBC								09023009	0.00000	10.15000	RS 21/10/2
RE-10	RL-10					RR			IBC								09023010	0.00000	10.00000	SEC 9 9 10
RA-40	RL-10					RR			IBC								09023011	0.00000	20.27100	PM 4/151/1
RE-10	RL-10					RR			IBC								09023011	0.00000	20.27100	PM 4/151/1
RA-40	RL-10					RR			IBC								09023012	0.00000	18.95000	PM 4/151/2
RE-10	RL-10					RR			IBC								09023012	0.00000	18.95000	PM 4/151/2

RE-10	RL-10					RR			IBC								09023014	0.00000	21.17400	PM 48/22/A
RE-10	RL-10					RR			IBC								09024001	0.00000	10.00000	SEC 9 9 10
RE-10	RL-10					RR			IBC								09024008	0.00000	22.72000	SEC 9 9 10
RA-40	RL-40					RR											09024011	0.00000	74.32000	SEC 9 9 10
RE-10	RL-10					RR			IBC								09024014	0.00000	5.26100	RS 27/17
RE-10	RL-10					RR			IBC								09024021	0.00000	10.62000	PM 11/13/2
RE-10	RL-10					RR			IBC								09024022	0.00000	15.60000	PM 11/13/3
RE-10	RL-10					RR			IBC								09024023	0.00000	14.05000	PM 11/40/1
RE-10	RL-10					RR			IBC								09024024	0.00000	13.41000	PM 11/40/2
RE-10	RL-10					RR			IBC								09024025	0.00000	11.76000	PM 11/40/3
RE-10	RL-10					RR			IBC								09024026	0.00000	10.01000	PM 17/8/1
RE-10	RL-10					RR			IBC								09024027	0.00000	16.13000	PM 17/8/2
RE-10	RL-10					RR			IBC								09024028	0.00000	11.52000	PM 17/8/3
RE-10	RL-10					RR			IBC								09024029	0.00000	10.06000	PM 17/8/4
RE-10	RL-10					RR			IBC								09024030	0.00000	10.07000	PM 24/31/1
RE-10	RL-10					RR			IBC								09024031	0.00000	10.03000	PM 24/31/2
RE-10	RL-10					RR			IBC								09024032	0.00000	10.04000	PM 24/31/3
RE-10	RL-10					RR			IBC								09024033	0.00000	11.09000	PM 24/31/4
MP	R1A					MDR						EDDS					09025005	0.00000	4.05000	SEC 33 10 10
MP	R1					HDR						EDDS					09025006	0.00000	4.00000	SEC 4 9 10
MP	R1					HDR						EDDS					09025007	0.00000	11.21000	PM 2/24/1
MP	R1					HDR						EDDS					09025008	0.00000	10.39000	SEC 4 & 5 9 10
RE-5	R1A					MDR						EDDS					09025011	0.00000	1.08000	PM 12/5/C
RE-5	R3A					MDR						EDDS					09025013	0.00000	2.45000	SEC 5 9 10
RE-5	R1A					MDR						EDDS					09025014	0.00000	1.09000	PM 12/5/A
RE-5	R3A					MDR						EDDS					09025015	0.00000	2.94000	PM 12/5/B
RE-5	R1A					MDR						EDDS					09025016	0.00000	1.00000	PM 12/5/D
RE-10	RL-10					RR			IBC								09025019	0.00000	10.24000	SEC 4 & 5 9 10
RE-10	RL-10					RR			IBC								09025020	0.00000	10.51000	PM 12/70/3
RE-10	RL-10					RR			IBC								09025021	0.00000	10.01000	PM 11/36/B
RE-10	RL-10					RR			IBC								09025022	0.00000	10.00000	PM 12/70/2
RE-10	RL-10					RR			IBC								09025023	0.00000	10.01000	PM 12/70/1
RE-10	RL-10					RR			IBC								09025024	0.00000	10.00000	PM 27/85/1
RE-10	RL-10					RR			IBC								09025025	0.00000	10.00000	PM 27/85/2
RE-10	RL-10					RR			IBC								09025028	0.00000	13.60000	SEC 4 9 10
RE-10	RL-10					RR			IBC								09025033	0.00000	17.08900	RS 28/56/1
RE-10	RL-10					RR			IBC								09025034	0.00000	40.19200	RS 28/56/2
AE	PA-20					RR											09026001	0.00000	62.80000	SEC 4 9 10
AE	PA-20					RR											09026006	0.00000	1.00000	SEC 4 9 10
AE	PA-20					RR											09026007	0.00000	6.00000	SEC 4 9 10
RE-10	RL-10					RR											09026010	0.00000	15.92000	PM 33/147/A
RE-10	RL-10					RR											09026014	0.00000	11.14200	PM 39/137/1
RE-10	RL-10					RR											09026015	0.00000	10.04600	PM 39/137/2
RE-10	RL-10					RR											09026016	0.00000	10.58400	PM 39/136/1
RE-10	RL-10					RR											09026017	0.00000	10.59000	PM 39/136/2
RE-10	RL-10					RR											09026018	0.00000	10.02100	PM 40/24/1

RE-10	RL-10					RR											09026019	0.00000	10.00400	PM 40/24/2
RE-10	RL-10					RR											09027002	0.00000	5.81000	SEC 4 9 10
RE-10	RL-10					RR											09027021	0.00000	10.04000	PM 12/20/A
RE-10	RL-10					RR											09027022	0.00000	10.10000	PM 12/20/B
RE-10	RL-10					RR											09027023	0.00000	10.16000	PM 12/20/C
RE-10	RL-10					RR											09027024	0.00000	10.24000	PM 12/20/D
RE-10	RL-10					RR											09027031	0.00000	10.06000	PM 22/125/A
RE-10	RL-10					RR											09027032	0.00000	10.00700	PM 22/125/B
RE-10	RL-10					RR											09027033	0.00000	10.35000	PM 23/147/A
RE-10	RL-10					RR											09027034	0.00000	10.43000	PM 23/147/B
RE-10	RL-10					RR											09027036	0.00000	9.99000	PM 24/4/1
RE-10	RL-10					RR											09027037	0.00000	10.01000	PM 24/4/2
RE-10	RL-10					RR											09027038	0.00000	10.06000	PM 24/4/3
RE-10	RL-10					RR											09027039	0.00000	12.36000	PM 24/4/4
RE-10	RL-10					RR											09027040	0.00000	10.00000	PM 28/122/A
RE-10	RL-10					RR											09027041	0.00000	10.02000	PM 28/122/B
RE-10	RL-10					RR			IBC								09027042	0.00000	14.54000	RS 9/121/1
RE-10	RL-10					RR			IBC								09027043	0.00000	14.54000	RS 9/121/2
RE-10	RL-10					RR			IBC								09027044	0.00000	10.00000	RS 9/121/3
RE-10	RL-10					RR			IBC								09027045	0.00000	10.11000	PM 14/44/4
RE-10	RL-10					RR			IBC								09027047	0.00000	10.11400	PM 14/44/2
RE-10	RL-10					RR			IBC								09027048	0.00000	10.13000	PM 14/44/1
RE-10	RL-10					RR			IBC								09027049	0.00000	20.02800	RS 25/105/1
RE-10	RL-10					RR			IBC								09027050	0.00000	60.00000	SEC 4 9 10
RE-10	RL-10					RR											09027051	0.00000	10.40000	PM 33/131/A
RE-10	RL-10					RR											09027052	0.00000	10.61000	PM 33/131/B
RE-10	RL-10					RR			IBC								09027053	0.00000	10.11400	PM 14/44/3
RE-10	RL-10					RR											09028003	0.00000	10.50000	SEC 9 9 10
RE-10	RL-10					RR											09028004	0.00000	10.50000	SEC 9 9 10
RE-10	RL-10					RR											09028005	0.00000	21.49000	RS 31/112/1
RE-10	RL-10					RR											09028006	0.00000	10.45700	SEC 9 9 10
RE-10	RL-10					RR											09028008	0.00000	11.00000	SEC 9 9 10
RE-10	RL-10					RR											09028009	0.00000	11.00000	SEC 9 9 10
RE-10	RL-10					RR											09028025	0.00000	10.75000	SEC 9 9 10
RE-10	RL-10					RR											09028026	0.00000	10.79000	RS 28/130
RE-10	RL-10					RR											09028038	0.00000	11.91700	PM 49/121/1
RE-10	RL-10					RR											09028039	0.00000	10.00500	PM 49/121/2
RE-10	RL-10					RR											09028040	0.00000	10.46000	RS 31/83/1
RE-10	RL-10					RR											09028041	0.00000	21.00000	SEC 9 9 10
CP	CC					C						SS					09029038	0.00000	0.38000	PM 32/40/1
CP	CC					C						SS					09029040	0.00000	1.00000	PM 32/40/3
CP	CC					C						SS					09029045	0.00000	2.21600	PM 48/144/A
RE-5	R1A					MDR						SS					09030001	0.00000	1.88000	SEC 7 9 10
RE-5	R1A					MDR						SS					09030003	0.00000	1.03000	PM 13/24/1
RE-5	R1A					MDR						SS					09030004	0.00000	1.60000	PM 13/24/2
RE-5	R1A					MDR						SS					09030005	0.00000	1.49000	SEC 7 9 10

RE-5	R2A					MDR					SS					09030006	0.00000	2.62000	SEC 7 9 10
RE-5	R1A					MDR					SS					09030007	0.00000	1.08000	SEC 7 9 10
RE-5	R1A					MDR					SS					09030008	0.00000	1.02000	SEC 7 9 10
RE-5	R1A					MDR					SS					09030009	0.00000	1.10100	SEC 7 9 10
RE-5	R1A					MDR					SS					09030010	0.00000	1.16000	PM 18/104/1
RE-5	R1A					MDR					SS					09030011	0.00000	1.20000	PM 18/104/2
RE-5	R1A					MDR					SS					09030012	0.00000	1.79000	SEC 7 9 10
RE-5	R1A					MDR					SS					09030013	0.00000	1.25000	PM 5/116/2
RE-5	R1A					MDR					SS					09030014	0.00000	1.05000	PM 5/116/1
RE-5	R1A					MDR					SS					09030015	0.00000	1.72000	SEC 7 9 10
RE-5	R1A					MDR					SS					09030019	0.00000	1.25000	PM 2/61/A
RE-5	R1A					MDR					SS					09030020	0.00000	1.25000	PM 2/61/B
RE-5	R1A					MDR					SS					09030021	0.00000	1.25000	PM 2/61/D
RE-5	R1A					MDR					SS					09030022	0.00000	1.25000	PM 2/61/C
RE-5	R1A					MDR					SS					09030025	0.00000	1.80000	PM 2/170/A
RE-5	R2A					MDR					SS					09030026	0.00000	2.10000	PM 2/170/B
RE-5	R1A					MDR					SS					09030027	0.00000	1.25000	PM 2/170/C
RE-5	R1A					MDR					SS					09030028	0.00000	1.27000	PM 2/170/D
RE-5	R1A					MDR					SS					09030029	0.00000	1.54000	SEC 7 9 10
RE-5	R1A					MDR					SS					09030030	0.00000	1.83000	SEC 7 9 10
RE-5	R1A					MDR					SS					09030036	0.00000	1.00000	PM 5/32/3
RE-5	R1A					MDR					SS					09030039	0.00000	1.87000	SEC 7 9 10
RE-5	R1A					MDR					SS					09030040	0.00000	1.75000	PM 1/67/2
RE-5	R1A					MDR					SS					09030041	0.00000	1.28000	PM 1/67/3
RE-5	R1A					MDR					SS					09030042	0.00000	1.58000	PM 1/67/4
RE-5	R1A					MDR					SS					09030043	0.00000	1.00000	PM 3/157/1
RE-5	R1A					MDR					SS					09030049	0.00000	1.08000	PM 1/58/1
RE-5	R1A					MDR					SS					09030050	0.00000	1.00000	PM 1/58/3
RE-5	R1A					MDR					SS					09030051	0.00000	1.30000	PM 6/29/1
RE-5	R1A					MDR					SS					09030052	0.00000	1.24000	PM 6/29/2
RE-5	R1A					MDR					SS					09030053	0.00000	1.22000	PM 6/29/3
RE-5	R1A					MDR					SS					09030055	0.00000	1.08000	PM 26/6/A
RE-5	R1A					MDR					SS					09030058	0.00000	1.50000	PM 26/6/B
RE-5	R2A					MDR					SS					09030059	0.00000	2.41000	PM 26/6/C
RE-5	R1A					MDR					SS					09030060	0.00000	1.00000	POR PAR 3 3-157
RE-5	R1A					MDR					SS					09030063	0.00000	1.52800	PM 36/1/1
RE-5	R3A					MDR					SS					09031002	0.00000	4.00000	PM 17/51/A
RE-5	R1A					MDR					SS					09031003	0.00000	1.36000	PM 17/51/B
RE-5	R1A					MDR					SS					09031004	0.00000	1.03000	PM 17/51/C
RE-5	R1A					MDR					SS					09031005	0.00000	1.02000	PM 17/51/D
RE-5	R3A					MDR					SS					09031010	0.00000	3.11100	SEC 7 9 10
RE-5	R2A					MDR					SS					09031012	0.00000	2.50000	PM 4/14/A
RE-5	R1A					MDR					SS					09031016	0.00000	1.40000	PM 10/97/2
RE-5	R1A					MDR					SS					09031017	0.00000	1.23000	PM 10/97/3
RE-5	R1A					MDR					SS					09031018	0.00000	1.28000	PM 10/97/4
RE-5	R1A					MDR					SS					09031021	0.00000	1.27000	PM 10/11/3

RE-5	R1A					MDR					SS					09031022	0.00000	1.23000	PM 10/11/4
RE-5	R3A					MDR					SS					09031023	0.00000	5.00000	SEC 7 9 10
RE-5	R1A					MDR					SS					09031025	0.00000	1.98000	SEC 7 9 10
RE-5	R1A					MDR					SS					09031027	0.00000	1.00000	PM 36/1/2
RE-5	R2A					MDR					SS					09031028	0.00000	2.11300	PM 3/10/2
RE-5	R3A					MDR					SS					09031029	0.00000	3.32900	PM 3/10/3
RE-5	R3A					MDR					SS					09032002	0.00000	3.00000	SEC 7 9 10
RE-5	R1A					MDR					SS					09032003	0.00000	1.49000	SEC 7 9 10
RE-5	R1A					MDR					SS					09032005	0.00000	1.08000	PM 8/118/2
RE-5	R1A					MDR					SS					09032006	0.00000	1.01000	PM 8/118/3
RE-5	R2A					MDR					SS					09032007	0.00000	2.99000	PM 8/118/4
RE-5	R3A					MDR					SS					09032008	0.00000	3.17000	PM 22/72/A
RE-5	R2A					MDR					SS					09032010	0.00000	1.90000	SEC 7 9 10
RE-5	R2A					MDR					SS					09032011	0.00000	2.39000	PM 14/123/3
RE-5	R1A					MDR					SS					09032012	0.00000	1.50000	PM 14/123/1
RE-5	R1A					MDR					SS					09032013	0.00000	1.50000	PM 14/123/2
RE-5	R3A					MDR					SS					09032014	0.00000	3.87000	SEC 7 9 10
RE-5	R1A					MDR					SS					09032015	0.00000	1.00000	SEC 7 9 10
RE-5	R1A					MDR					SS					09032017	0.00000	1.03000	SEC 7 9 10
RE-5	R1A					MDR					SS					09032018	0.00000	1.98000	PM 2/10/A
RE-5	R1A					MDR					SS					09032019	0.00000	1.00000	PM 2/10/B
RE-5	R1A					MDR					SS					09032020	0.00000	1.00000	PM 2/10/C
RE-5	R1A					MDR					SS					09032021	0.00000	1.00000	PM 2/10/D
RE-5	R1A					MDR					SS					09032022	0.00000	1.16000	PM 3/28/1
RE-5	R1A					MDR					SS					09032023	0.00000	1.29000	PM 3/28/2
RE-5	R1A					MDR					SS					09032025	0.00000	1.00000	PM 3/28/4
RE-5	R1A					MDR					SS					09032026	0.00000	1.12000	PM 1/89/1
RE-5	R1A					MDR					SS					09032027	0.00000	1.17000	PM 1/89/2
RE-5	R2A					MDR					SS					09032030	0.00000	2.46000	SEC 7 9 10
RE-5	R2A					MDR					SS					09032031	0.00000	2.25000	SEC 7 9 10
RE-5	R1A					MDR					SS					09032032	0.00000	1.03000	RS 25/33/1
RE-5	R1A					MDR					SS					09032033	0.00000	1.08000	SEC 7 9 10
RE-5	R3A					MDR					SS					09032034	0.00000	3.32000	PM 14/143/1
RE-5	R3A					MDR					SS					09032035	0.00000	5.00000	PM 14/143/2
RE-5	R2A					MDR					SS					09032036	0.00000	2.66000	PM 29/75/1
RE-5	R1A					MDR					SS					09032038	0.00000	1.63000	PM 29/75/2
RE-5	R1A					MDR					SS					09032040	0.00000	1.08000	PM 44/12/1
RE-5	R1A					MDR					SS					09032041	0.00000	0.93000	PM 44/12/2
RE-5	R2A					MDR					SS					09033001	0.00000	1.72000	SEC 7 9 10
RE-5	R3A					MDR					SS					09033002	0.00000	4.26000	SEC 7 9 10
RE-5	R3A					MDR					SS					09033003	0.00000	4.67000	SEC 7 9 10
RE-5	R1A					MDR					SS					09033004	0.00000	1.13000	RS 14/82/1
RE-5	R2A					MDR					SS					09033005	0.00000	1.86000	SEC 7 9 10
RE-5	R1A					MDR					SS					09033006	0.00000	2.08000	PM 1/103/1
RE-5	R1A					MDR					SS					09033007	0.00000	2.08000	PM 1/103/2
RE-5	R2A					MDR					SS					09033008	0.00000	2.00000	PM 1/102/1

RE-5	R2A					MDR						SS					09033009	0.00000	2.00000	PM 1/102/2
RE-5	R2A					MDR						SS					09033010	0.00000	2.00000	PM 1/103/3
RE-10	RL-10					RR			IBC								09034001	0.00000	10.00000	L 1
RE-10	RL-10					RR			IBC								09034002	0.00000	10.00000	L 2
RE-10	RL-10					RR			IBC								09034003	0.00000	10.06500	L 30
RE-10	RL-10					RR			IBC								09034004	0.00000	10.00100	L 4
RE-10	RL-10					RR			IBC								09034005	0.00000	10.00000	L 3
RE-10	RL-10					RR			IBC								09034006	0.00000	10.00000	L 29
RE-10	RL-10					RR			IBC								09034007	0.00000	10.00000	L 5
RE-10	RL-10					RR			IBC								09034008	0.00000	10.00000	L 21
RE-10	RL-10					RR			IBC								09034009	0.00000	10.00000	L 28
RE-10	RL-10					RR			IBC								09034010	0.00000	10.00000	L 6
RE-10	RL-10					RR			IBC								09034011	0.00000	10.00000	L 8
RE-10	RL-10					RR			IBC								09034012	0.00000	10.00000	L 7
RE-10	RL-10					RR			IBC								09034013	0.00000	10.51000	L 20
RE-10	RL-10					RR			IBC								09034014	0.00000	10.00000	L 22
RE-10	RL-10					RR			IBC								09035001	0.00000	10.00000	L 9
RE-10	RL-10					RR			IBC								09035002	0.00000	10.00000	L 10
RE-10	RL-10					RR			IBC								09035003	0.00000	10.00000	L 11
RE-10	RL-10					RR			IBC								09035004	0.00000	10.00000	L 27
RE-10	RL-10					RR			IBC								09035005	0.00000	11.71000	L 12
RE-10	RL-10					RR			IBC								09035006	0.00000	10.51300	L 19
RE-10	RL-10					RR			IBC								09035007	0.00000	10.02000	L 23
RE-10	RL-10					RR			IBC								09035009	0.00000	10.10000	L 13
RE-10	RL-10					RR			IBC								09035010	0.00000	10.73000	L 14
RE-10	RL-10					RR			IBC								09035011	0.00000	10.08000	L 18
RE-10	RL-10					RR			IBC								09035012	0.00000	10.56900	L 15
RE-10	RL-10					RR			IBC								09035013	0.00000	11.14600	L 16
RE-10	RL-10					RR			IBC								09035014	0.00000	10.02600	L 17
RE-10	RL-10					RR			IBC								09035015	0.00000	10.02000	L 24
RE-10	RL-10					RR			IBC								09035016	0.00000	10.32800	L 25
RE-10	RL-10					RR			IBC								09035017	0.00000	10.10700	PM 48/22/B
PD	R1A					MDR						SS					09038020	0.00000	2.63000	PORSW1/4 S6 9 10
RE-5	R3A					MDR						SS					09039026	0.00000	4.69000	SEC 12 9 9
RE-5	R3A					MDR						SS					09039027	0.00000	3.50000	SEC 12 9 9
RE-5	R1A					MDR						SS					09039028	0.00000	1.01000	PM 3/36/1
RE-5	R2A					MDR						SS					09039029	0.00000	2.49000	PM 3/36/2
RE-5	R1A					MDR						SS					09039030	0.00000	1.69000	PM 5/61/1
RE-5	R2A					MDR						SS					09039031	0.00000	2.56000	PM 5/61/2
RE-5	R2A					MDR						SS					09039032	0.00000	2.60000	PM 5/61/3
RE-5	R1A					MDR						SS					09039033	0.00000	1.19000	PM 5/61/4
R1A	TC					MDR						SS					09039061	11.00000	0.00000	SEC 12 9 9
RE-5	R1A					MDR						SS					09040001	0.00000	1.00000	PM 14/11/1
RE-5	R1A					MDR						SS					09040002	0.00000	1.00000	PM 14/11/2
RE-5	R1A					MDR						SS					09040003	0.00000	1.00000	PM 14/11/3
RE-5	R1A					MDR						SS					09040004	0.00000	1.21000	PM 18/72/1

RE-5	R1A					MDR						SS					09040005	0.00000	1.02000	PM 18/72/2
RE-5	R1A					MDR						SS					09040006	0.00000	1.25000	PM 8/82/A
RE-5	R1A					MDR						SS					09040007	0.00000	1.38000	PM 8/82/B
RE-5	R1A					MDR						SS					09040008	0.00000	1.25000	PM 8/82/C
RE-5	R3A					MDR						SS					09040010	0.00000	4.56000	PM 5/95/2
RE-5	R1A					MDR						SS					09040011	0.00000	1.49000	PM 15/136/1
RE-5	R1A					MDR						SS					09040012	0.00000	1.21000	PM 15/136/2
RE-5	R1A					MDR						SS					09040013	0.00000	1.00000	PM 15/63/1
RE-5	R2A					MDR						SS					09040014	0.00000	2.01000	PM 15/63/2
RE-5	R1A					MDR						SS					09040015	0.00000	2.00000	PM 15/63/3
RE-5	R1A					MDR						SS					09040016	0.00000	1.11000	PM 14/94/1
RE-5	R1A					MDR						SS					09040017	0.00000	1.49000	PM 14/94/2
RE-5	R1A					MDR						SS					09040018	0.00000	1.45000	PM 14/94/3
RE-5	R1A					MDR						SS					09040019	0.00000	1.35000	PM 14/94/4
RE-5	R2A					MDR						SS					09040020	0.00000	2.60000	PM 16/24/A
RE-5	R2A					MDR						SS					09040021	0.00000	2.74000	PM 16/24/B
RE-5	R1A					MDR						SS					09041001	0.00000	1.09000	PM 16/33/A
RE-5	R1A					MDR						SS					09041002	0.00000	1.29000	PM 16/33/B
RE-5	R1A					MDR						SS					09041003	0.00000	1.25000	PM 16/33/C
RE-5	R1A					MDR						SS					09041004	0.00000	1.40000	PM 16/33/D
RE-5	R2A					MDR						SS					09041005	0.00000	2.42000	PM 16/125/A
RE-5	R1A					MDR						SS					09041006	0.00000	1.48000	PM 16/125/B
RE-5	R1A					MDR						SS					09041007	0.00000	1.52000	PM 16/125/C
RE-5	R1A					MDR						SS					09041008	0.00000	1.07000	PM 17/32/A
RE-5	R1A					MDR						SS					09041009	0.00000	1.01000	PM 17/32/B
RE-5	R1A					MDR						SS					09041010	0.00000	1.23000	PM 17/32/C
RE-5	R1A					MDR						SS					09041011	0.00000	1.06000	PM 17/32/D
RE-5	R1A					MDR						SS					09041012	0.00000	1.01000	PM 16/133/A
RE-5	R1A					MDR						SS					09041013	0.00000	1.01000	PM 16/133/B
RE-5	R1A					MDR						SS					09041014	0.00000	1.01000	PM 16/133/C
RE-5	R1A					MDR						SS					09041015	0.00000	1.01000	PM 16/133/D
RE-5	R3A					MDR						SS					09041018	0.00000	5.02000	PM 21/143/3
RE-5	R3A					MDR						SS					09042002	0.00000	5.00000	PM 26/114/1
RE-5	R3A					MDR						SS					09042003	0.00000	4.92000	PM 26/114/2
RE-5	R3A					MDR						SS					09042005	0.00000	3.52000	POR PM 3/165/1
RE-5	R1A					MDR						SS					09042006	0.00000	1.00000	POR PM 3/165/1
C	CC					C						SS					09043001	0.00000	0.82000	SEC 1 9 9
C	CC					C						SS					09043003	0.00000	0.73000	SEC 1 9 9
C	CC					C						SS					09043004	6.00000	0.37000	SEC 1 9 9
C	CC					C						SS					09043005	0.00000	1.00000	SEC 1 9 9
RE-5	CC					C						SS					09043010	0.00000	0.09000	SEC 1 9 9
RE-5	CC					C						SS					09043011	0.00000	0.21000	SEC 1 9 9
C	CC					C						SS					09043012	0.00000	1.11000	PM 32/100/1
C	CC					C						SS					09043013	0.00000	0.59000	PM 32/100/2
C	CC					C						SS					09043014	0.00000	0.46000	PM 35/86/A
C	CC					C						SS					09043015	0.00000	0.46000	PM 35/86/B

C	CC					C						SS					09043016	0.00000	0.34000	SEC 1 9 9
C	CC					C						SS					09043017	2.00000	0.18000	RS 15/16/1
C	CC					C						SS					09043019	11.00000	0.20000	POR RS 5/133
C	CC					C						SS					09043020	0.00000	0.31000	SEC 1 9 9
R1A	RM					MFR						SS					09043023	6.00000	1.00000	SEC 1 9 9
CP	CC					C						SS					09043024	0.00000	0.29000	PM 32/114/2
C	CC					C						SS					09043027	0.00000	1.00000	PM 14/85/A
C	CC					C						SS					09043028	0.00000	1.00500	PM 14/85/B
C	CC					C						SS					09043029	0.00000	1.00000	PM 14/85/C
C	CC					C						SS					09043030	0.00000	2.15500	PM 14/85/D
C	CC					C						SS					09043031	0.00000	0.75000	SEC 1 9 9
R1A	RM					MFR						SS					09043032	0.00000	0.75000	SEC 1 9 9
R1A	RM					MFR						SS					09043033	0.00000	0.75000	SEC 1 9 9
C	CL					C						SS					09043034	0.00000	0.26300	PM 14/150/B
C	CC					C						SS					09043035	0.00000	0.49400	PM 14/150/A
C	CC					C						SS					09043036	0.00000	0.90000	PM 35/63/A
C	CC					C						SS					09043037	0.00000	1.00000	PM 35/63/B
C	CC					C						SS					09043038	0.00000	2.20000	PM 32/115/B
C	CC					C						SS					09043039	0.00000	1.34000	PM 33/53/1
C	CC					C						SS					09043043	0.00000	1.64000	POR RS 5/133
C	CC					C						SS					09043044	2.00000	0.88000	RS 15/16/2
CP	CC					C						SS					09043049	0.00000	2.01000	PM 45/93/1
CP	CC					C						SS					09043050	0.00000	1.35000	PM 45/93/2
CP	CC					C						SS					09043051	0.00000	6.05000	PM 45/93/REM
C	TC					C						SS					09043052	11.00000	0.00000	SEC 1 9 9
R1A	TC					C						SS					09043052	11.00000	0.00000	SEC 1 9 9
C	CG					C						SS					09043053	0.00000	0.21000	SEC 1 9 9
R2	RE-5					MDR						SS					09043056	0.00000	5.86600	SEC 1 9 9
C	CC					C						SS					09043058	0.00000	5.41000	PPM 40/17/1
C	CL					C						SS					09043060	11.00000	0.01300	PRS 32/56/1
C	CC					C						SS					09043061	0.00000	0.71700	PRS 32/56/1
CP	CC					C						SS					09044022	0.00000	3.70000	SEC 1 9 9
C	CC					C						SS					09044023	0.00000	2.00000	SEC 1 9 9
R1A	CL					C						SS					09044024	0.00000	0.30000	SEC 1 9 9
R1A	TC					MDR						SS					09044050	11.00000	0.00000	SEC 1 9 9
CP	CL					C						SS					09044053	0.00000	0.99600	RS 48/144/2
R1A	CL					C						SS					09044053	0.00000	0.99600	RS 48/144/2
RE-10	RL-10					RR											09045001	0.00000	8.08000	SEC 9 9 10
RE-10	RL-10					RR											09045004	0.00000	10.00000	SEC 9 9 10
RE-10	RL-10					RR											09045005	0.00000	10.00000	PM 9/119/1
RE-10	RL-10					RR											09045006	0.00000	10.03000	PM 9/119/2
RE-10	RL-10					RR											09045007	0.00000	10.08000	PM 9/119/3
RE-10	RL-10					RR											09045008	0.00000	20.15000	SEC 9 9 10
RE-10	RL-10					RR											09045009	0.00000	10.24000	PM 5/71/A
RE-10	RL-10					RR											09045010	0.00000	10.24000	PM 5/71/B
RA-40	LA-10					RR											09045011	0.00000	10.19000	PM 26/21/1

RA-40	RL-10					RR										09045012	0.00000	10.18900	PM 26/21/2
RA-40	LA-10					RR										09045013	0.00000	2.00000	SEC 9 9 10
RA-40	RL-10					RR										09045014	0.00000	1.92000	SEC 9 9 10
RA-40	LA-10					RR										09045015	0.00000	8.09000	SEC 9 9 10
RA-40	RL-10					RR										09045016	0.00000	2.00000	SEC 9 9 10
RA-40	LA-10					RR										09045017	0.00000	11.03000	SEC 9 9 10
AE	RL-10					RR										09045019	0.00000	5.04000	RS 29/78/1
AE	RL-10					RR										09045020	0.00000	42.02000	RS 29/78/2
RE-10	RL-10					RR										09045020	0.00000	42.02000	RS 29/78/2
PD	R1A					MDR					SS					09046101	0.00000	1.19000	L 1
PD	R1A					MDR					SS					09046102	0.00000	1.31000	L 2
PD	R1A					MDR					SS					09046103	0.00000	0.84000	L 3
PD	R1A					MDR					SS					09046104	0.00000	0.81500	L 4
PD	R1A					MDR					SS					09046105	0.00000	0.80900	L 5
PD	R1A					C					SS					09046106	0.00000	0.86000	L 6
PD	R1A					C					SS					09046107	0.00000	0.87500	L 7
PD	R1A					C					SS					09046108	0.00000	0.76000	L 8
PD	R1A					C					SS					09046201	0.00000	0.66000	L B
PD	R1A					MDR					SS					09046203	0.00000	1.07000	L 9
PD	R1A					MDR					SS					09046204	0.00000	0.74500	L 10
PD	R1A					MDR					SS					09046205	0.00000	1.07000	L 11
PD	R1A					MDR					SS					09046206	0.00000	1.00000	L 12
PD	R1A					MDR					SS					09046207	0.00000	0.93800	L 13
PD	R1A					MDR					SS					09046208	0.00000	1.38000	L 14
PD	R1A					MDR					SS					09046209	0.00000	1.07000	L 15
PD	R1A					MDR					SS					09046210	0.00000	0.93000	L 16
PD	R1A					MDR					SS					09046211	0.00000	1.28500	L 17
PD	R1A					MDR					SS					09046212	0.00000	1.14500	L 18
PD	R1A					MDR					SS					09046213	0.00000	1.19000	L 19
PD	R1A					MDR					SS					09046214	2.00000	1.24000	LOT A AW
PD	R1A					MDR					SS					09046215	0.00000	1.46000	L 20
PD	R1A					MDR					SS					09046216	0.00000	1.31000	L 21
PD	RE-5					C					SS					09046221	0.00000	5.35000	PM 47/124/1
PD	CC					C					SS					09046222	0.00000	2.19000	PM 47/124/2
PD	R1A					MDR					SS					09046223	0.00000	2.26000	PM 45/145/1
PD	CC					C					SS					09046302	0.00000	1.82900	RS 22/6 & L 22
PD	R1A					MDR					SS					09046401	0.00000	2.39000	L 23
PD	R1A					MDR					SS					09046402	0.00000	1.03100	L 24
PD	R1A					MDR					SS					09046403	0.00000	0.96000	L 25
PD	R1A					MDR					SS					09046501	0.00000	0.76800	L 26
PD	R1A					MDR					SS					09046502	0.00000	1.01100	L 27
PD	R1A					MDR					SS					09046503	0.00000	0.88100	L 28
PD	R1A					MDR					SS					09046504	0.00000	0.76000	L 29
PD	R1A					MDR					SS					09046505	0.00000	0.79600	L 30
PD	R1A					MDR					SS					09046506	0.00000	1.10000	L 31
PD	R1A					MDR					SS					09046507	0.00000	0.94600	L 32

PD	R1A					MDR					SS					09046508	0.00000	0.75000	L 33
PD	R1A					MDR					SS					09046509	0.00000	0.81400	L 34
PD	R1A					MDR					SS					09047101	0.00000	1.16000	L 35
PD	R1A					MDR					SS					09047102	0.00000	0.98000	L 36
PD	R1A					MDR					SS					09047103	0.00000	0.00000	L 37
PD	R1A					MDR					SS					09047104	0.00000	0.73000	L 38
PD	R1A					MDR					SS					09047105	0.00000	0.82000	L 39
PD	R1A					MDR					SS					09047106	0.00000	0.78000	LOT_40
PD	R1A					MDR					SS					09047201	0.00000	0.00000	L 41
PD	R1A					MDR					SS					09047202	0.00000	1.03000	L 42
PD	R1A					MDR					SS					09047203	0.00000	0.78000	L 43
PD	R1A					MDR					SS					09047204	0.00000	0.82000	L 44
PD	R1A					MDR					SS					09047205	0.00000	0.84000	L 45
PD	R1A					MDR					SS					09047206	0.00000	0.72000	L 46
PD	R1A					MDR					SS					09047207	0.00000	1.24000	L 47
PD	R1A					MDR					SS					09047208	0.00000	1.05000	L 48
PD	R1A					MDR					SS					09047209	0.00000	0.00000	L 57
PD	R1A					MDR					SS					09047301	0.00000	1.05000	L 49
PD	R1A					MDR					SS					09047302	0.00000	1.16000	L 50
PD	R1A					MDR					SS					09047303	0.00000	1.18000	L 51
PD	R1A					MDR					SS					09047305	0.00000	1.99000	L 53
PD	R1A					MDR					SS					09047306	0.00000	1.58000	L 54
PD	R1A					MDR					SS					09047307	0.00000	1.22000	L 58
PD	R1A					MDR					SS					09048101	0.00000	1.13900	L 93
PD	R1A					MDR					SS					09048102	0.00000	1.25500	L 59
PD	R1A					MDR					SS					09048103	0.00000	1.00000	L 60
PD	R1A					MDR					SS					09048104	0.00000	1.00700	L 61
PD	R1A					MDR					SS					09048105	0.00000	1.36200	L 62
PD	R1A					MDR					SS					09048106	0.00000	1.21200	L 63
PD	R1A					MDR					SS					09048107	0.00000	1.16000	L 64
PD	R1A					MDR					SS					09048108	0.00000	1.16800	L 65
PD	R1A					MDR					SS					09048109	0.00000	1.33100	L 66
PD	R1A					MDR					SS					09048110	0.00000	0.92400	L 67
PD	R1A					MDR					SS					09048111	0.00000	0.92100	L 68
PD	R1A					MDR					SS					09048112	0.00000	0.89800	L 69
PD	R1A					MDR					SS					09048113	0.00000	0.91100	L 70
PD	R1A					MDR					SS					09048114	0.00000	1.03800	L 71
PD	R1A					MDR					SS					09048201	0.00000	1.23800	L 72
PD	R1A					MDR					SS					09048202	0.00000	1.16900	L 73
PD	R1A					MDR					SS					09048203	0.00000	1.29300	L 74
PD	R1A					MDR					SS					09048204	0.00000	1.90200	L 75
PD	R1A					MDR					SS					09048205	0.00000	1.17600	L 76
PD	R1A					MDR					SS					09048206	0.00000	1.11400	L 77
PD	R1A					MDR					SS					09048207	0.00000	1.09700	L 78
PD	R1A					MDR					SS					09048208	0.00000	1.16700	L 79
PD	R1A					MDR					SS					09048209	0.00000	1.19800	L 80

PD	R1A					MDR						SS					09048210	0.00000	1.53100	L 81
PD	R1A					MDR						SS					09048211	0.00000	1.46400	L 82
PD	R1A					MDR						SS					09048212	0.00000	1.00100	L 83
PD	R1A					MDR						SS					09048213	0.00000	1.03900	L 84
PD	R1A					MDR						SS					09048214	0.00000	1.00100	L 85
PD	R1A					MDR						SS					09048215	0.00000	1.10700	L 86
PD	R1A					MDR						SS					09048216	0.00000	1.51900	L 87
PD	R1A					MDR						SS					09048217	0.00000	1.38600	L 88
PD	R1A					MDR						SS					09048218	0.00000	1.03200	L 89
PD	R1A					MDR						SS					09048219	0.00000	1.13700	L 90
PD	R1A					MDR						SS					09048220	0.00000	0.91000	L 91
PD	R1A					MDR						SS					09048221	0.00000	1.05000	L 92
PD	R1A					MDR						SS					09048224	0.00000	9.62000	POR LOT 94
AE	AG-40					AL											09101008	0.00000	80.00000	SEC 21 9 10
RA-40	RL-40					RR											09101009	0.00000	160.00000	RS 22/115
AE	AG-40					AL											09101010	0.00000	160.00000	SEC 21 9 10
AE	AG-40					AL											09101011	0.00000	160.00000	SEC 20 9 10
RA-40	RL-40					RR											09101012	0.00000	80.00000	RS 22/115 ADM
RA-40	RL-40					RR											09101013	0.00000	40.00000	RS 22/115 ADM
AE	AG-40					RR			IBC								09101014	0.00000	132.70000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09101015	0.00000	13.75000	SEC 19 9 10
RE-10	RL-10					RR											09101018	0.00000	10.00000	SEC 19 9 10
AE	AG-40					AL											09101020	0.00000	119.07000	SEC 19 & 20 9 10
RE-10	RL-10					RR			IBC								09101027	0.00000	15.94000	PM 15/123/1
RE-10	RL-10					RR			IBC								09101028	0.00000	10.00000	PM 15/123/2
RE-10	RL-10					RR			IBC								09101030	0.00000	35.00000	PRS 10/3/1 ADM
RE-10	RL-10					RR			IBC								09101032	0.00000	5.00000	PRS 10/3/1 ADM
RE-10	RL-10					RR			IBC								09101033	0.00000	5.00000	PPM 44/100/3 ADM
RE-10	RL-10					RR			IBC								09101036	0.00000	10.06000	PM 37/59/A
RE-10	RL-10					RR											09101037	0.00000	52.71000	PM 37/59/B
RE-10	RL-10					RR				MR							09101039	0.00000	30.00000	PM 37/59/D
RE-10	RL-10					RR			IBC								09101040	0.00000	10.00000	RS 15/135/A
RE-10	RL-10					RR			IBC								09101042	0.00000	23.40000	PM 43/40/1
RE-10	RL-10					RR			IBC								09101043	0.00000	23.41000	PM 43/40/2
RE-10	RL-10					RR			IBC								09101045	0.00000	5.01000	PPM 44/100/3 ADM
RE-10	RL-10					RR			IBC								09101046	0.00000	10.06000	PM 44/100/4
RE-10	RL-10					RR											09101047	0.00000	10.00000	PM 44/100/5
RA-40	RL-40					RR											09101048	0.00000	278.57000	PM 44/100/6
RE-10	RL-10					RR											09101048	0.00000	278.57000	PM 44/100/6
RA-40	RL-40					RR											09101049	0.00000	80.00000	POR SEC 16 9 10
RA-40	RL-40					RR											09101050	0.00000	230.00000	POR SEC 16 9 10
RA-40	RL-10					RR											09101051	0.00000	6.00000	POR SEC 16 9 10
RA-40	RL-10					RR											09101052	0.00000	4.00000	POR SEC 16 9 10
RA-40	RL-40					RR											09101053	0.00000	40.00000	POR SEC 16 9 10
RA-40	RL-40					RR											09101054	0.00000	40.00000	POR SEC 16 9 10
RA-40	RL-40					RR											09101055	0.00000	40.00000	POR SEC 16 9 10

RA-40	RL-40					RR											09101056	0.00000	160.00000	POR SEC 21 9 10
RE-10	RL-10					RR				MR							09102002	0.00000	41.41000	RS 18/94 S30910
RE-10	RL-10					RR											09102003	0.00000	17.66000	SEC 30 9 10
RA-40	RL-40					RR											09102005	0.00000	61.89000	SEC 31 9 10
RA-40	RL-40					RR											09102006	0.00000	0.00000	POR SEC 31 9 10
AE	AG-40					AL											09102007	0.00000	247.72000	SEC 31 9 10
AE	AG-40					AL											09102011	0.00000	80.00000	SEC 31 9 10
AE	AG-40					AL				MR							09102012	0.00000	105.00000	SEC 31 & 32 9 10
RE-10	RL-10					RR				MR							09102013	0.00000	81.80000	SEC 30 9 10
RE-10	RL-10					RR				MR							09102014	0.00000	25.21000	SEC 30 9 10
RE-10	RL-10					RR				MR							09102015	0.00000	53.00000	SEC 30 9 10
AE	AG-40					AL											09102016	0.00000	360.00000	SEC 29 & 30 9 10
RA-40	RL-40					RR											09102017	0.00000	19.86600	RS 26/108/1
RA-40	RL-40					RR											09102018	0.00000	40.00000	RS 22/115
AE	AG-40					AL											09102021	0.00000	200.00000	SEC 32 9 10
RE-10	RL-10					RR											09102030	0.00000	184.06000	RS 18/94 S30910
RA-40	LA-10					RR											09102032	0.00000	103.00000	SEC 31 9 10
RA-40	RE-10					RR				MR							09102036	11.00000	0.00000	NE 1/4 S31 9 10
RA-40	RL-40					RR											09102037	11.00000	0.00000	LOT 40 S29 9 10
RA-40	RL-40					RR											09102038	0.00000	100.00000	RS 22/115
RA-40	RL-40					RR											09102039	0.00000	150.66000	RS 22/115
RA-40	RL-40					RR											09102041	0.00000	79.95000	RS 22/115
RA-40	RL-40					RR											09102042	0.00000	40.00000	RS 22/115
RA-40	RL-40					RR											09102043	0.00000	158.09000	RS 22/115
RA-40	RL-40					RR											09102044	0.00000	80.00000	RS 22/115 ADM
RA-40	RL-40					RR											09102045	0.00000	40.00000	RS 22/115
RA-40	RL-40					RR											09102046	0.00000	120.00000	RS 22/115
RA-40	RL-40					RR											09102048	0.00000	120.00000	RS 22/115
RA-80	RL-80					RR											09102048	0.00000	120.00000	RS 22/115
RA-40	RL-40					RR											09102049	0.00000	160.00000	RS 22/115
RA-40	RL-40					RR											09102050	0.00000	160.00000	RS 22/115
RA-40	RL-40					RR											09102051	0.00000	160.00000	RS 22/115
RA-40	RL-40					RR											09102052	0.00000	80.00000	RS 22/115 ADM
RA-40	RL-40					RR											09102053	0.00000	80.00000	RS 22/115
RA-40	RL-40					RR											09102054	0.00000	160.00000	RS 22/115
RA-80	RL-80					RR											09102054	0.00000	160.00000	RS 22/115
RA-40	RL-40					RR											09102057	0.00000	160.00000	RS 22/115
RA-40	RL-40					RR											09102059	0.00000	68.60000	RS 22/115
RE-10	RL-10					RR											09102061	0.00000	36.04000	PM 48/33/1
RE-10	RL-10					RR											09102062	0.00000	56.04000	PM 48/33/2
RA-80	PA-20					AL											09103003	0.00000	2.00000	SEC 6 8 10
RA-80	LA-10					RR											09103004	0.00000	200.15000	RS 19/147/2
RA-80	LA-10					RR											09103005	0.00000	98.37000	SEC 7 8 10
RA-80	LA-10					RR											09103005	0.00000	98.37000	SEC 7 8 10
AE	AG-40					AL											09103009	0.00000	360.00000	SEC 7 & 8 8 10
RA-40	RL-10					RR											09103012	0.00000	75.57000	SEC 4 8 10 ADM

RA-80	RL-80					RR											09103012	0.00000	75.57000	SEC 4 8 10 ADM
RA-80	RL-80					RR											09103016	0.00000	35.42000	SEC 4 8 10 ADM
AE	AG-40					AL											09103020	0.00000	77.13700	RS 19/147/1
AE	AG-40					AL											09103021	0.00000	553.89000	S 6 & 7 8 10
RA-80	RL-80					RR											09103022	0.00000	160.00000	SEC 9 8 10
RA-40	RL-40					RR											09103023	0.00000	71.80000	RS 22/115 ADM
RA-80	RL-80					RR											09103023	0.00000	71.80000	RS 22/115 ADM
RA-80	RL-80					RR											09103024	0.00000	80.00000	RS 22/115 ADM
RA-80	RL-80					RR											09103027	0.00000	160.00000	SEC 9 & 10 8 10
RA-40	RL-10					RR											09103028	0.00000	130.99000	POR SEC 4 8 10
RA-80	RL-80					RR											09103028	0.00000	130.99000	POR SEC 4 8 10
RA-80	RL-80					RR											09103029	0.00000	20.00000	POR SEC 4 8 10
RA-80	RL-80					RR											09103030	0.00000	160.00000	POR SEC 4 8 10
RA-80	RL-80					RR											09103031	0.00000	80.00000	POR SEC 4 8 10
RA-80	RL-80					RR											09103032	0.00000	80.00000	SEC 4 8 10 ADM
RA-80	RL-80					RR											09103032	0.00000	80.00000	SEC 4 8 10 ADM
RA-80	RL-80					RR											09103033	0.00000	80.00000	SEC 5 8 10 ADM
RA-80	RL-80					RR											09103034	0.00000	120.00000	SEC 9 8 10
RA-80	RL-80					RR											09103035	0.00000	40.00000	SEC 9 8 10
RA-80	RL-80					RR											09103036	0.00000	120.00000	SEC 9 8 10 ADM
RA-80	RL-80					RR											09103037	0.00000	160.00000	SEC 8 8 10
RA-80	RL-80					RR											09103038	0.00000	80.00000	SEC 8 8 10
RA-80	RL-80					RR											09103039	0.00000	140.00000	POR SEC 5 8 10
RA-80	RL-80					RR											09103040	0.00000	20.00000	POR SEC 5 8 10
RA-40	RL-10					RR											09103041	0.00000	160.00000	POR SEC 5 8 10
RA-80	RL-80					RR											09103041	0.00000	160.00000	POR SEC 5 8 10
RA-80	RL-80					RR											09103042	0.00000	40.00000	SEC 8 8 10 ADM
RA-80	RL-80					RR											09103043	0.00000	40.00000	SEC 8 8 10 ADM
RA-80	RL-80					RR											09103044	0.00000	40.00000	SEC 4 8 10 ADM
RA-80	RL-80					RR											09103045	0.00000	40.00000	SEC 8 8 10 ADM
AE	PA-20					AL											09103047	0.00000	149.00000	SEC 5 & 6 8 10
RA-80	PA-20					AL											09103047	0.00000	149.00000	SEC 5 & 6 8 10
AE	PA-20					AL											09103048	0.00000	156.00000	SEC 6 8 10
AE	PA-20					AL											09103049	0.00000	167.00000	SEC 6 8 10&1 8 9
AE	AG-40					AL											09104002	0.00000	400.00000	SEC 18 & 19 8 10
AE	AG-40					AL											09104003	0.00000	640.00000	SEC 17 & 20 8 10
RA-80	RL-40					NR											09104004	0.00000	240.00000	SEC 19 & 20 8 10
AE	AG-40					AL											09104006	0.00000	543.50000	SEC 16 8 10
RA-80	RL-40					NR											09104007	0.00000	360.00000	SEC 16 & 21 8 10
RA-80	RL-80					NR											09104008	0.00000	20.00000	SEC 21 8 10
RA-80	RL-40					NR											09104011	0.00000	338.50000	SEC 20 8 10
RA-80	RL-40					NR											09104012	0.00000	245.00000	SEC 20 8 10
AE	AG-40					AL											09104014	0.00000	80.00000	SEC 18 8 10
RA-80	RL-40					NR											09105001	0.00000	201.50000	SEC 29 & 30 8 10
RA-80	RL-80					NR											09105002	0.00000	1.00000	SEC 28 8 10
RE-10	RL-10					RR			IBC								09107009	4.00000	0.00000	POR SEC 18 9 10

RE-10	RL-10					RR			IBC								09107014	0.00000	3.93000	SEC 18 9 10
RE-10	RL-10					RR			IBC								09107016	0.00000	3.26000	SEC 18 9 10
RE-10	RL-10					RR			IBC								09107017	0.00000	5.87000	SEC 18 9 10
RE-10	RL-10					RR			IBC								09107022	0.00000	85.05000	SEC 18 9 10
RE-10	RL-10					RR			IBC								09107024	0.00000	2.00000	SEC 18 9 10
RE-10	RL-10					RR			IBC								09107026	0.00000	12.79000	PM 7/30/A
RE-10	RL-10					RR			IBC								09107027	0.00000	5.00000	PM 7/30/B
RE-10	RL-10					RR			IBC								09107028	0.00000	5.01000	PM 7/30/C
RE-10	RL-10					RR			IBC								09107029	0.00000	5.00000	PM 7/30/D
RE-10	RL-10					RR			IBC								09107035	0.00000	5.10000	PM 10/91/3
RE-10	RL-10					RR			IBC								09107036	0.00000	5.01000	PM 10/91/4
RE-10	RL-10					RR			IBC								09107037	0.00000	4.84000	SEC 18 9 10
RE-10	RL-10					RR			IBC								09107041	0.00000	9.49000	PM 27/13/A
RE-10	RL-10					RR			IBC								09107042	0.00000	10.00000	PM 27/13/B
RE-10	RL-10					RR			IBC								09107043	0.00000	10.00000	PM 27/13/C
RE-10	RL-10					RR			IBC								09107044	0.00000	10.00000	PM 27/13/D
RE-10	RL-10					RR			IBC								09107045	0.00000	8.72000	PM 33/112/A
RE-10	RL-10					RR			IBC								09107052	0.00000	5.00000	1PM10-91&18 9 10
RE-10	RL-10					RR			IBC								09107053	0.00000	5.06900	2PM10-91&18 9 10
RE-10	RL-10					RR			IBC								09107067	0.00000	9.99000	RS 27/88/A
RE-10	RL-10					RR			IBC								09108005	0.00000	11.85000	SEC 17 9 10
RE-10	RL-10					RR			IBC								09108006	0.00000	9.86000	RS 19/103/1
RE-10	RL-10					RR			IBC								09108010	0.00000	11.89000	SEC 17 9 10
RE-10	RL-10					RR			IBC								09108018	0.00000	10.07800	P10/101/A RS28/9
RE-10	RL-10					RR			IBC								09108019	0.00000	10.11000	PM 10/101/B
RE-10	RL-10					RR			IBC								09108020	0.00000	10.12000	PM 10/101/C
RE-10	RL-10					RR			IBC								09108022	0.00000	28.38000	PM 12/1/A
RE-10	RL-10					RR			IBC								09108026	0.00000	10.06000	PM 16/27/1
RE-10	RL-10					RR			IBC								09108027	0.00000	10.06000	PM 16/27/2
RE-10	RL-10					RR			IBC								09108028	0.00000	12.25000	PM 16/27/3
RE-10	RL-10					RR			IBC								09108029	0.00000	12.25000	PM 16/27/4
RE-10	RL-10					RR			IBC								09108031	0.00000	0.51000	SEC 17 9 10
RE-10	RL-10					RR			IBC								09108034	0.00000	10.22000	PM 26/75/A
RE-10	RL-10					RR			IBC								09108035	0.00000	10.25000	PM 26/147/1
RE-10	RL-10					RR			IBC								09108039	0.00000	12.08400	PM 26/147/2
RE-10	RL-10					RR			IBC								09108040	0.00000	13.62800	PM 26/147/3
RE-10	RL-10					RR			IBC								09108041	0.00000	12.80000	PM 30/21/1
RE-10	RL-10					RR			IBC								09108046	0.00000	11.60000	SEC 17 9 10
RE-10	RL-10					RR			IBC								09108047	0.00000	9.98500	RS 28/142/1
RE-10	RL-10					RR			IBC								09108048	0.00000	12.45000	SEC 17 9 10
RE-10	RL-10					RR			IBC								09108052	0.00000	10.00000	PM 39/101/1
RE-10	RL-10					RR			IBC								09108053	0.00000	9.98000	PM 39/101/2
RE-10	RL-10					RR			IBC								09108054	0.00000	8.36800	PORPAR D PM10-10
RE-10	RL-10					RR			IBC								09108056	0.00000	20.43000	RS 20/51/1
RE-10	RL-10					RR			IBC								09108066	0.00000	10.29000	RS 20/141/1
RE-10	RL-10					RR			IBC								09108067	0.00000	5.50000	RS 20/141/2

RE-10	RL-10					RR			IBC								09108068	0.00000	9.57000	RS 20/141/3
RE-10	RL-10					RR			IBC								09108071	0.00000	10.00000	RS 27/88/B
RE-10	RL-10					RR			IBC								09109004	0.00000	10.00000	PM 1/147/1
RE-10	RL-10					RR			IBC								09109005	0.00000	10.00000	PM 1/147/2
RE-10	RL-10					RR			IBC								09109006	0.00000	10.00000	PM 1/146/1
RE-10	RL-10					RR			IBC								09109007	0.00000	10.00000	PM 1/146/2
RA-40	RL-40					RR											09109017	0.00000	275.92000	PM 44/100/2
RE-10	RL-40					RR											09109017	0.00000	275.92000	PM 44/100/2
RE-10	RL-10					RR											09109018	0.00000	12.91800	RS 20/129/1
RE-10	RL-10					RR											09109020	0.00000	60.40000	POR 2-168&44-100
RE-10	RL-10					RR			IBC								09110001	0.00000	2.63000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110002	2.00000	0.15000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110003	0.00000	2.85000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110004	0.00000	0.40000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110007	0.00000	5.55000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110009	0.00000	4.95000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110019	0.00000	4.40000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110020	0.00000	4.20000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110021	0.00000	6.96000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110023	0.00000	5.17000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110025	0.00000	11.43000	PM 2/17/2
RE-10	RL-10					RR			IBC								09110026	0.00000	20.96000	PM 2/17/3
RE-10	RL-10					RR			IBC								09110028	0.00000	5.00000	PM 6/160/B
RE-10	RL-10					RR			IBC								09110029	0.00000	5.00000	PM 6/160/A
RE-10	RL-10					RR			IBC								09110030	0.00000	5.00000	PM 9/16/1
RE-10	RL-10					RR			IBC								09110031	0.00000	5.00000	PM 9/16/2
RE-10	RL-10					RR			IBC								09110032	0.00000	6.42000	PM 9/16/3
RE-10	RL-10					RR			IBC								09110035	0.00000	8.00000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09110036	0.00000	11.60000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09111001	0.00000	1.05000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09111002	0.00000	1.00000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09111004	0.00000	17.25000	SEC 24 9 9
RE-10	RL-10					RR			IBC								09111005	0.00000	10.61000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09111006	0.00000	8.07000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09111007	0.00000	0.66000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09111008	0.00000	10.98000	SEC 19 9 10
RE-10	RL-10					RR											09111016	0.00000	0.10000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09111023	0.00000	1.50000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09111024	0.00000	1.53000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09111033	0.00000	22.01000	PM 44/28/1
AE	PA-20					RR			IBC								09111034	0.00000	33.07000	PM 44/28/2
RE-10	RL-10					RR			IBC								09112001	0.00000	3.29000	SEC 30 9 10
RE-10	RL-10					RR			IBC								09112003	0.00000	10.76000	SEC 30 9 10
RE-10	RL-10					RR			IBC								09112005	0.00000	5.00000	SEC 30 9 10
RE-10	RL-10					RR			IBC								09112006	0.00000	5.20000	PM 5/53/A
RE-10	RL-10					RR			IBC								09112007	0.00000	5.03000	PM 5/53/B

RE-10	RL-10					RR											09112009	0.00000	29.75000	SEC 30 9 10
RE-10	RL-10					RR			IBC								09112010	0.00000	10.44700	SEC 30 9 10
RE-10	RL-10					RR			IBC								09112012	0.00000	5.05000	PM 5/53/C
RE-10	RL-10					RR			IBC								09113001	0.00000	3.58000	SEC 30 9 10
RE-10	RL-10					RR			IBC								09113002	0.00000	1.42000	SEC 30 9 10
RE-10	RL-10					RR			IBC								09113003	0.00000	2.60000	SEC 30 9 10
RE-10	RL-10					RR											09113008	0.00000	59.56000	RS 18/72/4
RE-10	RL-10					RR			IBC								09113009	0.00000	63.22300	RS 18/72/2
RE-10	RL-10					RR			IBC								09113010	0.00000	60.06100	RS 18/72/3
AE	AG-40					AL											09114001	0.00000	6.47000	SEC 6 8 10
AE	PA-20					AL											09114002	0.00000	6.60000	SEC 6 8 10
AE	AG-40					AL											09114003	0.00000	16.51000	SEC 6 8 10
AE	AG-40					AL											09114004	0.00000	29.42000	SEC 6 8 10
AE	PA-20					AL											09114005	0.00000	2.72000	SEC 6 8 10
AE	PA-20					AL											09114006	0.00000	1.00000	SEC 6 8 10
RA-40	RL-40					RR											09116002	0.00000	45.18000	SEC 16 9 10
RA-40	LA-10					RR			IBC								09116005	0.00000	20.66000	SEC 16 9 10
RE-10	LA-10					RR			IBC								09116005	0.00000	20.66000	SEC 16 9 10
RA-40	RL-40					RR											09116006	0.00000	39.61800	RS 28/82
RE-10	RL-10					RR			IBC								09116007	0.00000	10.00000	PM 16/145/1
RE-10	RL-10					RR			IBC								09116008	0.00000	10.01000	PM 16/145/2
RE-10	RL-10					RR			IBC								09116011	0.00000	10.01000	PM 29/26/A
RE-10	RL-10					RR			IBC								09116012	0.00000	10.03000	PM 29/26/B
RE-10	RL-10					RR			IBC								09116013	0.00000	12.00000	PM 29/26/C
RA-40	RL-10					RR			IBC								09116014	0.00000	10.30000	PM 29/53/A
RA-40	RL-10					RR			IBC								09116015	0.00000	10.00000	PM 29/53/B
RA-40	LA-10					RR			IBC								09116016	0.00000	10.01000	PM 29/53/C
RA-40	RL-10					RR			IBC								09116017	0.00000	10.00000	PM 29/53/D
RE-10	RL-10					RR			IBC								09117001	0.00000	5.35000	RS 8/94/2
RE-10	RL-10					RR			IBC								09117012	0.00000	6.18000	RS 8/94/3
RE-10	RL-10					RR			IBC								09117013	0.00000	10.52000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09117014	0.00000	4.86000	SEC 19 9 10
RE-10	RL-10					RR			IBC								09117016	0.00000	10.61000	RS 8/94/1
RE-10	RL-10					RR			IBC								09117017	0.00000	10.00100	RS 8/94/5
RE-10	RL-10					RR			IBC								09117019	0.00000	12.83000	RS 8/94/4
RE-10	RL-10					RR			IBC								09117020	0.00000	12.10000	PM 31/130/A
RE-10	RL-10					RR			IBC								09117021	0.00000	12.54000	PM 31/130/B
RE-10	RL-10					RR			IBC								09117022	0.00000	10.10000	PM 31/130/C
RE-10	RL-10					RR			IBC								09119013	0.00000	40.00000	SEC 24 9 9
RE-10	RL-10					RR			IBC								09119019	0.00000	40.00000	SEC 24 9 9
RE-10	RL-10					RR											09120001	0.00000	35.71000	RS 5/2/1
RE-10	RL-10					RR											09120002	0.00000	21.97000	PRS 5/2/2
RE-10	RL-10					RR											09120003	0.00000	10.33000	RS 5/2/3
RE-10	RL-10					RR											09120004	0.00000	10.19000	RS 5/2/4
RE-10	RL-10					RR											09120005	0.00000	12.63000	RS 5/2/5 & POR 2
RE-10	RL-10					RR											09120006	0.00000	10.08000	RS 5/2/6

RE-10	RL-10					RR											09120007	0.00000	10.11000	RS 5/2/7
RE-10	RL-10					RR											09120008	0.00000	10.10600	RS 5/2/8
RA-40	RL-40					RR											09120009	0.00000	159.37000	RS 30/122/1
RA-40	LA-10					RR											09120010	0.00000	1.91000	SEC 36 9 9
RA-40	RL-40					RR											09120011	0.00000	196.38000	SEC 25 & 36 9 9
RA-40	RL-40					RR											09120011	0.00000	196.38000	SEC 25 & 36 9 9
RE-10	RL-10					RR											09120011	0.00000	196.38000	SEC 25 & 36 9 9
AE	AG-40					AL											09120013	0.00000	85.00000	SEC 36 9 9
AE	AG-40					AL											09120014	0.00000	66.00000	SEC 36 9 9
AE	AG-40					AL											09120015	0.00000	9.00000	SEC 36 9 9
RA-40	RL-10					RR											09120017	0.00000	1.06000	SEC 36 9 9
RA-40	RL-10					RR											09120019	0.00000	0.00000	POR SEC 1 8 9
RA-40	LA-10					RR											09120020	0.00000	5.00000	SEC 36 9 9
RA-40	RL-40					RR											09120022	0.00000	151.73200	RS 33/16/1
RA-40	RL-10					RR											09120023	0.00000	1.60000	RS 33/16/2
RE-10	RL-10					RR											09121002	0.00000	40.00000	POR S 25 9 9
RE-10	RL-10					RR											09121003	0.00000	80.00000	POR S 25 9 9
RE-10	RL-10					RR											09121004	0.00000	80.00000	POR S 25 9 9
RE-10	RL-10					RR			IBC								09122001	0.00000	7.72100	PPM 43/47/1 ADM
RE-10	RL-10					RR			IBC								09122002	0.00000	2.28000	PPM 43/47/1 ADM
RE-10	RL-10					RR			IBC								09122003	0.00000	10.00000	PM 43/47/2
RE-10	RL-10					RR			IBC								09122004	0.00000	28.36400	PM 43/47/3
RE-10	RL-10					RR			IBC								09122005	0.00000	10.00000	PM 43/47/4
RE-10	RL-10					RR											09201102	0.00000	15.00000	RS 12/44/1
RE-10	RL-10					RR											09201103	0.00000	10.00000	RS 12/44/2
RE-10	RL-10					RR											09201104	0.00000	10.00000	RS 12/44/3
AE	AG-40					AL											09201107	0.00000	160.00000	SEC 10 9 10
RA-20	RL-20					RR											09201111	0.00000	0.00000	50.9 A SEC 1 9 1
RA-20	RL-10					RR											09201112	0.00000	14.01200	SEC 1 9 10
RA-20	RL-20					RR											09201117	11.00000	42.24000	SEC 12 9 10
RA-20	RL-20					RR											09201118	0.00000	27.46000	SEC 12 9 10
RA-20	RL-20					RR											09201119	0.00000	20.15000	SEC 12 9 10
A	RL-20					PF				MR							09201120	11.00000	208.60000	SEC 12 9 10
A	RL-20					PF											09201121	11.00000	20.60000	SEC 12 9 10
RA-20	RL-10					RR											09201122	0.00000	1.86000	SEC 12 9 10
RA-20	RL-20					RR											09201123	0.00000	0.00000	L 20 SEC 12 9 10
RA-20	RL-20					RR											09201124	0.00000	20.62300	RS 25/110/1
RA-20	RL-20					RR											09201125	0.00000	28.63000	SEC 12 9 10
RA-20	RL-20					RR											09201126	0.00000	39.88000	SEC 1 9 10
RA-20	RL-20					RR											09201127	0.00000	40.00000	SEC 12 9 10
A	RL-20					PF											09201169	0.00000	0.00000	
A	RL-20					PF											09201169	0.00000	0.00000	
A	RL-20					PF											09201169	0.00000	0.00000	
RA-20	RL-20					PF											09201169	0.00000	0.00000	
A	RL-20					PF											09201129	11.00000	0.00000	SEC 12 9 10
A	RL-20					PF											09201129	11.00000	0.00000	SEC 12 9 10

RE-10	RL-10					RR				MR						09201130	0.00000	10.01000	PM 47/43/1
RE-10	RL-10					RR				MR						09201131	0.00000	10.01000	PM 47/43/2
RE-10	RL-10					RR				MR						09201132	0.00000	10.01000	PM 47/43/3
RE-10	RL-10					RR				MR						09201133	0.00000	30.04000	PM 47/43/4
RA-20	OS					OS										09201134	1.00000	0.00000	POR SEC 1 9 10
AE	AG-40					AL										09201135	0.00000	111.00000	SEC 3 9 10
AE	AG-40					AL										09201137	0.00000	10.38000	SEC 3&10 9 10
AE	AG-40					AL										09201138	0.00000	19.99000	SEC 10 9 10
AE	AG-40					AL										09201139	0.00000	35.45000	SEC 3 9 10
AE	AG-40					AL										09201140	0.00000	23.09000	SEC 10 9 10
AE	AG-40					AL										09201140	0.00000	23.09000	SEC 10 9 10
AE	AG-40					AL										09201141	0.00000	82.17000	SEC 3&10 9 10
AE	AG-40					AL				MR						09201145	0.00000	7.41600	SEC 11 9 10
AE	AG-40					AL				MR						09201146	0.00000	7.78000	SEC 11 9 10
AE	AG-40					AL										09201149	0.00000	35.00000	SEC 11 9 10 ADM
AE	AG-40					AL				MR						09201150	0.00000	0.30000	SEC 11 9 10
RE-5	AG-40					LDR										09201151	0.00000	15.00000	SEC 2 9 10 ADM
AE	PA-20					AL				MR						09201153	11.00000	0.71000	L 7 SEC 10 9 10
AE	AG-40					AL										09201155	0.00000	39.20000	SEC 10 9 10
AE	AG-40					AL										09201157	0.00000	0.00000	SEC 10&11 9 10
AE	AG-40					AL										09201157	0.00000	0.00000	SEC 10&11 9 10
AE	AG-40					AL										09201157	0.00000	0.00000	SEC 10&11 9 10
AE	AG-40					AL				MR						09201159	0.00000	0.00000	SEC 11 9 10
AE	AG-40					AL				MR						09201159	0.00000	0.00000	SEC 11 9 10
AE	AG-40					AL				MR						09201161	0.00000	0.00000	SEC 11 9 10
AE	AG-40					AL				MR						09201163	0.00000	6.46000	SEC 11 9 10
AE	AG-40					AL										09201165	0.00000	0.00000	S 10 11&15 9 10
AE	AG-40					AL										09201165	0.00000	0.00000	S 10 11&15 9 10
AE	AG-40					AL										09201167	0.00000	7.50000	SEC 2 9 10
AE	PA-20					AL										09201168	11.00000	0.00000	POR HWY 49
RE-5	PA-20					AL										09201168	11.00000	0.00000	POR HWY 49
RA-40	AG-40					RR										09202101	0.00000	160.00000	RS 22/115
AE	AG-40					AL										09202102	0.00000	320.00000	SEC 15 & 22 9 10
RE-10	RL-10					RR										09202103	0.00000	40.00000	SEC 15 9 10
RA-20	LA-10					RR										09202106	0.00000	36.03000	SEC 23 9 10
RE-10	RL-10					RR										09202107	0.00000	194.74000	SEC 23 9 10
RA-20	RL-20					RR				MR						09202108	0.00000	28.03600	RS 15/39/1
RA-20	RL-20					RR										09202109	0.00000	84.29000	SEC 14 9 10
RA-20	RL-20					RR				MR						09202111	0.00000	20.13000	14 9 10RS20-136
RA-20	RE-10					RR				MR						09202112	11.00000	0.00000	SEC 14 9 10
RA-20	RL-20					RR				MR						09202113	0.00000	20.23000	PM 27/30/A
RA-20	RL-10					RR				MR						09202114	0.00000	10.25000	PM 27/30/B
RA-20	RL-10					RR				MR						09202115	0.00000	10.24000	PM 27/30/C
RA-20	RL-10					RR				MR						09202116	0.00000	10.23000	PM 27/30/D
A	RL-10					RR										09202117	0.00000	10.06000	PM 25/68/1
RA-20	RL-10					RR										09202118	0.00000	10.06000	PM 25/68/2

RA-20	RL-10					RR											09202119	0.00000	10.14800	PM 8/7/A
RA-20	RL-10					RR											09202120	0.00000	10.14700	PM 8/7/B
RA-20	LA-10					RR											09202121	0.00000	10.14700	PM 8/7/D
RA-20	RL-10					RR											09202122	0.00000	10.15000	PM 8/7/C
RA-20	RL-10					RR											09202123	0.00000	10.08000	PM 25/68/3
RA-20	RL-10					RR				MR							09202126	0.00000	10.00000	SEC 13 9 10
RA-20	RL-20					RR				MR							09202127	0.00000	117.47000	RS 26/145/1
RA-20	RL-20					RR				MR							09202129	0.00000	20.69000	RS 11/8/1
RA-20	RL-20					RR				MR							09202130	0.00000	25.18000	RS 11/8/2
RA-20	RL-40					NR											09202131	0.00000	99.34000	SEC 13 & 24 9 10
RA-20	RL-40					NR											09202131	0.00000	99.34000	SEC 13 & 24 9 10
RA-20	RL-10					RR											09202132	0.00000	13.66000	SEC 13 9 10
RA-20	LA-10					RR											09202133	0.00000	13.66000	SEC 13 9 10
RA-20	RL-10					RR											09202134	0.00000	9.50000	SEC 24 9 10
RA-20	LA-10					RR											09202135	0.00000	9.50000	SEC 24 9 10
RA-20	LA-10					RR											09202136	0.00000	20.66000	SEC 13 & 24 9 10
RA-20	LA-10					RR											09202137	0.00000	9.90000	SEC 24 9 10
RA-20	RL-40					NR											09202138	0.00000	20.00000	SEC 24 9 10
RA-20	RL-40					NR											09202139	0.00000	20.00000	SEC 24 9 10
RE-10	RL-40					NR											09202140	0.00000	40.00000	SEC 24 9 10
RA-20	RL-40					NR											09202141	0.00000	40.00000	SEC 24 9 10
RA-80	RL-80					NR											09202141	0.00000	40.00000	SEC 24 9 10
AE	AG-40					AL											09202142	0.00000	79.05000	RS 10/7 S24910
RA-20	RL-40					NR				MR							09202143	0.00000	40.00000	SEC 24 9 10
RA-20	RL-20					RR				MR							09202144	0.00000	20.00000	PM 32/20/4
RA-80	RL-10					RR				MR							09202144	0.00000	20.00000	PM 32/20/4
RA-20	RL-20					RR				MR							09202145	0.00000	20.00000	PM 32/20/3
RA-80	RL-10					RR				MR							09202145	0.00000	20.00000	PM 32/20/3
RE-10	RL-10					RR				MR							09202148	0.00000	10.00000	PM 28/92/4
OS	RL-10					RR				MR							09202149	0.00000	10.01000	PM 28/92/1
RE-10	RL-10					RR				MR							09202149	0.00000	10.01000	PM 28/92/1
OS	RL-10					RR				MR							09202150	0.00000	10.01000	PM 28/92/2
RE-10	RL-10					RR				MR							09202150	0.00000	10.01000	PM 28/92/2
OS	RL-10					RR				MR							09202151	0.00000	10.01000	PM 28/92/3
RE-10	RL-10					RR				MR							09202151	0.00000	10.01000	PM 28/92/3
A	RL-20					PF											09202152	11.00000	0.00000	N 1/2 13 9 10
RA-20	RL-20					RR				MR							09202153	11.00000	0.00000	POR 14 & 23 9 10
RA-20	RL-20					RR				MR							09202154	11.00000	0.00000	SEC 23 & 24 9 10
RA-20	RL-20					RR											09202155	11.00000	0.00000	SEC 13&24 9 10
RE-10	OS					OS				MR							09202156	11.00000	0.00000	SW 1/4 24 9 10
RA-20	RL-20					RR											09202157	0.00000	19.19000	RS 12/5/1&2
RA-20	RL-20					RR				MR							09202159	0.00000	20.00000	PM 40/143/1
RA-20	RL-10					RR				MR							09202160	0.00000	17.67000	PM 40/143/2
RA-80	RL-10					RR				MR							09202160	0.00000	17.67000	PM 40/143/2
RE-10	RL-10					RR				MR							09202161	0.00000	9.46000	PM 41/117/1
RE-10	RL-10					RR				MR							09202162	0.00000	10.00000	PM 41/117/2

RA-40	RL-40					RR											09203004	0.00000	160.00000	RS 22/115
OS	RL-10					RR											09203009	0.00000	2.79000	SEC 26 9 10
RE-10	RL-10					RR											09203009	0.00000	2.79000	SEC 26 9 10
RE-10	RL-10					RR											09203010	0.00000	10.00000	SEC 26 9 10
OS	RL-10					RR											09203011	0.00000	10.38000	RS 11/98 S26910
RE-10	RL-10					RR											09203011	0.00000	10.38000	RS 11/98 S26910
AE	AG-40					AL				MR							09203014	0.00000	40.68000	SEC 25 & 26 9 10
AE	AG-40					AL				MR							09203015	0.00000	180.70000	SEC 25 9 10
AE	AG-40					AL				MR							09203016	0.00000	20.71000	SEC 25 9 10
RA-40	RL-40					RR			IBC								09203020	0.00000	38.39000	SEC 25 9 10
AE	AG-40					AL				MR							09203023	0.00000	337.50000	SEC 35 & 36 9 10
AE	AG-40					AL											09203024	0.00000	200.00000	SEC 36 9 10
AE	AG-40					AL				MR							09203025	0.00000	10.96000	SEC 36 9 10
AE	AG-40					AL				MR							09203026	0.00000	11.54000	SEC 36 9 10
AE	PA-20					AL				MR							09203029	0.00000	38.93000	SEC 25 9 10
RA-40	LA-40					AL				MR							09203030	0.00000	38.03000	SEC 25 9 10
RA-20	RL-20					RR											09203034	0.00000	203.74000	SEC 26 9 10
RE-10	RL-10					RR											09203034	0.00000	203.74000	SEC 26 9 10
RA-20	LA-40					NR											09203035	0.00000	31.96000	PM 13/10/A
RA-80	LA-40					NR											09203035	0.00000	31.96000	PM 13/10/A
RA-20	RL-20					RR											09203036	0.00000	15.87000	PM 13/10/B
RA-80	RL-40					NR											09203045	0.00000	45.15000	PM 12/40/4
RA-20	RL-20					RR				MR							09203046	0.00000	38.95000	PM 13/34/1
RA-20	RL-20					RR				MR							09203047	0.00000	38.79000	PM 13/34/2
RA-20	RL-10					RR											09203053	0.00000	5.16500	PM 13/36/2
RE-10	RL-10					RR											09203054	0.00000	5.20700	PM 13/37/1
RE-10	RL-10					RR											09203055	0.00000	5.16000	PM 13/37/2
RA-80	RL-80					NR											09203057	0.00000	11.33000	PM 14/142/A
RA-80	RL-80					NR											09203058	0.00000	11.32000	PM 14/142/B
RA-80	RL-80					NR											09203059	0.00000	11.42000	PM 14/142/C
RA-80	RL-80					NR											09203060	0.00000	11.38000	PM 14/142/D
RE-10	RL-10					RR			IBC	MR							09203065	0.00000	10.00000	PM 25/14/A
RE-10	RL-10					RR			IBC	MR							09203066	0.00000	9.29000	PM 25/14/B
RE-10	RL-10					RR			IBC								09203067	0.00000	10.00000	PM 25/14/C
RE-10	RL-10					RR			IBC								09203068	0.00000	10.00000	PM 25/14/D
RE-10	RL-10					RR			IBC	MR							09203076	0.00000	21.56000	PM 32/143/1
RE-10	RL-10					RR			IBC	MR							09203077	0.00000	10.00000	PM 32/143/2
RE-10	RL-10					RR			IBC	MR							09203078	0.00000	10.00000	PM 32/143/3
RA-20	OS					OS				MR							09203081	11.00000	0.00000	SEC 25&26 9 10
RE-10	OS					OS				MR							09203081	11.00000	0.00000	SEC 25&26 9 10
RA-20	OS					OS											09203082	11.00000	0.00000	SW 1/4 35 9 10
RE-10	OS					OS											09203082	11.00000	0.00000	SW 1/4 35 9 10
RE-10	RL-40					NR											09203083	0.00000	11.31000	PM 34/106/A
RE-10	RL-40					NR											09203084	0.00000	11.31000	PM 34/106/B
RE-10	RL-40					NR											09203085	0.00000	11.31000	PM 34/106/C
RE-10	RL-40					NR											09203086	0.00000	11.31000	PM 34/106/D

RA-20	RL-10					RR											09203087	0.00000	5.20700	PM 13/36/1
RA-40	RL-40					RR											09203088	0.00000	40.00000	RS 22/115
RA-40	RL-40					RR											09203089	0.00000	159.00000	RS 22/115
RA-40	RL-10					RR											09203090	0.00000	18.92000	RS 22/115
RA-40	RL-40					RR											09203091	0.00000	22.60000	RS 22/115
RA-40	RL-40					RR											09203092	0.00000	159.13000	RS 22/115
RA-40	LA-10					RR			IBC	MR							09203095	0.00000	38.01500	POR SEC 36 9 10
RA-40	RE-5					LDR			IBC		PL						09203098	0.00000	11.72800	PM 48/124/B
AE	AG-40					MDR							NV				09204015	0.00000	4.51000	RS 14/99 S2810
RA-20	RL-40					NR				MR							09204016	0.00000	19.73000	RS 8/121 SEC2810
AE	AG-40					AL				MR							09204017	0.00000	9.79000	RS 13/34 S2810
AE	AG-40					AL				MR							09204018	0.00000	30.67000	RS 13/34 S2810
AE	AG-40					AL				MR							09204019	0.00000	17.33000	RS 11/10 S2810
AE	AG-40					AL				MR							09204022	0.00000	19.68000	SEC 11 8 10
AE	AG-40					AL				MR							09204023	0.00000	137.44000	RS 14/99 S1112&2
AE	AG-40					AL				MR							09204024	0.00000	7.29000	L7 11 8 10 14-99
RA-40	RL-40					NR											09204025	0.00000	115.00000	SEC 11 & 12 8 10
RA-40	RL-40					NR											09204026	11.00000	111.00000	SEC 12 8 10
AE	AG-40					AL				MR							09204028	0.00000	20.66000	1&12 8 10RS14-99
AE	AG-40					AL				MR							09204029	0.00000	136.20000	SEC 1 & 12 8 10
AE	AG-40					AL				MR							09204031	0.00000	176.93000	SEC 2 8 10
AE	AG-40					AL				MR							09204032	0.00000	165.07000	SEC 1 8 10
AE	AG-40					AL				MR							09204033	0.00000	28.23000	SEC 1 8 10
RA-40	RL-40					RR											09204035	0.00000	112.78000	SEC 1 8 10
MP	RL-40					NR											09204039	0.00000	99.00000	99 A SEC 11 8 10
RA-20	RL-40					NR											09204039	0.00000	99.00000	99 A SEC 11 8 10
RA-80	CC					C							NV				09204043	0.00000	84.71000	PM 10/119/A
RE-10	CC					C							NV				09204043	0.00000	84.71000	PM 10/119/A
RA-80	RL-80					NR											09204044	0.00000	20.00000	SEC 2 8 10
RA-40	RL-40					RR											09204046	0.00000	39.76000	RS 12/142/1
RA-40	RL-40					RR											09204047	0.00000	39.91000	RS 12/142/2
RA-40	RL-40					RR											09204048	0.00000	40.21000	RS 12/142/3
RA-20	OS					OS											09204051	11.00000	0.00000	SEC 2 8 10
AE	AG-40					AL				MR							09204052	0.00000	16.98000	RS 11/10 S2810
RE-10	RL-40					MDR							NV				09204056	0.00000	33.79000	PM 39/54/4
AE	AG-40					AL				MR							09204057	0.00000	92.66000	POR14-99&20-130
RA-40	RL-40					RR											09204058	0.00000	160.00000	SEC 10 8 10
RA-80	RL-80					RR											09204058	0.00000	160.00000	SEC 10 8 10
RA-40	RL-40					RR											09204059	0.00000	35.17000	SEC 3 8 10
RA-40	RL-40					RR											09204060	0.00000	160.00000	SEC 3 8 10
RA-40	RL-40					RR											09204061	0.00000	120.00000	SEC 10 8 10 ADM
RA-40	RL-40					RR											09204062	0.00000	120.00000	SEC 10 8 10 ADM
RA-80	RL-40					NR											09204063	0.00000	60.00000	SEC 2 8 10
RA-80	RL-40					NR											09204064	0.00000	40.00000	SEC 2 & 11 8 10
RA-80	RL-40					NR											09204065	0.00000	56.50000	SEC 11 8 10
RA-80	RL-40					NR											09204065	0.00000	56.50000	SEC 11 8 10

RA-80	RL-40					NR											09204066	0.00000	120.00000	SEC 11 8 10
RA-80	RL-40					NR											09204067	0.00000	30.00000	SEC 11 8 10
RA-80	RL-40					NR											09204068	0.00000	28.00000	SEC 11 8 10
RA-80	RL-80					RR											09204070	0.00000	160.00000	SEC3 4 & 10 8 10
RA-80	RL-80					RR											09204071	0.00000	160.00000	SEC 10 8 10
RA-40	RL-40					RR											09204073	0.00000	115.32000	SEC 3 8 10 ADM
RA-40	RL-40					RR											09204074	0.00000	40.00000	SEC 3 8 10 ADM
RA-40	RL-40					RR											09204075	0.00000	40.00000	SEC 3 8 10 ADM
MR	RL-40					NR				MR							09204076	0.00000	19.28000	SEC 12 8 10
RA-80	RL-80					NR											09205002	0.00000	26.30000	SEC 14 8 10
RA-40	RL-40					NR											09205003	0.00000	15.00000	SEC 14 8 10
RA-40	RL-40					NR				MR							09205004	0.00000	2.50000	SEC 13 8 10
RA-80	RL-40					NR											09205007	0.00000	160.00000	SEC 15 8 10
OS	RL-80					NR											09205008	0.00000	80.00000	SEC 15 & 22 8 10
OS	RL-80					NR											09205008	0.00000	80.00000	SEC 15 & 22 8 10
RA-80	RL-40					NR											09205008	0.00000	80.00000	SEC 15 & 22 8 10
RA-80	RL-40					NR											09205009	0.00000	135.00000	SEC 15 8 10
RA-80	RL-40					NR											09205010	0.00000	160.00000	SEC 15 & 22 8 10
RE-5	R3A					MDR						EDDS					09206004	0.00000	3.00000	S3 9 10&34 10 10
RE-5	R3A					MDR						EDDS					09206006	0.00000	3.96000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206007	0.00000	1.17000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206008	0.00000	1.83000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206009	0.00000	2.45000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206010	0.00000	2.45000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206011	0.00000	1.61000	RS 20/71/1
RE-5	R1A					MDR						EDDS					09206012	0.00000	1.63000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206013	0.00000	1.63000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206014	0.00000	4.55000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206015	0.00000	2.50000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206016	0.00000	2.50000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206017	0.00000	5.00000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206018	0.00000	2.35000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206019	0.00000	2.35000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206020	0.00000	4.97000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206021	0.00000	2.48000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206023	0.00000	1.00000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206025	0.00000	2.20000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206026	1.00000	4.00000	SEC 3 34 10 10
RE-5	R3A					MDR						EDDS					09206027	0.00000	5.40000	SEC 34 10 10
RE-5	R1A					MDR						EDDS					09206028	0.00000	1.00000	SEC 34 10 10
RE-5	R3A					MDR						EDDS					09206030	0.00000	3.56500	POR RS 7/45
RE-5	R1A					MDR						EDDS					09206031	0.00000	1.00000	RS 31/46/1
RE-5	R1A					MDR						EDDS					09206032	0.00000	1.00000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206033	0.00000	1.00000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206034	0.00000	2.53000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206035	0.00000	2.64000	SEC 3 9 10

RE-5	R2A					MDR						EDDS					09206036	0.00000	2.41000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206037	0.00000	4.80000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206038	0.00000	4.84000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206041	0.00000	5.00000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206042	0.00000	1.00000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206043	0.00000	1.00000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206046	0.00000	1.00000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206047	0.00000	1.84000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206048	0.00000	1.00000	RS 15/19/1
RE-5	R1A					MDR						EDDS					09206049	0.00000	1.26000	RS 15/19/2
RE-5	R3A					MDR						EDDS					09206051	0.00000	5.05000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206052	0.00000	5.05000	RS 21/52/1
RE-5	R1A					MDR						EDDS					09206053	0.00000	0.47000	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206054	0.00000	0.52600	SEC 3 9 10
RE-5	R1A					MDR						EDDS					09206055	0.00000	0.83000	SEC 3 9 10
RE-5	R2A					MDR						EDDS					09206056	0.00000	2.93000	SEC 3 9 10
AE	AG-40					AL											09206061	0.00000	16.00000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206063	0.00000	4.85000	SEC 34 10 10
RE-5	R3A					MDR						EDDS					09206065	0.00000	5.00000	PM 1/37/2
RE-5	R2A					MDR						EDDS					09206067	0.00000	2.00000	SEC 3 9 10
RE-5	R3A					MDR						EDDS					09206068	0.00000	5.05900	PM 36/77/1
RE-5	R3A					MDR						EDDS					09206069	0.00000	5.00000	PM 36/77/2
AE	AG-40					MDR						EDDS					09206075	0.00000	25.51000	SEC 2 & 3 9 10
AE	AG-40					LDR											09207002	0.00000	0.20000	SEC 2 9 10
AE	RE-5					LDR											09207039	11.00000	0.28000	SEC 2 9 10
AE	AG-40					LDR											09207040	0.00000	55.64000	SEC 2 9 10
RE-10	RL-10					RR											09208056	0.00000	10.00000	PM 16/149/1
RE-10	RL-10					RR											09208057	0.00000	10.00000	PM 16/149/2
RE-10	RL-10					RR											09208058	0.00000	10.03800	PM 16/149/3
RE-10	RL-10					RR											09208059	0.00000	10.00000	PM 16/149/4
RA-20	RL-20					RR											09210001	0.00000	36.30000	RS 2/87/8
RA-20	RL-20					RR											09210002	0.00000	34.31000	RS 2/87/7
RA-20	RL-20					RR											09210003	0.00000	42.85000	RS 2/87/11
RA-20	RL-20					RR											09210004	0.00000	48.11000	RS 2/87/12
RA-20	RL-10					RR				MR							09210006	0.00000	7.43000	SEC 1 9 10
RA-20	RL-10					RR				MR							09210007	0.00000	2.74000	SEC 12 9 10
RA-20	RL-20					RR				MR							09210008	0.00000	19.95300	SEC 12 9 10
RA-20	LA-10					RR											09210011	0.00000	11.77000	RS 6/82/3
RA-20	LA-10					RR											09210012	0.00000	11.77000	RS 6/82/4
RA-20	LA-10					RR											09210013	0.00000	11.76900	RS 6/82/1
RA-20	RL-10					RR											09210014	0.00000	11.77000	RS 6/82/2
RA-20	RL-20					RR											09210015	0.00000	20.20000	SEC 1 9 10
RA-20	RL-10					RR				MR							09210017	0.00000	10.95000	SEC 12 9 10
CP	CC					C					PL						09215201	0.00000	9.80700	L 96
CP	CC					C					PL						09215203	0.00000	5.00000	POR L 97
R1A	RE-5					LDR					PL						09215204	11.00000	0.00000	POR LOT 97

R2A	RL-10					RR				MR							09218301	2.00000	0.00000	COMMON AREA
RA-20	RL-20					RR				MR							09218301	2.00000	0.00000	COMMON AREA
RA-20	RL-10					RR											09223113	0.00000	5.33000	RS 19/63/1
RA-20	RL-10					RR											09223114	0.00000	5.07000	RS 19/63/2
RA-20	RL-20					RR											09223121	0.00000	21.48500	RS 19/63/4
RA-20	RL-10					RR											09223122	0.00000	10.00000	RS 19/63/3
RA-20	RL-10					RR				MR							09236001	0.00000	13.75000	SEC 14 9 10
RA-20	RL-20					RR				MR							09236003	0.00000	18.97000	14&23 9 10RS7-61
RA-20	RL-20					RR				MR							09236004	0.00000	18.63000	S14 23 24 9 10
RE-10	RL-10					RR											09237002	0.00000	8.35700	SEC 35 9 10
RA-20	RL-20					RR											09237004	0.00000	20.04100	L 40 RS15-131
MR	RL-40					NR				MR							09237005	0.00000	17.25000	SEC 2 8 10
RA-80	RL-80					NR											09237008	0.00000	0.16000	SEC 35 9 10
RA-20	RL-10					RR											09237010	0.00000	21.55000	RS 8/120/1
RE-10	RL-10					RR											09237010	0.00000	21.55000	RS 8/120/1
RE-10	RL-10					RR				MR							09237012	0.00000	8.37000	A 37-12 RS15-131
RE-10	RL-10					RR											09237013	0.00000	10.09000	B 37-12 RS15-131
RE-10	RL-10					RR											09238001	0.00000	3.24000	SEC 2 8 10
RE-10	RE-5					MDR							NV				09238003	0.00000	0.74000	SEC 2 8 10
RE-10	RE-5					MDR							NV				09238004	0.00000	1.17000	SEC 2 8 10
RA-80	RL-80					NR											09238005	0.00000	9.06000	SEC 2 8 10
RE-10	RE-5					MDR							NV				09238006	0.00000	0.45000	SEC 2 8 10
RE-10	RL-10					RR											09239005	0.00000	10.39000	SEC 22 9 10
RE-10	RL-10					RR											09239006	0.00000	5.02000	SEC 22 9 10
RE-10	RL-10					RR											09239008	0.00000	5.00000	SEC 22 9 10
RE-10	RL-10					RR											09239009	0.00000	5.04100	PM 11/80/A
RE-10	RL-10					RR											09239010	0.00000	6.97000	PM 11/80/B
RA-40	LA-10					RR											09239011	0.00000	5.51000	PM 11/80/C
RA-40	RL-10					RR											09239013	0.00000	5.10000	PM 20/45/1
RA-40	LA-10					RR											09239014	0.00000	5.04000	PM 20/45/2
RA-40	RL-10					RR											09239015	0.00000	5.05000	PM 20/45/3
RA-40	RL-10					RR											09239016	0.00000	7.77000	PM 20/45/4
RE-10	RL-10					RR											09239017	0.00000	12.05000	PM 23/53/1
RE-10	RL-10					RR											09239020	0.00000	7.50600	PM 23/53/4
RE-10	RL-10					RR											09239024	0.00000	5.04000	PM 25/52/A
RE-10	RL-10					RR											09239025	0.00000	5.45000	PM 25/52/B
RE-10	RL-10					RR											09239026	0.00000	5.09000	PM 26/16/A
RE-10	RL-10					RR											09239027	0.00000	5.09000	PM 26/16/B
RE-10	RL-10					RR											09239032	0.00000	5.58000	PM 29/103/1
RE-10	RL-10					RR											09239036	0.00000	6.76000	PM 30/117/A
RE-10	RL-10					RR											09239037	0.00000	7.51000	PM 30/117/B
RE-10	RL-10					RR											09239044	0.00000	10.00000	PM 41/90/1
RE-10	RL-10					RR											09239045	0.00000	10.01000	PM 41/90/2
RE-10	RL-10					RR											09239047	0.00000	10.00100	PM 41/132/1
RE-5	RL-10					RR											09239048	0.00000	5.00000	PM 41/132/2
RE-5	RL-10					RR											09239049	0.00000	5.00000	PM 41/132/3

AE	AG-40					AL											09240001	0.00000	40.02100	RS 3/8/Q
AE	AG-40					AL											09240004	0.00000	40.48400	RS 3/8/R
RE-10	RL-10					RR											09240006	0.00000	5.72000	POR RS 3/8/O
RE-10	RL-10					RR											09240008	0.00000	9.24000	POR RS 3/8/O
RE-10	RL-10					RR											09240010	0.00000	5.89400	POR RS 3/8/N
RE-10	RL-10					RR											09240013	0.00000	6.07700	POR RS 3/8/N
R2A	RL-10					RR											09240015	0.00000	6.57400	POR RS 3/8/N
RE-10	RL-10					RR											09240015	0.00000	6.57400	POR RS 3/8/N
RE-10	RL-10					RR											09240016	0.00000	6.08000	POR RS 3/8/N
RE-10	RL-10					RR											09240017	0.00000	6.02000	POR RS 3/8/N
RE-10	RL-10					RR											09240018	0.00000	7.19100	POR RS 3/8/S
RE-10	RL-10					RR											09240021	0.00000	6.41000	POR RS 3/8/S
RE-10	RL-10					RR											09240022	0.00000	6.31000	PM 4/54/A
RE-10	RL-10					RR											09240023	0.00000	5.01000	PM 4/54/B
RE-10	RL-10					RR											09240024	0.00000	5.85000	PM 4/54/C
RE-10	RL-10					RR											09240025	0.00000	5.19000	POR RS 3/8/S
RE-10	RL-10					RR											09240026	0.00000	5.19300	POR RS 3/8/S
RE-10	RL-10					RR											09240029	0.00000	9.97400	POR RS 3/8/O
RE-10	RL-10					RR											09240031	0.00000	9.88000	PM 50/32/1
RE-10	RL-10					RR											09240032	0.00000	15.24000	PM50/32/2RS32/59
AE	AG-40					AL											09241001	0.00000	40.60900	PARCEL V R/S
RE-10	RL-10					RR											09241004	0.00000	5.26000	PM 10/75/A
RE-10	RL-10					RR											09241005	0.00000	5.48000	PM 10/75/B
RE-10	RL-10					RR											09241007	0.00000	5.01500	PM 11/9/A
RE-10	RL-10					RR											09241008	0.00000	5.04000	PM 11/9/B
RE-10	RL-10					RR											09241012	0.00000	5.02900	PM 11/48/2
RE-10	RL-10					RR											09241013	0.00000	5.00300	PM 11/48/3
RE-10	RL-10					RR											09241014	0.00000	5.02000	PM 11/48/4
RE-10	RL-10					RR											09241015	0.00000	5.00000	PM 18/105/1
RE-10	RL-10					RR											09241016	0.00000	5.00000	PM 18/105/2
RE-10	RL-10					RR											09241017	0.00000	5.00000	PM 18/105/3
RE-10	RL-10					RR											09241018	0.00000	5.00000	PM 18/105/4
RA-40	RL-10					RR											09241019	0.00000	6.14100	PM 19/62/A
RA-40	RL-10					RR											09241020	0.00000	5.00000	PM 19/62/B
RE-10	RL-10					RR											09241023	0.00000	5.05600	PM 19/61/1
R2A	RL-10					RR											09241024	0.00000	5.34000	PM 19/61/2
RE-10	RL-10					RR											09241024	0.00000	5.34000	PM 19/61/2
RE-10	RL-10					RR											09241025	0.00000	5.00000	PM 19/61/3
RE-10	RL-10					RR											09241026	0.00000	5.00000	PM 19/61/4
RA-40	RL-10					RR											09241028	0.00000	5.00000	PM 25/48/1
RA-40	RL-10					RR											09241029	0.00000	5.00000	PM 25/48/2
RA-40	RL-10					RR											09241030	0.00000	5.00000	PM 25/48/3
RA-20	LA-10					RR											09243002	0.00000	0.00000	RS 3/7/H
RE-5	RL-10					RR											09243012	0.00000	5.00000	PM 8/129/B
RA-20	LA-10					RR											09243013	0.00000	5.00000	PM 8/129/C
RA-20	RL-10					RR											09243014	0.00000	9.30000	PM 8/129/D

RE-10	RL-10					RR											09243019	0.00000	20.96000	PM 45/129/1
RE-10	RL-10					RR											09243020	0.00000	10.01000	PM 45/129/2
RA-20	RL-10					RR											09244002	0.00000	5.95000	PPM 4/141/4 ADM
RA-20	RL-10					RR											09244008	0.00000	4.75500	SEC 34 9 10
RA-20	RL-10					RR											09244009	0.00000	5.03000	SEC 34 9 10
RA-20	RL-10					RR											09244010	0.00000	5.47100	SEC 34 9 10
RA-20	RL-10					RR											09244011	0.00000	5.02000	SEC 34 9 10
RA-20	LA-10					RR											09244012	0.00000	5.23000	PM 4/141/1
RA-20	RL-10					RR											09244013	0.00000	5.74000	PM 4/141/2
RA-20	RL-10					RR											09244014	0.00000	5.00000	PM 4/141/3
RA-20	RL-20					RR											09244015	0.00000	18.10000	PPM 4/141/4 ADM
RA-20	RL-10					RR											09244016	0.00000	6.84000	PPM 25/44/1 ADM
RA-20	RL-10					RR											09244019	0.00000	10.01000	PM 25/44/4
RA-20	RL-10					RR											09244020	0.00000	3.16000	PPM 25/44/1 ADM
RA-20	RL-10					RR											09244023	0.00000	10.00000	PM 25/44/3
RA-20	RL-10					RR											09244024	0.00000	10.00900	PM 25/44/2
RA-20	RL-40					NR				MR							09245001	0.00000	3.50000	SEC 14 8 10
OS	RE-10					LDR					PL						09246007	0.00000	7.97000	PM 6/85/1
RE-10	RL-10					RR											09246016	0.00000	15.20000	PM 15/106/A
RE-10	RL-10					RR											09246018	0.00000	10.03000	PM 15/106/C
RE-10	RL-10					RR											09246022	0.00000	10.00000	PM 24/146/2
RE-10	RL-10					RR											09246023	0.00000	10.00000	PM 24/146/3
RE-10	RL-10					RR											09246024	0.00000	5.15000	RS 9/72/2
RE-10	RL-10					RR											09246025	0.00000	5.00000	RS 9/72/3
RE-10	RL-10					RR											09246026	0.00000	5.00000	RS 9/72/1
RE-10	RL-10					RR											09247002	0.00000	20.00000	SEC 26 & 35 9 10
RA-20	RL-10					RR											09247005	0.00000	10.00000	SEC 35 9 10
RE-10	RL-10					RR											09247005	0.00000	10.00000	SEC 35 9 10
RA-20	LA-10					RR											09247011	0.00000	11.46000	RS 13/102/1
RE-10	LA-10					RR											09247011	0.00000	11.46000	RS 13/102/1
RE-10	RL-10					RR											09247012	0.00000	10.00000	SEC 35 9 10
RE-10	RL-10					RR				MR							09247013	0.00000	10.00000	SEC 35 9 10
RA-20	LA-10					LDR					PL						09247014	0.00000	6.66000	PM 7/51/A
RE-10	LA-10					LDR					PL						09247014	0.00000	6.66000	PM 7/51/A
RA-20	LA-10					LDR					PL						09247015	0.00000	6.64000	PM 7/51/B
RE-10	LA-10					LDR					PL						09247015	0.00000	6.64000	PM 7/51/B
RA-20	RE-10					LDR					PL						09247016	0.00000	6.63000	PM 7/51/C
RE-10	RE-5					LDR					PL						09247016	0.00000	6.63000	PM 7/51/C
RA-20	RE-5					LDR					PL						09247017	0.00000	8.61000	PM 7/150/A
RE-10	RE-5					LDR					PL						09247017	0.00000	8.61000	PM 7/150/A
RA-20	LA-10					LDR					PL						09247018	0.00000	8.63400	PM 7/150/B
RE-10	LA-10					LDR					PL						09247018	0.00000	8.63400	PM 7/150/B
RA-20	RE-10					LDR					PL						09247019	0.00000	8.66000	PM 7/150/C
RE-10	RE-5					LDR					PL						09247019	0.00000	8.66000	PM 7/150/C
RA-20	LA-10					RR				MR							09247020	0.00000	10.97000	PM 16/117/A
RA-20	RL-10					RR				MR							09247021	0.00000	10.31000	PM 16/117/B

RA-20	RL-10					RR				MR							09247022	0.00000	10.09000	PM 16/117/C
RA-20	RL-10					RR				MR							09247023	0.00000	7.89000	PM 16/117/D
RE-10	RL-10					RR											09247031	0.00000	5.13000	PM 29/83/A
RA-20	RL-10					RR											09247032	0.00000	9.79000	SEC 35 9 10
RA-20	RL-20					RR				MR							09247033	0.00000	22.52000	PM 33/5/1
RA-20	RL-10					RR											09247035	0.00000	4.76000	POR PM 17/121/1
RA-20	RE-10					RR											09247036	11.00000	0.26000	POR PM 17/121/1
RE-10	RL-10					RR											09247037	0.00000	6.76000	POR PM 17/121/2
RE-10	RL-10					RR											09247039	0.00000	10.00000	PM 33/91/1
RE-10	RL-10					RR											09247040	0.00000	8.73000	PM 33/91/2
RE-10	RL-10					RR											09247041	0.00000	10.00000	PM 33/91/3
RE-10	RL-10					RR				MR							09247042	0.00000	10.80000	PM 34/19/A
RE-10	RL-10					RR				MR							09247043	0.00000	11.72000	PM 34/19/B
RE-10	RL-10					RR											09247053	0.00000	1.32000	RS 20/124 S35910
RA-20	RL-10					RR											09247054	0.00000	8.57000	SEC 35 9 10
RE-10	RL-10					RR											09247054	0.00000	8.57000	SEC 35 9 10
RE-10	RL-10					RR											09247054	0.00000	8.57000	SEC 35 9 10
RE-10	RL-40					NR											09247055	0.00000	10.01000	PM 44/130/1
RE-10	RL-40					NR											09247056	0.00000	10.10000	PM 44/130/2
RE-10	RL-40					NR											09247057	0.00000	13.58000	PM 44/130/3
RE-10	RL-40					NR											09247058	0.00000	14.24000	PM 44/130/4
RA-20	RL-10					RR											09248004	0.00000	7.78000	PM 5/16/3
RA-20	RL-10					RR											09248008	0.00000	8.18000	PM 9/75/C
RA-20	RL-10					RR											09248009	0.00000	8.16000	PM 9/75/D
RA-20	RL-10					RR											09248016	0.00000	5.45000	PAR 2 20-32 AMND
RA-20	RL-10					RR											09248017	0.00000	5.01000	PAR 3 20-32 AMND
RA-20	LA-10					RR				MR							09248018	0.00000	5.17000	PAR 4 20-32 AMND
RA-20	RL-10					RR											09248019	0.00000	5.03000	SEC 14&23 9 10
RA-20	LA-10					RR											09248021	0.00000	5.00000	PM 25/148/A
RA-20	RL-10					RR											09248022	0.00000	5.22000	PM 25/148/B
RA-20	RL-10					RR											09248023	0.00000	5.13000	PM 25/148/C
RA-20	RL-10					RR											09248025	0.00000	5.03000	POR PAR 1 20-32
RA-20	RL-10					RR											09248027	0.00000	8.75000	PM 28/145/1
RA-20	RL-10					RR											09248028	0.00000	7.15000	PM 25/148/D
AE	LA-10					RR											09249003	0.00000	118.30000	PM 5/50/1
RE-10	RL-10					RR											09249005	0.00000	10.00000	PM 17/63/3
RE-10	RL-10					RR											09249006	0.00000	10.03000	PM 17/63/1
RE-10	RL-10					RR											09249007	0.00000	10.00000	PM 17/63/2
RE-10	RL-10					RR											09249008	0.00000	10.00000	PM 15/101/1
RE-10	RL-10					RR											09249009	0.00000	10.00000	PM 17/63/4
RE-10	RL-10					RR											09249010	0.00000	10.00000	PM 15/101/2
RE-10	RL-10					RR											09249011	0.00000	10.00000	PM 15/101/3
RE-10	RL-10					RR											09249012	0.00000	10.00000	PM 15/101/4
RA-20	RL-10					RR											09249013	0.00000	8.48000	PM 20/82/1
RA-20	LA-10					RR											09249014	0.00000	10.00000	PM 20/82/2
RA-20	RL-10					RR											09249015	0.00000	10.00000	PM 20/82/3

RA-20	RL-10					RR				MR							09249016	0.00000	10.00000	PM 20/82/4
AE	RE-10					RR				MR							09249017	11.00000	0.00000	PPM 5/50/2
AE	LA-10					RR											09249018	0.00000	0.00000	PPM 5/50/2
RA-20	LA-10					RR											09250001	0.00000	10.00000	PM 25/67/1
RA-20	RL-10					RR											09250002	0.00000	10.00000	PM 25/67/2
RA-20	RL-10					RR											09250003	0.00000	6.79000	PM 7/110/A
RA-20	RL-10					RR											09250004	0.00000	6.78000	PM 7/110/B
RA-20	RL-10					RR											09250005	0.00000	6.78000	PM 7/110/C
RA-20	RL-10					RR											09250006	0.00000	6.78000	PM 7/110/D
RA-20	RL-10					RR											09250007	0.00000	10.00000	PM 25/67/3
RA-20	RL-20					RR											09250009	0.00000	29.60000	PM 25/77/1
RA-20	RL-10					RR											09250011	0.00000	10.09000	SEC 13 9 10
RA-20	RL-10					RR											09250012	0.00000	10.00000	RS 21/114/1
RA-20	RL-10					RR											09250013	0.00000	10.00000	PM 26/144/1
RA-20	RL-10					RR											09250014	0.00000	10.00000	PM 26/144/2
RA-20	LA-10					RR											09250015	0.00000	10.00000	PM 26/144/3
RA-20	RL-10					RR											09250016	0.00000	10.00000	PM 26/144/4
AE	AG-40					AL											09252001	0.00000	79.85000	SEC 25 9 10
RA-80	RL-10					RR			IBC								09252006	0.00000	1.34000	S25910&S30911
RA-40	RL-10					RR			IBC								09252008	0.00000	10.00000	PM 30/46/A
RA-40	RL-10					RR			IBC								09252009	0.00000	10.00000	PM 30/46/B
RA-40	RL-10					RR			IBC								09252010	0.00000	7.50000	PM 30/46/C
RA-40	RL-10					RR			IBC								09252011	0.00000	10.00000	PM 30/46/D
RE-10	RL-10					RR											09254025	0.00000	10.00000	PM 34/100/A
RE-10	RL-10					RR											09254026	0.00000	10.02000	PM 34/100/B
RE-10	RL-10					RR											09254027	0.00000	10.01000	PM 34/100/C
RE-10	RL-10					RR											09254028	0.00000	10.00000	PM 34/100/D
RE-5	AG-40					LDR				MF	PL						09256012	0.00000	0.70000	SEC 14 9 10
RA-20	OS					NR											09301001	11.00000	0.00000	S4 5 6&7 9 12
RA-20	OS					NR											09301001	11.00000	0.00000	S4 5 6&7 9 12
RE-10	OS					NR											09301001	11.00000	0.00000	S4 5 6&7 9 12
RA-20	RL-40					NR											09302101	11.00000	0.00000	POR SEC 3 9 12
RA-40	RL-40					NR											09302103	0.00000	38.04000	POR RS 11/69
RA-40	LA-40					NR											09302105	0.00000	40.61000	POR RS 11/69
RA-20	RL-40					NR											09302106	0.00000	20.00000	PM 34/85/A
RA-20	LA-40					NR											09302107	0.00000	16.52000	PM 34/85/B
RA-20	RL-40					NR											09302108	0.00000	68.75000	POR RS 11/69
RA-40	RL-40					NR											09302108	0.00000	68.75000	POR RS 11/69
RA-80	RL-40					NR											09302109	0.00000	403.20000	SEC 1 9 12
RA-80	RL-40					NR											09302110	0.00000	40.00000	SEC 1 9 12
RA-40	RL-40					NR											09302111	0.00000	39.99000	SEC 3 9 12
RA-40	RL-160					NR											09302112	0.00000	80.00000	SEC 3 9 12
RA-20	RL-40					NR											09302113	0.00000	40.00000	SEC 2 9 12
RA-20	RL-40					NR											09302114	0.00000	39.57000	POR RS 11/69
RA-20	RL-40					NR											09302115	0.00000	39.82000	POR RS 11/69
RA-20	RL-40					NR											09302116	0.00000	40.60000	POR RS 11/104

RA-80	RL-80					NR											09302117	0.00000	5.00000	SEC 1 9 12
AE	AG-40					NR											09302118	0.00000	39.00000	PPM 46/72/1 ADM
RA-40	RL-40					NR											09302119	0.00000	40.00000	SEC 3 9 12
RA-20	RL-40					NR											09302120	0.00000	60.00000	SEC 3 & 10 9 12
RE-10	RL-40					NR											09302120	0.00000	60.00000	SEC 3 & 10 9 12
RA-20	RL-40					NR											09302121	0.00000	52.89000	SEC 2 & 11 9 12
AE	PA-40					NR											09302122	0.00000	55.00000	SEC 11 9 12
RA-20	RL-40					NR											09302123	0.00000	39.85000	POR RS 11/69
RA-20	RL-40					NR											09302124	0.00000	40.10000	POR RS 11/69
RA-20	RL-40					NR											09302125	0.00000	40.52000	POR RS 11/104
RE-10	RL-10					RR					PL						09302126	0.00000	10.00000	SEC 1 9 12
RE-10	RL-10					RR					PL						09302127	0.00000	10.00000	SEC 1 9 12
RE-10	RL-10					RR					PL						09302128	0.00000	10.00000	SEC 1 9 12
RE-10	RL-10					RR					PL						09302129	0.00000	10.00000	SEC 1 9 12
RA-40	LA-40					NR											09302130	0.00000	50.00000	SEC 1 & 12 9 12
RA-40	RL-40					NR											09302134	0.00000	5.00000	SEC 10 9 12
RA-40	RL-40					NR											09302136	0.00000	5.01000	SEC 3 & 10 9 12
RA-20	RL-40					NR											09302138	0.00000	48.42000	SEC 2 & 11 9 12
RA-20	RL-40					NR											09302141	0.00000	20.00000	RS 16/125/1
RA-20	RL-40					NR											09302142	0.00000	54.31000	RS 16/125/2
RA-40	RL-40					NR											09302142	0.00000	54.31000	RS 16/125/2
RA-40	LA-40					NR											09302143	0.00000	28.84000	RS 12/95 S12912
RE-10	RL-10					RR					PL						09302144	0.00000	20.00000	SEC 10 9 12
RA-40	RL-40					NR											09302145	0.00000	181.21000	SEC 10 & 11 9 12
RA-80	RL-40					NR											09302145	0.00000	181.21000	SEC 10 & 11 9 12
RA-40	RL-40					NR											09302147	0.00000	40.00000	S 12 9 12
RA-40	LA-40					NR											09302148	0.00000	38.34700	SEC 12 9 12
RA-40	RL-160					NR											09302149	0.00000	120.00000	SEC 12 9 12
RA-20	RL-40					NR											09302151	0.00000	60.01000	SEC 12 9 12
RA-20	RL-40					NR											09302152	0.00000	60.00000	SEC 12 9 12
RA-20	RL-40					NR											09302153	0.00000	40.00000	SEC 10 9 12
RA-20	RL-40					NR											09302154	0.00000	80.00000	SEC 10 9 12
RA-20	RL-40					NR											09302155	0.00000	85.00000	SEC 10 & 15 9 12
RE-10	RL-40					NR											09302157	0.00000	39.87000	SEC 11 9 12
RE-10	RL-10					RR					PL						09302158	0.00000	10.04000	PM 36/35/1
RE-10	RL-10					RR					PL						09302159	0.00000	10.00000	PM 36/35/2
RE-10	RL-10					RR					PL						09302160	0.00000	10.00000	PM 36/35/3
RE-10	RL-10					RR					PL						09302161	0.00000	10.00000	PM 36/35/4
RA-20	RL-40					NR											09302162	0.00000	40.00000	SEC 12 9 12
RA-20	RL-40					NR											09302163	0.00000	40.00000	SEC 12 9 12
RA-40	RL-40					NR											09302164	0.00000	79.16500	RS 18/101 S12912
RA-40	LA-40					NR											09302169	0.00000	20.12100	RS 19/66/1
RA-40	RL-160					NR											09302170	0.00000	20.00000	RS 19/66 S1912
RE-10	RL-10					RR					PL						09302171	0.00000	39.75000	RS 13/84 S11912
RE-10	RL-10					RR					PL						09302172	0.00000	39.74000	RS 13/84 S11912
RA-40	RL-40					NR											09302173	0.00000	73.59000	TR1 & 2 RS13-43

AE	RL-40					NR											09302176	0.00000	25.94000	PM 50/122/1
AE	RL-40					NR											09302176	0.00000	25.94000	PM 50/122/1
RA-40	RL-40					NR											09302176	0.00000	25.94000	PM 50/122/1
RA-40	RL-40					NR											09302177	0.00000	54.68000	PM 50/122/2
RA-40	RL-40					NR											09302178	0.00000	36.22000	PM 50/122/3
RE-10	RL-40					NR											09302178	0.00000	36.22000	PM 50/122/3
RA-40	RL-40					NR											09302179	0.00000	42.63000	PM 50/122/4
RA-20	LA-20					RR	A										09303201	0.00000	80.00000	SEC 18 9 12
RA-20	LA-20					RR	A										09303202	0.00000	48.33000	SEC 17 9 12
RA-20	LA-20					RR	A										09303204	0.00000	40.00000	RS 18/13 S17912
RA-20	LA-20					RR	A										09303209	0.00000	40.00000	SEC 17 9 12
RA-40	PA-10					RR	A										09303210	0.00000	40.00000	RS 18/150/1
RE-10	RL-10					RR	A										09303211	0.00000	5.00000	SEC 16 9 12
RA-20	LA-20					RR	A										09303212	0.00000	10.23000	PM 23/129/A
RA-20	LA-20					RR	A										09303213	0.00000	12.28000	PM 23/129/C
RA-20	LA-20					RR	A										09303214	0.00000	11.05000	PM 23/129/B
RA-20	LA-20					RR	A										09303215	0.00000	19.98000	PM 16/14/A
RA-20	LA-20					RR	A										09303216	0.00000	20.00000	PM 16/14/B
RA-20	LA-20					RR	A										09303217	0.00000	21.41000	PM 16/14/C
RA-40	LA-40					NR											09303218	0.00000	40.06000	RS 18/150/2
RA-20	RL-40					NR											09303219	0.00000	20.91000	RS 18/150/5
RA-40	LA-40					NR											09303220	0.00000	168.83000	RS 18/150/4
RA-40	LA-40					NR											09303222	0.00000	120.49000	RS 18/150/3
RA-40	RL-40					RR											09303223	0.00000	102.22000	PM 47/108/1
RA-20	LA-20					RR	A										09303224	0.00000	76.63000	PM 47/108/2
RA-20	RL-40					NR											09303225	0.00000	40.00000	SEC 18 9 12
RA-20	RL-40					NR											09303226	0.00000	80.00000	SEC 17 9 12
RA-20	RE-5					LDR					PL						09303230	0.00000	5.00000	SEC 18 9 12
RA-20	RE-10					LDR					PL						09303231	0.00000	5.00000	RS 14/97 S18912
RA-20	RE-5					LDR					PL						09303232	0.00000	5.00000	SEC 18 9 12
RA-20	LA-20					RR	A										09303234	0.00000	181.06000	PM 47/108/3
RA-20	LA-10					RR	A		IBC								09303235	0.00000	1.00000	SEC 19 9 12
RA-20	LA-10					RR	A		IBC								09303235	0.00000	1.00000	SEC 19 9 12
RA-20	LA-20					RR	A		IBC								09303236	0.00000	38.12000	RS 30/26/1
RA-20	LA-20					RR	A		IBC								09303236	0.00000	38.12000	RS 30/26/1
RA-20	RL-40					NR											09303239	0.00000	20.00000	SEC 21 9 12
RA-20	RL-40					NR											09303240	0.00000	10.00000	SEC 21 9 12
RA-20	LA-40					NR											09303241	0.00000	10.00000	SEC 21 9 12
RA-20	LA-40					NR											09303242	0.00000	19.61400	RS 32/18/1
RA-20	LA-40					NR											09303243	0.00000	19.74600	RS 32/18/2
OS	RL-40					NR											09303244	0.00000	62.96000	RS 24/7/1
RA-20	RL-40					NR											09303244	0.00000	62.96000	RS 24/7/1
OS	RL-40					NR											09303246	0.00000	17.55000	RS 24/7/2
RA-20	RL-40					NR											09303247	0.00000	80.00000	SEC 21 9 12
RA-20	RL-40					NR											09303248	0.00000	20.00000	SEC 21 9 12
RA-20	RL-40					NR											09303249	0.00000	9.90000	RS 23/17/1

RA-20	RL-40					NR											09303250	0.00000	9.90000	RS 23/17/2
RA-20	RL-40					NR											09303251	0.00000	40.00000	SEC 21 9 12
RE-10	LA-10					RR	A										09303253	0.00000	10.00000	PM 29/138/B
RA-20	LA-40					NR											09303254	0.00000	15.07000	29-138-A&30-37-4
RE-10	LA-40					NR											09303254	0.00000	15.07000	29-138-A&30-37-4
RE-10	RL-10					RR	A										09303255	0.00000	5.48200	RS 25/7/1
AE	AG-40					AL	A										09303257	0.00000	21.93000	RS 23-101
RE-10	RL-20					AL	A										09303258	0.00000	40.00000	SEC 20 9 12
RE-10	RL-10					RR	A										09303259	0.00000	5.48200	PM 27/134/B
RE-10	RL-10					RR	A										09303260	0.00000	10.06000	PM 30/67/3
AE	AG-40					AL	A										09303261	0.00000	167.99900	RS 23-101
AE	PA-20					AL	A										09303267	0.00000	44.09000	RS 20/1/1
AE	PA-20					AL	A										09303271	0.00000	57.29400	P19 9 12 RS12-13
RA-40	LA-40					NR											09303273	0.00000	66.61500	PM 48/66/2
RA-40	LA-40					NR											09303274	0.00000	76.25800	PM 48/66/3
AE	PA-20					AL	A										09303280	0.00000	53.05000	RS 30/96/2
AE	PA-20					AL	A										09303282	0.00000	55.12000	RS 30/96/3
AE	PA-20					AL	A										09303285	0.00000	51.80000	RS 30/140/2
AE	PA-20					AL	A										09303286	0.00000	50.38000	RS 30/140/1
AE	PA-20					AL	A										09303287	0.00000	52.23000	RS 30/140/3
PA-20	PA-40					NR											09304001	0.00000	40.00000	SEC 15 9 12
RA-20	RL-40					NR											09304012	0.00000	9.00000	SEC 22 9 12
RA-20	LA-40					NR											09304014	0.00000	40.00000	SEC 22 9 12
RA-20	RL-40					NR											09304027	0.00000	40.00000	SEC 23 9 12
RA-20	OS					NR											09304035	11.00000	0.00000	POR SEC 24 9 12
RE-10	RL-160					NR											09304037	0.00000	13.50000	PM 39/96/1
RE-10	RL-40					NR											09304038	0.00000	10.00000	PM 39/96/2
RA-20	RL-160					NR											09304039	0.00000	20.04000	PM 39/96/3
RE-10	RL-10					RR					PL						09304041	0.00000	19.52000	RS 16/38/2
RA-40	RL-40					NR											09304043	0.00000	120.00000	SEC 15 9 12
RE-10	RL-40					NR											09304043	0.00000	120.00000	SEC 15 9 12
RA-20	RL-40					NR											09304044	0.00000	40.00000	SEC 23 9 12
AE	PA-40					NR											09304045	0.00000	40.00100	PM 45/3/1
AE	AG-160					NR											09304046	0.00000	40.00100	PM 45/3/2
RA-20	LA-40					NR											09304048	0.00000	42.96000	PM 45/110/1
RA-20	RL-40					NR											09304049	0.00000	40.05000	PM 45/110/2
RA-20	RL-40					NR											09304050	0.00000	30.00000	PM 45/110/3
RE-10	RL-40					NR											09304050	0.00000	30.00000	PM 45/110/3
RA-20	RL-40					NR											09304051	0.00000	20.00000	PM 45/110/4
RE-10	RL-40					NR											09304051	0.00000	20.00000	PM 45/110/4
RA-20	RL-40					NR											09304052	0.00000	40.49000	RS 22/110/1
RE-10	RL-40					NR											09304052	0.00000	40.49000	RS 22/110/1
RE-10	RL-10					RR					PL						09304053	0.00000	10.10000	PM 46/61/1
RE-10	RL-10					RR					PL						09304054	0.00000	10.10000	PM 46/61/2
RE-10	RL-10					RR					PL						09304055	0.00000	10.00000	PM 46/61/3
RE-10	RL-10					RR					PL						09304056	0.00000	9.35000	PM 46/61/4

RA-20	RL-160					NR											09304058	0.00000	77.41000	PM 47/69/A
RA-20	RL-160					NR											09304059	0.00000	112.39000	PM 47/69/B
RE-10	RL-160					NR											09304059	0.00000	112.39000	PM 47/69/B
AE	PA-20					AL											09304061	0.00000	35.17000	RS 31/65/2
RA-20	RL-10					RR			IBC								09305003	0.00000	5.00000	SEC 6 9 12
AE	AG-40					AL			IBC								09305006	0.00000	40.49000	SEC 6 9 12
RA-20	RL-20					RR			IBC								09305007	0.00000	29.65000	SEC 6 9 12
RA-40	RL-10					RR			IBC								09305009	0.00000	10.35000	SEC 6 9 12 ADM
RE-10	RL-10					RR			IBC								09305012	0.00000	10.13000	PM 24/87/C
RE-10	RL-10					RR			IBC								09305021	0.00000	10.04200	PM 24/87/A
RE-10	RL-10					RR			IBC								09305022	0.00000	10.24100	PM 24/87/B
RE-10	RL-10					RR			IBC								09305030	0.00000	16.06000	PM 30/104/1
RE-10	RL-10					RR			IBC								09305036	0.00000	13.75000	RS 11/31/2
RE-10	RL-10					RR			IBC								09305043	0.00000	10.62000	RS 11/31/1
RE-10	RL-10					RR			IBC								09305046	0.00000	22.51000	PORTR A PM31-104
RE-10	RL-10					RR			IBC								09305048	0.00000	10.00000	PM 32/18/1
RE-10	RL-10					RR			IBC								09305050	0.00000	10.01000	PM 32/18/3
RE-10	RL-10					RR			IBC								09305051	0.00000	10.00000	PM 32/18/4
RE-10	RL-10					RR			IBC								09305053	0.00000	10.00000	PM 45/111/1
RE-10	RL-10					RR			IBC								09305054	0.00000	30.87000	PM 45/111/2
RE-10	RL-10					RR			IBC								09305056	0.00000	9.88000	POR PAR2 PM32-18
RE-10	RL-10					RR			IBC								09305062	0.00000	13.91000	RS 23/28/1
RE-10	RL-10					RR			IBC								09305063	0.00000	10.33000	POR R/S 23-28
RA-20	OS					OS			IBC								09305064	11.00000	0.00000	POR SEC 6 9 12
RA-40	OS					OS			IBC								09305065	11.00000	0.00000	POR SEC 6 9 12
RE-10	RL-10					RR			IBC								09306012	0.00000	8.05000	SEC 4&5 9 12
RE-10	RL-10					RR			IBC								09306014	0.00000	12.00000	SEC 5 9 12
RA-20	RL-40					NR											09306015	0.00000	38.67000	SEC 5 9 12
R2A	RE-5					LDR			IBC								09306016	0.00000	9.49000	PM 1/122/A
R2A	RE-5					LDR			IBC								09306018	0.00000	10.56000	PM 1/122/B
R2A	RE-5					LDR			IBC								09306019	0.00000	9.31000	PM 1/122/D
RA-20	RL-10					RR			IBC								09306027	0.00000	8.68000	PM 23/143/1
RA-20	RL-10					RR			IBC								09306028	0.00000	5.15000	PM 23/143/2
RA-20	RL-10					RR			IBC								09306029	0.00000	5.15000	PM 23/143/3
RE-10	RL-10					RR			IBC								09306041	0.00000	10.00000	PM 44/15/2
RE-10	RL-10					RR			IBC								09306047	0.00000	10.00000	PPM 44/15/1&3
RE-10	RL-10					RR			IBC								09306048	0.00000	22.20800	PPM 44/15/1&3
RE-10	RL-10					RR			IBC								09306050	0.00000	8.05000	PM 48/41/1
RE-10	RL-10					RR			IBC								09306051	0.00000	12.00800	PM 48/41/2
RE-10	RL-40					NR											09306052	0.00000	23.97300	SEC 5 9 12
RE-10	RL-40					NR											09306052	0.00000	23.97300	SEC 5 9 12
RE-10	RL-40					NR											09307054	0.00000	21.04100	PM 45/146/1
RE-10	RL-40					NR											09307055	0.00000	10.01900	PM 45/146/2
RA-40	RL-40					NR											09308007	0.00000	19.65000	PRS 16/54/1 ADM
RE-5	RL-40					NR											09308008	0.00000	22.00000	SEC 4 9 12
RA-20	RL-40					NR											09308010	0.00000	10.00000	SEC 4 9 12

RA-20	RL-40					NR											09308015	0.00000	47.70500	PRS 16/54/1 ADM
RE-5	RL-40					NR											09308015	0.00000	47.70500	PRS 16/54/1 ADM
RA-20	LA-40					NR											09308016	0.00000	25.15000	SEC 4 9 12
RA-20	RL-40					NR											09309002	0.00000	26.00000	SEC 4 9 12
AE	AG-40					NR											09309003	0.00000	54.00000	SEC 4 9 12
RA-40	RL-40					NR											09309005	0.00000	3.00000	SEC 9 & 10 9 12
AE	AG-40					NR											09309006	0.00000	39.23000	RS 22/113/1
AE	AG-40					NR											09309010	0.00000	108.41000	PPM 46/72/1 ADM
RA-40	AG-40					NR											09309010	0.00000	108.41000	PPM 46/72/1 ADM
RA-40	AG-40					NR											09309010	0.00000	108.41000	PPM 46/72/1 ADM
RA-40	AG-40					NR											09309010	0.00000	108.41000	PPM 46/72/1 ADM
RA-40	AG-40					NR											09309010	0.00000	108.41000	PPM 46/72/1 ADM
AE	AG-40					NR											09309011	0.00000	6.98000	PM 46/72/2
AE	AG-40					NR											09309011	0.00000	6.98000	PM 46/72/2
AE	AG-40					NR											09309011	0.00000	6.98000	PM 46/72/2
RA-40	AG-40					NR											09309011	0.00000	6.98000	PM 46/72/2
RE-10	RL-40					NR											09309012	0.00000	51.24000	SEC 4&5 9 12
RE-10	RL-40					NR											09310002	0.00000	6.30000	SEC 8 9 12
RE-10	RL-40					NR											09310003	0.00000	1.50000	SEC 8 9 12
RE-10	RL-40					NR											09310004	0.00000	2.49000	SEC 8 9 12
RE-10	RL-40					NR											09310005	0.00000	1.75000	SEC 8 9 12
RE-10	RL-40					NR											09310006	0.00000	1.50000	SEC 8 & 9 9 12
RE-10	RL-40					NR											09310007	0.00000	2.75000	SEC 9 9 12
RE-10	RL-40					NR											09310010	0.00000	4.00000	SEC 9 9 12
RE-10	RL-40					NR											09310011	0.00000	1.47000	SEC 9 9 12
RE-10	RL-40					NR											09310012	0.00000	1.53000	SEC 9 9 12
RA-40	RL-40					NR											09310014	0.00000	40.00000	SEC 9 9 12
RA-40	RL-40					NR											09310016	0.00000	40.00000	SEC 9 9 12
RA-40	RL-10					RR					PL						09310018	0.00000	12.00000	SEC 9 9 12
RA-40	RL-10					RR					PL						09310019	0.00000	13.00000	SEC 9 9 12
RA-40	RL-40					NR											09310023	0.00000	39.40000	SEC 9 9 12
RA-40	LA-40					NR											09310024	0.00000	20.00000	SEC 9 9 12
RA-40	RL-40					NR											09310025	0.00000	19.46000	SEC 9 9 12
RA-40	RL-40					NR											09310026	0.00000	41.32100	RS 3/170 S8&9912
RA-20	RL-40					NR											09310027	0.00000	20.00000	PM 43/57/1
RA-20	RL-40					NR											09310028	0.00000	19.54000	PM 43/57/2
AE	RL-40					NR											09311002	0.00000	48.44000	SEC 5 & 8 9 12
AE	LA-40					NR											09311003	0.00000	41.58000	RS 20/20/1
RE-5	RL-10					RR											09311004	0.00000	1.87000	SEC 8 9 12
RE-5	RL-10					RR	A										09311006	0.00000	5.00000	SEC 8 9 12
RE-10	RL-40					NR											09311007	0.00000	9.77000	RS 10/26 S8912
RE-10	RL-40					NR											09311009	0.00000	2.44000	RS 20/133/1
RE-10	RL-40					NR											09311010	0.00000	2.45000	RS 20/133/2
RE-10	RL-40					NR											09311011	0.00000	5.00000	SEC 8 9 12
RE-5	RL-10					RR	A										09311013	0.00000	2.50000	SEC 8 9 12
RE-5	RL-10					RR	A										09311014	0.00000	2.50000	SEC 8 9 12

RE-5	RL-10					RR	A										09311015	0.00000	2.50000	SEC 8 9 12
RE-5	RL-10					RR	A										09311016	0.00000	2.50000	SEC 8 9 12
RE-10	RL-10					RR	A										09311018	0.00000	5.00000	RS 25/138/1
RE-10	RL-10					RR	A										09311019	0.00000	5.00000	SEC 8 9 12
RE-10	RL-10					RR	A										09311020	0.00000	5.00000	SEC 8 9 12
RE-5	RL-10					RR	A										09311023	0.00000	2.75000	SEC 8 9 12
RE-5	RL-10					RR	A										09311024	0.00000	2.61000	RS 24/131/1
RE-10	RL-10					RR	A										09311026	0.00000	0.32000	SEC 8 9 12
RE-10	RL-40					NR											09311030	0.00000	30.53300	PM 10/102/1
RE-5	RL-10					RR	A										09311034	0.00000	5.00000	SEC 8 9 12
RE-5	RL-10					RR	A										09311035	0.00000	5.10000	PM 32/119/1
RE-5	RL-10					RR	A										09311036	0.00000	7.69000	PM 32/119/2
RE-10	LA-10					RR	A										09311037	0.00000	18.90000	PM 39/40/1
RE-10	LA-10					RR	A										09311038	0.00000	20.00000	PM 39/40/2
RE-10	RL-10					RR	A										09311048	0.00000	2.24200	RS 18/80/1
RE-10	RL-10					RR	A										09311049	0.00000	2.82400	RS 18/80/2
RE-10	RL-40					NR											09311051	0.00000	18.52800	PM 45/25/1
RE-10	RL-40					NR											09311051	0.00000	18.52800	PM 45/25/1
RE-10	RL-40					NR											09311052	0.00000	20.00300	PM 45/25/2
RE-10	RL-40					NR											09311052	0.00000	20.00300	PM 45/25/2
RE-10	LA-10					RR	A										09311054	0.00000	18.55000	POR R/S 24-95
RE-10	RL-10					RR	A										09311055	0.00000	2.64400	RS 24/95
RE-10	RL-40					NR											09311056	0.00000	13.85000	RS 29/89/1
RE-10	RL-40					NR											09311057	0.00000	13.86000	RS 29/89/2
RE-10	RL-10					RR			IBC								09312003	0.00000	10.00000	SEC 6 9 12
RA-20	RL-10					RR			IBC								09312028	0.00000	10.00000	PM 29/2/1
RA-20	RL-10					RR			IBC								09312029	0.00000	13.02000	PM 29/2/2
RA-20	RL-10					RR			IBC								09312030	0.00000	10.70900	PM 29/2/3
RE-5	RL-10					RR			IBC								09312030	0.00000	10.70900	PM 29/2/3
RA-20	RL-10					RR			IBC								09312031	0.00000	10.07000	PM 29/2/4
RE-5	RL-10					RR			IBC								09312031	0.00000	10.07000	PM 29/2/4
RA-20	RL-40					NR											09312032	0.00000	34.50000	SEC 6 & 7 9 12
CP	CL					C			IBC		PL						09313107	0.00000	2.50900	SEC 7 9 12
RE-10	CC					C			IBC		PL						09313107	0.00000	2.50900	SEC 7 9 12
RA-20	RE-5					LDR			IBC								09313108	0.00000	0.52000	SEC 6 9 12
RA-20	RE-5					LDR			IBC								09313133	0.00000	1.36000	RS 12/144/1
RA-20	RL-40					NR			IBC								09314001	0.00000	40.00000	SEC 6 9 12
RE-10	RL-10					RR			IBC								09314002	0.00000	10.00000	SEC 6 9 12
RE-10	RL-10					RR			IBC								09314005	0.00000	10.00000	SEC 5 9 12
RE-10	RL-10					RR			IBC								09314006	0.00000	10.00000	SEC 5 9 12
RE-10	RL-10					RR			IBC								09314007	0.00000	10.17000	SEC 7 9 12
RE-10	RL-10					RR			IBC								09314024	0.00000	9.61100	PM 11/55/A
RE-10	RL-10					RR			IBC								09314027	0.00000	9.31000	POR PM 11/55/B
RE-10	RL-10					RR			IBC								09314029	0.00000	10.05000	PM 11/55/C&POR B
RE-10	RL-10					RR			IBC								09314030	0.00000	5.08000	PM 27/59/A
RE-10	RL-10					RR			IBC								09314031	0.00000	5.07000	PM 27/59/B

RE-10	RL-10					RR			IBC								09314032	0.00000	5.10000	PM 27/59/C
RE-10	RL-10					RR			IBC								09314033	0.00000	5.09000	PM 27/59/D
RE-10	RL-10					RR			IBC								09314034	0.00000	11.65900	RS 30/39/1
C	CL					C							SOM				09315015	0.00000	0.84000	SEC 7 9 12
C	CC					C							SOM				09315016	0.00000	1.91000	SEC 7 9 12
C	CL					C							SOM				09315020	0.00000	0.57000	SEC 7 9 12
RE-10	RL-10					RR			IBC								09318001	0.00000	20.00000	SEC 7 9 12
RE-10	RL-10					RR			IBC								09318002	0.00000	10.00000	SEC 7 9 12
RE-10	RL-10					RR			IBC								09318003	0.00000	10.00000	SEC 7 9 12
RE-10	RL-10					RR			IBC								09318006	0.00000	18.51000	SEC 7 9 12
RE-5	RL-10					RR			IBC								09318006	0.00000	18.51000	SEC 7 9 12
AP	LA-20					RR			IBC								09318007	0.00000	22.64500	RS 25/120/1
C	RL-10					RR			IBC								09318008	0.00000	10.30000	SEC 7 9 12
RE-10	RL-10					RR			IBC								09318008	0.00000	10.30000	SEC 7 9 12
RE-5	RL-10					RR			IBC								09318008	0.00000	10.30000	SEC 7 9 12
C	CC					C							SOM				09318009	0.00000	13.66000	SEC 7 & 8 9 12
RE-5	CC					C							SOM				09318009	0.00000	13.66000	SEC 7 & 8 9 12
C	CC					C							SOM				09318011	0.00000	3.76000	POR RS 2/153
C	CC					C							SOM				09318013	0.00000	1.52000	SEC 7 & 8 9 12
C	CL					C							SOM				09318014	0.00000	0.78000	SEC 7 9 12
C	CC					C							SOM				09318015	0.00000	2.94000	RS2/177& S8 9 12
RE-10	RL-10					RR			IBC								09318027	0.00000	10.19000	PM 12/98/A
RE-10	RL-10					RR			IBC								09318028	0.00000	10.16000	PM 12/98/B
RE-10	RL-10					RR			IBC								09318030	0.00000	10.14000	PM 12/98/D
C	CC					C							SOM				09318037	0.00000	5.12000	PM 20/128/A
RE-10	RL-10					RR			IBC								09318046	0.00000	10.17000	PM 12/98/C
RA-20	PA-20					RR											09318047	0.00000	76.74800	RS 28/114/1
RA-20	PA-20					RR											09318047	0.00000	76.74800	RS 28/114/1
RA-20	RL-20					RR											09319001	0.00000	36.56900	SEC 7 9 12
RE-10	RL-10					RR	A										09319003	0.00000	5.73000	SEC 18 9 12
RE-10	RL-10					RR	A										09319004	0.00000	5.84000	SEC 18 9 12
RE-10	RL-10					RR	A										09319005	0.00000	4.59000	PM 2/146/A
RE-10	RL-10					RR	A										09319006	0.00000	2.25000	PM 2/146/B
RA-40	RL-40					RR											09319009	0.00000	145.47000	SEC 18 9 12
RE-10	LA-10					RR	A										09319010	0.00000	12.53000	SEC 18 9 12
RE-10	RL-10					RR	A										09319011	0.00000	13.56000	SEC 18 9 12
RE-10	RL-10					RR	A										09319012	0.00000	10.42000	SEC 18 9 12
RE-10	RL-10					RR	A										09319013	0.00000	5.21000	SEC 18 9 12
RE-10	RL-10					RR	A										09319014	0.00000	13.43000	SEC 18 9 12
RE-10	RL-10					RR	A										09319015	0.00000	11.39000	SEC 18 9 12
RE-10	RL-10					RR	A										09319016	0.00000	7.45000	SEC 18 9 12
RE-10	RL-10					RR	A										09319018	0.00000	1.00000	PM 17/125/1
RE-10	RL-10					RR	A										09319019	0.00000	5.78000	PM 17/125/2
RE-10	RL-10					RR	A										09319020	0.00000	5.00000	PM 17/125/3
RE-5	RL-10					RR	A										09320017	0.00000	5.00000	PM 47/144/1
RE-5	RL-10					RR	A										09320018	0.00000	4.69000	PM 47/144/2

RE-10	RL-10					RR	A										09321008	0.00000	20.00000	PM 45/83/1
RE-5	RL-10					RR	A										09321015	0.00000	7.27800	POR SEC 8 9 12
AE	PA-20					RR	A										09322001	0.00000	51.76000	SEC 9 9 12
RE-10	RL-10					RR	A										09322003	0.00000	12.47000	SEC 9 9 12
RE-10	RL-10					RR	A										09322009	0.00000	9.89000	SEC 16 9 12
RE-10	RL-10					RR	A										09322010	0.00000	9.88000	SEC 16 9 12
RE-10	RL-10					RR	A										09322011	0.00000	9.93000	SEC 16 9 12
RE-5	RL-10					RR	A										09322012	0.00000	4.96000	SEC 16 9 12
RE-10	LA-10					RR	A										09322013	0.00000	9.95000	SEC 16 9 12
RE-5	RL-10					RR	A										09322014	0.00000	4.97000	SEC 16 9 12
RE-5	RL-10					RR	A										09322015	0.00000	4.96000	SEC 16 9 12
RE-5	RL-10					RR	A										09322016	0.00000	4.97000	SEC 16 9 12
RE-5	RL-10					RR	A										09322017	0.00000	5.59000	SEC 9 & 16 9 12
RE-5	RL-10					RR	A										09322018	0.00000	4.90000	SEC 9 & 16 9 12
RE-5	RL-10					RR	A										09322020	0.00000	2.25000	SEC 9 & 16 9 12
RE-5	RL-10					RR	A										09322021	0.00000	2.26000	SEC 9 & 16 9 12
RE-5	RL-10					RR	A										09322022	0.00000	4.74000	SEC 9 & 16 9 12
RA-40	LA-40					NR											09322027	0.00000	40.00000	SEC 9 9 12
RA-40	RL-40					NR											09322028	0.00000	40.00000	SEC 9 9 12
RE-10	RL-10					RR	A										09322030	0.00000	5.14000	SEC 9 9 12
RE-10	RL-10					RR	A										09322031	0.00000	10.38500	RS 19/57/1
RE-5	RL-10					RR	A										09322034	0.00000	2.20000	SEC 9 9 12
RE-5	RL-10					RR	A										09322035	0.00000	3.49000	SEC 9 9 12
RE-5	RL-10					RR	A										09322036	0.00000	1.84000	SEC 9 9 12
RE-10	RL-10					RR	A										09322038	0.00000	10.02000	PM 21/25/1
RE-10	RL-10					RR	A										09322039	0.00000	8.14000	PM 21/25/2
RE-10	RL-10					RR					PL						09322041	0.00000	10.02000	SEC 15 & 16 9 12
RE-5	RL-10					RR	A										09322045	0.00000	5.00000	RS 17/130/1
RE-5	RL-10					RR	A										09322046	0.00000	5.00000	RS 17/130/2
RE-5	RL-10					RR	A										09322047	0.00000	5.00000	RS 17/130/3
RE-5	RL-10					RR	A										09322048	0.00000	4.83000	RS 17/130/4
RE-10	RL-40					NR											09322052	0.00000	1.00000	SEC 9 9 12
RE-10	RL-40					NR											09322053	0.00000	22.98000	SEC 16 9 12
RE-5	RL-10					RR	A										09322054	0.00000	6.60000	SEC 16 9 12
RE-10	LA-10					RR	A										09322056	0.00000	10.00000	RS 26/29/1
RE-10	RL-10					RR	A										09322057	0.00000	8.73300	RS 26/29/2
RE-10	RL-10					RR					PL						09323001	0.00000	12.90000	PM 3/146/A
RE-10	RL-10					RR					PL						09323002	0.00000	7.81000	PM 3/146/B
RE-10	RL-10					RR					PL						09323003	0.00000	7.08000	PM 3/146/C
RE-10	RL-10					RR					PL						09323004	0.00000	9.23000	PM 3/146/D
RE-10	RL-10					RR					PL						09323009	0.00000	10.00000	PM 4/18/3
RE-10	RL-10					RR					PL						09323010	0.00000	10.18000	PM 4/18/4
RE-10	RL-10					RR					PL						09323011	0.00000	9.25000	PM 4/55/1
RE-10	RL-10					RR					PL						09323012	0.00000	6.11000	PM 4/55/2
RE-10	RL-10					RR					PL						09323013	0.00000	8.26000	PM 4/55/3
RE-10	RL-10					RR					PL						09323015	0.00000	15.07000	PM 4/56/1

RE-10	RL-10					RR					PL						09323017	0.00000	11.80000	PM 4/56/3
RE-10	RL-10					RR					PL						09323018	0.00000	10.04000	PM 4/56/4
RE-10	RL-10					RR					PL						09323020	0.00000	4.90000	PM 7/134/A
RE-10	RL-10					RR					PL						09323021	0.00000	3.34000	PM 7/134/B
RE-10	RL-10					RR					PL						09323022	0.00000	3.54000	PM 7/135/A
RE-10	RL-10					RR					PL						09323023	0.00000	4.37000	PM 7/135/B
RE-10	RL-10					RR					PL						09323024	0.00000	4.33000	PM 7/135/C
RE-10	RL-10					RR					PL						09323025	0.00000	5.43000	PM 8/122/A
RE-10	RL-10					RR					PL						09323026	0.00000	3.88000	PM 8/122/B
RE-10	RL-10					RR					PL						09323027	0.00000	2.55000	PM 8/122/C
RE-10	RL-10					RR					PL						09323028	0.00000	5.65000	PM 29/146/A
RE-10	RL-10					RR					PL						09323029	0.00000	5.50000	PM 29/146/B
RE-10	RL-10					RR					PL						09324005	0.00000	2.17000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324006	0.00000	2.16000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324007	0.00000	1.75000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324008	0.00000	2.50000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324009	0.00000	2.31000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324010	0.00000	1.54000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324011	0.00000	5.10000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324012	0.00000	3.04000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324013	0.00000	5.76000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324014	0.00000	4.73000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324020	0.00000	2.67000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324021	0.00000	3.19000	SEC 10 9 12
RE-10	RL-40					NR											09324023	0.00000	7.76000	SEC 10 9 12
RE-10	RL-10					RR					PL						09324028	0.00000	7.79000	PM 15/73/C
RE-10	RL-10					RR					PL						09324029	0.00000	7.48000	PM 15/73/D
RE-10	RL-10					RR					PL						09324030	0.00000	2.43000	PM 22/95/A
RE-10	RL-10					RR					PL						09324031	0.00000	2.75000	PM 22/95/B
RE-10	RL-10					RR					PL						09324032	0.00000	2.58000	PM 22/95/C
RE-10	RL-10					RR					PL						09324033	0.00000	2.62000	PM 22/95/D
RE-10	RL-10					RR					PL						09324034	0.00000	5.82000	PM 26/7/1
RE-10	RL-10					RR					PL						09324035	0.00000	5.82000	PM 26/7/2
RE-10	RL-10					RR					PL						09324036	0.00000	8.04000	PM 26/8/1
RE-10	RL-10					RR					PL						09324037	0.00000	5.10000	PM 26/8/2
RE-10	RL-10					RR					PL						09324038	0.00000	3.41800	RS 28/55/1
RE-10	RL-10					RR					PL						09325001	0.00000	14.32000	SEC 15 9 12
RE-10	RL-10					RR					PL						09325002	0.00000	20.06000	SEC 15 9 12
RE-10	RL-10					RR					PL						09325003	0.00000	3.06000	SEC 15 9 12
RE-10	RL-10					RR					PL						09325004	0.00000	5.22000	SEC 15 9 12
RE-10	RL-10					RR					PL						09325006	0.00000	5.28000	SEC 15 9 12
RE-10	RL-10					RR					PL						09325015	0.00000	10.25000	PM 10/47/B
RE-10	RL-10					RR					PL						09325016	0.00000	6.48000	PM 10/47/C
RE-10	RL-10					RR					PL						09325017	0.00000	5.41000	PM 10/47/D
RE-10	RL-10					RR					PL						09325018	0.00000	3.98000	PM 12/141/1
RE-10	RL-10					RR					PL						09325019	0.00000	4.48000	PM 12/141/2

RE-10	RL-10					RR					PL						09325020	0.00000	3.95400	PM 12/141/3
RE-10	RL-10					RR					PL						09325021	0.00000	2.88000	PM 12/141/4
PA-20	PA-40					NR											09325022	0.00000	20.24000	SEC 15 9 12
RE-10	RL-160					NR											09325023	0.00000	20.23000	SEC 15 9 12
RE-10	RL-10					RR					PL						09325024	0.00000	10.00000	SEC 15 9 12
RE-10	RL-10					RR					PL						09325025	0.00000	4.16000	SEC 15 9 12
RE-10	RL-10					RR					PL						09325026	0.00000	0.83000	RS 7/31 S15912
RE-10	RL-10					RR					PL						09325027	0.00000	5.40000	RS 11/149/A
RE-5	RL-10					RR					PL						09325032	0.00000	4.55000	PM 33/129/A
RE-5	RL-10					RR					PL						09325033	0.00000	5.00000	PM 33/129/B
RE-5	RL-10					RR					PL						09325034	0.00000	5.00000	PM 33/129/C
RE-10	RL-10					RR					PL						09325035	0.00000	5.24000	RS 11/149/B
RA-20	RE-10					LDR					PL						09326003	0.00000	10.00000	PM 2/136/2
RA-20	RE-10					LDR					PL						09326004	0.00000	10.00000	PM 2/136/4
RA-20	RE-10					LDR					PL						09326006	0.00000	11.16000	PM 2/136/4
RE-10	RL-10					RR					PL						09326011	0.00000	12.00000	PM 2/172/3
RE-10	RE-5					LDR					PL						09326021	0.00000	2.47600	RS 32/25/1
RE-10	RL-10					RR					PL						09326024	0.00000	12.50000	SEC 24 9 12
RE-10	RL-10					RR					PL						09326026	0.00000	5.00000	SEC 24 9 12
RE-10	RL-10					RR					PL						09326027	0.00000	10.00000	PM 2/172/4
RE-10	RL-10					RR					PL						09326028	0.00000	4.90800	SEC 13 9 12
RE-10	RL-10					RR					PL						09326029	0.00000	4.91000	SEC 13 9 12
RE-10	RL-10					RR					PL						09326031	0.00000	4.92000	SEC 13 9 12
RE-10	RL-10					RR					PL						09326032	0.00000	4.92000	SEC 13 9 12
RE-10	RL-40					NR											09326040	0.00000	7.12000	PM 5/120/A
RE-10	RL-40					NR											09326041	0.00000	10.04000	PM 5/120/B
RE-10	RL-160					NR											09326043	0.00000	21.88000	PM 5/120/D
RA-20	RE-5					LDR					PL						09326064	0.00000	5.01000	PM 29/25/A
RA-20	RE-5					LDR					PL						09326065	0.00000	5.01000	PM 29/25/B
RA-20	RE-5					LDR					PL						09326066	0.00000	5.01000	PM 29/25/C
RA-20	RE-10					LDR					PL						09326067	0.00000	5.01000	PM 29/25/D
RE-5	RL-10					RR					PL						09326077	0.00000	5.00000	PM 37/150/A
RE-5	RL-10					RR					PL						09326078	0.00000	7.00000	PM 37/150/B
RE-10	RL-10					RR					PL						09326080	0.00000	15.16000	PM 39/122/1
RE-5	RL-10					RR					PL						09326080	0.00000	15.16000	PM 39/122/1
RE-5	RL-10					RR					PL						09326080	0.00000	15.16000	PM 39/122/1
RA-20	RL-160					NR											09326088	0.00000	27.55000	PM 44/70/1
RA-20	RL-160					NR											09326089	0.00000	20.00000	PM 44/70/2
RA-20	RL-40					NR											09327001	0.00000	26.20000	SEC 13 9 12
RA-20	RL-40					NR											09327003	0.00000	13.80000	SEC 13 9 12
RA-20	LA-40					NR											09327004	0.00000	20.00000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327005	0.00000	5.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327006	0.00000	12.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327007	0.00000	2.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327008	0.00000	1.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327009	0.00000	10.00000	SEC 14 9 12

RE-10	RL-10					RR					PL						09327010	0.00000	9.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327011	0.00000	1.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327012	0.00000	5.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327013	0.00000	2.50000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327014	0.00000	5.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327015	0.00000	7.50000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327016	0.00000	10.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327017	0.00000	10.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327018	0.00000	5.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327019	0.00000	5.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327020	0.00000	5.05000	RS 28/84/1
RE-10	RL-10					RR					PL						09327021	0.00000	5.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327022	0.00000	5.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327023	0.00000	5.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327024	0.00000	5.03200	RS 26/7/1
RE-10	RL-10					RR					PL						09327025	0.00000	5.00000	SEC 14 9 12
RE-10	RL-10					RR					PL						09327027	0.00000	10.00000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327028	0.00000	5.00000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327029	0.00000	5.00000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327030	0.00000	5.00000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327032	0.00000	12.50000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327033	0.00000	2.50000	SEC 13 9 12
RA-20	RL-40					NR											09327034	0.00000	10.00000	PM 2/59/1
RE-10	RL-10					RR					PL						09327035	0.00000	10.10000	PM 12/13/A
RE-10	RL-10					RR					PL						09327036	0.00000	10.10000	PM 12/13/B
RE-10	RL-10					RR					PL						09327037	0.00000	14.37000	PM 12/13/C
RE-10	RL-10					RR					PL						09327039	0.00000	6.11000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327040	0.00000	0.00000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327042	0.00000	5.00000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327043	0.00000	0.82300	RS 27/133/3
RE-10	RL-10					RR					PL						09327047	0.00000	2.00000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327048	0.00000	1.94000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327050	0.00000	0.96000	SEC 13 9 12
RA-20	RL-40					NR											09327051	0.00000	19.75000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327052	0.00000	4.94000	SEC 13 9 12
RE-10	RL-40					NR											09327054	0.00000	5.00000	SEC 13 9 12
RE-10	RL-10					RR					PL						09327056	0.00000	5.00000	PM 29/48/1
RE-10	RL-10					RR					PL						09327057	0.00000	5.00000	PM 29/48/2
RE-10	RL-10					RR					PL						09327058	0.00000	5.00000	PM 29/48/3
RE-10	RL-10					RR					PL						09327059	0.00000	5.24000	PM 29/48/4
RA-20	RL-160					NR											09327060	0.00000	27.09000	SEC 13 9 12
RA-20	RL-160					NR											09327061	0.00000	19.69000	PM 9/46/C
RA-20	RL-160					NR											09327067	0.00000	40.00000	RS 15/119 S13912
RE-10	RL-10					RR					PL						09327072	0.00000	0.98000	RS 18/65/1
RE-10	RL-10					RR					PL						09327073	0.00000	4.00000	RS 18/65 S13912
RE-10	RL-10					RR					PL						09327078	0.00000	4.11400	RS 27/133/2

RE-10	RL-10					RR					PL						09327079	0.00000	4.94000	RS 27/133/1
RA-20	RL-40					NR											09327084	0.00000	39.12000	RS 30/52/A
RE-10	RL-10					RR					PL						09327085	0.00000	4.02100	RS 30/52/B
RE-10	RL-10					RR					PL						09328022	0.00000	4.57000	SEC 13 9 12
RE-5	CC					C					PL						09328039	0.00000	3.26000	SEC 24 9 12
RE-10	RL-160					NR											09328054	0.00000	53.76000	SEC 13 & 24-9-12
RE-5	CC					C					PL						09328057	0.00000	2.98000	SEC 24 9 12
RE-10	RL-160					NR											09329023	0.00000	22.89000	RS 19/12/1
RA-20	RL-40					NR											09330001	0.00000	5.05000	PM 28/22/A
RA-20	RL-40					NR											09330003	0.00000	10.58000	PM 28/22/C
RA-20	RL-40					NR											09330006	0.00000	5.00000	PM 28/21/B
RA-20	RL-40					NR											09330007	0.00000	5.23000	PM 28/21/C
RA-20	RL-40					NR											09330009	0.00000	6.28000	PM 30/33/1
RA-20	RL-40					NR											09330010	0.00000	6.33000	PM 30/33/2
RA-20	RL-40					NR											09330012	0.00000	5.00000	PM 30/32/1
RA-20	RL-40					NR											09330013	0.00000	5.00000	PM 30/32/2
RA-20	RL-40					NR											09330014	0.00000	5.19000	PM 30/37/1
RA-20	RL-40					NR											09330015	0.00000	5.46000	PM 30/37/2
RA-20	RL-40					NR											09330016	0.00000	5.19000	PM 30/37/3
RA-20	RL-40					NR											09330020	0.00000	7.26400	RS 25/119/1
RA-40	RL-40					NR											09330020	0.00000	7.26400	RS 25/119/1
RA-20	RL-40					NR											09330021	0.00000	10.45500	PM 48/66/1
RA-20	LA-40					NR											09331001	0.00000	20.05000	PM 28/107/1
RA-40	PA-10					RR	A										09331004	0.00000	10.21000	PM 29/20/1
RA-40	PA-10					RR	A										09331007	0.00000	10.21000	PM 29/20/4
RA-40	PA-10					RR	A										09331008	0.00000	11.18000	PM 30/26/A
RA-40	PA-10					RR	A										09331010	0.00000	10.21000	PM 30/26/B
RE-10	RL-40					NR											09331015	0.00000	5.03800	PM 32/70/A
RE-10	RL-40					NR											09331016	0.00000	5.04000	PM 32/70/B
RE-10	RL-40					NR											09331017	0.00000	5.03900	PM 32/70/C
RE-10	RL-10					RR	A										09331018	0.00000	10.04000	PM 38/51/A
RE-10	RL-10					RR	A										09331019	0.00000	10.00000	PM 38/51/B
RE-10	RL-10					RR	A										09331020	0.00000	10.00000	PM 38/51/C
RA-20	RL-40					NR											09331023	0.00000	5.28300	RS 17/133/1
RE-5	RL-40					NR											09331024	0.00000	12.79000	PM 45/60/1
RA-20	RL-40					NR											09331025	0.00000	20.00000	PM 45/60/2
RE-5	RL-10					AL	A										09401003	0.00000	42.46000	SEC 28 & 33 9 12
RE-10	RL-20					AL	A										09401014	0.00000	27.70000	SEC 33 9 12
AE	PA-20					AL	A										09401016	0.00000	39.61000	PM 10/28/B
RE-10	RL-10					RR	A										09401021	0.00000	6.66000	PM 16/76/1
RE-10	RL-10					RR	A										09401022	0.00000	6.03500	PM 16/76/2
RE-10	RL-10					RR	A										09401023	0.00000	10.33000	PM 18/97/A
RE-5	RL-10					AL	A										09401044	0.00000	68.01000	RS 14/125/2
AE	PA-20					AL	A										09401046	0.00000	20.00000	PM 39/116/2
RA-40	PA-40					AL	A										09401062	0.00000	148.12000	PM 46/80/2
AE	PA-20					AL	A										09401069	0.00000	80.00000	PM 47/81/1

AE	PA-20					AL	A										09401070	0.00000	80.01000	PM 47/81/2
AE	PA-20					AL	A										09401071	0.00000	127.31000	PM 47/81/3
AE	PA-20					AL	A										09401074	0.00000	70.62000	PM 47/131/2
RE-10	RE-5					MDR							GC				09401077	0.00000	40.34000	PM 48/119/A
RE-10	RL-20					AL	A										09401078	0.00000	40.32000	PM 48/119/B
RE-10	RE-5					MDR							GC				09401079	0.00000	4.17000	RS 48/119/1
RE-5	CL					C							GC				09402007	0.00000	0.50000	SEC 30 9 12
RE-5	CC					C							GC				09402008	0.00000	1.63000	SEC 30 9 12
RE-5	RE-10					PF							GC				09402018	11.00000	13.20000	SEC 30 9 12
RE-10	RL-10					RR	A										09402019	11.00000	4.07000	SEC 30 9 12
RE-10	RL-10					RR	A										09402020	11.00000	4.07000	SEC 30 9 12
C	CC					C							GC				09402021	0.00000	1.97000	RS 15/44/1
C	CC					C							GC				09402023	0.00000	1.48000	RS 15/44/2
C	CC			PD		C							GC				09402028	0.00000	2.58000	RS 32/29/1
RE-5	CC					C							GC				09402029	0.00000	2.44100	RS 32/29/2
RE-10	RL-10					RR	A										09403004	0.00000	11.00000	SEC 30 9 12
RE-10	RL-20					AL	A										09403005	0.00000	28.95000	SEC 30 9 12
RE-10	RL-20					AL	A										09403007	0.00000	10.02000	SEC 30 9 12
RE-10	RL-10					RR	A										09403016	0.00000	10.00000	PM 12/35/1
RE-5	RL-10					RR	A										09403016	0.00000	10.00000	PM 12/35/1
RE-10	LA-10					RR	A										09403017	0.00000	15.05000	PM 12/35/2
RE-10	RL-10					RR	A										09403018	0.00000	10.00000	PM 12/35/3
RE-10	LA-10					RR	A										09403023	0.00000	10.94000	PM 23/56/B
RE-10	RL-10					RR	A										09403027	0.00000	10.00000	S 19&30 9 12
RE-10	LA-10					RR	A										09403030	0.00000	12.43000	PM 28/25/1
RE-10	RL-10					RR	A										09403031	0.00000	5.30000	SEC 19&30 9 12
RE-10	LA-10					RR	A										09403033	0.00000	13.81000	19&30 9 12 14-51
RE-10	LA-20					AL	A										09403035	0.00000	25.92000	23-56-C&28-25-2
RE-10	RL-20					AL	A										09403037	0.00000	10.60300	19 20 29&30 9 12
RE-10	RL-10					RR	A										09403038	0.00000	10.00000	PM 23/56/A
RE-5	RL-10					RR	A										09405002	0.00000	3.33000	RS 9/24/6
RE-5	RL-10					RR	A										09405009	0.00000	6.33000	PM 17/84/B
RE-5	RL-10					RR	A										09405010	0.00000	5.19000	PM 17/84/C
RE-5	RL-10					RR	A										09405011	0.00000	4.27000	PM 17/84/D
RE-5	RL-10					AL	A										09405013	0.00000	10.85000	PM 20/70/2
RE-5	RL-10					RR	A										09405015	0.00000	10.51000	PM 20/70/4
RE-5	RL-10					RR	A										09405016	0.00000	5.00000	PM 22/100/A
RE-5	RL-10					RR	A										09405017	0.00000	5.00000	PM 22/100/B
RE-5	RL-10					RR	A										09405019	0.00000	3.00000	SEC 20 9 12
RE-10	RL-10					RR	A										09405020	0.00000	10.00000	SEC 29 9 12
RE-5	LA-10					RR	A										09405021	0.00000	15.00000	SEC 29 9 12
RE-5	RL-10					RR	A										09405022	0.00000	2.72000	SEC 29 9 12
RE-5	RL-10					RR	A										09405023	0.00000	2.32000	RS 22/34/1
RE-5	RL-10					RR	A										09405024	0.00000	5.45000	PM 8/113/A
RE-5	RL-10					RR	A										09405025	0.00000	7.36000	PM 8/113/B
RE-5	RL-10					RR	A										09405026	0.00000	6.10000	PM 8/113/C

RE-5	RL-10					RR	A										09405027	0.00000	5.41000	PM 8/113/D
RE-5	RL-10					RR	A										09405028	0.00000	9.68000	RS 9/24/1
RE-5	RL-10					RR	A										09405029	0.00000	2.09000	RS 9/24/2
RE-5	RL-10					RR	A										09405030	0.00000	7.22000	RS 9/24/3
RE-5	RL-10					RR	A										09405031	0.00000	7.29000	RS 9/24/4
AE	PA-20					AL	A										09405037	0.00000	20.42000	RS 10/147/2
AE	PA-20					AL	A										09405038	0.00000	20.76000	RS 10/147/1
RE-5	RL-10					RR	A										09405039	0.00000	4.71000	PORPAR A PM17-84
RE-5	RL-10					RR	A										09405041	0.00000	4.77000	TR5RS9-24&P17-84
RE-5	RL-10					RR	A										09406002	0.00000	3.00000	SEC 28 9 12
RE-5	LA-10					RR	A										09406012	0.00000	11.25000	SEC 28 9 12
RE-5	RL-10					RR	A										09406013	0.00000	1.34000	SEC 28 9 12
RE-5	RL-10					RR	A										09406014	0.00000	1.66000	SEC 28 9 12
RE-5	LA-10					RR	A										09406015	0.00000	16.75000	SEC 28 9 12
AP	LA-20					RR	A										09406016	0.00000	16.78000	SEC 28 9 12
RE-5	RL-10					RR	A										09406017	0.00000	1.52000	SEC 28 9 12
RE-5	RL-10					RR	A										09406019	0.00000	6.21000	SEC 28 9 12
RE-5	RL-10					RR	A										09406020	0.00000	5.84000	SEC 28 9 12
RE-5	RL-10					RR	A										09406021	0.00000	5.09200	RS 28/139/1
RE-5	RL-10					RR	A										09406023	0.00000	5.36000	SEC 28 9 12
RE-5	RL-10					RR	A										09406024	0.00000	5.00000	SEC 28 9 12
AP	LA-20					RR	A										09406031	0.00000	7.16000	PM 5/67/4
RE-5	RL-10					RR	A										09406032	0.00000	10.07000	PM 5/152/A
RE-5	RL-10					RR	A										09406033	0.00000	10.07000	PM 5/152/B
AP	LA-20					RR	A										09406035	0.00000	2.86000	PM 5/152/D
RE-5	RL-10					RR	A										09406036	0.00000	6.00000	PM 9/9/A
RE-5	RL-10					RR	A										09406038	0.00000	5.51600	PM 9/9/C
RE-5	RL-10					RR	A										09406039	0.00000	7.61100	PM 9/9/D
RE-5	RL-10					RR	A										09406041	0.00000	5.00000	PM 10/62/2
RE-5	RL-10					RR	A										09406044	0.00000	2.02000	PM 16/40/1
RE-5	RL-10					RR	A										09406045	0.00000	2.11000	PM 16/40/2
RE-5	RL-10					RR	A										09406051	0.00000	5.02000	PM 19/33/B
RE-5	RL-10					RR	A										09406053	0.00000	5.01000	PM 19/33/A
RE-5	RL-10					RR	A										09406054	0.00000	5.00000	PM 20/38/1
RE-5	RL-10					RR	A										09406055	0.00000	5.00000	PM 20/38/2
RE-5	LA-10					RR	A										09406056	0.00000	9.03000	RS 6/110/2
RE-5	RL-10					RR	A										09406057	0.00000	5.08000	SEC 28 9 12
RE-5	RL-10					RR	A										09406061	0.00000	2.38000	S 28&29 9 12
RE-5	RL-10					RR	A										09406064	0.00000	5.47000	POR PAR 1 5-67
RE-5	RL-10					RR	A										09406065	0.00000	5.47000	POR PAR 1 5-67
RE-5	RL-10					RR	A										09406067	0.00000	5.65000	POR PAR 1 5-67
RE-5	RL-10					RR	A										09406068	0.00000	7.10000	POR PAR 1 5-67
RE-5	RL-10					RR	A										09406069	0.00000	5.95000	POR PAR 1 5-67
RE-5	RL-10					RR	A										09406070	0.00000	4.45000	SEC 28 9 12
RE-5	RL-10					RR	A										09406072	0.00000	1.30000	S 28 & 29 9 12
RE-5	RL-10					RR	A										09406074	0.00000	6.02000	PM 36/134/B

RE-5	RL-10					RR	A										09406075	0.00000	5.38000	RS 15/58/B
RE-5	RL-10					RR	A										09406077	0.00000	2.02000	RS 15/58/A
RE-5	RL-10					RR	A										09406082	0.00000	8.27000	RS 25/35/2
RE-5	RL-10					RR	A										09406083	0.00000	9.99000	RS 25/35/1
AE	PA-20					AL	A										09406085	0.00000	40.35500	SEC 28 9 12
RE-5	RL-10					RR	A										09407001	0.00000	2.30000	SEC 28 9 12
RE-5	RL-10					RR	A										09407003	0.00000	4.37300	SEC 28 & 33 9 12
RE-5	RL-10					RR	A										09407004	0.00000	2.46000	SEC 28 9 12
RE-5	RL-10					RR	A										09407005	0.00000	2.46000	SEC 28 9 12
RE-5	RL-10					RR	A										09407011	0.00000	5.08000	PM 10/67/1
RE-5	RL-10					RR	A										09407012	0.00000	2.52000	PM 10/67/2
C	PA-20		DC			AL	A										09407013	0.00000	31.48000	PM 10/67/3
PA	PA-20					AL	A										09407013	0.00000	31.48000	PM 10/67/3
RE-5	RL-10					AL	A										09407013	0.00000	31.48000	PM 10/67/3
RE-5	RL-10					AL	A										09407016	0.00000	24.46000	PM 9/118/2
RE-5	RL-10					RR	A										09407021	0.00000	2.09000	PPM 13/69/B
RE-5	RL-10					RR	A										09407027	0.00000	5.82000	PPM 13/69/A
RE-5	RL-10					RR	A										09407028	0.00000	2.16000	PPM 13/69/A&B
RE-5	RL-10					RR	A										09407029	0.00000	5.01000	PM 24/98/1
RE-5	RL-10					RR	A										09407030	0.00000	5.00000	PM 24/98/2
RE-5	RL-10					RR	A										09407031	0.00000	5.01000	PM 24/98/3
RE-5	RL-10					AL	A										09407032	0.00000	26.04000	PM 24/98/4
RE-5	RL-10					RR	A										09407033	0.00000	5.00000	SEC 28 9 12
RE-5	RL-10					RR	A										09407034	0.00000	5.00000	SEC 28 9 12
RE-5	RL-10					RR	A										09407035	0.00000	5.00000	SEC 28 9 12
RE-5	RL-10					RR	A										09407036	0.00000	5.00000	SEC 28 9 12
RE-5	RL-10					RR	A										09407043	0.00000	4.88000	PORPAR 1 PM40-89
RE-5	RL-10					RR	A										09407044	11.00000	0.65000	PORPAR 1 PM40-89
RE-5	RL-10					RR	A										09407045	0.00000	5.52000	PORPAR 2 PM40-89
RE-5	RL-10					RR	A										09407046	11.00000	0.94000	PORPAR 2 PM40-89
MP	R1					HDR							FP				09408002	0.00000	17.04000	SEC 33 9 12
RE-5	RE-10					PF							FP				09408003	11.00000	1.08000	TR 1 R/S 25-54
RE-5	LA-10					RR	A										09408004	0.00000	23.00000	SEC 33 9 12
RE-5	RL-10					RR	A										09408008	0.00000	10.00000	PM 16/4/A
RE-5	RL-10					RR	A										09408009	0.00000	4.80000	PM 16/4/B
RE-5	RL-10					RR	A										09408010	0.00000	4.80000	PM 16/4/C
RE-5	RL-10					RR	A										09408012	0.00000	10.00000	PM 47/134/1
RE-5	RL-10					RR	A										09408013	0.00000	17.14000	PM 47/134/2
RE-5	RL-10					RR	A										09409001	0.00000	1.00000	SEC 33 9 12
RE-5	RL-10					AL	A										09409003	0.00000	9.14000	SEC 33 9 12
RE-5	RL-10					RR	A										09409005	0.00000	1.40000	SEC 33 9 12
RE-5	RL-10					RR	A										09409006	0.00000	1.44000	SEC 33 9 12
RE-5	RL-10					RR	A										09409007	0.00000	1.32000	SEC 33 9 12
RE-5	RL-10					RR	A										09410003	0.00000	0.42000	SEC 33 9 12
RE-5	RL-10					RR	A										09410004	0.00000	1.00000	SEC 33 9 12
RE-5	RL-10					RR	A										09410005	0.00000	0.99000	SEC 33 9 12

RE-5	RL-10					RR	A										09410006	0.00000	0.99000	SEC 33 9 12
RE-5	RL-10					RR	A										09410007	0.00000	2.51000	SEC 33 9 12
RE-10	LA-10					RR	A										09410011	0.00000	10.10000	PM 2/114/A
RE-10	RL-10					RR	A										09410012	0.00000	10.00000	PM 2/114/B
RE-10	RL-20					AL	A										09410013	0.00000	20.85100	PM 2/114/C
RE-5	RL-10					RR	A										09410014	0.00000	5.00000	PM 2/114/D
RE-5	RL-10					RR	A										09410016	0.00000	11.64000	SEC 33 9 12
RE-5	RL-10					RR	A										09410017	0.00000	4.98000	SEC 33 9 12
RE-5	RL-10					RR	A										09410018	0.00000	4.82000	SEC 33 9 12
RE-5	RL-10					RR	A										09410021	0.00000	9.08000	SEC 33 9 12
RE-5	RL-10					RR	A										09410022	0.00000	1.38000	SEC 33 9 12
RE-5	RL-10					RR	A										09410025	0.00000	1.82900	SEC 33 9 12
RE-5	RL-10					RR	A										09411001	0.00000	1.37000	SEC 33 9 12
RE-5	CC					C							FP				09411011	0.00000	10.60000	RS 30/114/1
C	CC					C							FP				09411012	0.00000	1.57200	SEC 33 9 12
RE-10	RL-20					AL	A										09412001	0.00000	20.00000	SEC 32 9 12
RE-10	RL-20					AL	A										09412002	0.00000	10.00000	SEC 32 9 12
RE-10	RL-20					AL	A										09412003	0.00000	4.98000	PM 2/6/1
RE-10	RL-20					AL	A										09412004	0.00000	4.98000	PM 2/6/2
RE-10	RL-20					AL	A										09412009	0.00000	0.02000	SEC 32 9 12
RE-10	RL-20					AL	A										09412011	0.00000	4.69000	SEC 32 9 12
RE-10	RL-20					AL	A										09412012	0.00000	1.50000	SEC 32 9 12
RE-10	RL-20					AL	A										09412013	0.00000	3.50000	SEC 32 9 12
RE-10	RL-20					AL	A										09412014	0.00000	7.95000	SEC 32 9 12
RE-10	RL-20					AL	A										09412015	0.00000	3.38000	SEC 32 9 12
RE-10	RL-20					AL	A										09412016	0.00000	5.00000	SEC 32 9 12
RE-10	RL-20					AL	A										09412018	0.00000	19.86000	PM 10/14/A
RE-10	RL-20					AL	A										09412021	0.00000	17.00000	PM 10/14/D
RE-10	RL-20					AL	A										09412026	0.00000	10.20000	PM 26/141/1
RE-10	RL-20					AL	A										09412027	0.00000	16.59000	PM 26/141/2
RE-10	RL-20					AL	A										09412028	0.00000	12.34000	SEC 32 9 12
RE-10	RL-20					AL	A										09412030	0.00000	2.10000	PM 36/101/1
RE-10	RL-20					AL	A										09412037	0.00000	7.89000	PM 48/145/1
RE-10	RL-20					AL	A										09412038	0.00000	10.00000	PM 48/145/2
SA-10	PA-20					AL	A										09413005	0.00000	10.14000	PM 5/35/A
RE-10	RL-20					AL	A										09413013	0.00000	10.16000	PM 15/29/1
RE-10	RL-20					AL	A										09413016	0.00000	10.22000	PM 15/29/4
SA-10	PA-20					AL	A										09413024	0.00000	11.00000	PM 36/118/1
SA-10	PA-20					AL	A										09413025	0.00000	14.00000	PM 36/118/2
SA-10	PA-20					AL	A										09413026	2.00000	0.00000	SEC 29 9 12RDWAY
AE	PA-20					AL	A										09413030	0.00000	20.63700	P 2&3 PM 15/29
AE	PA-20					AL	A										09414001	0.00000	36.00000	SEC 30 9 12
SA-10	PA-20					AL	A										09414014	0.00000	20.71000	RS 15/111/1
RE-10	RL-20					AL	A										09414023	0.00000	10.00000	PM 47/26/2
RE-10	RL-10					RR	A										09415003	0.00000	1.45000	SEC 30 9 12
RE-10	LA-10					RR	A										09415005	0.00000	13.71000	PM 5/75/1

RE-10	RL-10					RR	A										09415006	0.00000	13.25000	PM 5/75/2
RE-10	RL-20					AL	A										09415007	0.00000	19.62000	PM 5/75/3
RE-10	LA-10					RR	A										09415008	0.00000	15.85000	RS 10/12 S30912
RE-10	RL-10					RR	A										09415009	0.00000	10.01000	RS 10/12 S30912
RE-10	RL-10					RR	A										09416008	0.00000	10.37000	PM 7/117/A
RE-10	RL-10					RR	A										09416009	0.00000	10.05500	PM 7/117/B
RE-10	RL-10					RR	A										09416010	0.00000	10.02900	PM 7/117/C
RE-10	RL-10					RR	A										09416011	0.00000	10.90600	PM 7/117/D
RE-10	RL-10					RR	A										09416012	0.00000	10.04000	PM 10/27/A
RE-10	RL-10					RR	A										09416013	0.00000	10.12000	PM 10/27/B
RE-10	RL-10					RR	A										09416014	0.00000	10.09000	PM 10/27/C
RE-10	LA-10					RR	A										09416015	0.00000	10.16000	PM 10/27/D
RE-10	LA-10					RR	A										09416016	0.00000	11.01000	PM 12/22/A
RE-10	LA-10					RR	A										09416017	0.00000	11.01000	PM 12/22/B
RE-10	RL-10					RR	A										09416018	0.00000	11.01000	PM 12/22/C
RE-10	LA-10					RR	A										09416019	0.00000	11.39000	PM 12/22/D
RE-10	RL-10					RR	A										09416020	0.00000	10.51000	PM 13/97/A
RE-10	LA-10					RR	A										09416021	0.00000	10.49400	PM 13/97/B
RE-10	LA-10					RR	A										09416022	0.00000	10.22000	PM 13/97/C
RE-10	RL-10					RR	A										09416023	0.00000	10.80000	PM 13/97/D
RE-10	LA-10					RR	A										09416024	0.00000	11.00000	PM 15/20/A
RE-10	LA-10					RR	A										09416027	0.00000	10.01000	PM 15/20/D
RE-10	LA-10					RR	A										09416028	0.00000	11.99000	PM 22/19/A
RE-10	LA-10					RR	A										09416029	0.00000	10.50000	PM 22/19/B
RE-10	RL-10					RR	A										09416030	0.00000	10.00000	PM 22/19/C
RE-10	RL-10					RR	A										09416031	0.00000	10.00000	PM 22/19/D
RE-10	RL-10					RR	A										09416032	0.00000	11.10000	PM 24/144/A
RE-10	RL-10					RR	A										09416033	0.00000	10.43000	PM 24/144/B
RE-10	RL-10					RR	A										09416034	0.00000	10.01000	PM 24/144/C
RE-10	RL-10					RR	A										09416035	0.00000	10.01000	PM 24/144/D
RE-10	RL-10					RR	A										09416037	0.00000	10.12300	POR P/M 15/20/B
RE-10	LA-10					RR	A										09416038	0.00000	11.87700	RS 26/32
RE-10	RL-10					RR	A										09417009	0.00000	10.10000	PM 8/20/A
RE-10	RL-10					RR	A										09417010	0.00000	10.30000	PM 8/20/B
RE-10	LA-10					RR	A										09417011	0.00000	13.38000	PM 8/20/C
RE-10	LA-10					RR	A										09417012	0.00000	11.95000	PM 8/20/D
RE-10	RL-10					RR	A										09417013	0.00000	10.00000	PM 9/55/A
RE-10	RL-10					RR	A										09417014	0.00000	14.43000	PM 9/55/B
RE-10	LA-10					RR	A										09417015	0.00000	10.13000	PM 9/55/C
RE-10	RL-10					RR	A										09417016	0.00000	10.00000	PM 9/55/D
RE-10	RL-10					RR	A										09417017	0.00000	10.01000	PM 11/130/A
RE-10	RL-10					RR	A										09417018	0.00000	10.01000	PM 11/130/B
RE-10	RL-10					RR	A										09417019	0.00000	10.49000	PM 11/130/C
RE-10	RL-10					RR	A										09417020	0.00000	12.71000	PM 11/130/D
RE-10	LA-10					RR	A										09417021	0.00000	12.64800	PM 15/139/A
RE-10	RL-10					RR	A										09417022	0.00000	10.03000	PM 15/139/B

RE-10	RL-10					RR	A										09417023	0.00000	10.02000	PM 15/139/C
RE-10	RL-10					RR	A										09417024	0.00000	10.02000	PM 15/139/D
RE-10	RL-10					RR	A										09417025	0.00000	10.12000	PM 15/140/A
RE-10	RL-10					RR	A										09417026	0.00000	10.12000	PM 15/140/B
RE-10	RL-10					RR	A										09417027	0.00000	10.00000	PM 15/140/C
RE-10	LA-10					RR	A										09417028	0.00000	10.16000	PM 15/140/D
RE-10	RL-10					RR	A										09417029	0.00000	10.10000	PM 17/81/A
RE-10	RL-10					RR	A										09417032	0.00000	10.02000	PM 17/81/D
RE-10	RL-10					RR	A										09417033	0.00000	10.25000	PM 18/150/A
RE-10	RL-10					RR	A										09417034	0.00000	10.20000	PM 18/150/B
RE-10	RL-10					RR	A										09417035	0.00000	10.18000	PM 18/150/C
RE-10	LA-10					RR	A										09417036	0.00000	10.21000	PM 18/150/D
RE-10	RL-10					RR	A										09417037	0.00000	10.61000	PM 26/45/1
RE-10	RL-10					RR	A										09417039	0.00000	10.01000	PM 26/45/3
RE-10	RL-10					RR	A										09417040	0.00000	10.01000	PM 26/45/4
RE-10	RL-10					RR	A										09417042	0.00000	10.05000	PM 17/81/B
RE-10	RL-10					RR	A										09417043	0.00000	10.05000	PM 17/81/C
RA-20	LA-20					RR	A										09417046	0.00000	10.05000	RS 25/73
RE-10	RL-10					RR	A										09417046	0.00000	10.05000	RS 25/73
RE-10	RL-10					RR	A										09418009	0.00000	10.62000	PM 11/147/A
RE-10	LA-10					RR	A										09418011	0.00000	11.33000	PM 11/147/C
RE-10	RL-10					RR	A										09418012	0.00000	11.56000	PM 11/147/D
RE-10	RL-10					RR	A										09418015	0.00000	10.50000	PM 12/142/C
RE-10	RL-10					RR	A										09418016	0.00000	10.00000	PM 12/142/D
RE-10	RL-10					RR	A										09418017	0.00000	10.06000	PM 13/33/A
RE-10	RL-10					RR	A										09418018	0.00000	10.05000	PM 13/33/B
RE-10	RL-10					RR	A										09418019	0.00000	10.19000	PM 13/33/C
RE-10	RL-10					RR	A										09418020	0.00000	10.10000	PM 13/33/D
RE-10	RL-10					RR	A										09418021	0.00000	11.44900	PM 15/42/A
RE-10	RL-10					RR	A										09418022	0.00000	10.36000	PM 15/42/B
RE-10	RL-10					RR	A										09418023	0.00000	10.01000	PM 15/42/C
RE-10	LA-10					RR	A										09418025	0.00000	12.30000	PM 16/52/A
RE-10	LA-10					RR	A										09418026	0.00000	11.92000	PM 16/52/B
RE-10	RL-10					RR	A										09418027	0.00000	11.00000	PM 16/52/C
RE-10	RL-10					RR	A										09418028	0.00000	12.02000	PM 16/52/D
RE-10	RL-10					RR	A										09418032	0.00000	19.00000	PM 18/129/A
RE-10	LA-10					RR	A										09418033	0.00000	11.10000	PM 18/129/B
RE-10	LA-10					RR	A										09418034	0.00000	11.01700	PM 18/129/C
RE-10	LA-10					RR	A										09418035	0.00000	14.89000	PM 19/75/2
RE-10	RL-10					RR	A										09418038	0.00000	10.10000	PM 22/25/A
RE-10	RL-10					RR	A										09418039	0.00000	10.10000	PM 22/25/B
RE-10	RL-10					RR	A										09418040	0.00000	10.10000	PM 22/25/C
RE-10	RL-10					RR	A										09418041	0.00000	10.18000	PM 22/25/D
RE-10	RL-10					RR	A										09418046	0.00000	10.00000	PM 25/23/1
RE-10	RL-10					RR	A										09418047	0.00000	10.00200	PM 25/23/2
RE-10	RL-10					RR	A										09418048	0.00000	13.78000	PM 30/43/A

RE-10	RL-10					RR	A										09418049	0.00000	27.56000	PM 30/43/B
RE-10	RL-20					AL	A										09419008	0.00000	20.11900	PM 10/8/B
RE-10	RL-10					RR	A										09419009	0.00000	10.00000	PM 15/126/A
RE-10	RL-10					RR	A										09419010	0.00000	10.11000	PM 15/126/B
RE-10	RL-10					RR	A										09419011	0.00000	10.07000	PM 15/126/C
RE-10	RL-10					RR	A										09419012	0.00000	10.20000	PM 15/126/D
RE-10	RL-10					RR	A										09419013	0.00000	10.01000	PM 17/57/A
RE-10	RL-10					RR	A										09419015	0.00000	10.01000	PM 17/57/C
RE-10	RL-10					RR	A										09419020	0.00000	10.10000	PM 18/8/B
RE-10	RL-10					RR	A										09419023	0.00000	10.06000	PM 28/50/1
RE-10	RL-20					AL	A										09419024	0.00000	10.06000	PM 28/50/2
RE-10	RL-10					RR	A										09419035	0.00000	10.06000	RS 14/96 S31912
RE-10	RL-10					RR	A										09419036	0.00000	10.43000	RS 14/96 S31912
RE-10	RL-10					RR	A										09420006	0.00000	10.86000	PM 12/14/A
RE-10	RL-10					RR	A										09420007	0.00000	10.60000	PM 12/14/B
RE-10	RL-10					RR	A										09420008	0.00000	10.20000	PM 12/14/C
RE-10	LA-10					RR	A										09420009	0.00000	12.39000	PM 12/14/D
RE-10	LA-10					RR	A										09420010	0.00000	10.00000	PM 12/147/A
RE-10	LA-10					RR	A										09420011	0.00000	10.05900	PM 12/147/B
RE-10	LA-10					RR	A										09420012	0.00000	11.80000	PM 12/147/C
RE-10	LA-10					RR	A										09420013	0.00000	10.99800	PM 12/147/D
RE-10	RL-10					RR	A										09420014	0.00000	10.00000	PM 14/36/A
RE-10	LA-10					RR	A										09420015	0.00000	15.34000	PM 14/36/B
RE-10	RL-10					RR	A										09420016	0.00000	15.21000	PM 14/36/C
RE-10	RL-20					AL	A										09420017	0.00000	10.03000	PM 16/39/A
RE-10	RL-20					AL	A										09420018	0.00000	10.01000	PM 16/39/B
RE-10	RL-10					RR	A										09420019	0.00000	15.21000	PM 16/39/C
RE-10	RL-10					RR	A										09420020	0.00000	10.57000	PM 16/39/D
RE-10	LA-10					RR	A										09420021	0.00000	10.00000	PM 23/112/A
RE-10	LA-10					RR	A										09420022	0.00000	10.00000	PM 23/112/B
RE-10	RL-10					RR	A										09420023	0.00000	10.00000	PM 23/112/C
RE-10	RL-10					RR	A										09420024	0.00000	10.68000	PM 23/112/D
AE	PA-20					RR	A										09421005	0.00000	20.79000	PM 3/35/J ADM
RE-10	LA-10					RR	A										09421006	0.00000	15.47000	PM 5/122/A
RE-10	RL-10					RR	A										09421007	0.00000	15.00000	PM 5/122/B
RE-10	LA-10					RR	A										09421008	0.00000	15.14000	PM 5/122/C
RE-10	RL-20					AL	A										09421009	0.00000	26.62000	PM 5/122/D
RE-10	LA-10					RR	A										09421010	0.00000	15.00000	SEC 12 8 11
RE-10	RL-10					RR	A										09421012	0.00000	3.40000	SEC 12 8 11
RE-10	RL-10					RR	A										09421015	0.00000	10.31000	PM 10/9/A
RE-10	LA-10					RR	A										09421016	0.00000	10.50000	PM 10/9/B
RE-10	RL-10					RR	A										09421017	0.00000	10.01000	PM 15/67/1
RE-10	RL-10					RR	A										09421018	0.00000	10.00000	PM 15/67/2
SA-10	PA-20					AL	A										09421019	0.00000	10.10200	PM 16/68/A
RE-10	RL-20					AL	A										09421021	0.00000	5.01000	PM 16/68/C
RE-10	RL-10					RR	A										09421022	0.00000	10.30000	PM 29/55/1

RE-10	RL-10					RR	A										09421023	0.00000	10.49000	PM 29/55/2
RE-10	RL-10					RR	A										09421024	0.00000	10.10000	PM 29/55/3
RE-10	RL-10					RR	A										09421025	0.00000	10.00000	PM 29/55/4
RE-10	RL-20					AL	A										09421028	0.00000	26.08000	RS 14/98/1
AE	PA-20					AL	A										09421029	0.00000	55.64000	PM 38/7/A
AE	PA-20					AL	A										09421030	0.00000	30.16300	PM 38/7/B
AE	PA-20					AL	A										09424001	0.00000	68.08800	PM 49/82/A
AE	PA-20					AL	A										09424003	0.00000	44.15000	PM 49/82/C
AE	PA-20					AL	A										09424004	0.00000	43.25600	RS 31/65/1
RE-10	RL-10					RR	A										09501101	0.00000	11.66000	PM 43/90/1
RE-10	RL-10					RR	A										09501102	0.00000	10.00000	PM 43/90/2
RE-10	RL-10					RR	A										09501103	0.00000	10.00000	PM 43/90/3
RE-10	RL-10					RR	A										09501104	0.00000	15.08000	PM 14/116/1
RE-10	RL-10					RR	A										09501105	0.00000	10.12000	PM 14/116/2
RE-5	RL-10					RR	A										09501106	0.00000	5.00000	PM 38/128/1
RE-5	RL-10					RR	A										09501107	0.00000	5.93000	PM 38/128/2
RE-5	RL-10					RR	A										09501108	0.00000	5.15000	PM 38/128/3
RE-5	RL-10					RR	A										09501109	0.00000	5.24000	PM 38/128/4
RA-40	PA-40					AL	A										09501111	0.00000	40.00000	SEC 34 9 12
RA-20	RL-40					NR											09501112	0.00000	80.00000	SEC 26 9 12
RE-10	RL-10					RR					PL						09501113	0.00000	10.46000	PAR 1 29-30 AMND
RE-10	RL-10					RR					PL						09501114	0.00000	10.44000	PAR 2 29-30 AMND
RE-10	RL-10					RR					PL						09501115	0.00000	10.41000	PAR 3 29-30 AMND
RE-10	RL-10					RR					PL						09501116	0.00000	10.38000	PAR 4 29-30 AMND
RA-20	RL-10					RR					PL						09501117	0.00000	5.00000	PM 29/11/1
RA-20	RL-10					RR					PL						09501118	0.00000	5.00000	PM 29/11/2
RA-20	RL-10					RR					PL						09501119	0.00000	5.00000	PM 29/11/3
RA-20	RL-20					RR					PL						09501121	0.00000	40.00000	SEC 26 9 12
RA-20	RL-20					RR					PL						09501122	0.00000	20.00000	SEC 26 9 12
RA-20	RL-20					RR					PL						09501123	0.00000	20.00000	SEC 26 9 12
RA-20	RL-20					RR					PL						09501124	0.00000	20.00000	SEC 26 9 12
RA-20	RL-20					RR					PL						09501125	0.00000	20.00000	SEC 26 9 12
RA-20	RL-20					RR					PL						09501126	0.00000	20.00000	SEC 26 9 12
RA-20	LA-10					RR					PL						09501127	0.00000	20.00000	SEC 26 9 12
RE-10	RL-10					RR					PL						09501128	0.00000	20.00000	SEC 26 9 12
RA-20	LA-10					RR					PL						09501129	0.00000	10.00000	SEC 26 9 12
RA-20	RL-10					RR					PL						09501130	0.00000	10.00000	SEC 26 9 12
RA-20	RL-20					RR					PL						09501131	0.00000	20.00000	SEC 26 9 12
RA-20	RL-10					RR					PL						09501132	0.00000	10.00000	SEC 26 9 12
RA-20	RL-10					RR					PL						09501133	0.00000	4.40000	PM 29/11/4
RE-10	RL-10					RR					PL						09501139	0.00000	1.00000	SEC 35 9 12
RA-20	LA-10					RR					PL						09501141	0.00000	11.01000	PM 23/135/A
RA-20	LA-10					RR					PL						09501142	0.00000	17.89000	PM 24/86/2
RA-20	LA-10					RR					PL						09501143	0.00000	24.78000	PM 23/135/D
RA-20	RL-20					RR					PL						09501146	0.00000	39.83000	POR PAR 4 13-48
MR	RL-40					NR											09501148	0.00000	11.90000	24&25 9 12RS1369

MR	RL-40					NR											09501149	0.00000	35.30000	SEC 25 9 12
OS	RL-40					NR											09501149	0.00000	35.30000	SEC 25 9 12
MR	RL-40					NR											09501150	0.00000	5.28000	SEC 25 9 12
MR	RL-40					NR											09501151	0.00000	29.45000	RS 13/69 S25912
RA-20	RL-40					NR											09501153	0.00000	20.00000	SEC 25 9 12
RA-20	RL-160					NR											09501155	0.00000	68.02000	RS 13/10/A
RA-20	RL-160					NR											09501156	0.00000	68.02000	RS 13/10/B
OS	RL-160					NR											09501158	0.00000	110.50000	SEC 25 9 12
RA-20	RL-160					NR											09501158	0.00000	110.50000	SEC 25 9 12
RA-20	RL-160					NR											09501159	0.00000	50.00000	SEC 25 9 12
RA-20	RL-160					NR											09501160	0.00000	10.00000	SEC 25 9 12 ADM
RA-20	RL-160					NR											09501164	0.00000	61.11000	PM 45/142/1
RA-20	RL-160					NR											09501165	0.00000	20.23000	PM 45/142/2
RA-20	RL-160					NR											09501166	0.00000	21.66000	PM 45/142/3
RA-20	RL-160					NR											09501167	0.00000	64.23000	PM 45/142/4
RA-20	RL-10					RR					PL						09501172	0.00000	10.00000	RS 22/76/1
RA-20	RL-10					RR					PL						09501173	0.00000	10.00000	SEC 26 9 12ADM
RA-20	FR-40					NR											09501180	0.00000	80.00000	SEC 36 9 12
RA-20	FR-40					NR											09501181	0.00000	80.00000	SEC 36 9 12
RA-20	FR-40					NR											09501182	0.00000	10.00000	SEC 36 9 12
RE-10	RL-20					AL	A										09502101	0.00000	39.46000	SEC 5 8 12
RE-10	RL-20					AL	A										09502102	0.00000	20.00000	SEC 5 8 12
RA-20	LA-20					AL	A										09502106	0.00000	15.00000	SEC 7 8 12
RA-20	LA-20					AL	A										09502107	0.00000	45.00000	SEC 7 8 12
RE-5	RL-10					AL	A										09502118	0.00000	15.00000	SEC 8 8 12
PA-20	PA-40					NR											09502122	0.00000	50.58000	SEC 9 8 12
RA-40	PA-40					NR											09502122	0.00000	50.58000	SEC 9 8 12
RA-40	LA-40					NR											09502123	0.00000	29.42000	SEC 9 8 12
RA-40	RL-40					NR											09502126	0.00000	40.00000	SEC 9 8 12
RA-40	PA-10					RR	A										09502128	0.00000	40.00000	SEC 9 8 12
RA-80	RL-40					NR											09502129	0.00000	160.00000	SEC 9 8 12
RE-10	RL-20					AL	A										09502130	0.00000	9.60000	SEC 5 8 12
RE-10	RL-20					AL	A										09502131	0.00000	28.78000	SEC 5 8 12
RE-10	RL-10					RR	A										09502132	0.00000	10.00000	SEC 4 & 5 8 12
RE-10	RL-10					RR	A										09502133	0.00000	8.28000	SEC 4 8 12
RE-10	RL-10					RR	A										09502134	0.00000	5.52000	SEC 5 8 12
RE-10	LA-10					RR	A										09502135	0.00000	7.93000	SEC 5 8 12
RE-10	RL-10					RR	A										09502136	0.00000	5.00000	SEC 5 8 12
RE-10	RL-20					AL	A										09502137	0.00000	80.00000	SEC 6 8 12
RA-40	PA-10					RR	A										09502138	0.00000	13.34000	SEC 9 8 12
RA-40	PA-10					RR	A										09502139	0.00000	13.33000	SEC 9 8 11
RA-40	PA-10					RR	A										09502140	0.00000	13.33000	SEC 9 8 11
RA-40	PA-40					AL	A										09502144	0.00000	45.00000	SEC 7 & 8 8 11
RA-40	PA-40					AL	A										09502145	0.00000	43.69000	RS 25/136/1
RA-20	LA-20					AL	A										09502149	0.00000	54.84000	PM 47/103/2
RA-40	PA-40					AL	A										09502149	0.00000	54.84000	PM 47/103/2

RA-80	PA-80					AL	A										09502151	0.00000	87.24000	PM 47/103/4
RA-40	PA-40					AL	A										09502152	0.00000	245.48000	PM 47/103/5
RA-40	PA-40					AL	A										09502153	0.00000	289.74000	PM 47/103/6
RA-40	PA-40					AL	A										09503001	0.00000	157.99000	SEC 3 8 12
RA-40	RL-40					NR											09503023	0.00000	15.90000	PM 17/138/1
RA-40	RL-40					NR											09503024	0.00000	23.40000	PM 17/138/2
RA-40	LA-40					NR											09503029	0.00000	40.00000	SEC 3 8 12
RA-40	FR-160					NR											09503031	0.00000	503.51000	PM 48/1/1
RA-80	FR-160					NR											09503031	0.00000	503.51000	PM 48/1/1
RA-40	FR-40					NR											09503033	0.00000	77.42000	PM 48/1/2
RA-40	RL-160					NR											09503034	0.00000	26.20000	PM 48/1/3
RA-40	RL-160					NR											09503035	0.00000	40.00000	PM 48/1/4
RA-40	RL-160					NR											09503036	0.00000	117.59000	PM 48/1/5
RA-80	RL-160					NR											09503037	0.00000	81.87000	PM 48/1/6
RA-80	RL-160					NR											09503038	0.00000	83.80000	PM 48/1/7
RA-80	RL-160					NR											09503039	0.00000	41.07000	PM 48/1/8
RA-40	RL-160					NR											09503040	0.00000	82.13000	PM 48/1/9
RA-80	RL-160					NR											09503040	0.00000	82.13000	PM 48/1/9
RA-40	RL-160					NR											09503041	0.00000	81.86000	PM 48/1/10
RA-80	RL-160					NR											09503041	0.00000	81.86000	PM 48/1/10
RA-80	RL-160					NR											09503042	0.00000	40.75000	PM 48/1/11
RA-40	FR-40					NR											09503044	0.00000	7.30000	SEC 1 8 12
RA-40	FR-40					NR											09503045	0.00000	57.00000	SEC 1 8 12
RA-80	FR-160					NR											09503059	0.00000	120.00000	SEC 12 8 12
RA-40	FR-40					NR											09503060	0.00000	86.37000	SEC 12 812&7 813
RA-80	FR-40					NR											09503060	0.00000	86.37000	SEC 12 812&7 813
RA-20	LA-20					AL	A										09504002	0.00000	46.21000	SEC 18 8 12
RA-40	PA-40					AL	A										09504002	0.00000	46.21000	SEC 18 8 12
RA-40	PA-40					AL	A										09504002	0.00000	46.21000	SEC 18 8 12
RA-40	PA-40					AL	A										09504002	0.00000	46.21000	SEC 18 8 12
RA-20	LA-20					AL	A										09504003	0.00000	38.98000	SEC 18 8 12
RA-20	LA-20					AL	A										09504005	0.00000	40.00000	SEC 18 8 12
RA-20	LA-20					AL	A										09504013	0.00000	20.00000	SEC 18 8 12
RA-20	LA-20					AL	A										09504014	0.00000	35.00000	SEC 18 8 12
PA-20	RL-40					NR											09504019	0.00000	2.50000	SEC 20 8 12
AE	AG-40					NR											09504026	0.00000	70.41000	SEC 20 8 12
PA-20	RL-40					NR											09504030	0.00000	320.00000	SEC 21 8 12
RA-80	RL-40					NR											09504030	0.00000	320.00000	SEC 21 8 12
PA-20	RL-80					NR											09504033	0.00000	120.00000	SEC 21 8 12
RA-80	RL-40					NR											09504033	0.00000	120.00000	SEC 21 8 12
RE-5	RL-10					AL	A										09504034	0.00000	20.03000	PM 29/97/A
RE-10	RL-20					AL	A										09504035	0.00000	20.02000	PM 29/97/B
RE-10	RL-20					AL	A										09504036	0.00000	53.22000	PM 29/97/C
RA-40	PA-40					AL	A										09504039	0.00000	75.00000	SEC 20 8 12
RA-40	PA-40					AL	A										09504044	0.00000	76.48000	POR TR1RS 16/119
RA-40	PA-40					AL	A										09504045	0.00000	80.00000	POR TR1 RS16-119

RA-40	PA-40					AL	A										09504047	0.00000	35.13000	RS 24/60
RA-40	PA-40					AL	A										09504048	0.00000	71.02000	RS 32/28/1
RA-40	TPZ					AL	A										09504053	0.00000	210.23000	SEC 18&19 8 12
RA-40	PA-40					AL	A										09504054	0.00000	40.00000	SEC 19 8 12
RA-40	PA-40					AL	A										09504055	0.00000	97.94000	SEC 19&20 8 12
RA-40	PA-40					AL	A										09504056	0.00000	160.00000	SEC 20 8 12
RA-40	PA-40					AL	A										09504057	0.00000	137.20000	SEC 20 8 12
RA-80	RL-40					NR											09504059	0.00000	320.00000	SEC 16 8 12
RA-40	FR-40					NR											09505002	0.00000	40.00000	SEC 15 8 12
PA-20	PA-40					NR											09505037	0.00000	40.00000	SEC 22 8 12
PA-20	RL-40					NR											09505039	0.00000	600.00000	SEC 15&22 8 12
RA-80	RL-160					NR											09505039	0.00000	600.00000	SEC 15&22 8 12
OS	TPZ					NR											09505057	0.00000	120.00000	S13 8 12&18 8 12
AE	AG-40					NR											09506001	0.00000	77.00000	SEC 29 8 12
PA-20	PA-40					NR											09507002	0.00000	23.47000	SEC 27 8 12
PA-20	RL-160					NR											09507006	0.00000	320.00000	SEC 25 & 26 8 12
RA-80	RL-160					NR											09507006	0.00000	320.00000	SEC 25 & 26 8 12
RA-80	RL-160					NR											09507009	0.00000	80.00000	SEC 25 8 12
RA-40	RL-40					NR											09507011	0.00000	26.50000	RS 23-40
RA-40	RL-40					NR											09507023	0.00000	41.70000	RS 23-40
RA-40	RL-40					NR											09507024	0.00000	40.00000	SEC 36 8 12
PA-20	PA-40					NR											09507026	0.00000	56.53000	SEC 27 8 12
RE-5	LA-10					RR	A										09508001	0.00000	10.10000	SEC 28 9 12
RE-5	RL-10					RR	A										09508002	0.00000	5.29000	SEC 27 & 28 9 12
RE-5	RL-10					RR	A										09508003	0.00000	4.50000	SEC 28 9 12
RE-5	RL-10					RR	A										09508004	0.00000	4.61000	SEC 28 9 12
RE-5	RL-10					RR	A										09508005	0.00000	4.44000	SEC 28 9 12
RE-5	RL-10					RR	A										09508006	0.00000	5.00000	SEC 27 & 28 9 12
RE-5	RL-10					RR	A										09508007	0.00000	4.96000	SEC 27 9 12
RE-5	RL-10					RR	A										09508012	0.00000	5.01000	PM 2/93/4
RE-5	RL-10					RR	A										09508013	0.00000	5.81000	PM 2/93/3
RE-5	RL-10					RR	A										09508014	0.00000	5.38000	PM 2/93/2
RE-5	RL-10					RR	A										09508015	0.00000	5.90000	PM 2/93/1
RE-10	LA-10					RR	A										09508019	0.00000	14.26000	SEC 27 9 12
RE-10	LA-10					RR	A										09508023	0.00000	10.39000	SEC 27 9 12
RE-10	LA-10					RR	A										09508024	0.00000	12.52000	SEC 27 9 12
RE-5	RL-10					RR	A										09508025	0.00000	5.40000	SEC 27 9 12
RE-5	RL-10					RR	A										09508026	0.00000	5.03000	SEC 27 9 12
RE-5	RL-10					RR	A										09508027	0.00000	6.21000	SEC 27 & 28 9 12
RE-10	RL-10					RR	A										09508030	0.00000	7.89000	SEC 27 9 12
RE-5	RL-10					RR	A										09508031	0.00000	5.63000	PM 5/145/1
RE-5	RL-10					RR	A										09508032	0.00000	5.39000	PM 5/145/2
RE-5	RL-10					RR	A										09508033	0.00000	5.11500	PM 5/145/3
AE	PA-20					AL	A										09508036	0.00000	40.00000	SEC 27 9 12
RE-5	RL-10					RR	A										09508048	0.00000	4.95000	SEC 27 9 12
RE-10	RL-10					RR	A										09508049	0.00000	5.22000	SEC 27 9 12

RE-10	RL-10					RR	A										09508050	0.00000	5.00000	SEC 27 9 12
PA	PA-20					AL	A										09508055	0.00000	21.36000	SEC 27&28 9 12
AP	LA-20					RR	A										09508056	0.00000	20.81800	SEC 27 9 12
RE-5	RL-10					RR	A										09509001	0.00000	4.85000	SEC 27 9 12
RE-5	RL-10					RR	A										09509002	0.00000	5.01000	SEC 27 9 12
RE-5	RL-10					RR	A										09509003	0.00000	5.01000	SEC 27 9 12
RE-5	LA-10					RR	A										09509006	0.00000	11.54000	SEC 27 9 12
RE-5	RL-10					RR	A										09509007	0.00000	5.32000	SEC 27 & 34 9 12
RE-5	RL-10					RR	A										09509008	0.00000	5.80000	SEC 27 & 34 9 12
RE-5	RL-10					RR	A										09509009	0.00000	6.61000	SEC 34 9 12
RE-5	RL-10					RR	A										09509010	0.00000	4.37000	SEC 27 & 34 9 12
RE-5	RL-10					RR	A										09509011	0.00000	5.07000	SEC 27 & 34 9 12
RE-5	RL-10					RR	A										09509012	0.00000	4.77000	SEC 27 & 34 9 12
RE-5	RL-10					RR	A										09509013	0.00000	13.00000	SEC 27 & 34 9 12
RE-5	RL-10					RR	A										09509014	0.00000	10.16000	SEC 34 9 12
RE-5	RL-10					RR	A										09509015	0.00000	5.56000	SEC 34 9 12
RE-5	RL-10					RR	A										09509017	0.00000	5.69000	SEC 34 9 12
RE-5	RL-10					RR	A										09509020	0.00000	4.94000	RS 17/116 S34912
RE-5	RL-10					RR	A										09509023	0.00000	6.22000	SEC 34 9 12
RE-5	RL-10					RR	A										09509024	0.00000	7.18000	SEC 34 9 12
RE-5	RL-10					RR	A										09509025	0.00000	5.68000	SEC 34 9 12
RE-5	RL-10					AL	A										09509028	0.00000	20.15000	SEC 34 9 12
RE-5	RL-10					AL	A										09509029	0.00000	21.93000	SEC 34 9 12
TPZ	RL-10					AL	A										09509029	0.00000	21.93000	SEC 34 9 12
RE-5	RL-10					RR	A										09509030	0.00000	5.40000	SEC 34 9 12
RE-5	RL-10					RR	A										09509031	0.00000	7.09000	SEC 34 9 12
RE-5	RL-10					RR	A										09509032	0.00000	6.67000	SEC 34 9 12
RE-5	RL-10					RR	A										09509033	0.00000	4.61000	SEC 34 9 12
RE-5	RL-10					RR	A										09509034	0.00000	4.82000	SEC 34 9 12
RE-5	RL-10					RR	A										09509035	0.00000	5.80000	SEC 34 9 12
RE-5	RL-10					RR	A										09509036	0.00000	7.89000	SEC 34 9 12
RE-5	RL-10					RR	A										09509037	0.00000	6.08000	SEC 34 9 12
RE-5	RL-10					RR	A										09509038	0.00000	6.31000	SEC 34 9 12
RE-5	RL-10					RR	A										09509039	0.00000	9.14000	SEC 34 9 12
RE-5	RL-10					RR	A										09509040	0.00000	2.50000	SEC 34 9 12
RE-5	RL-10					RR	A										09509041	0.00000	5.50000	SEC 34 9 12
RE-5	RL-10					RR	A										09509042	0.00000	7.34000	SEC 34 9 12
RE-5	RL-10					RR	A										09509043	0.00000	3.11000	RS 21/88/1
RE-5	RL-10					RR	A										09509044	0.00000	2.51000	RS 21/88/2
RE-5	RL-10					RR	A										09509045	0.00000	3.17000	RS 21/88/3
RE-5	RL-10					RR	A										09509046	0.00000	7.13000	PM 6/32/A
RE-5	RL-10					RR	A										09509047	0.00000	5.93000	PM 6/32/B
RE-5	RL-10					RR	A										09509048	0.00000	5.97700	PM 6/32/C
RE-5	RL-10					RR	A										09509049	0.00000	5.96800	PM 6/32/D
RE-5	RL-10					RR	A										09509050	0.00000	3.15000	PM 6/104/1
RE-5	RL-10					RR	A										09509051	0.00000	1.42000	PM 6/104/2

RE-5	RL-10					RR	A										09509052	0.00000	1.51000	PM 6/104/3
RE-5	RL-10					RR	A										09509053	0.00000	6.00000	SEC 34 9 12
RE-5	RL-10					RR	A										09509054	0.00000	4.74000	SEC 34 9 12
RE-5	RL-10					RR	A										09509055	0.00000	3.62000	SEC 34 9 12
RE-5	RL-10					RR	A										09509057	0.00000	6.61000	SEC 34 9 12
RE-5	RL-10					RR	A										09509058	0.00000	2.58000	PM 15/11/1
RE-5	RL-10					RR	A										09509059	0.00000	2.58000	PM 15/11/2
RE-5	RL-10					RR	A										09509060	0.00000	2.57000	PM 15/11/3
RE-5	RL-10					RR	A										09509061	0.00000	10.02000	SEC 27 9 12
RE-5	RL-10					RR	A										09512002	0.00000	1.11000	PAR 1 10-64 AMDS
RE-5	RL-10					RR	A										09512003	0.00000	2.10000	PAR 4 10-64 AMDS
RE-5	RL-10					RR	A										09512004	0.00000	1.11000	PAR 2 10-64 AMDS
RE-5	RL-10					RR	A										09512005	0.00000	1.11000	PAR 3 10-64 AMDS
RE-5	RL-10					RR	A										09512006	0.00000	4.44000	SEC 4 8 12
RE-5	RL-10					RR	A										09512007	0.00000	2.68000	R/S 22-117
RE-5	RL-10					RR	A										09512008	0.00000	2.54000	SEC 4 8 12
RE-5	RL-10					RR	A										09512011	0.00000	2.20000	SEC 4 8 12
RE-5	RL-10					AL	A										09512019	0.00000	10.50000	SEC 4 8 12
RE-10	RL-20					AL	A										09512021	0.00000	14.14000	PM 36/24/1
RE-10	RL-20					AL	A										09512022	0.00000	39.96000	PM 36/24/2
RA-20	LA-20					AL	A										09512023	0.00000	39.59000	LOT 1 SEC 4 8 12
RA-20	LA-20					AL	A										09512024	0.00000	42.62000	SEC 4 8 12
RE-10	RL-10					RR	A										09513005	0.00000	4.97000	SEC 5 8 12
RE-10	RL-10					RR	A										09513006	0.00000	4.91000	SEC 5 8 12
RE-10	RL-10					RR	A										09513007	0.00000	4.09800	SEC 5 8 12
RE-10	RL-10					RR	A										09513008	0.00000	4.17000	SEC 5 8 12
RE-10	RL-20					AL	A										09513011	0.00000	2.21000	RS 23/95/1
RE-10	RL-10					RR	A										09513012	0.00000	6.44000	SEC 5 8 12
RE-10	RL-10					RR	A										09513018	0.00000	1.03000	SEC 5 8 12
RE-10	RL-10					RR	A										09513019	0.00000	1.18000	SEC 5 8 12
SA-10	PA-20					AL	A										09513066	0.00000	35.35000	SEC 5 8 12
RE-10	RL-20					AL	A										09513067	0.00000	5.93000	RS 15/121/1
RE-10	RL-20					AL	A										09514003	0.00000	6.50000	SEC 6 8 12
RE-10	RL-10					RR	A										09514009	0.00000	5.35000	SEC 6 8 12
RE-10	RL-20					AL	A										09514010	0.00000	33.10000	SEC 6 8 12
RE-10	RL-10					RR	A										09514011	0.00000	7.11000	PM 15/150/A
RE-10	RL-10					RR	A										09514012	0.00000	5.28300	PM 15/150/B
RE-10	RL-10					RR	A										09514013	0.00000	5.04000	PM 15/150/C
RE-10	RL-10					RR	A										09514014	0.00000	12.33700	RS 24/63/1
RE-10	RL-10					RR	A										09514015	0.00000	11.75400	RS 24/63/2
RE-10	RL-20					AL	A										09515001	0.00000	0.34000	SEC 6 8 12
RE-10	RL-10					RR	A										09515002	0.00000	10.39000	SEC 6 8 12
RE-10	RL-20					AL	A										09515003	0.00000	22.80000	SEC 6 8 12
RE-10	RL-20					AL	A										09515004	0.00000	24.22000	SEC 6 8 12
RE-10	RL-20					AL	A										09515005	0.00000	5.11000	SEC 6 8 12
RE-10	RL-20					AL	A										09515006	0.00000	5.28000	SEC 6 8 12

RE-10	RL-20					AL	A										09515007	0.00000	5.20000	SEC 6 8 12
RE-10	RL-10					RR	A										09516001	0.00000	20.01000	PM 3/35/E
RE-10	RL-10					RR	A										09516002	0.00000	3.63000	SEC 7 8 12
RE-10	RL-10					RR	A										09516010	0.00000	10.00000	PM 9/2/1
RE-10	RL-10					RR	A										09516011	0.00000	10.00000	PM 9/2/2
RE-10	RL-10					RR	A										09516013	0.00000	4.53000	SEC 6 & 7 8 12
RE-10	LA-10					RR	A										09516015	0.00000	13.17000	SEC 6 & 7 8 12
RE-10	RL-10					RR	A										09516021	0.00000	10.00000	PM 25/5/1
RE-10	RL-10					RR	A										09516022	0.00000	10.00500	PM 25/5/2
RE-10	RL-10					RR	A										09516023	0.00000	20.10000	PM 36/32/A
RE-10	RL-10					RR	A										09517001	0.00000	10.27000	SEC 6 8 12
RE-10	LA-10					RR	A										09517002	0.00000	10.26000	SEC 6 8 12
RE-10	RL-10					RR	A										09517003	0.00000	10.26000	SEC 6 8 12
RE-10	RL-10					RR	A										09517004	0.00000	10.26000	SEC 6 8 12
RE-10	RL-10					RR	A										09517005	0.00000	10.31000	SEC 6 8 12
RE-10	RL-10					RR	A										09517006	0.00000	10.31000	SEC 6 8 12
RE-10	LA-10					RR	A										09517007	0.00000	10.49000	SEC 6 8 12
RE-10	LA-10					RR	A										09517008	0.00000	10.78000	SEC 6 8 12
RA-20	LA-20					AL	A										09518001	0.00000	5.00000	PM 1/138/1
RA-20	LA-20					AL	A										09518002	0.00000	8.17000	PM 1/138/2
RA-20	LA-20					AL	A										09518003	0.00000	5.49000	PM 1/138/3
RA-20	LA-20					AL	A										09518004	0.00000	10.47000	PM 1/138/4
RA-20	LA-20					AL	A										09518007	0.00000	40.00000	SEC 7 8 12
RA-20	LA-20					AL	A										09518008	0.00000	77.39000	SEC 7 8 12
RE-10	RL-20					AL	A										09518008	0.00000	77.39000	SEC 7 8 12
RA-20	LA-20					AL	A										09518009	0.00000	34.00000	SEC 7 8 12
RA-20	LA-20					AL	A										09518014	0.00000	20.00000	RS 12/148/1
RA-20	LA-20					AL	A										09518015	0.00000	20.00000	RS 12/148/2
RA-20	LA-40					NR											09519001	0.00000	20.00000	SEC 16 8 12
RA-20	RL-40					NR											09519003	0.00000	33.00000	SEC 16 8 12
RA-20	RE-5					LDR					PL						09519005	0.00000	2.00000	SEC 16 8 12
RA-20	RE-5					LDR					PL						09519007	0.00000	2.39500	RS 21/132/3
RA-20	RE-5					LDR					PL						09519008	0.00000	2.39500	RS 21/132/4
RA-20	RE-5					LDR					PL						09519009	0.00000	2.39500	RS 21/132/5
RA-20	RE-5					LDR					PL						09519010	0.00000	5.00000	SEC 16 8 12
RA-20	RE-5					LDR					PL						09519011	0.00000	4.78000	RS 20/98/1
RA-20	RL-40					NR											09519012	0.00000	40.00000	SEC 16 8 12
RA-20	RE-10					LDR					PL						09519013	0.00000	10.00000	SEC 16 8 12
RA-20	RE-5					LDR					PL						09519014	0.00000	5.00000	SEC 16 8 12
RA-20	RE-5					LDR					PL						09519015	0.00000	5.00000	SEC 16 8 12
RA-20	RL-40					NR											09519018	0.00000	24.13000	PM 33/130/1
RA-20	LA-40					NR											09519019	0.00000	32.17000	PM 33/130/2
RA-20	RL-40					NR											09519020	0.00000	25.15000	PM 33/130/3
RA-20	RL-40					NR											09519021	0.00000	25.55000	PM 33/130/4
RA-20	RL-40					NR											09519023	0.00000	9.65000	PM 45/27/1
RA-20	RL-40					NR											09519024	0.00000	9.65000	PM 45/27/2

RA-20	RE-5					LDR					PL						09519029	0.00000	5.00000	RS 21/132/1
RA-20	RE-5					LDR					PL						09519030	0.00000	2.50000	RS 21/132/2
RA-20	RL-40					NR											09520006	0.00000	5.00000	SEC 19 8 12
RA-20	RL-40					NR											09520007	0.00000	0.50000	SEC 19 8 12
RA-20	RL-40					NR											09520008	0.00000	2.19000	SEC 20 8 12
RA-20	RL-40					NR											09520010	0.00000	6.00000	PM 6/110/2
RA-20	RL-40					NR											09520012	0.00000	5.09000	PM 29/13/A
RA-20	RL-40					NR											09520013	0.00000	5.19000	PM 29/13/B
RA-20	RL-40					NR											09520014	0.00000	5.36000	PM 29/13/C
RA-20	RL-40					NR											09520015	0.00000	5.02000	PM 29/13/D
RA-20	RL-40					NR											09520016	0.00000	5.04000	PM 31/64/1
RA-20	RL-40					NR											09520017	0.00000	7.88000	PM 31/64/2
RA-20	LA-40					NR											09520018	0.00000	2.00000	SEC 19 8 12 ADM
RA-20	RL-40					NR											09520024	0.00000	9.98600	RS 19/79/1
RA-20	LA-40					NR											09520025	0.00000	10.00000	RS 19/79/2
RA-40	RL-10					RR					PL						09521002	0.00000	3.10000	SEC 36 8 12
RA-40	RL-10					RR					PL						09521003	0.00000	3.10000	SEC 36 8 12
RA-40	RL-10					RR					PL						09521004	0.00000	5.00000	SEC 36 8 12
RA-40	RL-10					RR					PL						09521005	0.00000	4.00000	SEC 36 8 12
RA-40	RL-10					RR					PL						09521006	0.00000	5.00000	SEC 36 8 12
RA-40	RL-10					RR					PL						09521007	0.00000	4.68000	RS 23-40
RA-40	RL-10					RR					PL						09521008	0.00000	8.87000	RS 23-40
RA-40	RL-10					RR					PL						09521009	0.00000	2.66000	SEC 36 8 12
RA-40	RL-10					RR					PL						09521010	0.00000	2.99000	SEC 36 8 12
RA-20	LA-20					AL	A										09522003	0.00000	40.00000	SEC 12 8 11
RA-20	LA-20					AL	A										09522006	0.00000	30.18000	RS 16/40/1
RE-10	RL-20					AL	A										09522009	0.00000	41.07700	RS 16/40/2
RA-20	LA-20					AL	A										09522011	0.00000	40.04200	RS 17/33/2
RE-10	RL-20					AL	A										09522011	0.00000	40.04200	RS 17/33/2
RE-10	RL-20					AL	A										09522012	0.00000	40.08000	RS 17/33/1
RA-20	LA-20					AL	A										09523005	0.00000	26.00200	PM 13/83/2
RE-10	RL-20					AL	A										09523008	0.00000	25.00000	PM 16/38/A
RA-20	LA-20					AL	A										09523009	0.00000	25.00000	PM 16/38/B
RE-10	RL-20					AL	A										09523010	0.00000	9.52000	PM 20/127/A
RE-10	RL-20					AL	A										09523011	0.00000	5.00000	PM 20/127/B
RA-20	LA-20					AL	A										09523013	0.00000	17.49000	PM 26/34/B
RA-20	LA-20					AL	A										09523014	0.00000	6.00000	PM 31/82/1
RA-20	LA-20					AL	A										09523015	0.00000	6.44000	PM 31/82/2
RA-20	LA-20					AL	A										09523016	0.00000	6.00000	PM 31/82/3
RA-20	LA-40					NR											09524007	0.00000	33.39000	PM 5/48/C
RE-10	LA-10					RR	A										09524008	0.00000	10.00000	PM 6/147/1
RE-10	RL-10					RR	A										09524009	0.00000	10.00000	PM 6/147/2
RA-20	LA-40					NR											09524012	0.00000	13.18000	PM 6/95/1
RA-20	RL-40					NR											09524016	0.00000	5.07800	PM 6/142/A
RA-20	RL-40					NR											09524017	0.00000	5.07000	PM 6/142/B
RA-20	LA-40					NR											09524018	0.00000	5.12000	PM 6/142/C

RA-20	LA-40					NR											09524019	0.00000	5.06300	PM 6/142/D
RE-10	RL-10					RR	A										09524020	0.00000	5.00000	PM 7/60/A
RE-10	RL-10					RR	A										09524021	0.00000	5.04000	PM 7/60/B
RE-10	RL-40					NR											09524022	0.00000	5.00000	PM 7/60/C
RE-10	RL-40					NR											09524023	0.00000	5.00000	PM 7/60/D
RE-10	RL-10					RR	A										09524024	0.00000	10.00000	PM 8/136/1
RE-10	RL-10					RR	A										09524025	0.00000	5.05000	PM 8/136/2
RE-10	RL-10					RR	A										09524026	0.00000	5.42000	PM 8/136/3
RE-10	RL-10					RR	A										09524027	0.00000	10.00000	PM 8/136/4
RE-10	RL-10					RR	A										09524028	0.00000	20.00000	PAR 3&4 PM 6-147
RA-20	LA-40					NR											09524029	0.00000	13.38000	PM 21/13/A
RE-10	RL-10					RR	A										09524030	0.00000	6.74000	PM 21/13/B
RE-10	RL-20					AL	A										09525001	0.00000	28.64000	PM 14/91/A
RA-40	PA-40					AL	A										09525005	0.00000	40.98000	RS 26/71
RE-10	RL-10					RR	A										09525008	0.00000	10.01000	PM 8/81/1
RE-10	LA-10					RR	A										09525009	0.00000	10.00000	PM 8/81/2
RE-10	RL-10					RR	A										09525012	0.00000	7.72000	PM 10/30/A
RE-10	RL-10					RR	A										09525013	0.00000	10.31000	PM 10/30/B
RE-10	RL-10					RR	A										09525014	0.00000	4.77800	PM 10/30/C
RE-10	RL-10					RR	A										09525015	0.00000	2.53000	PM 10/30/D
RE-10	RL-10					RR	A										09525016	0.00000	5.00000	PM 11/3/A
RE-10	RL-10					RR	A										09525017	0.00000	5.00000	PM 11/3/B
RE-10	RL-10					RR	A										09525018	0.00000	1.62000	PM 11/3/C
RE-10	LA-10					RR	A										09525025	0.00000	10.09000	PM 14/92/B
RE-10	RL-10					RR	A										09525026	0.00000	10.09000	PM 14/92/C
RE-10	RL-10					RR	A										09525027	0.00000	10.11600	PM 14/92/D
RE-5	RL-10					RR	A										09525031	0.00000	5.00000	PM 26/116/1
RE-5	RL-10					RR	A										09525032	0.00000	5.00100	PM 26/116/2
RE-10	RL-10					RR	A										09525033	0.00000	10.00000	PM 26/116/3
RE-10	RL-10					RR	A										09525034	0.00000	10.00000	PM 26/116/4
RE-10	RL-10					RR	A										09525035	0.00000	10.00000	PM 26/117/1
RE-10	RL-10					RR	A										09525036	0.00000	10.00000	PM 26/117/2
RE-10	RL-10					RR	A										09525037	0.00000	10.50000	PM 26/117/3
RE-10	RL-10					RR	A										09525038	0.00000	12.50000	PM 26/117/4
RE-10	RL-10					RR	A										09525039	0.00000	5.00000	PM 30/55/A
RE-10	RL-10					RR	A										09525040	0.00000	18.20000	PM 30/55/B
RE-10	RL-10					RR	A										09525041	0.00000	5.00000	PM 30/55/C
RE-10	RL-10					RR	A										09525042	0.00000	5.04900	PM 31/44/1
RE-10	RL-10					RR	A										09525043	0.00000	5.01200	PM 31/44/2
RA-40	PA-40					AL	A										09525044	0.00000	23.17000	PM 32/90/1
RA-40	RL-40					NR											09525045	0.00000	17.36000	PM 32/90/2
RA-40	RL-40					NR											09525046	0.00000	25.11000	PM 32/90/3
RA-40	RL-40					NR											09525047	0.00000	54.36000	REM P/M 32-90
RE-5	RL-10					RR	A										09526003	0.00000	21.92000	SEC 27&34 9 12
RE-5	RL-10					RR	A										09526008	0.00000	5.06000	PM 8/4/A
RE-5	RL-10					RR	A										09526010	0.00000	6.40000	PM 8/4/C

RE-5	RL-10					RR	A										09526011	0.00000	9.69000	PM 8/4/D
RE-5	RL-10					RR	A										09526013	0.00000	5.20700	PM 9/8/B
RE-5	RL-10					RR	A										09526014	0.00000	5.44000	PM 9/8/C
RE-5	RL-10					RR	A										09526015	0.00000	7.38000	PM 9/8/D
RE-5	RL-10					RR	A										09526016	0.00000	5.21000	PM 9/81/A
RE-5	RL-10					RR	A										09526020	0.00000	3.87000	PM 11/6/1
RE-5	RL-10					RR	A										09526021	0.00000	4.73000	PM 11/6/2
RE-5	RL-10					RR	A										09526022	0.00000	10.40000	PM 11/6/3
RE-5	RL-10					RR	A										09526023	0.00000	6.39000	PM 11/6/4
RE-5	RL-10					RR	A										09526027	0.00000	6.18000	PM 8/4/B
RE-5	RL-10					RR	A										09526035	0.00000	5.12000	PM 23/78/2
RE-5	RL-10					RR	A										09526037	0.00000	5.03000	PM 23/78/4
RE-5	RL-10					RR	A										09526038	0.00000	21.00000	POR PAR B 21-49
RE-5	RL-10					RR	A										09526039	0.00000	8.11000	POR PAR B 21-49
RE-5	RL-10					RR	A										09526040	0.00000	10.25000	POR PAR B 21-49
RE-5	RL-10					RR	A										09526044	0.00000	5.01800	POR PAR C 21-49
RE-5	RL-10					RR	A										09526046	0.00000	5.00000	POR PAR D 21-49
RE-5	RL-10					RR	A										09526048	0.00000	5.06000	PM 30/74/1
RE-5	RL-10					RR	A										09526049	0.00000	31.00000	PM 30/74/2
RE-5	RL-10					RR	A										09526051	0.00000	5.00000	SEC 27 9 12
RE-5	RL-10					RR	A										09526052	0.00000	5.00000	SEC 27 9 12
RE-5	RL-10					RR	A										09526053	0.00000	5.97000	RS 18/61/2
RE-5	RL-10					RR	A										09526055	0.00000	7.25900	RS 18/61/1
RE-5	RL-10					RR	A										09526056	0.00000	5.00400	PORPAR 1 PM23-78
RE-5	RL-10					RR	A										09526058	0.00000	5.17100	P 3&POR1PM23/78
RE-5	RL-10					RR	A										09526059	0.00000	5.12300	PM 44/133/1
RE-5	RL-10					RR	A										09526060	0.00000	6.02600	PM 44/133/2
RE-5	RL-10					RR	A										09526061	0.00000	5.15200	PM 44/133/3
RE-5	RL-10					RR	A										09526062	0.00000	5.13500	PM 44/133/4
RE-5	RL-10					RR	A										09526064	0.00000	5.00000	PM 45/95/1
AE	PA-20					RR	A										09526065	0.00000	23.08600	PM 45/95/2
RE-10	RL-20					AL	A										09527002	0.00000	22.72000	SEC 4 8 12
RE-10	RL-10					RR	A										09527006	0.00000	5.00000	PM 26/55/2
RE-10	RL-20					AL	A										09527008	0.00000	37.89000	PM 27/74/A
RE-10	RL-10					RR	A										09527009	0.00000	5.00000	PM 30/4/A
RE-10	RL-10					RR	A										09527010	0.00000	5.00000	PM 30/4/B
RE-10	RL-10					RR	A										09527011	0.00000	5.25000	PM 30/4/C
RE-10	RL-20					AL	A										09527012	0.00000	9.08000	PM 23/54/3
RE-10	RL-20					AL	A										09527013	0.00000	24.73000	PM 23/54/1
RE-10	RL-20					AL	A										09527014	0.00000	7.62000	PM 23/54/2
RE-10	RL-10					RR	A										09527017	0.00000	10.57000	RS 18/37/1
RE-10	RL-10					RR					PL						09528001	0.00000	3.92000	PM 7/108/1
RE-10	RL-10					RR					PL						09528002	0.00000	5.36000	PM 7/108/2
RE-10	RL-10					RR					PL						09528003	0.00000	17.62000	PM 7/108/3
RE-10	RL-10					RR					PL						09528004	0.00000	12.59000	PM 7/108/4
RE-10	RL-10					RR					PL						09528005	0.00000	7.28000	PM 7/107/1

RE-10	RL-10					RR					PL						09528006	0.00000	11.13000	PM 7/107/2
RE-10	RL-10					RR					PL						09528007	0.00000	12.30000	PM 7/107/3
RE-10	RL-10					RR					PL						09528008	0.00000	8.84000	PM 7/107/4
RE-10	RL-10					RR					PL						09528010	0.00000	10.00000	PM 15/5/A
RE-10	RL-10					RR					PL						09528011	0.00000	10.00000	PM 15/5/B
RE-10	RL-10					RR					PL						09528012	0.00000	10.00000	PM 15/5/C
RE-10	RL-10					RR					PL						09528013	0.00000	10.00000	PM 15/5/D
RA-20	RL-10					RR					PL						09528014	0.00000	9.71300	PM 28/61/1
RA-20	RL-10					RR					PL						09528016	0.00000	5.00000	PM 28/61/3
RA-20	RL-10					RR					PL						09528017	0.00000	5.00000	PM 28/61/4
RA-20	RL-10					RR					PL						09528018	0.00000	5.00000	RS 20/12/2
RA-20	RL-10					RR					PL						09528019	0.00000	5.00000	RS 20/12/1
RE-10	RL-10					RR	A										09529003	0.00000	10.84000	PM 26/125/C
RE-10	RL-10					RR	A										09529005	0.00000	7.12000	PM 31/98/1
RE-10	RL-10					RR	A										09529006	0.00000	5.00000	PM 31/98/2
RE-10	RL-10					RR	A										09529007	0.00000	5.00000	PM 31/99/1
RE-10	RL-10					RR	A										09529008	0.00000	5.01000	PM 31/99/2
RA-40	PA-10					RR	A										09529009	0.00000	15.00000	PM 31/110/1
RA-40	PA-10					RR	A										09529010	0.00000	5.91000	PM 31/110/2
RA-40	PA-10					RR	A										09529011	0.00000	5.00000	PM 31/110/3
RA-40	PA-10					RR	A										09529012	0.00000	5.00000	PM 31/110/4
RE-10	LA-10					RR	A										09529013	0.00000	10.25000	PM 22/89/A
RE-10	RL-10					RR	A										09529014	0.00000	10.14000	PM 22/89/B
RE-10	RL-10					RR	A										09529015	0.00000	10.77000	PM 22/89/D
RE-10	LA-10					RR	A										09529016	0.00000	10.25000	PM 22/89/C
RE-10	LA-10					RR	A										09529017	0.00000	10.67000	PM 22/90/A
RE-10	RL-10					RR	A										09529018	0.00000	10.67000	PM 22/90/B
RE-10	RL-10					RR	A										09529019	0.00000	10.00000	PM 22/90/C
RE-10	RL-10					RR	A										09529020	0.00000	10.01000	PM 22/90/D
RE-10	RL-10					RR	A										09529022	0.00000	10.00000	PM 22/91/B
RE-10	RL-10					RR	A										09529023	0.00000	10.50000	PM 22/91/D
RE-10	RL-10					RR	A										09529024	0.00000	11.12000	PM 22/91/C
RE-10	RL-10					RR	A										09529025	0.00000	10.00000	PM 22/91/A
AA	I					I						PVIL					09601002	11.00000	87.02000	SEC 15&16 10 11
AA	I					I						PVIL					09601010	11.00000	44.05000	SEC 10 10 11
PVILLE	I					I						PVIL					09601010	11.00000	44.05000	SEC 10 10 11
PVILLE	I					I						PVIL					09601011	11.00000	85.76000	SEC 15&16 10 11
PVILLE	I					I						PVIL					09601011	11.00000	85.76000	SEC 15&16 10 11
PVILLE	I					I						PVIL					09601011	11.00000	85.76000	SEC 15&16 10 11
PVILLE	I					I						PVIL					09601011	11.00000	85.76000	SEC 15&16 10 11
R2A	RL-10					RR			IBC								09602041	0.00000	12.14000	SEC 15 10 11
RE-10	RL-10					RR										TH	09602042	0.00000	47.86000	SEC 15 10 11
RE-10	RL-10					RR											09602046	0.00000	15.79000	SEC 15 10 11
RE-10	RL-10					RR			IBC								09602054	0.00000	10.00000	PM 15/142/1
RE-10	RL-10					RR			IBC								09602055	0.00000	10.00100	PM 15/142/2
RE-10	RL-10					RR											09602056	0.00000	10.01100	PM 15/142/3

RE-10	RL-10					RR											09602057	0.00000	10.00000	PM 15/142/4
RE-10	RL-10					RR			IBC								09602060	0.00000	10.00000	PM 24/117/1
RE-10	RL-10					RR			IBC								09602061	0.00000	14.69000	PM 24/117/2
RE-10	RL-10					RR											09602063	0.00000	20.00000	PM 24/117/4
RE-10	RL-10					RR											09602064	0.00000	10.00000	PM 27/127/A
RE-10	RL-10					RR											09602065	0.00000	10.00000	PM 27/127/B
RE-10	RL-10					RR			IBC								09602092	0.00000	21.01000	SEC 15 10 11
RE-10	RE-5					LDR			IBC								09602097	0.00000	2.87000	RS 29/120/1
R3A	RE-5					LDR			IBC								09604004	0.00000	2.99000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604006	0.00000	2.49000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604007	0.00000	1.00000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604008	0.00000	13.20000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604012	0.00000	2.20000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604014	0.00000	2.69000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604016	0.00000	5.77500	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604017	0.00000	7.50000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604018	0.00000	1.12000	S 11 & 14 10 11
R3A	RE-5					LDR			IBC								09604020	0.00000	2.35000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604021	0.00000	2.81000	SEC 14 10 11
RE-10	RL-10					RR			IBC								09604031	0.00000	12.80000	SEC 14 10 11
RE-10	RL-10					RR			IBC								09604032	0.00000	15.90000	PM 5/84/1
R1A	RE-5					LDR			IBC								09604034	0.00000	2.10900	PM 31/140/1
R1A	RE-5					LDR			IBC								09604035	0.00000	1.43500	PM 31/140/2
R3A	RE-5					LDR			IBC								09604036	0.00000	1.29000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604037	0.00000	1.13000	SEC 14 10 11
R3A	RE-5					LDR			IBC								09604047	0.00000	2.52000	PM 41/107/1
R3A	RE-5					LDR			IBC								09604048	0.00000	3.01000	PM 41/107/2
R3A	RE-5					LDR			IBC								09604049	0.00000	4.77500	RS 19/4/1
R3A	RE-5					LDR			IBC								09604054	0.00000	34.93000	SEC 14 10 11
RE-10	RE-5					LDR			IBC								09604054	0.00000	34.93000	SEC 14 10 11
RE-10	RE-5					LDR			IBC								09604054	0.00000	34.93000	SEC 14 10 11
RE-10	RL-10					RR			IBC								09605007	0.00000	10.00000	PM 17/47/1
RE-10	RL-10					RR											09605009	0.00000	10.00000	PM 17/47/3
RE-10	RL-10					RR											09605010	0.00000	10.00700	PM 17/47/4
RE-10	RL-10					RR											09605013	0.00000	21.95000	SEC 14 10 11
RE-10	RL-10					RR											09605021	0.00000	10.00000	RS 32/97/A
RE-10	RL-10					RR											09605022	0.00000	40.39000	RS 32/97/B
RE-10	RL-10					RR			IBC								09606002	0.00000	8.15000	SEC 13 10 11
RE-10	RL-10					RR			IBC								09606003	0.00000	5.55000	SEC 13 10 11
RE-10	RL-10					RR											09606005	0.00000	40.00000	SEC 13 10 11
RE-10	RL-10					RR			IBC								09606008	0.00000	12.05000	SEC 13 10 11
RE-10	RL-10					RR			IBC								09606010	0.00000	11.75000	PM 28/35/1
RE-10	RL-10					RR			IBC								09606012	0.00000	10.01000	PM 28/35/3
RE-10	RL-10					RR			IBC								09606018	0.00000	10.01000	PM 30/78/A
RE-10	RL-10					RR			IBC								09606022	0.00000	10.00000	PM 31/65/C
RE-10	RL-10					RR			IBC								09606023	0.00000	12.84200	SEC 13 10 11

RE-10	RL-10					RR			IBC								09606024	0.00000	6.11000	SEC 13 10 11
RE-10	RL-10					RR											09606025	0.00000	54.91000	SEC 13 10 11
R3A	RE-5					LDR			IBC								09606028	0.00000	5.00000	PM 41/2/2
R3A	RE-5					LDR			IBC								09606029	0.00000	5.00000	PM 41/2/3
R3A	RE-5					LDR			IBC								09606038	0.00000	5.00000	RS 19/11/1
R3A	RE-5					LDR			IBC								09606039	0.00000	5.00000	PPM 41/22/1&2
R3A	RE-5					LDR			IBC								09606045	0.00000	5.00000	RS 22/135/1
R3A	RE-5					LDR			IBC								09606046	0.00000	5.00000	RS 22/135/2
RE-10	RL-10					RR											09606049	0.00000	67.72800	SEC 13 10 11
RE-10	RL-10					RR			IBC								09606050	0.00000	9.36400	SEC 13 10 11
RE-10	RL-10					RR											09607003	0.00000	5.00000	SEC 13 10 11
RE-10	RL-10					RR											09607004	0.00000	5.01000	RS 12/105/1
RE-10	RL-10					RR											09607005	0.00000	4.00000	SEC 13 10 11
RE-10	RL-10					RR											09607006	0.00000	1.00000	SEC 13 10 11
RE-10	RL-10					RR											09607011	0.00000	6.87000	SEC 13 10 11
RE-10	RL-10					RR											09607013	0.00000	11.90000	PM 15/88/A
RE-10	RL-10					RR											09607014	0.00000	11.25000	PM 15/88/B
RE-10	RL-10					RR											09607015	0.00000	10.60000	PM 15/88/C
RE-10	RL-10					RR											09607016	0.00000	10.02000	PM 15/88/D
RE-10	RL-10					RR											09607024	0.00000	1.04000	RS 12/87 S131011
RE-10	RL-10					RR											09607025	0.00000	1.77000	RS 12/87 S131011
RE-10	RL-10					RR											09607026	0.00000	2.44000	SEC 13 10 11
RE-10	RL-10					RR											09607027	0.00000	10.01000	PM 36/31/A
RE-10	RL-10					RR											09607031	0.00000	9.57000	RS 22/87
RE-10	RL-10					RR											09607033	0.00000	9.41000	RS 22/87
RE-10	RL-10					RR											09607036	0.00000	42.51200	SEC 13 10 11
RE-10	RF-L					OS										TH	09608001	0.00000	10.00000	PRS 18/60/1 ADM
RE-10	RL-10					RR											09608002	0.00000	5.00000	SEC 15&22 10 11
RE-10	RL-10					RR											09608004	0.00000	81.53000	SEC 22 10 11
RE-10	RF-L					OS										TH	09608007	0.00000	31.33000	PRS 18/60/1 ADM
RE-5	RF-L					OS										TH	09608007	0.00000	31.33000	PRS 18/60/1 ADM
RE-10	RL-10					RR											09608009	0.00000	203.68000	POR R/S 18-16
RE-10	RL-10					RR											09609004	0.00000	36.37000	PM 3/130/B
RE-10	RL-10					RR											09609005	0.00000	80.00000	SEC 22 10 11
RE-10	RL-10					RR											09609008	0.00000	12.08000	POR A PM 3-130
RE-5	OS					OS										TH	09609009	11.00000	6.55000	POR PAR A 3/130
RE-10	RL-10					RR											09609010	0.00000	5.45000	POR D P/M 3-130
RE-5	OS					OS										TH	09609011	11.00000	8.96000	POR PAR D 3/130
RE-10	RL-10					RR											09609012	0.00000	5.03000	PM 14/82/1
RE-10	RL-10					RR											09609013	0.00000	5.03300	PM 14/82/2
RE-10	RL-10					RR											09609014	0.00000	10.06000	PM 14/82/3
RE-10	RL-10					RR											09609015	0.00000	10.06800	PM 14/82/4
RE-10	RL-10					RR											09609018	0.00000	5.07000	S 22&27 10 11
RE-10	RL-10					RR											09609020	0.00000	5.47000	RS 11/85/1
RE-10	RL-10					RR											09609022	0.00000	10.00000	PM 32/95/B
RE-10	RL-10					RR											09609024	0.00000	10.00000	PM 36/93/1

RE-10	RL-10					RR											09609025	0.00000	10.00000	PM 36/93/2
RE-10	RL-10					RR											09609027	0.00000	39.41000	PORPAR C PM32-95
RE-10	RL-10					RR											09610002	0.00000	10.00000	SEC 23 10 11
RE-10	RL-10					RR											09610008	0.00000	20.00000	SEC 23 10 11
RE-10	RL-10					RR											09610009	0.00000	10.00000	SEC 23 10 11
RE-10	RL-10					RR											09610010	0.00000	4.98000	RS 14/35 S231011
RE-10	RL-10					RR											09610011	0.00000	5.00000	SEC 23 10 11
RE-10	RL-10					RR											09610012	0.00000	10.00000	SEC 23 10 11
RE-10	RL-10					RR											09610014	0.00000	10.00000	PM 8/63/1
RE-10	RL-10					RR											09610015	0.00000	10.00000	PM 8/63/2
RE-10	RL-10					RR											09610016	0.00000	10.00000	PM 8/63/3
RE-10	RL-10					RR											09610017	0.00000	29.65000	PM 8/63/4
RE-10	RL-10					RR											09610025	0.00000	12.00000	PM 12/53/A
RE-10	RL-10					RR											09610026	0.00000	7.59000	PM 12/53/B
RE-10	RL-10					RR											09610027	0.00000	9.90000	PM 12/53/C
RE-10	RL-10					RR											09610028	0.00000	10.00000	PM 12/53/D
RE-10	RL-10					RR											09610029	0.00000	1.72600	PM 14/90/1
RE-10	RL-10					RR											09610030	0.00000	13.61000	PM 14/90/2
RE-10	RL-10					RR											09610031	0.00000	2.51000	PM 14/90/3
RE-10	RL-10					RR											09610032	0.00000	2.00000	PM 14/90/4
RE-10	RL-10					RR											09610035	0.00000	40.00000	SEC 23 10 11
RE-10	RL-10					RR											09610036	0.00000	40.00000	SEC 23 10 11
RE-10	RL-10					RR											09610037	0.00000	37.29000	RS 29/13/1 ADM
RE-10	RL-10					RR											09610038	0.00000	2.00000	SEC 14 10 11 ADM
RE-10	RL-10					RR											09610039	0.00000	19.75000	RS 9/134 S231011
AE	AG-40					RR											09611001	0.00000	158.65000	SEC 23 10 11
RE-10	RL-10					RR											09611005	0.00000	5.23000	PM 22/74/A
RE-10	RL-10					RR											09611007	0.00000	5.04000	PM 22/74/C
RE-10	RL-10					RR											09611010	0.00000	6.23000	PM 22/75/B
RE-10	RL-10					RR											09611011	0.00000	5.00000	PM 22/75/C
RE-10	RL-10					RR											09611013	0.00000	5.06000	POR PAR A 22-75
RE-10	RL-10					RR											09611017	0.00000	10.00000	PM 26/72/2
RE-10	RL-10					RR											09611018	0.00000	10.00000	PM 26/72/3
RE-10	RL-10					RR											09611019	0.00000	10.00000	PM 26/72/4
RE-10	RL-10					RR											09611020	0.00000	5.09000	POR PAR B 22-74
RE-10	RL-10					RR											09611023	0.00000	25.68000	PM 27/96/1
RE-10	RL-10					RR											09611024	0.00000	11.00000	PM 27/96/2
RE-10	RL-10					RR											09611025	0.00000	12.50000	PM 27/96/3
RE-10	RL-10					RR											09611026	0.00000	10.82000	PM 27/96/4
RE-10	RL-10					RR											09611027	0.00000	10.00000	RS 10/62/3
RE-10	RL-10					RR											09611028	0.00000	10.01000	RS 10/62/2
RE-10	RL-10					RR											09611029	0.00000	10.00000	RS 10/62/1
RE-10	RL-10					RR											09612072	0.00000	10.16000	PM 50/97/1
RE-10	RL-10					RR											09612073	0.00000	10.25000	PM 50/97/2
RE-10	RL-10					RR											09613060	0.00000	5.06000	PM 20/109/3
RE-10	RL-10					RR											09613061	0.00000	5.06000	PM 34/7/C

RE-10	RL-10					RR											09613062	0.00000	10.22700	PM 21/23/1
RE-10	RL-10					RR											09613063	0.00000	10.11000	PM 21/23/2
RE-10	RL-10					RR											09613065	0.00000	5.00000	PM 34/7/A
RE-10	RL-10					RR											09613066	0.00000	5.12000	PM 34/7/B
RE-10	RL-10					RR			IBC								09614004	0.00000	2.11000	SEC 13 10 11
RE-10	RL-10					RR											09614008	0.00000	10.06000	RS 22/87
RE-10	RL-10					RR											09614009	0.00000	13.53000	RS 22/87
RE-10	RL-10					RR											09615103	0.00000	6.78600	L 3
RE-10	RL-10					RR											09615105	0.00000	6.11300	PM 29/96/A
RE-10	RL-10					RR											09615106	0.00000	4.87000	PM 29/96/B
RE-10	RL-10					RR											09615204	0.00000	5.00000	PM 47/57/1
RE-10	RL-10					RR											09615205	0.00000	30.42000	PM 47/57/2
RE-10	RL-10					RR											09615301	0.00000	1.36000	SEC 13 10 11
RE-10	RL-10					RR											09615302	0.00000	3.53000	13 10 11RS12-135
RE-10	RL-10					RR											09616101	0.00000	22.16000	POR L 4
RE-10	RL-10					RR											09616102	0.00000	0.00000	POR L 4
RE-10	RL-10					RR			IBC								09618005	0.00000	3.41000	L 5
RE-10	RL-10					RR			IBC								09618006	0.00000	3.89000	L 6
RE-10	RL-10					RR			IBC								09618007	0.00000	3.09000	L 7
RE-10	RL-10					RR			IBC								09618008	0.00000	3.01000	L 8
RE-10	RL-10					RR			IBC								09618009	0.00000	5.07000	L 9
RE-10	RL-10					RR			IBC								09618010	0.00000	5.12000	L 10
RE-10	RL-10					RR			IBC								09618011	0.00000	7.16000	L 11
RE-10	RL-10					RR			IBC								09618014	0.00000	5.07000	L 14
RE-10	RL-10					RR			IBC								09618019	0.00000	12.07000	POR LOT 13
RE-10	RL-10					RR			IBC								09618021	0.00000	8.68000	L 12 & POR L 13
CP	CM					C						EDDS					09701006	0.00000	0.69000	SEC 30 10 11
CP	CM					C						EDDS					09701008	0.00000	0.20000	SEC 30 10 11
CP	CM					C						EDDS					09701009	0.00000	0.20000	SEC 30 10 11
CP	CM					C						EDDS					09701010	0.00000	1.09000	SEC 30 10 11
CP	CM					C						EDDS					09701012	0.00000	0.47600	RS 31/17/1
R1A	CM					C						EDDS					09701013	0.00000	0.67000	SEC 30 10 11
CP	R1A					MDR						EDDS					09701014	0.00000	0.87000	SEC 30 10 11
CP	CM					C						EDDS					09701021	0.00000	0.44300	30 10 11RS13-135
CP	CM					C						EDDS					09701026	0.00000	0.34000	SEC 30 10 11
CP	CM					C						EDDS					09701027	0.00000	0.34000	SEC 30 10 11
CP	CM					C						EDDS					09701028	0.00000	0.67500	SEC 30 10 11
CG	CM					C						EDDS					09701040	0.00000	0.38000	SEC 30 10 11
CG	CM					C						EDDS					09701041	0.00000	0.48000	SEC 30 10 11
CPO	CM		DC			C						EDDS					09701064	0.00000	0.24000	PM 14/28/3
CPO	CM		DC			C						EDDS					09701065	0.00000	0.23000	PM 14/28/4
RE-5	R1A					MDR						EDDS					09701066	0.00000	1.00000	SEC 30 10 11
CP	CM					C						EDDS					09701067	0.00000	0.44500	POR PAR C 9-138
CP	CM					C						EDDS					09701078	0.00000	0.48000	POR PAR B 9-138
CPO	CM		DC			C						EDDS					09701079	0.00000	0.46000	PM 14/28/1
CPO	CM		DC			C						EDDS					09701080	0.00000	0.36800	PM 14/28/2

CP	CM					C						EDDS					09701082	0.00000	0.26400	PM 42/47/1
CP	CM					C						EDDS					09701087	0.00000	0.57000	POR 30 10 11
CP	CM					C						EDDS					09701092	0.00000	1.29100	RS 28/108/1
CP	CM					C						EDDS					09701093	0.00000	0.64300	RS 28/108/2
C	CM		DC			C						EDDS					09702003	0.00000	0.40000	PM 1/129/1
C	CM		DC			C						EDDS					09702004	0.00000	0.29000	PM 1/129/2
C	CM		DC			C						EDDS					09702005	0.00000	0.46000	PM 1/129/3
C	CM		DC			C						EDDS					09702006	0.00000	1.51000	PM 1/129/4
RE-5	R2A					MDR						EDDS					09702012	0.00000	2.09000	PM 2/127/A
RE-5	R2A					MDR						EDDS					09702013	0.00000	2.10000	PM 2/127/B
C	CM		DC			C						EDDS					09702015	0.00000	1.00000	SEC 30 10 11
C	CM		DC			C						EDDS					09702025	0.00000	2.07000	PM 18/50/3
RE-5	R3A					MDR						EDDS					09702026	0.00000	4.19000	PM 19/2/1
RE-5	R1A					MDR						EDDS					09702027	0.00000	1.77000	PM 19/2/2
C	CM		DC			C						EDDS					09702033	0.00000	1.00000	SEC 30 10 11
C	CM		DC			C						EDDS					09702034	0.00000	0.00000	SEC 30 10 11
R2	RM		DC			MFR						EDDS					09702042	0.00000	5.18000	PM 34/14/A
C	CM		DC			C						EDDS					09702046	0.00000	3.96800	PM 36/51/A
C	CM		DC			C						EDDS					09702047	0.00000	0.70000	PM 36/51/B
C	CM		DC			C						EDDS					09702048	0.00000	1.00000	PM 36/51/C
C	CM		DC			C						EDDS					09702050	0.00000	1.13000	PM 39/117/1
C	CM		DC			C						EDDS					09702051	0.00000	1.90000	PM 39/117/2
C	CM		DC			C						EDDS					09702052	0.00000	0.35000	PM 39/117/3
C	CM		DC			C						EDDS					09702053	0.00000	1.53000	PM 39/117/4
C	R1A		DC			MDR						EDDS					09702062	0.00000	4.48000	RS 28/27/1
C	R2A		DC			MDR						EDDS					09702063	0.00000	4.48000	RS 28/27/2
RE-5	R3A					MDR						EDDS					09703025	0.00000	3.89000	SEC 30 10 11
RE-5	R2A					MDR						EDDS					09703026	0.00000	2.56000	SEC 30 10 11
RE-5	R2A					MDR						EDDS					09703029	0.00000	2.75000	RS 17/106/1
RE-5	R2A					MDR						EDDS					09703030	0.00000	2.01000	PM 27/23/1
RE-5	R2A					MDR						EDDS					09703031	0.00000	2.06000	PM 27/23/2
RE-5	R2A					MDR						EDDS					09703034	0.00000	1.87000	SEC 30 10 11
RE-5	CG					C						EDDS					09703038	0.00000	5.05800	SEC 30 10 11
RE-5	R1A					MDR						EDDS					09703054	0.00000	1.46000	SEC 30 10 11
RE-5	R1A					MDR						EDDS					09703055	0.00000	2.83000	L 22 S30 10 11
RE-5	R1A					MDR						EDDS					09703067	0.00000	0.94000	SEC 29&30 10 11
RE-5	R2A					MDR						EDDS					09703068	0.00000	0.00000	SEC 30 10 11
RE-10	RL-10					RR						EDDS					09704005	2.00000	1.23000	SEC 31 10 11
R1	R1A					MDR						EDDS					09705003	0.00000	0.46000	PM 3/84/A
R1	R1A					MDR						EDDS					09705004	0.00000	0.63000	PM 3/84/B
R1	R1A					MDR						EDDS					09705005	0.00000	0.81000	PM 3/84/C
R1	R1A					MDR						EDDS					09705007	0.00000	3.38000	PM 3/84/D
R1	RM					MFR						EDDS					09705009	0.00000	0.52000	SEC 30 10 11
R1	R1A					MDR						EDDS					09705010	0.00000	0.67000	SEC 30 10 11
R1	R1A					MDR						EDDS					09705011	0.00000	0.83000	SEC 30 10 11
R1	R1A					MDR						EDDS					09705012	0.00000	0.86700	SEC 30 10 11

R1	R1A					MDR					EDDS					09705014	0.00000	2.09000	SEC 30 10 11
R1	R1A					MDR					EDDS					09705015	0.00000	1.70000	SEC 30 10 11
R1	R1A					MDR					EDDS					09705018	0.00000	1.00000	PM 27/29/B
R1	R1A					MDR					EDDS					09705020	0.00000	1.26000	PM 33/60/1
R1	R1A					MDR					EDDS					09705021	0.00000	3.71200	PM 33/60/2
R1	R1A					MDR					EDDS					09705027	0.00000	0.70800	L 1
R1	RM					MFR					EDDS					09705028	11.00000	0.10700	RDWAY
R1	R1A					MDR					EDDS					09705031	0.00000	2.06200	RS 20/138/1
R1	R1A					MDR					EDDS					09705032	0.00000	0.82000	POR L 4 B 12
R1	R1A					MDR					EDDS					09705034	0.00000	0.70100	PM 48/73/B
R1	R1A					MDR					EDDS					09705035	0.00000	0.73200	PM 48/73/A
R20K	R1A					MDR					EDDS					09706102	0.00000	0.98000	PM 2/161/A
R20K	R1A					MDR					EDDS					09706103	0.00000	1.09000	PM 2/161/B
R20K	R1A					MDR					EDDS					09706104	0.00000	1.11000	PM 2/161/C
R20K	R1A					MDR					EDDS					09706107	0.00000	1.00000	PM 2/116/3
R20K	R1A					MDR					EDDS					09706108	0.00000	0.50000	PM 2/160/A
R20K	R1A					MDR					EDDS					09706110	0.00000	1.08000	PM 2/116/1
R20K	R1A					MDR					EDDS					09706111	0.00000	1.00000	PM 1/134/B
R20K	R1A					MDR					EDDS					09706112	0.00000	1.00000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706114	0.00000	0.74200	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706116	0.00000	0.69000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706118	0.00000	0.76900	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706119	0.00000	0.58000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706120	0.00000	1.79000	PM 7/113/A
R20K	R1A					MDR					EDDS					09706122	0.00000	1.00000	PM 7/113/C
R20K	R1A					MDR					EDDS					09706124	0.00000	1.73000	PM 11/5/A
R20K	R1A					MDR					EDDS					09706125	0.00000	1.00000	PM 11/5/B
R20K	R1A					MDR					EDDS					09706126	0.00000	1.00000	PM 11/5/C
R20K	R1A					MDR					EDDS					09706127	0.00000	0.57000	PM 20/79/1
R20K	R1A					MDR					EDDS					09706128	0.00000	0.45900	PM 20/79/2
R20K	R1A					MDR					EDDS					09706129	0.00000	0.50000	PM 20/79/3
R20K	R1A					MDR					EDDS					09706131	0.00000	1.01000	PM 23/109/1
R20K	R1A					MDR					EDDS					09706133	0.00000	0.46000	PM 25/3/1
R20K	R1A					MDR					EDDS					09706134	0.00000	0.53000	PM 25/3/2
R20K	R1A					MDR					EDDS					09706135	0.00000	0.51000	PM 25/3/3
R20K	R1A					MDR					EDDS					09706136	0.00000	0.46000	PM 39/2/A
R20K	R1A					MDR					EDDS					09706137	0.00000	0.53000	PM 39/2/B
R20K	R1A					MDR					EDDS					09706138	0.00000	0.53200	PM 39/2/C
R20K	R1A					MDR					EDDS					09706139	0.00000	1.08000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706140	0.00000	3.89000	SEC 25 10 11
R20K	R1A					MDR					EDDS					09706201	0.00000	0.46000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706202	0.00000	0.49000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706203	0.00000	0.62000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706204	0.00000	0.80000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706208	0.00000	1.32000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706209	0.00000	0.93000	SEC 30 10 11

R20K	R1A					MDR					EDDS					09706210	0.00000	0.89000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706211	0.00000	1.00000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706212	0.00000	0.53000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706214	0.00000	1.00000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706216	0.00000	0.97000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706217	0.00000	0.58000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706218	0.00000	0.60000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706219	0.00000	0.46000	PM 20/123/1
R20K	R1A					MDR					EDDS					09706222	0.00000	0.57000	PM 20/123/3
R20K	R1A					MDR					EDDS					09706223	0.00000	0.72000	PM 20/123/4
R20K	R1A					MDR					EDDS					09706224	0.00000	0.65900	PM 20/123/2
R20K	R1A					MDR					EDDS					09706226	0.00000	0.55000	PM 38/35/1
R20K	R1A					MDR					EDDS					09706227	0.00000	0.96000	PM 38/35/2
R20K	R1A					MDR					EDDS					09706228	0.00000	0.61000	PM 41/72/1
R20K	R1A					MDR					EDDS					09706229	0.00000	0.45900	PM 41/72/2
R20K	R1A					MDR					EDDS					09706230	0.00000	0.45900	PM 41/72/3
R20K	R1A					MDR					EDDS					09706234	0.00000	0.87800	PM 48/37/A
R20K	R1A					MDR					EDDS					09706235	0.00000	0.46000	PM 48/37/B
R20K	R1A					MDR					EDDS					09706301	0.00000	0.69000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706304	0.00000	0.62000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706305	0.00000	0.65000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706307	0.00000	1.00000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706308	0.00000	0.50000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706309	0.00000	0.70000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706310	0.00000	0.71000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706311	0.00000	0.86000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706312	0.00000	0.86000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706313	0.00000	0.91600	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706314	0.00000	1.45000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706315	0.00000	0.83900	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706316	0.00000	0.44000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706325	0.00000	0.26000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706326	0.00000	1.00000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706327	0.00000	1.05200	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706328	0.00000	1.06000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706329	0.00000	1.42000	SEC 30 10 11
R20K	R1A					MDR					EDDS					09706337	0.00000	0.46000	PM 26/105/A
R20K	R1A					MDR					EDDS					09706338	0.00000	0.48000	PM 26/105/B
R20K	R1A					MDR					EDDS					09706339	0.00000	0.64000	PM 26/105/C
R20K	R1A					MDR					EDDS					09706340	0.00000	0.67000	PM 36/16/1
R20K	R1A					MDR					EDDS					09706341	0.00000	0.69100	PM 36/16/2
R20K	R1A					MDR					EDDS					09706342	0.00000	1.29000	PM 37/3/1
R20K	R1A					MDR					EDDS					09706343	0.00000	0.59000	PM 37/3/2
R20K	R1A					MDR					EDDS					09706344	0.00000	0.66000	PM 37/60/A
R20K	R1A					MDR					EDDS					09706345	0.00000	0.94000	PM 37/60/B
R20K	R1A					MDR					EDDS					09706346	0.00000	0.80000	PM 37/60/C

R20K	R1A					MDR						EDDS					09706401	0.00000	0.62000	SEC 30 10 11
R20K	R1A					MDR						EDDS					09706402	0.00000	0.77000	SEC 30 10 11
R20K	R1A					MDR						EDDS					09706404	0.00000	0.62000	SEC 30 10 11
R20K	R1A					MDR						EDDS					09706405	0.00000	1.11500	SEC 30 10 11
R20K	R1A					MDR						EDDS					09706406	0.00000	1.00000	SEC 30 10 11
R20K	R1A					MDR						EDDS					09706412	0.00000	0.32600	SEC 30 10 11
R20K	R1A					MDR						EDDS					09706413	0.00000	0.20000	POR PM 20/16/A
R20K	R1A					MDR						EDDS					09706414	0.00000	0.05000	SEC 30 10 11
R20K	R1A					MDR						EDDS					09706422	0.00000	1.08000	SEC 30 10 11
R20K	R1A					MDR						EDDS					09707001	0.00000	5.25000	S 30 & 31 10 11
R20K	R1A					MDR						EDDS					09707002	0.00000	1.17000	SEC 30 10 11
R20K	R1A					MDR						EDDS					09707003	0.00000	0.69000	S 30 & 31 10 11
R20K	R1A					MDR						EDDS					09707007	0.00000	0.63000	SEC 30 10 11
R20K	R1A					MDR						EDDS					09707008	0.00000	0.44000	S 30 & 31 10 11
R20K	R1A					MDR						EDDS					09707009	0.00000	0.58000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707010	0.00000	0.45000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707011	0.00000	1.00000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707013	0.00000	1.05000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707014	0.00000	0.60000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707015	0.00000	0.68800	SEC 31 10 11
R20K	R2A					MDR						EDDS					09707016	0.00000	2.86000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707017	0.00000	1.81000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707018	0.00000	0.94000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707019	0.00000	0.45000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707020	0.00000	0.40000	SEC 31 10 11
R20K	R1A					MDR						EDDS					09707024	0.00000	1.33000	SEC 31 10 11
RE-5	R3A					MDR						EDDS					09707029	0.00000	4.47900	S 30 & 31 10 11
RE-5	R2A					MDR						EDDS					09707038	0.00000	2.29000	SEC 30 10 11
RE-5	R2A					MDR						EDDS					09707039	0.00000	2.63000	S 30 & 31 10 11
R20K	R1A					MDR						EDDS					09707052	0.00000	0.48000	SEC 30&31 10 11
R20K	R1A					MDR						EDDS					09707054	0.00000	1.47000	PM 11/82/1
R20K	R1A					MDR						EDDS					09707055	0.00000	1.00000	PM 11/82/2
R20K	R1A					MDR						EDDS					09707064	0.00000	1.01200	PM 36/28/A
R20K	R1A					MDR						EDDS					09707065	0.00000	0.61000	PM 36/28/B
R20K	R1A					MDR						EDDS					09707066	0.00000	0.50000	RS 20/31/2
R20K	R1A					MDR						EDDS					09707068	0.00000	0.40000	RS 20/31/1
RE-10	RL-10					RR											09709002	0.00000	16.15000	SEC 31 10 11
RE-10	RL-10					RR											09709003	0.00000	23.46000	SEC 31 10 11
RE-10	RL-10					RR											09709004	0.00000	24.90000	SEC 31 10 11
RE-10	RL-10					RR											09709005	0.00000	29.29000	POR TR1 RS 26/75
RE-10	RL-10					RR											09709006	0.00000	7.70000	SEC 31 10 11
RE-10	RL-10					RR											09709007	0.00000	22.25000	SEC 31 10 11
RE-10	RL-10					RR											09709008	0.00000	22.04900	POR TR1 RS 26/75
RE-10	RL-10					RR											09709011	0.00000	16.27000	SEC 31 10 11
RE-10	RL-10					RR											09709012	0.00000	0.00000	POR SEC 31 10 11
RE-10	OS					OS				MR							09709013	11.00000	0.00000	SEC 31 10 11

RE-10	RL-10					RR											09710008	0.00000	16.00000	SEC 31 10 11
RE-10	OS					OS											09710017	11.00000	0.00000	POR SEC 31 10 11
RE-10	RL-10					RR											09711002	0.00000	18.87000	TR 1 REF PM50/98
RE-10	RL-10					RR											09711003	0.00000	4.48000	SEC 31 10 11
RE-10	RL-10					RR											09711004	0.00000	20.36000	SEC 31 10 11
RE-10	RE-5					LDR											09711012	0.00000	7.29000	SEC 31 10 11
RE-10	RE-5					LDR											09711013	0.00000	11.33000	SEC 31 10 11
RE-10	RL-10					RR											09711024	0.00000	7.29000	RS 8/59 S311011
RE-10	RL-10					RR											09711025	0.00000	6.73000	RS 8/59 S311011
RE-10	RL-10					RR											09711026	0.00000	6.75000	RS 8/59 S311011
RE-10	RL-10					RR											09711027	0.00000	7.29000	RS 8/59 S311011
RE-5	R2A					MDR						EDDS					09713002	0.00000	2.36000	PM 14/103/1
RE-5	R1A					MDR						EDDS					09713003	0.00000	0.77000	PM 14/103/2
RE-5	R1A					MDR						EDDS					09713004	0.00000	1.01000	PM 14/103/3
RE-10	RE-5					MDR						EDDS					09715038	0.00000	1.15000	POR L 48 ADM
R20K	R1A					MDR						EDDS					09716001	0.00000	1.21000	PM 6/126/1
R20K	R1A					MDR						EDDS					09716002	0.00000	1.25000	PM 6/126/2
R20K	R1A					MDR						EDDS					09716004	0.00000	1.13000	PM 6/126/4
R20K	R1A					MDR						EDDS					09716009	0.00000	0.93000	PM 40/126/1
R20K	R1A					MDR						EDDS					09716010	0.00000	0.62000	PM 40/126/2
RE-10	R2A					MDR						EDDS					09718003	0.00000	7.27300	PPM 48/46/2 ADM
R2A	RL-10					RR											09718004	0.00000	10.28300	PPM 48/46/2 ADM
R2A	RL-10					RR											09718004	0.00000	10.28300	PPM 48/46/2 ADM
RE-10	RL-10					RR											09718004	0.00000	10.28300	PPM 48/46/2 ADM
R2A	RL-10					RR											09718005	0.00000	10.00100	PM 48/46/3
RE-10	RL-10					RR											09718005	0.00000	10.00100	PM 48/46/3
RE-10	RL-10					RR											09718005	0.00000	10.00100	PM 48/46/3
RE-10	RL-10					RR											09718006	0.00000	10.02200	PM 48/46/4
RE-10	RL-10					RR											09718007	0.00000	10.00900	PM 48/46/5
RE-10	RL-10					RR											09718008	0.00000	24.32600	PM 48/46/6
RE-10	RL-10					RR											09718009	0.00000	50.57900	PPM 50/98/7 ADM
RE-10	RE-5					MDR						EDDS					09718015	0.00000	70.12600	PPM 50/98/7 ADM
RE-10	R2A					MDR						EDDS					09718023	0.00000	5.00400	PM 49/115/2
RE-10	R2A					MDR						EDDS					09718024	0.00000	5.00100	PM 49/115/3
RE-5	OS					LDR											09801004	11.00000	36.37000	S20 & 29RS17-61
RE-5	OS					OS										TH	09801005	11.00000	19.40000	RS 17/61 S291011
RE-5	OS					OS										TH	09801007	11.00000	79.00000	SEC 29 10 11
RE-5	RF-L					OS										TH	09801009	0.00000	1.00000	SEC 29 10 11
RE-5	RF-L					OS										TH	09801012	0.00000	9.28000	PM 30/6/2
RE-5	OS					OS										TH	09801015	11.00000	6.44000	POR PAR 1 30-6
RE-5	OS					OS										TH	09801016	11.00000	6.00000	PORPAR 1 P/M30-6
RE-5	OS					OS										TH	09801017	11.00000	6.00000	PORPAR 1 P/M30-6
RE-5	OS					OS										TH	09801019	11.00000	5.23000	POR LOT 5RS17-61
RE-5	RF-L					OS										TH	09801024	0.00000	5.01000	PM 46/88/1
RE-5	OS					OS										TH	09801026	11.00000	21.00000	SEC 29 10 11
RE-5	RF-L					OS										TH	09802108	0.00000	10.01000	SEC 28 10 11

RE-5	OS					OS										TH	09802133	11.00000	7.00000	SEC 28 10 11
RE-5	OS					OS										TH	09802135	11.00000	5.54000	SEC 28 10 11
RE-5	OS					OS										TH	09802136	11.00000	0.25000	SEC 28 10 11
RE-5	OS					OS										TH	09802137	11.00000	0.48000	SEC 28 10 11
RE-10	I					I											09802160	0.00000	48.47000	RS 5/43+
RE-5	R1A					MDR						EDDS					09803003	0.00000	1.56000	SEC 29 10 11
RE-5	R2A					MDR						EDDS					09803005	0.00000	2.89000	RS 17/124/1
RE-5	R1A					MDR						EDDS					09803010	0.00000	1.56000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803012	0.00000	0.47000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803014	0.00000	1.01000	SEC 29 10 11
RE-5	RF-L					OS										TH	09803017	0.00000	1.15000	PM 2/164/A
RE-5	RF-L					OS										TH	09803018	0.00000	1.50000	PM 2/164/B
RE-5	OS					OS										TH	09803019	11.00000	0.79000	SEC 29 10 11
RE-5	RF-L					OS										TH	09803021	0.00000	3.97000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803022	0.00000	1.30000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803023	0.00000	0.54000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803026	0.00000	0.60900	RS 26/116/1
RE-5	R1A					MDR						EDDS					09803027	0.00000	0.65000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803028	0.00000	0.66000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803029	0.00000	0.65000	SEC 29 10 11
RE-5	OS					OS										TH	09803030	11.00000	3.53000	SEC 29 10 11
RE-5	RF-L					OS										TH	09803031	0.00000	0.85000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803032	0.00000	0.92000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803033	0.00000	1.54000	SEC 29 10 11
RE-5	R3A					MDR						EDDS					09803035	0.00000	3.47000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803040	0.00000	0.53000	PM 12/50/1
RE-5	R1A					MDR						EDDS					09803041	0.00000	0.53000	PM 12/50/2
RE-5	R1A					MDR						EDDS					09803044	0.00000	0.96000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803047	0.00000	0.93000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803049	0.00000	1.01000	PM 22/30/A
RE-5	R1A					MDR						EDDS					09803050	0.00000	0.83800	PM 22/30/B
RE-5	R1A					MDR						EDDS					09803051	0.00000	1.38000	PM 22/30/C
RE-5	R1A					MDR						EDDS					09803052	0.00000	0.84000	PM 22/30/D
RE-5	R1A					MDR						EDDS					09803054	0.00000	0.18000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803056	0.00000	1.83000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803058	0.00000	0.41000	SEC 29 10 11
RE-5	R3A					MDR						EDDS					09803062	0.00000	3.99000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803064	0.00000	1.43000	SEC 29 10 11
RE-5	R2A					MDR						EDDS					09803066	0.00000	2.41000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09803068	0.00000	0.16000	SEC 29 10 11
RE-5	R3A					MDR						EDDS					09803070	0.00000	3.08000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09804004	0.00000	1.50000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09804005	0.00000	1.50000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09804010	0.00000	0.61000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09804011	0.00000	1.52000	SEC 29 10 11
RE-5	R1A					MDR						EDDS					09804012	0.00000	1.06000	SEC 29 10 11

RE-5	R1A					MDR					EDDS					09804013	0.00000	1.43000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09804014	0.00000	0.98000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09804015	0.00000	1.76000	SEC 29 10 11
RE-5	R3A					MDR					EDDS					09804016	0.00000	3.56000	RS 27/10/2
RE-5	R1A					MDR					EDDS					09804017	0.00000	1.62000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09804021	0.00000	1.04000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09804022	0.00000	0.81000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09804027	0.00000	1.40000	SEC 29 10 11
RE-5	R3A					MDR					EDDS					09804029	0.00000	3.24000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09804031	0.00000	1.39000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09804034	0.00000	2.00000	PM 38/110/A
RE-5	R2A					MDR					EDDS					09804035	0.00000	2.49000	PM 38/110/B
RE-5	OS					OS									TH	09805001	11.00000	2.38000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09805002	0.00000	2.03000	RS 33/35/1
MP	RM					MFR					EDDS					09805003	0.00000	9.00000	SEC 29 10 11
R2	RM		DC			MFR					EDDS					09805004	0.00000	3.50000	SEC 29 10 11
R2	RM		DC			MFR					EDDS					09805005	0.00000	3.50000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09805006	0.00000	1.57000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09805009	0.00000	0.84000	POR TR 2 RS 9-41
RE-5	R1A					MDR					EDDS					09805010	0.00000	1.46000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09805012	0.00000	2.02000	SEC 29 10 11
RE-5	R2A					MDR					EDDS					09805013	0.00000	2.25000	SEC 29 10 11
RE-5	R2A					MDR					EDDS					09805015	0.00000	2.38000	PM 13/58/3
RE-5	R1A					MDR					EDDS					09805016	0.00000	1.85000	PM 13/58/1
RE-5	R1A					MDR					EDDS					09805017	0.00000	1.84600	PM 13/58/2
RE-5	R1A					MDR					EDDS					09805018	0.00000	1.81000	RS 9/40/1S291011
RE-5	R1A					MDR					EDDS					09805019	0.00000	1.39000	POR TR 2RS 9-41
RE-5	R1A					MDR					EDDS					09806001	0.00000	0.36000	SEC 29 10 11
RE-5	R2A					MDR					EDDS					09806002	0.00000	2.50000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09806004	0.00000	0.60000	SEC 29 10 11
RE-5	R2A					MDR					EDDS					09806005	0.00000	2.58000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09806007	0.00000	1.02700	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09806011	0.00000	0.97000	PM 2/56/4
RE-5	R1A					MDR					EDDS					09806012	0.00000	1.23000	PM 2/56/3
RE-5	R2A					MDR					EDDS					09806017	0.00000	2.40000	PM 7/85/A
RE-5	R2A					MDR					EDDS					09806018	0.00000	2.40000	PM 7/85/B
RE-5	R3A					MDR					EDDS					09806019	0.00000	3.91000	PM 7/115/A
RE-5	R3A					MDR					EDDS					09806020	0.00000	4.01000	PM 7/115/B
RE-5	R1A					MDR					EDDS					09806022	0.00000	1.00000	RS 7/43/3
RE-5	R1A					MDR					EDDS					09806023	0.00000	0.99000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09806024	0.00000	0.94000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09806025	0.00000	0.76000	RS 13/92/2
RE-5	R1A					MDR					EDDS					09806030	0.00000	1.23000	PAR B RS 15-52
RE-5	R1A					MDR					EDDS					09806031	0.00000	1.30000	RS 15/52/A
RE-5	R1A					MDR					EDDS					09807001	0.00000	1.13000	PM 3/166/1
RE-5	R1A					MDR					EDDS					09807002	0.00000	0.78000	PM 3/166/2

RE-5	R1A					MDR					EDDS					09807003	0.00000	0.70000	PM 3/166/3
RE-5	R1A					MDR					EDDS					09807004	0.00000	1.73000	PM 3/123/A
RE-5	R1A					MDR					EDDS					09807006	0.00000	0.76000	SEC 29 10 11
RE-5	R3A					MDR					EDDS					09807008	0.00000	2.96000	SEC 29 10 11
RE-5	R2A					MDR					EDDS					09807009	0.00000	2.14000	RS 8/113 S291011
RE-5	R1A					MDR					EDDS					09807010	0.00000	0.88000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807011	0.00000	0.87600	RS 28/96/1
RE-5	R2A					MDR					EDDS					09807012	0.00000	2.09000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807013	0.00000	0.70000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807014	0.00000	0.79000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807015	0.00000	0.89000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807019	0.00000	1.00000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807021	0.00000	1.19000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807022	0.00000	0.36000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807023	0.00000	1.04000	S 28 & 29 10 11
RE-5	R1A					MDR					EDDS					09807024	0.00000	1.83000	S 28 & 29 10 11
RE-5	R1A					MDR					EDDS					09807025	0.00000	1.33500	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807026	0.00000	1.00000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807027	0.00000	0.83000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807028	0.00000	1.44000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807029	0.00000	0.77000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807032	0.00000	0.28000	S 28 & 29 10 11
RE-5	R1A					MDR					EDDS					09807033	0.00000	0.50000	S 28 & 29 10 11
RE-5	OS					OS					EDDS					09807035	11.00000	1.91000	SEC 28 10 11
RE-5	R1A					MDR					EDDS					09807036	0.00000	0.38000	SEC 29 10 11
RE-5	R1A					MDR					EDDS					09807037	0.00000	1.37000	B 3-123&29 10 11
RE-5	R1A					MDR					EDDS					09807038	0.00000	1.92000	PM 10/77/A
RE-5	R1A					MDR					EDDS					09807039	0.00000	1.18000	PM 10/77/B
RE-5	R1A					MDR					EDDS					09807040	0.00000	1.00000	PM 10/77/C
RE-5	R3A					MDR					EDDS					09807042	0.00000	5.11800	RS 16/25 S28&29
RE-5	R1A					MDR					EDDS					09807044	0.00000	0.48900	RS 16/25/2
RE-10	RL-10					RR										09808004	0.00000	7.16000	S 29 & 32 10 11
RE-10	RL-10					RR										09808030	0.00000	9.88000	SEC 32 10 11
RE-10	RL-10					RR										09808033	0.00000	9.20000	SEC 32 10 11
RE-5	R2A					MDR					EDDS					09808034	0.00000	2.75000	S 29 & 32 10 11
RE-10	RL-10					RR										09808035	0.00000	5.00000	PM 15/127/A
RE-10	RL-10					RR										09808036	0.00000	5.00000	PM 15/127/B
RE-10	RL-10					RR										09808037	0.00000	5.02200	PM 15/127/C
RE-10	RL-10					RR										09808039	0.00000	5.00000	PM 15/128/A
RE-10	RL-10					RR										09808040	0.00000	5.00000	PM 15/128/B
RE-10	RL-10					RR										09808041	0.00000	5.00000	PM 15/128/C
RE-10	RE-5					MDR					EDDS					09808045	0.00000	13.04000	SEC 29&32 10 11
RE-10	RL-10					RR										09808050	0.00000	5.00500	PM 23/89/D
RE-10	RL-10					RR										09808051	0.00000	5.00000	PM 23/110/1
RE-10	RL-10					RR										09808052	0.00000	5.00000	PM 23/110/2
RE-10	RL-10					RR										09808053	0.00000	5.00000	PM 23/110/3

RE-10	RL-10					RR											09808055	0.00000	10.00000	PM 23/126/2
RE-10	RL-10					RR											09808056	0.00000	5.00000	PM 23/126/3
RE-10	RL-10					RR											09808057	0.00000	5.00000	PM 23/126/4
RE-10	RL-10					RR											09808060	0.00000	10.00000	SEC 32 10 11
RE-10	RL-10					RR											09808061	0.00000	10.00000	SEC 32 10 11
RE-10	RL-10					RR											09808066	0.00000	10.01000	PM 41/59/2
RE-10	RL-10					RR											09808068	0.00000	13.63000	PM 41/67/1
RE-5	R3A					MDR						EDDS					09808073	0.00000	4.53200	PM 42/85/1
RE-10	RL-10					RR											09808075	0.00000	13.83000	RS 18/33/1
RE-10	RL-10					RR											09808077	0.00000	15.37000	RS 18/33/2
RE-10	RL-10					RR											09808079	0.00000	10.88000	RS 22/127/2
RE-10	RL-10					RR											09808080	0.00000	30.50000	RS 22/127/1
RE-10	RL-10					RR											09808082	0.00000	10.46500	RS 32/91/A
RE-10	RL-10					RR											09808083	0.00000	11.68000	RS 32/91/B
RE-5	RL-10					RR											09809026	0.00000	9.82000	SEC 32 10 11
RE-10	RL-10					RR											09809036	0.00000	4.00300	RS 15/145/1
RE-10	RL-10					RR											09809037	0.00000	4.08000	PM 13/146/B
RE-10	RL-10					RR											09809038	0.00000	4.04000	PM 13/146/C
RE-10	RL-10					RR											09809039	0.00000	4.20000	PM 13/146/D
RE-10	RL-10					RR											09809041	0.00000	11.94000	PM 19/141/1
RE-10	RL-10					RR											09809048	0.00000	13.04000	SEC 32 10 11
RE-10	RL-10					RR											09809050	0.00000	10.04000	PM 37/67/A
RE-10	RL-10					RR											09809051	0.00000	10.04000	PM 37/67/B
RE-5	R1A					MDR						EDDS					09810008	0.00000	1.36000	SEC 28 10 11
RE-5	R2A					MDR						EDDS					09810009	0.00000	2.09000	SEC 28 10 11
RE-5	R2A					MDR						EDDS					09810010	0.00000	1.56000	SEC 28 10 11
RE-5	CC					C							OH				09811006	0.00000	3.93000	SEC 33 10 11
RE-5	CC					C							OH				09811007	0.00000	1.53000	SEC 33 10 11
RE-10	RL-10					RR											09811010	0.00000	29.04000	PM 7/46/A
RE-10	RL-10					RR											09812012	0.00000	39.60000	SEC 32 10 11
R1A	CC					C							OH				09813001	0.00000	6.63000	SEC 33 10 11
RE-10	RL-10					RR											09814001	0.00000	5.00000	SEC 32 10 11
RE-10	RL-10					RR											09814002	0.00000	9.32000	SEC 32 10 11
RE-10	RL-10					RR											09814003	0.00000	10.00000	SEC 32 10 11
RE-10	RL-10					RR											09814004	0.00000	5.98000	SEC 32 10 11
RE-10	RL-10					RR											09814005	0.00000	0.00000	5 A SEC 32 10 11
RE-10	RL-10					RR											09814006	0.00000	2.99000	SEC 32 10 11
RE-10	RL-10					RR											09814007	0.00000	32.40000	S 32 & 33 10 11
RE-10	RL-10					RR											09814010	0.00000	1.29000	SEC 33 10 11
RE-10	RL-10					RR											09814011	0.00000	7.00000	SEC 32 33 10 11
RE-10	RL-10					RR											09814012	0.00000	9.42000	SEC 32 10 11
RE-10	RL-10					RR											09814013	0.00000	10.00000	RS 19/110/2
CP	CL					C							OH				09816026	0.00000	0.59000	SEC 33 10 11
R1A	CC					MDR							OH				09816068	0.00000	0.57900	SEC 33 10 11
RE-5	OS					OS											09817001	11.00000	8.04000	SEC 33&34 10 11
RE-10	RL-10					RR											09817030	0.00000	5.41000	RS 29/20/1

RE-10	RE-5					LDR											09817042	0.00000	10.00000	PM 22/124/D
RE-10	RE-5					LDR											09817044	0.00000	5.00000	PM 27/62/2
RE-10	RL-10					RR											09817057	0.00000	12.27000	RS 15/11/2
RE-10	RL-10					RR											09818012	0.00000	2.98900	SEC 33 10 11
RE-10	RL-10					RR											09818013	0.00000	2.51000	PM 4/49/A
RE-10	RL-10					RR											09818016	0.00000	0.66400	SEC 33 10 11
RE-10	RL-10					RR											09818021	0.00000	0.32000	SEC 4 9 11
RE-10	RL-10					RR											09818022	0.00000	0.77000	SEC 4 9 11
RE-10	RL-10					RR											09818023	0.00000	1.84000	SEC 4 9 11
RE-10	RL-10					RR											09818026	0.00000	8.00000	4 9 11&33 10 11
RE-10	RL-10					RR											09818028	0.00000	4.70000	SEC 33 10 11
RE-10	RL-10					RR											09818029	0.00000	5.78000	SEC 33 10 11
RE-10	RL-10					RR											09818031	0.00000	7.24000	S 4 & 33 10 11
RE-10	RL-10					RR											09818034	0.00000	4.13000	PM 11/49/A
RE-10	RL-10					RR											09818035	0.00000	4.00000	PM 11/49/B
RE-10	RL-10					RR											09818036	0.00000	5.01000	PM 11/49/C
RE-10	RL-10					RR											09818037	0.00000	5.02000	PM 11/49/D
RE-10	RL-10					RR											09818039	0.00000	2.00000	SEC 33 10 11
RE-10	RL-10					RR											09818043	0.00000	2.10000	SEC 33 10 11
RE-10	RL-10					RR											09818047	0.00000	5.37000	PM 23/52/1
RE-10	RL-10					RR											09818054	0.00000	5.32000	SEC 33 10 11
RE-10	RL-10					RR											09818056	0.00000	14.30800	PM 29/24/1
RE-10	RL-10					RR											09818057	0.00000	10.27000	PM 29/24/2
RE-10	RL-10					RR											09818058	0.00000	60.29100	SEC 33 10 11
RE-10	RL-10					RR											09818060	0.00000	5.13000	RS 16/105/1
RE-10	RL-10					RR											09818062	0.00000	2.70000	S33 10 11&4 9 11
RE-10	RL-10					RR											09818067	0.00000	1.01500	PM 41/47/1
RE-10	RL-10					RR											09818068	0.00000	1.06000	PM 41/47/2
RE-10	RL-20					AL	A										09901004	0.00000	90.00000	SEC 35 10 11
RE-5	RL-10					RR	A										09901005	0.00000	6.00000	SEC 35 10 11
RE-10	RL-20					AL	A										09901015	0.00000	10.06000	PM 40/21/4
RE-10	RL-20					AL	A										09901016	0.00000	10.02000	PM 40/21/2
RE-10	RL-20					AL	A										09901017	0.00000	10.02000	PM 40/21/3
RE-10	RL-20					AL	A										09901018	0.00000	8.86000	PM 40/21/1
SA-10	PA-20					AL											09901023	0.00000	6.00000	SEC 34 10 11
SA-10	PA-20					AL											09901024	0.00000	34.00000	SEC 34 10 11
RE-10	RL-20					AL	A										09901025	0.00000	154.82700	SEC 36 10 11
RE-10	RL-20					AL	A										09901025	0.00000	154.82700	SEC 36 10 11
RE-5	RL-10					AL	A										09901025	0.00000	154.82700	SEC 36 10 11
RE-5	RL-10					AL	A										09901025	0.00000	154.82700	SEC 36 10 11
RE-10	RL-20					AL	A										09901026	0.00000	80.00000	SEC 36 10 11
RE-5	RL-10					AL	A										09901026	0.00000	80.00000	SEC 36 10 11
RE-10	RL-10					RR											09902002	0.00000	40.19000	SEC 27 10 11
RE-10	RL-10					RR											09902003	0.00000	7.31000	S 22 & 27 10 11
RE-10	RL-10					RR											09902005	0.00000	1.01000	PM 3/75/A
RE-10	RL-10					RR											09902006	0.00000	1.99000	PM 3/75/B

RE-10	RL-10					RR											09902007	0.00000	1.00000	SEC 27 10 11
RE-10	RL-10					RR											09902010	0.00000	46.99000	SEC 27 10 11
RE-10	RL-10					RR											09902013	0.00000	42.27000	REM P/M 14-138
RE-10	RL-10					RR											09902013	0.00000	42.27000	REM P/M 14-138
RE-10	RL-10					RR											09902017	0.00000	6.31000	PM 18/17/B
RE-10	RL-10					RR											09902018	0.00000	2.70000	PM 18/17/C
RE-10	RL-10					RR											09902019	0.00000	5.83000	PM 18/17/D
RE-10	RL-10					RR											09902024	0.00000	10.00000	PM 33/143/1
RE-10	RL-10					RR											09902025	0.00000	10.00000	PM 33/143/2
RE-10	RL-10					RR											09902026	0.00000	10.00000	PM 33/143/3
RE-10	RL-10					RR											09902027	0.00000	10.00000	PM 33/143/4
RE-10	RL-10					RR											09902028	0.00000	10.00000	PM 34/74/A
RE-10	RL-10					RR											09902029	0.00000	10.00000	PM 34/74/B
RE-10	RL-10					RR											09902030	0.00000	10.00000	PM 34/74/C
RE-10	RL-10					RR											09902031	0.00000	10.03000	PM 34/74/D
RE-5	RL-10					RR											09902034	0.00000	6.42000	SEC 27&28 10 11
RE-10	RL-10					RR											09902040	0.00000	10.00000	PM 35/29/B
RE-10	RL-10					RR											09902042	0.00000	10.00000	PM 35/29/D
RE-10	RL-10					RR											09902048	0.00000	10.00000	RS 14/121/1
RE-10	RL-10					RR											09902049	0.00000	10.15000	RS 14/121/2
RE-10	RL-10					RR											09902050	0.00000	6.34700	RS 22/68/1
RE-10	RL-10					RR											09902052	0.00000	5.00200	RS 24/137/2
RE-10	RL-10					RR											09902053	0.00000	0.88600	RS 24/137/1
RE-5	I					I											09904001	0.00000	5.50000	SEC 27 10 11
CP	CC					C					PL						09906023	0.00000	1.25000	RS 32/101/1
RE-10	RL-10					RR											09907002	0.00000	11.51000	SEC 34 10 11
CP	CL					C					PL						09907003	0.00000	0.82000	SEC 34 10 11
CP	CL					C					PL						09907004	0.00000	0.47000	SEC 34 10 11
AE	AG-40					RR											09909001	0.00000	40.00000	SEC 26 10 11
RE-5	RL-10					AL	A										09911003	0.00000	5.00000	SEC 35 10 11
RE-5	RL-10					AL	A										09911004	0.00000	5.00000	SEC 35 10 11
RE-5	RL-10					AL	A										09911005	0.00000	5.00000	SEC 35 10 11
RE-5	RL-10					AL	A										09911006	0.00000	5.00000	SEC 35 10 11
RE-5	RL-10					AL	A										09911007	0.00000	10.00000	SEC 35 10 11
RE-5	RL-10					AL	A										09911013	0.00000	5.00000	SEC 35 10 11
RE-5	RL-10					AL	A										09911014	0.00000	5.00000	SEC 35 10 11
CP	CL					C	A				PL						09911017	0.00000	0.86000	SEC 35 10 11
RE-5	RL-10					AL	A										09911019	0.00000	120.00000	POR SEC 35 10 11
RE-5	RL-10					AL	A										09911019	0.00000	120.00000	POR SEC 35 10 11
CP	RL-20					AL	A										09911020	0.00000	151.67400	POR SEC 35 10 11
CP	RL-20					AL	A										09911020	0.00000	151.67400	POR SEC 35 10 11
RE-5	RL-10					AL	A										09911020	0.00000	151.67400	POR SEC 35 10 11
RE-5	RL-10					AL	A										09911020	0.00000	151.67400	POR SEC 35 10 11
RE-5	RL-10					AL	A										09911021	0.00000	40.00000	POR SEC 35 10 11
RE-5	RL-10					AL	A										09911022	0.00000	56.14000	POR SEC 26 10 11
RE-5	RL-10					AL	A										09913003	0.00000	30.04000	SEC 26 10 11

RE-5	RL-10					RR	A										09913005	0.00000	15.00000	SEC 25 10 11
RE-5	RL-10					AL	A										09913015	0.00000	5.02000	PM 35/100/A
RE-5	RL-10					AL	A										09913018	0.00000	5.00000	PM 35/100/D
RE-5	RL-10					AL	A										09913023	0.00000	10.02000	POR B&C PM35-100
RE-5	RL-10					AL	A										09913025	0.00000	5.00000	PM 40/30/1
RE-5	RL-10					AL	A										09913026	0.00000	5.00000	PM 40/30/2
RE-5	RL-10					RR	A										09913027	0.00000	5.00100	PM 42/128/1
RE-5	RL-10					RR	A										09913028	0.00000	5.00000	PM 42/128/2
RE-5	RL-10					RR	A										09913029	0.00000	5.00000	PM 42/128/3
RE-5	RL-10					RR	A										09913030	0.00000	5.00000	PM 42/128/4
RE-5	RL-10					AL	A										09913031	0.00000	39.24200	S 25 10 11
RE-5	RL-10					RR	A										09913033	0.00000	5.02500	PM 43/18/1
RE-5	RL-10					RR	A										09913034	0.00000	5.03000	PM 43/18/2
RE-5	RL-10					RR	A										09913035	0.00000	5.00500	PM 43/18/3
RE-5	RL-10					RR	A										09913036	0.00000	5.04000	PM 43/18/4
RE-5	RL-10					AL	A										09913040	0.00000	13.58000	PM 47/60/4
RE-5	RL-10					AL	A										09913041	0.00000	67.96500	SEC 26 10 11
RE-10	RL-10					RR	A										09914001	0.00000	4.00000	SEC 35 10 11
RE-10	LA-10					RR	A										09914004	0.00000	19.27000	RS 25/38/2
RE-5	RL-10					RR	A										09914006	0.00000	7.32000	SEC 35 10 11
RE-5	RL-10					RR	A										09914008	0.00000	5.00000	PM 34/25/A
RE-5	RL-10					RR	A										09914009	0.00000	4.97000	PM 34/25/B
RE-5	RL-10					RR	A										09914010	0.00000	5.00000	PM 34/25/C
RE-5	RL-10					RR	A										09914011	0.00000	8.68000	SEC 35 10 11
RE-5	RL-10					RR	A										09914014	0.00000	2.46000	RS 20/3/1
RE-10	RL-20					AL	A										09914015	0.00000	26.16000	SEC 35 10 11
RE-10	LA-10					RR	A										09914016	0.00000	17.90000	SEC 35 10 11
RA-20	LA-20					RR	A										09915006	0.00000	5.00000	SEC 25 10 11
RE-5	RL-10					RR	A										09915022	0.00000	10.00000	PM 18/119/A
RE-5	RL-10					RR	A										09915023	0.00000	8.96300	PM 18/119/B
RE-5	RL-10					RR	A										09915026	0.00000	5.00000	PM 41/112/1
RE-5	RL-10					RR	A										09915027	0.00000	5.00300	PM 41/112/2
RE-5	RL-10					RR	A										09915031	0.00000	5.00000	PM 41/121/1
RE-5	RL-10					RR	A										09915032	0.00000	5.00000	PM 41/121/2
RE-5	RL-10					RR	A										09915038	11.00000	0.90000	SEC 25 10 11
RE-5	RL-10					RR	A										09915042	0.00000	5.00000	PM 44/111/4
RE-5	RL-10					RR	A										09915046	0.00000	10.20000	PM 45/33/1
RE-5	RL-10					RR	A										09915047	0.00000	5.00000	PM 45/33/2
RE-5	RL-10					RR	A										09915048	0.00000	5.00000	PM 45/33/3
RE-5	RL-10					RR	A										09915050	0.00000	10.00000	PM 45/68/2
RE-5	RL-10					RR	A										09915051	0.00000	8.67000	SEC 25 10 11
RE-5	RL-10					RR	A										09915053	0.00000	1.33000	RS 22/67/2
RE-5	LA-10					RR	A										09915058	0.00000	10.25000	PM 46/103/1
RE-5	RL-10					RR	A										09915059	0.00000	7.36000	PM 46/103/2
RA-20	LA-20					RR	A										09915061	0.00000	47.60000	PM 47/55/1
RA-20	LA-20					RR	A										09915064	0.00000	15.00000	PM 47/55/2

RE-5	RL-10					RR	A										09916011	0.00000	4.85000	SEC 25 10 11
CP	CL					C					PL						09916014	0.00000	0.53000	SEC 25 10 11
RE-5	RL-10					RR	A										09916017	0.00000	10.80500	PM 6/132/3
RE-10	LA-10					RR	A										09916021	0.00000	10.59000	PM 25/2/3
RE-5	RL-10					RR	A										09916023	0.00000	5.00000	PM 29/94/A
RE-5	RL-10					RR	A										09916024	0.00000	5.01000	PM 29/94/B
RE-10	RE-5					LDR											09916025	0.00000	6.58000	PM 32/24/A
RE-5	RL-10					RR	A										09916028	0.00000	5.10000	PM 41/120/1
RE-5	RL-10					RR	A										09916029	0.00000	5.00000	PM 41/120/2
RE-10	RL-10					RR	A										09917002	0.00000	4.96000	SEC 35 10 11
RE-10	RL-10					RR	A										09917003	0.00000	13.05000	SEC 36 10 11
RE-10	RL-10					RR	A										09917004	0.00000	3.80000	SEC 36 10 11
RE-10	RL-10					RR	A										09917005	0.00000	3.05000	SEC 36 10 11
RE-5	RL-10					RR	A										09917009	0.00000	0.68000	SEC 36 10 11
RE-5	LA-10					RR	A										09917014	0.00000	16.51000	SEC 36 10 11
RE-10	RL-20					AL	A										09917018	0.00000	3.00000	SEC 36 10 11
RE-10	RL-20					AL	A										09917019	0.00000	7.00000	SEC 36 10 11
RE-10	RL-20					AL	A										09917020	0.00000	10.00000	SEC 36 10 11
RE-10	RL-20					AL	A										09917021	0.00000	10.00000	SEC 36 10 11
RE-10	RL-20					AL	A										09917022	0.00000	10.00000	SEC 36 10 11
RE-5	RL-10					RR	A										09917023	0.00000	1.50000	PM 8/141/1
RE-10	RL-20					AL	A										09917025	0.00000	16.11000	PM 8/23/1
RE-10	RL-20					AL	A										09917026	0.00000	12.00000	PM 8/23/2
RE-10	RL-20					AL	A										09917027	0.00000	10.73000	PM 8/23/3
RE-5	RL-10					RR	A										09917034	0.00000	0.69000	SEC 36 10 11
RE-5	RL-10					RR	A										09917036	0.00000	12.18000	SEC 36 10 11
RE-5	RL-10					RR	A										09917037	0.00000	0.92000	SEC 36 10 11
RE-5	RL-10					RR	A										09917042	0.00000	3.00000	SEC 36 10 11
RE-5	RL-10					RR	A										09917043	0.00000	1.50000	SEC 36 10 11
RE-5	RL-10					RR	A										09917044	0.00000	5.05000	RS 20/135/1
RE-5	RL-10					RR	A										09917045	0.00000	4.90000	RS 20/135/3
RE-5	RL-10					RR	A										09917046	0.00000	5.02000	RS 20/135/2
RE-10	RL-20					AL	A										09917047	0.00000	40.22000	PM 9/33/1
RE-5	LA-10					RR	A										09917053	0.00000	18.66000	PM 36/49/A
RE-5	RL-10					RR	A										09917054	0.00000	5.00000	PM 36/49/B
RE-5	RL-10					RR	A										09917057	0.00000	5.00000	RS 16/60/1
RE-5	RL-10					RR	A										09917058	0.00000	5.56700	RS 17/55/1
RE-5	RL-10					RR	A										09917061	0.00000	3.22700	RS 17/55/3
RE-5	RL-10					RR	A										09917062	0.00000	3.08000	RS 17/55/2
RE-5	RL-10					RR	A										09917066	0.00000	4.88200	SEC 36 10 11
RE-5	RL-10					RR	A										09917067	0.00000	6.02000	PM 43/96/1
RE-5	RL-10					RR	A										09917070	0.00000	5.00000	PM 43/96/4
RE-5	RL-10					RR	A										09917076	0.00000	5.00000	PM 43/141/2
RE-5	LA-10					RR	A										09917077	0.00000	5.00000	PM 43/141/3
RE-5	RL-10					RR	A										09917078	0.00000	6.15000	RS 20/57/2
RE-5	RL-10					RR	A										09917080	0.00000	15.90000	RS 20/57/1

RE-5	RL-10					RR	A										09917081	0.00000	5.00000	PM 43/96/3
RE-5	RL-10					RR	A										09917082	0.00000	5.00000	PM 43/96/2
RE-10	RL-20					AL	A										09917087	0.00000	40.12000	RS 24/30
RE-10	RL-20					AL	A										09917088	0.00000	40.70000	RS 24/30
RE-5	RL-10					RR	A										09918001	0.00000	5.05000	L 1
RE-5	RL-10					RR	A										09918002	0.00000	5.08000	L 2
RE-5	RL-10					RR	A										09918003	0.00000	5.06000	L 3
RE-5	RL-10					RR	A										09918004	0.00000	5.00400	L 4
RE-10	LA-10					RR	A										09918005	0.00000	10.01000	L 5
RE-10	RL-10					RR	A										09918006	0.00000	10.01000	L 6
RE-10	RL-10					RR	A										09918007	0.00000	10.10000	L 7
RE-5	RL-10					RR	A										09918008	0.00000	5.00300	L 8
RE-5	RL-10					RR	A										09918009	0.00000	5.02000	L 9
RE-10	RL-10					RR	A										09918010	0.00000	10.10000	L 10
RE-10	RL-10					RR	A										09918011	0.00000	14.17000	L 11
RE-10	RL-20					AL	A										09918012	0.00000	27.94000	L 12
RE-5	RL-10					AL	A										09919041	0.00000	31.07000	S 27&34 10 11
RE-10	RL-10					RR	A										09920001	0.00000	20.75000	L 1
RE-5	LA-10					RR	A										09920002	0.00000	10.08000	L 2
A	FR-160					NR											10001006	11.00000	0.00000	S7 11 12 RS9-103
A	FR-160					NR											10001007	11.00000	0.00000	S8 11 12 RS9-103
A	FR-160					NR											10001008	11.00000	115.36000	S8 11 12 RS9-103
A	FR-160					NR											10001009	11.00000	39.59000	S8 11 12RS9-103
A	FR-160					NR											10001010	11.00000	0.00000	S4 11 12 RS 8-39
A	FR-160					NR											10001011	11.00000	0.00000	S9 11 12 RS 8-39
A	FR-160					NR											10001012	11.00000	0.00000	SEC 6 11 12
A	FR-160					NR											10001013	11.00000	0.00000	POR SEC 5 11 12
A	FR-160					NR											10002015	11.00000	24.90000	S19 11 12RS9-103
A	FR-160					NR											10002016	11.00000	0.00000	S18 11 12RS9-103
A	FR-160					NR											10002017	11.00000	159.88000	S17 11 12RS9-103
A	FR-160					NR											10002018	11.00000	161.59000	S17 11 12RS9-103
A	FR-160					NR											10002019	11.00000	0.00000	S20 11 12RS9-103
RA-40	FR-160					NR											10002020	11.00000	70.98000	S19 11 12RS9-103
A	FR-160					NR											10002021	11.00000	0.00000	POR S16&21 11 12
RA-40	FR-160					NR											10002022	11.00000	0.00000	POR S16&21 11 12
RA-40	RL-40					NR											10002023	11.00000	0.00000	POR SEC 20 11 12
RE-10	RL-10					RR					PL						10003002	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003003	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003004	0.00000	10.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003016	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003017	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003019	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003020	0.00000	10.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003021	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003022	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003025	0.00000	2.55200	R/S 21-30

RE-10	RL-10					RR					PL						10003026	0.00000	2.55200	R/S 21-30
RE-10	RL-10					RR					PL						10003030	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003031	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003032	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003033	0.00000	10.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003034	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003036	0.00000	10.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003037	0.00000	10.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003038	0.00000	10.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003039	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003041	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003042	0.00000	20.00000	SEC 29 11 12
RE-10	RL-160					NR											10003044	0.00000	40.73000	RS 17/76/1
RE-10	RL-10					RR					PL						10003045	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003046	0.00000	15.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003047	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003048	0.00000	5.00000	SEC 30 11 12
RE-10	RL-10					RR					PL						10003049	0.00000	10.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003050	0.00000	10.18000	RS 13/20 S291112
RE-10	RL-10					RR					PL						10003051	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003052	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003053	0.00000	5.14200	RS 25/8/1
RE-10	RL-10					RR					PL						10003054	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003055	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003056	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003057	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003058	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003059	0.00000	10.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003060	0.00000	10.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003061	0.00000	10.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003062	0.00000	5.00000	SEC 29 11 12
RE-10	RL-10					RR					PL						10003063	0.00000	5.10900	RS 21/142/1
RA-40	FR-160					NR											10004025	11.00000	432.50400	RS 10/39 S301112
RA-40	FR-160					NR											10004026	11.00000	326.59100	RS 9/93 S291112
RA-40	FR-160					NR											10004027	11.00000	0.00000	S28 11 12RS6-50
RA-40	FR-160					NR											10004028	11.00000	0.00000	S 32 & 33 11 12
AE	RL-160					NR											10005003	0.00000	0.87000	SEC 28 11 12
RA-20	RL-160					NR											10005006	0.00000	20.73000	SEC 28 11 12
RA-20	RL-160					NR											10005006	0.00000	20.73000	SEC 28 11 12
RA-20	RL-160					NR											10005007	0.00000	21.60000	SEC 28 11 12
SA-10	PA-20					AL	A										10006001	0.00000	50.69000	SEC 31 11 12
SA-10	PA-20					AL	A										10006002	0.00000	63.09000	SEC 31 11 12
SA-10	PA-20					AL	A										10006003	0.00000	2.00000	RS 20/101/1
R2A	RL-10					RR	A										10006009	0.00000	7.57000	SEC 31 11 12
R2A	RL-10					RR	A										10006010	0.00000	7.34000	SEC 31 11 12
SA-10	PA-20					AL	A										10006012	0.00000	6.40000	SEC 31 11 12

SA-10	PA-20					AL	A										10006016	0.00000	0.88000	SEC 31 11 12
SA-10	PA-20					AL	A										10006018	0.00000	1.00000	SEC 31 11 12
SA-10	PA-20					AL	A										10006021	0.00000	18.18000	SEC 31 11 12
SA-10	PA-20					AL	A										10006025	0.00000	10.75000	SEC 31 11 12
SA-10	PA-20					AL	A										10006030	0.00000	9.07000	SEC 31 11 12
SA-10	PA-20					AL	A										10006034	0.00000	10.02000	SEC 31 11 12
RE-10	RL-20					AL	A										10006036	0.00000	12.20000	RS 11/9/1
RA-20	RL-40					NR											10006037	0.00000	45.39000	RS 11/9/3
RE-10	RL-40					NR											10006037	0.00000	45.39000	RS 11/9/3
SA-10	PA-20					AL	A										10006038	0.00000	10.00000	SEC 31 11 12
SA-10	PA-40					NR											10006040	0.00000	22.15000	PM 50/33/1
SA-10	PA-20					AL	A										10006041	0.00000	5.00000	PM 50/33/2
SA-10	PA-20					AL	A										10007017	0.00000	16.77700	SEC 32 11 12
SA-10	PA-20					AL	A										10007018	0.00000	14.86000	4 10 12&32 11 12
AE	PA-20					AL	A										10007020	0.00000	0.00000	DITCH & R R R/W
R1A	RL-10					RR					PL						10008034	0.00000	2.61600	RS 32/109/1
R1A	LA-10					RR	A				PL						10009001	0.00000	10.14000	RS 29/108/1
RE-5	LA-10					RR	A				PL						10009001	0.00000	10.14000	RS 29/108/1
R1A	RE-5					RR	A				PL						10009002	0.00000	10.00000	SEC 32 11 12
R1A	RE-5					RR	A				PL						10009003	0.00000	2.50000	SEC 32 11 12
R1A	RE-5					RR	A				PL						10009005	0.00000	10.00000	SEC 32 11 12
R1A	RE-5					RR	A				PL						10009011	0.00000	6.64000	SEC 32 11 12
R1A	RE-5					RR	A				PL						10009012	0.00000	1.00000	SEC 32 11 12
SA-10	PA-20					AL	A										10010001	0.00000	12.56000	SEC 31 11 12
SA-10	PA-20					AL	A										10010002	0.00000	10.80100	SEC 31 11 12
SA-10	PA-20					AL	A										10010003	0.00000	10.08000	SEC 31 11 12
SA-10	PA-20					AL	A										10010004	0.00000	19.56000	SEC 31 11 12
SA-10	PA-20					AL	A										10010006	0.00000	2.12000	SEC 31 11 12
SA-10	PA-20					AL	A										10010009	0.00000	65.29000	SEC 31 11 12
SA-10	PA-20					AL	A										10010010	0.00000	2.03000	32 11 12RS17-126
SA-10	PA-20					AL	A										10010011	0.00000	7.95000	SEC 32 11 12
RE-5	RL-10					RR	A										10010014	0.00000	2.60400	SEC 32 11 12
RE-5	RL-10					RR	A										10010015	0.00000	1.11000	RS 28/104/2
SA-10	PA-20					AL	A										10010016	0.00000	4.96000	SEC 32 11 12
RE-5	RL-10					RR	A										10010017	0.00000	4.10500	RS 28/104/1
SA-10	PA-20					AL	A										10010018	0.00000	1.92000	SEC 32 11 12
SA-10	PA-20					AL	A										10010019	0.00000	0.50000	SEC 32 11 12
RE-5	RL-10					RR	A										10010020	0.00000	2.57000	PM 6/169/A
RE-5	RL-10					RR	A										10010022	0.00000	1.07300	SEC 32 11 12
RE-5	RL-10					RR	A										10010023	0.00000	0.69000	SEC 32 11 12
SA-10	R1A					MDI	A				PL						10010027	0.00000	0.99800	RS 12/15/3
SA-10	PA-20					AL	A										10010029	0.00000	3.22000	S 31 & 32 11 12
RE-5	RL-10					RR	A										10010032	0.00000	7.02000	PM 6/169/B
SA-10	PA-10					RR	A										10010038	0.00000	1.70000	SEC 32 11 12
RE-5	RL-10					RR	A										10010040	0.00000	1.66400	SEC 32 11 12
RE-5	RL-10					RR	A										10010042	0.00000	5.01000	RS 14/141/1

RE-5	RL-10					RR	A										10010044	0.00000	7.15000	RS 14/141/3
RE-5	RL-10					RR	A										10010046	0.00000	5.01000	RS 14/141/2
SA-10	PA-20					AL	A										10010048	0.00000	13.37400	PM 46/41/1
SA-10	PA-20					AL	A										10010049	0.00000	3.11100	PM 46/41/2
SA-10	PA-20					AL	A										10010051	0.00000	10.33300	POR TR 1 RS21-15
SA-10	PA-20					AL	A										10010054	0.00000	10.39900	PM 48/65/1
SA-10	PA-20					AL	A										10010055	0.00000	1.10900	PM 48/65/2
SA-10	PA-20					AL	A										10011004	0.00000	43.29000	SEC 33 11 12
RA-20	LA-20					RR	A										10011007	0.00000	0.33000	SEC 33 11 12
RA-20	LA-20					RR	A										10011010	0.00000	6.40000	SEC 33 11 12
RA-20	LA-20					RR	A										10011010	0.00000	6.40000	SEC 33 11 12
RA-20	LA-20					RR	A										10011011	0.00000	3.10000	SEC 33 11 12
SA-10	PA-20					AL	A										10011022	0.00000	10.23000	PM 30/115/4
RA-20	LA-20					RR	A										10011042	0.00000	17.98000	PM 35/31/A
RA-20	LA-20					RR	A										10011043	0.00000	10.00000	PM 35/31/B
RA-20	LA-20					RR	A										10011044	0.00000	10.00000	PM 35/31/C
R3A	LA-10					RR	A										10012001	0.00000	12.42600	RS 25/123/1
A	LA-10					RR	A										10012025	0.00000	14.76000	SEC 33 11 12
SA-10	PA-10					RR											10013001	0.00000	20.00000	SEC 33 11 12
RA-20	RL-20					RR											10013003	0.00000	17.22000	RS 12/37 S331112
RE-10	RL-10					RR											10013004	0.00000	10.18000	RS 12/37 S331112
R1A	RL-10					RR	A										10013007	0.00000	9.52000	RS 30/108/2
R1A	RL-10					RR	A										10013008	0.00000	9.52000	RS 30/108/1
R1A	RL-10					RR											10013013	0.00000	27.18000	SEC 33 11 12
RE-5	RL-10					RR											10013013	0.00000	27.18000	SEC 33 11 12
RE-5	RL-10					RR											10013014	0.00000	1.00000	SEC 33 11 12
RA-20	RL-10					RR											10013015	0.00000	2.15000	SEC 33 11 12
RA-20	RL-160					NR											10014001	0.00000	20.01000	PM 30/28/A
RA-20	LA-20					RR	A										10014002	0.00000	10.00000	PM 30/28/B
RA-20	LA-20					RR	A										10014003	0.00000	10.00000	PM 30/28/C
RE-10	RL-20					AL	A										10014005	0.00000	2.41000	SEC 32 11 12
RA-20	LA-20					RR	A										10014007	0.00000	10.31000	PM 29/37/2
RA-20	LA-20					RR	A										10014008	0.00000	10.20000	PM 29/37/3
RA-20	LA-20					RR	A										10014009	0.00000	10.06000	PM 30/130/A
RA-20	LA-20					RR	A										10014010	0.00000	10.07000	PM 30/130/B
RA-20	LA-20					RR	A										10014011	0.00000	20.20000	SEC 32 11 12
R1A	LA-10					RR	A										10014012	0.00000	14.22000	SEC 32 11 12
RE-10	LA-10					RR	A										10014012	0.00000	14.22000	SEC 32 11 12
RE-10	RL-10					RR	A										10014013	0.00000	10.00000	PM 35/85/A
RE-10	RL-10					RR	A										10014014	0.00000	10.00000	PM 35/85/B
RE-10	LA-10					RR	A										10014019	0.00000	10.00000	PM 39/63/1
RE-10	RL-10					RR	A										10014020	0.00000	10.00000	PM 39/63/2
RE-10	RL-40					NR											10014022	0.00000	37.99000	RS 15/28 S311112
A	FR-160					NR											10101002	11.00000	40.00000	SEC 12 11 12
A	FR-160					NR											10101004	11.00000	600.00000	S 12 11 12
A	FR-160					NR											10101005	11.00000	0.00000	POR SEC 3 11 12

A	FR-160					NR											10101006	11.00000	0.00000	SEC 2 11 12
A	FR-160					NR											10101007	11.00000	0.00000	POR SEC 1 11 12
A	FR-160					NR											10101008	11.00000	0.00000	POR SEC 10 11 12
A	FR-160					NR											10101009	11.00000	0.00000	POR SEC 11 11 12
A	FR-160					NR											10102014	11.00000	570.55000	S13 11 12RS12-45
RA-80	FR-160					NR											10102015	11.00000	0.00000	S23 11 12RS11-30
A	FR-40					NR											10102016	11.00000	0.00000	S23 11 12RS11-30
RA-80	RL-80					NR											10102016	11.00000	0.00000	S23 11 12RS11-30
A	FR-160					NR											10102017	11.00000	0.00000	SEC 14&15 11 12
RA-40	FR-40					NR											10102017	11.00000	0.00000	SEC 14&15 11 12
RA-40	FR-40					NR											10102017	11.00000	0.00000	SEC 14&15 11 12
RA-80	FR-40					NR											10102017	11.00000	0.00000	SEC 14&15 11 12
A	FR-40					NR											10102018	11.00000	0.00000	SEC 18 11 12
A	FR-40					NR											10102018	11.00000	0.00000	SEC 18 11 12
RA-40	FR-160					NR											10102018	11.00000	0.00000	SEC 18 11 12
A	FR-160					NR											10102019	11.00000	0.00000	POR SEC 24 11 12
RA-80	FR-160					NR											10102021	11.00000	0.00000	POR SEC 24 11 12
RA-80	RL-80					NR											10102022	11.00000	0.00000	POR SEC 24 11 12
RA-20	RL-160					NR											10103001	0.00000	20.00000	SEC 27 11 12
RA-20	RL-160					NR											10103002	0.00000	55.84000	RS 29/56/1
RA-20	RL-160					NR											10103003	0.00000	55.64000	SEC 27 11 12
RE-10	RL-160					NR											10103004	0.00000	146.73000	SEC 26 11 12
RE-10	RL-160					NR											10103010	0.00000	40.00000	SEC 26 11 12
RF	RF-H					PF						CPP					10103011	11.00000	17.00000	SEC 25 11 12
AE	PA-10					LDR						CPP					10103013	0.00000	150.00000	SEC 35 11 12
RE-10	RL-160					NR											10103014	0.00000	40.00000	SEC 35 11 12
SA-10	PA-40					NR											10103015	0.00000	20.00000	SEC 34 11 12
RA-20	RL-20					RR											10103016	0.00000	17.17000	SEC 34 11 12
RE-10	RL-160					NR											10103022	0.00000	6.00000	SEC 25 11 12
RF	RF-H					PF						CPP					10103023	11.00000	0.00000	POR SEC 25 11 12
RA-80	FR-160					NR											10103030	11.00000	154.52000	S26 11 12RS10-38
RA-40	FR-160					NR											10103031	11.00000	0.00000	S27 11 12 RS6-91
RA-40	RE-5					MDR						CPP					10103032	0.00000	80.00000	SEC 34 11 12
RA-40	FR-160					NR											10103034	11.00000	200.00000	S34 11 12RS10-40
RE-10	RL-160					NR											10103042	0.00000	29.86000	RS 22/147/1
RE-10	RL-10					RR					PL						10103043	0.00000	10.39000	RS 22/147/2
RF	RF-H					TR											10103044	0.00000	40.00000	SEC 27 11 12
RF	RF-L					TR											10103045	0.00000	125.11000	SEC 27 11 10
RE-10	RF-H					TR											10103046	0.00000	160.00000	SEC 26&27 11 12
RF	RF-H					TR											10103046	0.00000	160.00000	SEC 26&27 11 12
R1A	RL-10					RR											10104002	0.00000	10.60000	SEC 34 11 12
R1A	RL-10					RR											10104064	0.00000	28.18000	SEC 34 11 12
RE-10	RL-10					RR											10104064	0.00000	28.18000	SEC 34 11 12
RE-5	R3A					MDR						CPP					10105024	0.00000	2.50000	S2&34 10 11 12
RE-5	R3A					MDR						CPP					10107001	0.00000	10.00000	PM 23/9/1
RE-5	R1A					MDR						CPP					10107056	0.00000	5.86800	PM 39/146/2

RE-5	R1A					MDR					CPP					10107057	0.00000	5.00000	PM 39/146/3
RE-5	R1A					MDR					CPP					10107058	0.00000	5.00000	PM 39/146/4
R20K	R1A					MDR					CPP					10107073	0.00000	11.73100	PRS 15/56 & L 11
RE-10	RL-10					RR										10109008	0.00000	10.00000	SEC 35 11 12
RE-10	RL-10					RR										10109011	0.00000	10.01500	PM 44/8/1
RE-10	RL-10					RR										10109012	0.00000	10.05200	PM 44/8/2
RE-10	RL-10					RR										10109013	0.00000	10.18000	PM 44/8/3
C	CC				DS	C					CPP					10110071	0.00000	1.19000	SEC 35 11 12
C	CC				DS	C					CPP					10110072	0.00000	1.70000	SEC 35 11 12
C	RM				DS	MFR					CPP					10110073	0.00000	4.87000	SEC 35 11 12
MP	RM					MFR					CPP					10110073	0.00000	4.87000	SEC 35 11 12
R1	R1A					MDR					CPP					10113068	0.00000	0.50000	SEC 35 11 12
R1	RE-5					LDR					CPP					10114101	0.00000	9.35000	SEC 35 11 12
R2	CL				DS	C					CPP					10114117	0.00000	9.79000	SEC 35 11 12
RE-5	CC					C					CPP					10114117	0.00000	9.79000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114121	0.00000	0.47000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114122	0.00000	0.24000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114123	0.00000	0.25000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114124	0.00000	1.23000	SEC 35 11 12
C	CC				DS	C					CPP					10114125	0.00000	1.03000	SEC 35 11 12
RT	CC				DS	C					CPP					10114126	0.00000	2.36000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114127	0.00000	0.86000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114132	0.00000	0.62000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114137	0.00000	0.30000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114138	0.00000	0.53000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114139	0.00000	0.46000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114140	0.00000	0.39000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114141	0.00000	1.58000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114151	0.00000	0.55000	SEC 35 11 12
MP	RM					MFR					CPP					10114152	0.00000	3.00000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114153	0.00000	0.71000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114156	0.00000	1.74000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114157	0.00000	0.65100	RS 14/43 S351112
R2	RM				DS	MFR					CPP					10114158	0.00000	0.72000	PM 32/76/B
MP	R1					HDR					CPP					10114159	0.00000	1.51000	PM 25/54/A
R2	RM				DS	MFR					CPP					10114160	0.00000	0.50300	PM 25/54/B
MP	RM					HDR					CPP					10114161	0.00000	1.56000	PM 25/54/C
MP	RM					MFR					CPP					10114162	0.00000	6.69000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114163	0.00000	0.90000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114164	0.00000	1.75000	PM 39/45/1
R2	RM				DS	MFR					CPP					10114165	0.00000	3.59000	PM 39/45/2
RT	RM				DS	MFR					CPP					10114165	0.00000	3.59000	PM 39/45/2
R2	RM				DS	MFR					CPP					10114166	0.00000	0.36000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10114167	0.00000	0.40000	PM 21/133/1
R2	RM				DS	MFR					CPP					10114169	0.00000	0.43000	PM 21/133/2
RT	RM				DS	MFR					CPP					10114173	0.00000	0.17000	SEC 35 11 12

RT	RM				DS	MFR					CPP					10114175	0.00000	0.77000	SEC 36 11 12
RT	RM				DS	MFR					CPP					10114176	0.00000	0.66900	SEC 36 11 12
R2	RM				DS	MFR					CPP					10114181	0.00000	1.05400	SEC 35 11 12
R1	R1A					HDR					CPP					10114182	0.00000	2.10600	PM10/65/3RS30/13
R2	R1				DS	HDR					CPP					10114182	0.00000	2.10600	PM10/65/3RS30/13
R2	RM				DS	MFR					CPP					10117111	0.00000	0.00000	POR L 22
R2	RM				DS	MFR					CPP					10117112	0.00000	0.00000	POR L 22
R2	RM				DS	MFR					CPP					10117113	0.00000	0.23000	PM 15/77/1
R2	RM				DS	MFR					CPP					10117114	0.00000	0.23500	PM 15/77/2
R2	RM				DS	MFR					CPP					10118001	0.00000	0.81000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10118002	0.00000	0.39000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10118004	0.00000	0.47000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10118005	0.00000	0.54300	SEC 35 11 12
R2	RM				DS	MFR					CPP					10118006	0.00000	1.80000	SEC 35 11 12
R2	RM				DS	MFR					CPP					10118007	0.00000	1.82000	RS 23-135
R2	RM				DS	MFR					CPP					10118008	0.00000	1.86000	SEC 35 11 12
MP	RM					MFR					CPP					10118009	0.00000	4.55000	SEC 35 11 12
R3A	RE-5					LDR					CPP					10118010	0.00000	8.00000	SEC 35 11 12 ADM
R3A	RE-5					LDR					CPP					10118011	0.00000	0.50000	SEC 1 10 12 ADM
R2	RM				DS	MFR					CPP					10118014	0.00000	0.61000	1 10 12&35 11 12
R3A	R2A					MDR					CPP					10119013	0.00000	2.01000	PM 22/112/1
R3A	R1A					MDR					CPP					10119014	0.00000	2.01000	PM 22/112/2
R3A	RE-5					LDR					CPP					10119015	0.00000	6.12000	PM 22/112/3
R3A	RE-5					LDR					CPP					10119016	0.00000	10.10000	SEC 36 11 12
R3A	R1A					MDR					CPP					10119017	0.00000	2.01000	PM 13/9/1
R3A	RE-5					LDR					CPP					10119019	0.00000	2.01000	PM 13/9/3
R3A	RE-5					LDR					CPP					10119020	0.00000	2.01000	PM 13/9/4
R3A	R1A					MDR					CPP					10119021	0.00000	1.00000	SEC 36 11 12
R3A	R2A					MDR					CPP					10119022	0.00000	3.04000	PM 8/86/1
R3A	R2A					MDR					CPP					10119023	0.00000	2.03000	PM 8/86/2
R3A	R2A					MDR					CPP					10119024	0.00000	2.03000	PM 8/86/3
R3A	R1A					MDR					CPP					10119025	0.00000	2.03000	PM 8/86/4
R3A	R2A					MDR					CPP					10119027	0.00000	2.03000	PM 8/142/2
R3A	R2A					MDR					CPP					10119028	0.00000	2.03000	PM 8/142/3
R3A	R1A					MDR					CPP					10119029	0.00000	2.00000	PM 8/142/4
R3A	RE-5					LDR					CPP					10119038	0.00000	3.04000	PM 10/120/1
R3A	RE-5					LDR					CPP					10119040	2.00000	0.08000	SEC 36 11 12
R3A	R2A					MDR					CPP					10119043	0.00000	3.00000	PM 31/83/3
R3A	RE-5					LDR					CPP					10119044	0.00000	8.70000	PM 33/38/1
R3A	RE-5					LDR					CPP					10119045	0.00000	4.52000	PM 33/38/2
R2	RM				DS	MFR					CPP					10120117	0.00000	0.35000	PM 6/156/C
R2	RM				DS	MFR					CPP					10120118	0.00000	0.35000	PM 6/156/B
R2	RM				DS	MFR					CPP					10120119	0.00000	0.35000	PM 6/156/A
R2	RM				DS	MFR					CPP					10120122	0.00000	0.37000	PM 3/21/B
C	CL				DS	C					CPP					10120129	0.00000	0.20000	SEC 36 11 12
C	CL				DS	C					CPP					10120130	0.00000	0.17000	SEC 36 11 12

MP	RM					MFR					CPP					10120137	0.00000	1.00000	SEC 36 11 12
C	CL				DS	C					CPP					10120144	0.00000	0.50000	SEC 36 11 12
C	CL				DS	C					CPP					10120147	0.00000	0.63000	SEC 36 11 12
C	CL				DS	C					CPP					10120148	0.00000	0.26000	SEC 36 11 12
C	CL				DS	C					CPP					10120149	0.00000	0.27500	SEC 36 11 12
C	CL				DS	C					CPP					10120150	0.00000	0.36000	SEC 36 11 12
C	CC				DS	C					CPP					10120151	0.00000	1.90000	SEC 36 11 12
C	CL				DS	C					CPP					10120152	0.00000	0.33000	SEC 36 11 12
RT	RM				DS	HDR					CPP					10120157	0.00000	1.00000	SEC 36 11 12
C	CL				DS	C					CPP					10120158	0.00000	0.50000	SEC 36 11 12
RT	CL				DS	HDR					CPP					10120159	0.00000	0.16000	SEC 36 11 12
RT	CC				DS	HDR					CPP					10120160	0.00000	2.15000	SEC 36 11 12
RT	CL				DS	HDR					CPP					10120161	0.00000	0.13000	SEC 36 11 12
C	CL				DS	C					CPP					10120162	0.00000	0.98000	SEC 36 11 12
C	CL				DS	C					CPP					10120163	0.00000	0.44300	SEC 36 11 12
C	CL				DS	C					CPP					10120164	0.00000	0.37000	SEC 36 11 12
C	CL				DS	C					CPP					10120165	0.00000	0.48000	SEC 36 11 12
C	CL				DS	C					CPP					10120166	0.00000	0.48000	SEC 36 11 12
C	CL				DS	C					CPP					10120167	0.00000	0.00000	POR SEC 36 11 12
C	CL				DS	C					CPP					10120168	0.00000	0.00000	POR SEC 36 11 12
C	CL				DS	C					CPP					10120169	0.00000	0.19000	SEC 36 11 12
C	CL				DS	C					CPP					10120170	0.00000	0.20000	SEC 36 11 12
C	CL				DS	C					CPP					10120171	0.00000	0.19000	SEC 36 11 12
C	CL				DS	C					CPP					10120172	0.00000	0.29000	PM 40/109/1
C	CC				DS	C					CPP					10120173	0.00000	1.65000	PM 40/109/2
C	CC				DS	C					CPP					10120175	0.00000	1.22000	SEC 36 11 12
C	CL				DS	C					CPP					10120176	0.00000	0.40000	SEC 36 11 12
C	CL				DS	C					CPP					10120177	0.00000	0.44000	SEC 36 11 12
C	CL				DS	C					CPP					10120178	0.00000	0.48000	SEC 36 11 12
C	CL				DS	C					CPP					10120179	0.00000	0.16000	SEC 36 11 12
RT	RM				DS	MFR					CPP					10120180	0.00000	2.12000	SEC 36 11 12
RT	RM				DS	MFR					CPP					10120181	0.00000	2.18000	SEC 36 11 12
MP	RM					MFR					CPP					10120182	0.00000	2.12000	SEC 36 11 12
MP	RM					MFR					CPP					10120183	0.00000	0.53000	SEC 36 11 12
MP	RM					MFR					CPP					10120184	0.00000	0.55000	SEC 36 11 12
MP	RM					HDR					CPP					10120185	0.00000	3.34000	SEC 36 11 12
C	CL				DS	C					CPP					10120186	0.00000	0.92000	SEC 36 11 12
C	CC				DS	C					CPP					10120187	0.00000	1.20900	SEC 36 11 12
RT	RM				DS	HDR					CPP					10120188	0.00000	1.75000	RS 26/33/1
C	CC				DS	C					CPP					10121003	0.00000	4.50000	SEC 36 11 12
C	CL				DS	C					CPP					10121005	0.00000	0.35600	PM 8/110/2
C	CC			PD		C					CPP					10121013	0.00000	1.40000	RS 14/41/1
C	CC				DS	C					CPP					10121014	0.00000	1.98000	SEC 36 11 12
C	CL			PD		C					CPP					10121015	0.00000	0.70000	SEC 36 11 12
C	CL				DS	C					CPP					10121016	0.00000	0.39000	SEC 36 11 12
MP	RM					MFR					CPP					10121017	0.00000	1.96000	SEC 36 11 12

MP	RM					MFR					CPP					10121018	0.00000	2.03000	SEC 36 11 12
MP	RM					MFR					CPP					10121019	0.00000	0.18000	SEC 36 11 12
C	CL				DS	C					CPP					10121020	0.00000	0.22000	SEC 36 11 12
C	CL				DS	C					CPP					10121021	0.00000	0.39000	SEC 36 11 12
C	CL				DS	C					CPP					10121024	0.00000	0.66000	SEC 36 11 12
C	CL				DS	C					CPP					10121029	0.00000	0.44000	PM 4/37/B
C	CC				DS	C					CPP					10121030	0.00000	4.19100	PM 2/135/A
C	CL				DS	C					CPP					10121031	0.00000	0.34000	PM 2/135/B
C	CL				DS	C					CPP					10121032	0.00000	0.41000	SEC 36 11 12
C	CL				DS	C					CPP					10121033	0.00000	0.52000	SEC 36 11 12
C	CL				DS	C					CPP					10121034	0.00000	0.32000	POR PAR 1 24-140
R2	RM				DS	MFR					CPP					10121035	0.00000	12.50000	SEC 36 11 12
R2	RM				DS	MFR					CPP					10121036	0.00000	2.96500	PM 20/71/A
R2	RM				DS	MFR					CPP					10121037	0.00000	2.04000	PM 20/71/B
R2	RM				DS	MFR					CPP					10121039	0.00000	1.54400	PM 20/71/D
C	CC				DS	C					CPP					10121040	0.00000	2.11000	POR PAR 1 24-140
C	CC				DS	C					CPP					10121041	0.00000	1.20000	PM 24/140/2
C	CC				DS	C					CPP					10121042	0.00000	1.18900	PM 24/140/3
C	CL				DS	C					CPP					10121043	0.00000	1.00000	PM 24/140/4
C	CL				DS	C					CPP					10121046	0.00000	0.21000	SEC 36 11 12
C	CL				DS	C					CPP					10121048	0.00000	0.84000	SEC 36 11 12
C	CL				DS	C					CPP					10121056	0.00000	0.72000	SEC 36 11 12
C	CL				DS	C					CPP					10121057	0.00000	0.71000	PM 33/115/1
C	CL				DS	C					CPP					10121059	0.00000	0.42000	PORPAR A PM 4-37
C	CC				DS	C					CPP					10121061	0.00000	1.88000	SEC 36 11 12
C	CL				DS	C					CPP					10121063	0.00000	0.23200	PORPAR 2PM33-115
C	CL				DS	C					CPP					10121065	11.00000	0.00000	S36 11 12RS15-68
R1	R1A					MDR					CPP					10122006	0.00000	1.00200	PM 21/138/A
R1	R3A					MDR					CPP					10122007	0.00000	3.87000	PM 21/138/C
R1	RE-5					MDR					CPP					10122008	0.00000	12.07000	SEC 36 11 12
RE-10	R1A					MDR					CPP					10122008	0.00000	12.07000	SEC 36 11 12
R1	R1A					MDR					CPP					10122013	0.00000	1.00000	PM 25/101/1
R1	R1A					MDR					CPP					10122014	0.00000	1.00200	PM 25/101/2
R1	R1A					MDR					CPP					10122015	0.00000	1.21000	S 36 & 25 11 12
R1	R2A					MDR					CPP					10122017	0.00000	2.99000	PM 45/31/1
R1	RE-5					MDR					CPP					10122018	0.00000	6.02000	PM 45/31/2
R2	RM				DS	MFR					CPP					10123001	0.00000	0.94000	SEC 36 11 12
R2	RM				DS	MFR					CPP					10123002	0.00000	0.90000	SEC 36 11 12
R2	RM				DS	MFR					CPP					10123004	0.00000	0.95000	SEC 36 11 12
R1	R1A					MDR					CPP					10123008	0.00000	1.41000	SEC 36 11 12
R1	R1A					HDR					CPP					10123009	0.00000	7.91000	SEC 36 11 12
C	CL				DS	C					CPP					10126110	0.00000	0.51300	RS 24/43
C	CL				DS	C					CPP					10126120	0.00000	0.00000	L 4 B 2
C	CL				DS	C					CPP					10126121	0.00000	0.00000	L 3 B 2
C	CL				DS	C					CPP					10126125	0.00000	0.00000	L 16 B 2
C	CL				DS	C					CPP					10126127	0.00000	0.00000	L 5 B 2

C	CL				DS	C						CPP					10126128	0.00000	0.12300	L 6 B 2
C	CL				DS	C						CPP					10126248	0.00000	2.21000	RS 13/106/1
R1	CC					C						CPP					10126248	0.00000	2.21000	RS 13/106/1
C	CL				DS	C						CPP					10126256	0.00000	0.18000	RS 13/106/4
C	CL				DS	C						CPP					10126258	0.00000	0.68000	RS 13/106/3
C	CL				DS	C						CPP					10126259	0.00000	0.00000	L 4 & POR 3
C	CL				DS	C						CPP					10126264	0.00000	0.34000	POR L 16
C	CL				DS	C						CPP					10126265	0.00000	0.44000	POR L 16 & L 5
C	CL				DS	C						CPP					10126267	0.00000	0.00000	POR L 20 & L 21
C	CC				DS	C						CPP					10126272	0.00000	2.04300	RS 24/39
R2	RM				DS	MFR						CPP					10127206	0.00000	0.00000	L 21
R2	RM				DS	MFR						CPP					10127209	0.00000	0.47000	SEC 36 11 12
R2	RM				DS	MFR						CPP					10127210	0.00000	0.41000	SEC 36 11 12
R2	RM				DS	MFR						CPP					10127215	0.00000	0.00000	POR L 23
R2	RM				DS	MFR						CPP					10127223	0.00000	0.00000	POR L 23
R2	RM				DS	MFR						CPP					10127227	0.00000	0.00000	L 22
RT	RM				DS	MFR						CPP					10127231	0.00000	0.00000	L 19
R1	RM					MFR						CPP					10127232	0.00000	0.00000	L 20+
RT	RM				DS	MFR						CPP					10127232	0.00000	0.00000	L 20+
R2	RM				DS	MFR						CPP					10127304	0.00000	0.00000	POR
R2	RM				DS	MFR						CPP					10127311	0.00000	0.00000	POR
R2	RM				DS	MFR						CPP					10127403	0.00000	0.00000	POR LOT 64
R2	RM				DS	MFR						CPP					10127404	0.00000	0.00000	POR LOTS 64 & 65
R2	RM				DS	MFR						CPP					10127407	0.00000	0.00000	POR L 66
R2	RM				DS	MFR						CPP					10127408	0.00000	0.00000	POR LOTS 65 & 66
R2	RM				DS	MFR						CPP					10127411	0.00000	0.00000	L 63
C	CL				DS	C						CPP					10127502	0.00000	0.00000	L 45 & P 46
C	CL				DS	C						CPP					10127503	0.00000	0.22000	L 47 & P 46
C	CL				DS	C						CPP					10127504	0.00000	0.00000	POR L 44
C	CL				DS	C						CPP					10127505	0.00000	0.67000	POR L 44
R2	RM				DS	MFR						CPP					10128003	0.00000	0.77000	SEC 36 11 12
C	CL				DS	C						CPP					10128101	0.00000	0.00000	L 39
C	CL				DS	C						CPP					10128102	0.00000	0.00000	L 40
C	CL				DS	C						CPP					10128103	0.00000	0.00000	L 41
C	CL				DS	C						CPP					10128104	0.00000	0.00000	L 42
C	CL				DS	C						CPP					10128105	0.00000	0.00000	L 43
C	CL				DS	C						CPP					10128201	0.00000	0.00000	L 48
C	CL				DS	C						CPP					10128202	0.00000	0.00000	LOT 49 & 50
C	CL			PD	DS	C						CPP					10128203	0.00000	0.22000	RS 26/88
C	CL				DS	C						CPP					10128204	0.00000	0.22000	L 52
C	CL				DS	C						CPP					10128209	11.00000	0.00000	LOT 55
C	CL				DS	C						CPP					10128212	0.00000	0.22000	L 53
C	CL				DS	C						CPP					10128213	0.00000	0.00000	L 54
C	CL				DS	C						CPP					10128216	0.00000	0.44000	LOTS 56 & 57
C	CL				DS	C						CPP					10128304	0.00000	0.00000	POR L 58 & 59
C	CL				DS	C						CPP					10128305	0.00000	0.00000	POR L 58 59 & 60

R2	RM				DS	MFR					CPP					10128313	0.00000	0.00000	L 61 & 62
R2	RM				DS	MFR					CPP					10128314	0.00000	0.00000	POR L 60
R2	RM				DS	MFR					CPP					10128408	0.00000	0.00000	L 127
R2	RM				DS	MFR					CPP					10128409	0.00000	0.00000	L 126
R2	RM				DS	MFR					CPP					10128410	0.00000	0.00000	POR L 135-6-7
R2	RM				DS	MFR					CPP					10128411	0.00000	0.00000	POR L 135-6-7
R2	RM				DS	MFR					CPP					10128412	0.00000	0.00000	L 130
R2	RM				DS	MFR					CPP					10128413	0.00000	0.00000	L 129
R2	RM				DS	MFR					CPP					10128414	0.00000	0.00000	L 128
R2	RM				DS	MFR					CPP					10128415	0.00000	0.00000	L 132
R2	RM				DS	MFR					CPP					10128416	0.00000	0.00000	L 131
R2	RM				DS	MFR					CPP					10128417	0.00000	0.00000	L 134
R2	RM				DS	MFR					CPP					10128418	0.00000	0.22000	RS 25/87
R2	RM				DS	MFR					CPP					10128503	0.00000	0.00000	L 121
R2	RM				DS	MFR					CPP					10128504	0.00000	0.00000	L 119 & 120
R2	RM				DS	MFR					CPP					10128505	0.00000	0.00000	L 118
R2	RM				DS	MFR					CPP					10128507	0.00000	0.00000	L 123
R2	RM				DS	MFR					CPP					10128508	0.00000	0.00000	L 122
R2	RM				DS	MFR					CPP					10128509	0.00000	0.00000	L 125
R2	RM				DS	MFR					CPP					10128510	0.00000	0.00000	L 124
C	CC				DS	C					CPP					10129103	0.00000	1.78000	L 67
C	CL				DS	C					CPP					10129104	0.00000	0.00000	L 116
C	CL				DS	C					CPP					10129105	0.00000	0.22000	L 117
C	CC				DS	C					CPP					10129107	0.00000	0.00000	SEC 36 11 12
C	CC				DS	C					CPP					10129108	0.00000	0.00000	SEC 36 11 12
C	CL				DS	C					CPP					10129202	0.00000	0.37000	L 69
R2	RM				DS	MFR					CPP					10129203	0.00000	0.22000	POR LOT 70
R2	RM				DS	MFR					CPP					10129204	0.00000	0.22000	POR LOT 70
C	CL				DS	C					CPP					10129209	0.00000	0.60600	L 68
R2	RM				DS	MFR					CPP					10129210	0.00000	0.20600	PM 21/111/B
R2	RM				DS	MFR					CPP					10129212	0.00000	0.24200	PM 21/111/A
R2	RM				DS	MFR					CPP					10129306	0.00000	0.00000	L 97
R2	RM				DS	MFR					CPP					10129316	0.00000	0.00000	POR L 103+
R2	RM				DS	MFR					CPP					10129319	0.00000	0.00000	L 105 106 107
R2	RM				DS	MFR					CPP					10129320	0.00000	0.05400	POR L 103
R2	RM				DS	MFR					CPP					10129321	0.00000	0.04900	POR L 103 104
R2	RM				DS	MFR					CPP					10129323	0.00000	0.00000	L 96
R2	RM				DS	MFR					CPP					10129324	0.00000	0.00000	L 95
R2	RM				DS	MFR					CPP					10129329	0.00000	0.24000	POR L 102+
R2	RM				DS	MFR					CPP					10129332	0.00000	0.23000	PM 25/34/2
R2	RM				DS	MFR					CPP					10129334	0.00000	0.24800	PM 42/143/1
R2	RM				DS	MFR					CPP					10129339	0.00000	0.35100	PM 42/143/2
R2	RM				DS	MFR					CPP					10129342	0.00000	0.00000	L 99 & 100
R2	RM				DS	MFR					CPP					10129343	0.00000	0.00000	L 98
R2	RM				DS	MFR					CPP					10129345	0.00000	1.19900	SEC 36 11 12
R2	RM				DS	MFR					CPP					10129346	0.00000	0.09200	RS 32/66/1

R2	RM				DS	MFR					CPP					10130102	0.00000	0.00000	L 76 & 77
R2	RM				DS	MFR					CPP					10130103	0.00000	0.00000	L 78 & 79
R2	RM				DS	MFR					CPP					10130104	0.00000	0.00000	L 80
R2	RM				DS	MFR					CPP					10130106	0.00000	0.00000	POR LOT 81
R2	RM				DS	MFR					CPP					10130107	0.00000	0.00000	POR LOT 81
R2	RM				DS	MFR					CPP					10130108	0.00000	0.00000	L 73
R2	RM				DS	MFR					CPP					10130109	0.00000	0.00000	L 74
R2	RM				DS	MFR					CPP					10130110	0.00000	0.00000	L 75
R2	RM				DS	MFR					CPP					10130201	0.00000	0.00000	L 94
R2	RM				DS	MFR					CPP					10130202	0.00000	0.00000	L 93
R2	RM				DS	MFR					CPP					10130203	0.00000	0.00000	L 92
R2	RM				DS	MFR					CPP					10130205	0.00000	0.00000	POR L 90
R2	RM				DS	MFR					CPP					10130212	0.00000	0.00000	POR L 108
R2	RM				DS	MFR					CPP					10130218	0.00000	0.00000	PORS L 90 & 115
R2	RM				DS	MFR					CPP					10130219	0.00000	0.00000	L 91
R2	RM				DS	MFR					CPP					10130220	0.00000	0.00000	L 113 114 & 115
R2	RM				DS	MFR					CPP					10130224	0.00000	0.00000	POR L 115
R2	RM				DS	MFR					CPP					10130225	0.00000	0.00000	POR L 115
R2	RM				DS	MFR					CPP					10130228	0.00000	0.52400	RS 24/9/2
R2	RM				DS	MFR					CPP					10130229	0.00000	0.40700	RS 24/9/1
C	CL				DS	C					CPP					10130302	0.00000	0.00000	POR L 83
C	CC				DS	PF					CPP					10130303	0.00000	1.24500	TR1 RS25-144
R2	RM				DS	MFR					CPP					10130306	0.00000	0.00000	L 85 & POR L 86
R2	RM				DS	MFR					CPP					10130309	0.00000	0.00000	POR L 88
C	CL				DS	C					CPP					10130311	0.00000	0.62000	PM 11/100/1
R2	RM				DS	MFR					CPP					10130312	0.00000	0.31000	PM 11/100/2
R2	RM				DS	MFR					CPP					10130313	0.00000	0.31000	PM 11/100/3
R2	RM				DS	MFR					CPP					10130314	0.00000	0.00000	L 87 & P 86 & 88
R2	RM				DS	MFR					CPP					10130316	0.00000	0.00000	PM 40/106/1
R2	RM				DS	MFR					CPP					10130317	0.00000	0.25000	PM 40/106/2
R2	RM				DS	MFR					CPP					10130406	0.00000	0.16000	SEC 36 11 12
R2	RM				DS	MFR					CPP					10130414	0.00000	0.69000	SEC 36 11 12
R2	RM				DS	MFR					CPP					10130416	0.00000	3.24000	SEC 36 11 12
RA-80	RL-80					PF										10133001	11.00000	80.00000	SEC 25 11 12
RF	RF-H					PF					CPP					10133011	11.00000	0.99000	SEC 25 11 12
RF	RF-H					PF					CPP					10133061	11.00000	0.00000	POR 25&26 11 11
R1A	RE-5					LDR				PL						10133074	0.00000	1.13000	PM2/16/1RS22/138
RE-10	RE-5					LDR				PL						10133074	0.00000	1.13000	PM2/16/1RS22/138
RA-80	RF-H					PF					CPP					10133077	11.00000	0.00000	SEC 25 11 12
RF	RF-H					PF					CPP					10133077	11.00000	0.00000	SEC 25 11 12
RA-80	R1A					MDR					CPP					10133078	0.00000	1.17800	RS 30/103/1
RE-10	RL-10					RR				PL						10134002	0.00000	5.14000	SEC 26 11 12
RE-10	RL-10					RR				PL						10134003	0.00000	7.00000	SEC 26 11 12
RE-10	RL-10					RR				PL						10134031	0.00000	10.00000	PM 41/143/2
RE-10	RL-10					RR				PL						10134032	0.00000	18.22000	PM 41/143/1
RA-20	RL-20					RR				PL						10143003	0.00000	20.99000	SEC 22 11 12

RA-20	RL-10					RR					PL						10143005	0.00000	6.72000	SEC 22 11 12
RA-20	RL-10					RR					PL						10143006	0.00000	13.42000	SEC 22 11 12
RA-20	RL-10					RR					PL						10143008	0.00000	5.00000	SEC 22 11 12
RA-20	RL-10					RR					PL						10143009	0.00000	5.02000	RS 32/111/1
RA-20	RL-20					RR					PL						10143010	0.00000	20.00000	SEC 22 11 12
RA-20	RL-160					NR											10143011	0.00000	38.73000	SEC 22 11 12
RA-20	RL-10					RR					PL						10143012	0.00000	5.11000	PM 2/149/1
RA-20	RL-10					RR					PL						10143013	0.00000	4.85000	PM 2/149/2
RA-20	RL-10					RR					PL						10143014	0.00000	4.85000	PM 2/149/3
RA-20	RL-10					RR					PL						10143015	0.00000	4.85000	PM 2/149/4
RE-10	RL-10					RR					PL						10143016	0.00000	15.50000	PM 34/144 REM
RE-5	RL-10					RR					PL						10143016	0.00000	15.50000	PM 34/144 REM
RE-10	RL-10					RR					PL						10143017	0.00000	5.07000	PM 34/144/1
RE-5	RL-10					RR					PL						10143017	0.00000	5.07000	PM 34/144/1
RE-5	RL-10					RR					PL						10143018	0.00000	5.03000	PM 34/144/2
R3A	R2A					MDR						CPP					10144004	0.00000	3.01000	L 3
R3A	R2A					MDR						CPP					10144005	0.00000	3.03000	L 4
R3A	R2A					MDR						CPP					10144008	0.00000	3.01000	L 7
RA-20	RE-10					LDR		EP									10201001	11.00000	30.00000	SEC 6 10 9
RA-20	RE-10					LDR		EP									10201002	11.00000	10.00000	SEC 6 10 9
RA-20	RE-10					LDR		EP									10201003	11.00000	34.46000	SEC 6 10 9
RA-20	RE-10					LDR		EP									10201004	0.00000	54.76000	SEC 6 10 9
RA-20	RE-10					LDR		EP									10201005	0.00000	80.00000	SEC 6 10 9
RE-10	RL-10					RR											10201008	0.00000	10.55000	PM 5/170/2
RE-10	RL-10					RR											10201009	0.00000	10.33000	PM 5/170/3
RE-10	RL-10					RR											10201010	0.00000	10.02000	PM 4/121/1
RE-10	RL-10					RR											10201011	0.00000	10.83000	PM 4/121/2+
RE-10	RL-10					RR											10201012	0.00000	10.00000	PM 5/156/1
RE-10	RL-10					RR											10201013	0.00000	9.89000	PM 5/156/2
RE-10	RL-10					RR											10201014	0.00000	10.09000	PM 5/156/3
RE-10	RL-10					RR											10201015	0.00000	28.37000	SEC 5 10 9
RE-10	RL-10					RR											10201016	0.00000	4.00000	RS 26/6/1
RE-10	RL-10					RR											10201017	0.00000	35.13000	RS 26/5/1
RE-10	RL-10					RR											10201018	0.00000	2.12000	SEC 4 10 9
RE-10	RL-10					RR											10201020	0.00000	40.00000	SEC 5 10 9
RE-10	RL-10					RR											10201021	0.00000	40.00000	SEC 5 10 9
RE-10	RL-10					RR											10201025	0.00000	70.00000	SEC 8 10 9
RE-10	RL-10					RR											10201027	0.00000	10.82200	PM 1/116/1
RE-10	RL-10					RR		EP									10201035	0.00000	40.00000	SEC 7 10 9
RA-20	RE-10					LDR		EP									10201036	11.00000	53.92000	SEC 7 10 9 ADM
RE-10	OS					OS			IBC								10201039	11.00000	0.00000	POR SEC 4 10 9
RE-10	RL-10					RR		EP									10201040	0.00000	40.00000	SEC 7 10 9
RE-10	RL-10					RR											10201041	0.00000	10.77000	PM 5/170/1
RE-10	RL-10					RR											10201042	0.00000	11.11000	RS 21/112/1
RE-10	RL-10					RR											10201044	0.00000	20.02500	RS 21/112/2
RA-20	RE-10					LDR		EP									10201045	11.00000	113.93000	POR SEC 7 10 9

RA-20	RE-10					LDR		EP									10201046	11.00000	247.89000	POR SEC 7 10 9
RA-20	RE-10					LDR		EP									10201047	11.00000	80.00000	POR SEC 7 10 9
RA-20	RE-10					LDR		EP									10201048	11.00000	60.00000	POR SEC 5&6 10 9
RA-20	RE-10					LDR		EP									10201049	11.00000	20.00000	POR SEC 5 10 9
RA-20	RE-10					LDR		EP									10201050	11.00000	78.47000	POR SEC 5 10 9
RA-20	OS					OS		EP									10201057	11.00000	117.36000	SEC 6 10 9
RA-20	RE-10					LDR		EP									10201058	11.00000	118.65000	SEC 6 10 9
RE-10	RL-10					RR											10201059	0.00000	80.00000	SEC 5 10 9
RE-10	RL-10					RR											10201060	0.00000	0.41000	SEC 4 & 9 10 9
RE-10	RL-10					RR											10201063	0.00000	80.00000	SEC 5 10 9
RE-10	RL-10					RR											10201066	0.00000	10.00000	PM 50/115/A
RE-10	RL-10					RR											10201071	0.00000	50.81000	PM 50/115/C
RE-10	RL-10					RR											10201072	0.00000	40.00000	PM 50/115/B
RE-10	RL-10					RR			IBC								10202002	0.00000	22.23000	SEC 3 10 9
RE-10	RL-10					RR			IBC								10202003	0.00000	38.25000	SEC 3 10 9
RE-10	RL-10					RR											10202004	0.00000	33.82000	SEC 3 10 9 ADM
RE-10	RL-10					RR			IBC								10202006	0.00000	40.00000	SEC 3 10 9
RE-10	RL-10					RR											10202008	0.00000	37.00000	SEC 2 10 9 ADM
RE-10	RL-10					RR											10202010	0.00000	40.00000	SEC 1 10 9
RE-10	RL-10					RR											10202014	0.00000	10.03000	PM 22/67/1
RE-10	RL-10					RR											10202015	0.00000	10.03000	PM 22/67/2
RE-10	RL-10					RR											10202016	0.00000	10.03000	PM 22/67/3
RE-10	RL-10					RR											10202017	0.00000	10.02000	PM 22/67/4
RE-10	RL-10					RR											10202018	0.00000	40.00000	SEC 11 10 9
RE-10	RL-10					RR											10202019	0.00000	24.50000	PPM47/51/REM ADM
RE-10	RL-10			PD		RR			IBC								10202029	0.00000	10.00000	SEC 11 10 9
RE-10	RL-10					RR											10202035	0.00000	4.00000	SEC 3 10 9 ADM
RE-10	I					I											10202041	11.00000	3.71000	SEC 12 10 9
RE-10	OS					OS		EP									10202043	11.00000	0.00000	SW 1/4 S10 10 9
RE-10	RL-10					RR											10202048	0.00000	45.47000	RS 15/59/1
RE-10	RL-10					RR											10202052	0.00000	43.19300	RS 14/128/1
RE-10	RL-10					RR											10202054	0.00000	41.38000	SEC 2 10 9 ADM
RA-20	RL-20					RR											10202073	0.00000	43.79000	PM 46/69/1
RE-10	RL-10					RR			IBC								10202074	0.00000	10.10000	PM 46/69/2
RA-40	RL-10					RR											10202075	0.00000	19.93000	PPM 46/69/3 ADM
RA-20	RL-10					RR											10202076	0.00000	15.22000	PPM 46/69/4 ADM
RE-10	RL-10					RR			IBC								10202077	0.00000	10.10000	PM 46/69/5
RE-10	RL-10					RR			IBC								10202078	0.00000	10.82000	PM 46/69/6
RA-40	RL-40					RR											10202079	0.00000	25.95000	PPM 46/69/3 ADM
RA-20	RL-20					RR											10202080	0.00000	14.83000	PPM 46/69/4 ADM
AE	AG-40					LDR			IBC		PL						10202081	0.00000	65.11000	POR SEC 11 10 9
RE-10	RL-10					RR			IBC								10202082	0.00000	10.53600	PM 47/51/1
RE-10	RL-10					RR			IBC								10202083	0.00000	10.00200	PM 47/51/2
RE-10	RL-10					RR			IBC								10202086	0.00000	25.34200	PPM47/51/REM ADM
RE-10	RL-10					RR			IBC								10202090	0.00000	10.00000	PM 47/121/1
RE-10	RL-10					RR			IBC								10202091	0.00000	31.44000	PM 47/121/2

RE-10	RL-10					RR											10202096	0.00000	43.19300	RS 14/128/2
RE-10	RL-10					RR		EP									10202098	0.00000	40.00000	SEC 10 10 9
RE-10	RL-10					RR		EP									10202099	0.00000	40.00000	SEC 10 10 9
RE-10	RL-10					RR											10203002	0.00000	40.00000	SEC 17 10 9
RE-10	RL-10					RR		EP									10203003	0.00000	40.11000	RS 11/107/1
AE	RL-10					RR											10203010	0.00000	24.79000	SEC 29 10 9
CPO	R1A		DC			HDR						CP					10203013	11.00000	0.02000	SEC 29 10 9
RE-10	OS					OS		EP									10203017	11.00000	0.00000	POR SEC 18 10 9
RE-10	RL-10					RR											10203040	0.00000	10.00000	RS 31/60/B
RE-10	RL-10					RR											10204007	0.00000	20.02000	PM 7/91/C
RE-10	RL-10					RR											10204008	0.00000	10.00100	PM 8/53/A
RE-10	RL-10					RR											10204009	0.00000	10.00100	PM 8/53/B
RE-10	RL-10					RR											10204010	0.00000	0.00000	PM 8/53/C
RE-10	RL-10					RR											10204012	0.00000	10.00000	PM 9/18/A
RE-10	RL-10					RR											10204013	0.00000	10.00000	PM 9/18/B
RE-10	RL-10					RR											10204014	0.00000	11.40000	PM 9/18/C
RE-10	RL-10					RR											10204021	0.00000	10.04000	PM 9/109/3
RE-10	RL-10					RR											10204023	0.00000	11.31000	PM 10/55/1
RE-10	RL-10					RR											10204024	0.00000	10.01100	PM 10/55/2
RE-10	RL-10					RR											10204025	0.00000	10.44000	PM 10/55/3
RE-10	RL-10					RR											10204026	0.00000	10.00000	PM 10/50/1
RE-10	RL-10					RR											10204027	0.00000	15.00000	PM 10/50/2
RE-10	RL-10					RR											10204028	0.00000	10.00000	PM 10/98/1
RE-10	RL-10					RR											10204029	0.00000	10.00000	PM 10/98/2
RE-10	RL-10					RR											10204038	0.00000	9.94000	SEC 8 10 9
RE-10	RL-10					RR											10204039	0.00000	7.23000	PM 30/150/A
RE-10	RL-10					RR											10204041	0.00000	7.80000	PM 30/150/B
RE-10	RL-10					RR											10204043	0.00000	9.10300	PM 30/150/C
RE-10	RL-10					RR											10204047	0.00000	10.13000	PM 12/54/A
RE-10	RL-10					RR											10204048	0.00000	10.13000	PM 12/54/B
RE-10	RL-10					RR											10204049	0.00000	10.33000	PM 12/54/C
RE-10	RL-10					RR											10204050	0.00000	9.90200	PM 33/50/A
RE-10	RL-10					RR											10204051	0.00000	10.00000	PM 33/50/B
RE-10	RL-10					RR											10204052	0.00000	10.00000	PM 33/50/C
RE-10	RL-10					RR											10204053	0.00000	10.00000	PM 33/50/D
RE-10	RL-10					RR											10204054	0.00000	15.36000	PM 33/138/A
RE-10	RL-10					RR											10204055	0.00000	11.63000	PM 33/138/B
RE-10	RL-10					RR			IBC								10205002	0.00000	10.09400	PM 17/35/1
RE-10	RL-10					RR			IBC								10205003	0.00000	10.00000	PM 17/35/2
RE-10	RL-10					RR			IBC								10205004	0.00000	10.00000	PM 17/35/3
RE-10	RL-10					RR			IBC								10205005	0.00000	10.00000	PM 17/35/4
RE-10	RL-10					RR			IBC								10205006	0.00000	20.09000	PM 21/72/1
RE-10	RL-10					RR			IBC								10205007	0.00000	10.05000	PM 21/72/2
RE-10	RL-10					RR			IBC								10205008	0.00000	10.05000	PM 21/72/3
RE-10	RL-10					RR											10205009	0.00000	10.00000	SEC 8 10 9
RE-10	RL-10					RR			IBC								10205010	0.00000	10.01000	PM 13/143/D

RE-10	RL-10					RR			IBC								10205011	0.00000	10.00900	PM 13/143/C
RE-10	RL-10					RR		EP									10205014	0.00000	5.00000	SEC 9 10 9
RE-10	RL-10					RR											10205017	0.00000	2.68000	SEC 9 10 9
RE-10	RL-10					RR											10205018	0.00000	2.70000	SEC 9 10 9
RE-10	RL-10					RR											10205019	0.00000	4.30000	SEC 9 10 9
RE-10	RL-10					RR											10205020	0.00000	6.35500	SEC 9 10 9
RE-10	RL-10					RR											10205021	0.00000	0.51000	SEC 9 10 9
RE-10	RL-10					RR											10205022	0.00000	0.99000	SEC 9 10 9
RE-10	RL-10					RR		EP									10205027	0.00000	12.73000	SEC 9 10 9
RE-10	RL-10					RR			IBC								10205040	0.00000	10.02000	SEC 4 10 9
RE-10	RL-10					RR			IBC								10205041	0.00000	12.23000	SEC 4 & 9 10 9
RE-10	RL-10					RR			IBC								10205045	0.00000	27.94000	SEC 9 10 9
RE-10	RL-10					RR		EP									10206002	0.00000	10.00000	PM 3/178/1
RE-10	RL-10					RR		EP									10206003	0.00000	10.00000	PM 3/178/2
RE-10	RL-10					RR		EP									10206004	0.00000	10.00000	PM 3/178/3
RE-10	RL-10					RR		EP									10206005	0.00000	10.00000	PM 3/178/4
RE-10	RL-10					RR		EP									10206006	0.00000	10.00000	PM 3/179/1
RE-10	RL-10					RR		EP									10206007	0.00000	10.00000	PM 3/179/2
RE-10	RL-10					RR		EP									10206008	0.00000	10.00000	PM 3/179/3
RE-10	RL-10					RR		EP									10206009	0.00000	10.00000	PM 3/179/4
RE-10	RL-10					RR		EP									10206010	0.00000	10.00000	PM 12/7/A
RE-10	RL-10					RR		EP									10206011	0.00000	10.00000	PM 12/7/B
RE-10	RL-10					RR		EP									10206012	0.00000	10.01000	PM 12/7/C
RE-10	RL-10					RR		EP									10206017	0.00000	9.65000	PM 20/90/C
RE-10	RL-10					RR		EP									10206020	0.00000	10.00000	PM 25/21/1
RE-10	RL-10					RR		EP									10206021	0.00000	10.00000	PM 25/21/2
RE-10	RL-10					RR		EP									10206022	0.00000	11.53000	PM 19/29/A
RE-10	RL-10					RR		EP									10206023	0.00000	0.98000	SEC 9 10 9
RE-10	RL-10					RR		EP									10206024	0.00000	10.00200	PM 19/29/B
RE-10	RL-10					RR											10206025	0.00000	119.51000	SEC 9 10 9
RE-10	RL-10					RR			IBC								10206036	0.00000	13.56000	PM 37/35/2
RE-10	RL-10					RR		EP									10206038	0.00000	10.00200	PM 40/112/1
RE-10	RL-10					RR		EP									10206039	0.00000	9.63800	PM 40/112/2
RE-10	RL-10					RR		EP									10206040	0.00000	10.00200	PM 40/112/3
RE-10	RL-10					RR		EP									10206041	0.00000	10.00200	PM 40/112/4
RE-10	RL-10					RR		EP									10206043	0.00000	9.59000	PM 43/134/2
RE-10	RL-10					RR			IBC								10206045	0.00000	11.19900	PM 47/6/1
RE-10	RL-10					RR			IBC								10206046	0.00000	12.35200	PM 47/6/2
RE-10	RL-10					RR		EP									10206048	0.00000	12.73000	SEC 9 10 9
RE-10	RL-10					RR		EP									10206049	0.00000	7.27000	SEC 9 10 9
RE-10	RL-10					RR		EP									10206050	0.00000	10.01000	PM 12/7/D
RE-10	RL-10					RR			IBC								10206051	0.00000	10.00000	PM 49/130/1
RE-10	RL-10					RR			IBC								10206052	0.00000	10.00100	PM 49/130/2
RE-10	RL-10					RR											10207009	0.00000	27.50000	PM 5/10/B
RE-10	RL-10					RR											10207015	0.00000	20.00000	PM 8/60/3
RE-10	RL-10					RR											10207024	0.00000	10.00000	PM 11/134/A

RE-10	RL-10					RR											10207025	0.00000	10.00000	PM 11/134/B
RE-10	RL-10					RR											10207026	0.00000	10.21000	SEC 8 10 9
RE-10	RL-10					RR											10207029	0.00000	12.17000	PM 12/119/A
RE-10	RL-10					RR											10207030	0.00000	10.00000	PM 12/119/B
RE-10	RL-10					RR											10207037	0.00000	10.43000	SEC 17 10 9
RE-5	RL-10					RR											10207037	0.00000	10.43000	SEC 17 10 9
RE-10	RL-10					RR											10207042	0.00000	15.00000	PM 33/41/1
RE-10	RL-10					RR											10207043	0.00000	15.23000	PM 33/41/2
RE-10	RL-10					RR											10207054	0.00000	17.10100	PM 5/10/A&12/116
RE-10	RL-10					RR			IBC								10208005	0.00000	12.23200	PM 19/83/A
RE-10	RL-10					RR			IBC								10208006	0.00000	10.00000	PM 19/83/B
RE-10	RL-10					RR			IBC								10208007	0.00000	10.00000	PM 19/83/C
RE-10	RL-10					RR			IBC								10208008	0.00000	10.03000	SEC 3 10 9
RE-10	RL-10					RR			IBC								10208009	0.00000	10.24000	SEC 3 10 9
RE-10	RL-10					RR			IBC								10208010	0.00000	10.00000	RS 9/26 S3109
RE-10	RL-10					RR			IBC								10208011	0.00000	10.00000	RS 9/26 S3109
RE-10	RL-10					RR			IBC								10208012	0.00000	10.23000	RS 28/101/2
RE-10	RL-10					RR			IBC								10208013	0.00000	0.28600	RS 24/110/3
RE-10	RL-10					RR			IBC								10208014	0.00000	13.11000	POR PAR 1 7-101
RE-10	RL-10					RR			IBC								10208015	0.00000	10.00000	POR PAR 1 7-101
RE-10	RL-10					RR			IBC								10208016	0.00000	10.00000	POR PAR 1 7-101
RE-10	RL-10					RR			IBC								10209005	0.00000	10.00000	PM 19/82/1
RE-10	RL-10					RR			IBC								10209006	0.00000	10.00000	PM 19/82/2
RE-10	RL-10					RR			IBC								10209007	0.00000	10.00000	PM 19/82/3
RE-10	RL-10					RR			IBC								10209008	0.00000	9.59000	PM 19/82/4
RE-5	RL-10					RR		EP									10209011	0.00000	10.40000	PM 4/132/1
RE-10	RL-10					RR			IBC								10209012	0.00000	10.48000	PM 23/85/A
RE-10	RL-10					RR			IBC								10209013	0.00000	10.48000	PM 23/85/B
RE-10	RL-10					RR			IBC								10209015	0.00000	20.10000	PM 27/137/A
RE-10	RL-10					RR			IBC								10209019	0.00000	10.10000	PM 36/25/1
RE-10	RL-10					RR			IBC								10209020	0.00000	10.00000	PM 36/25/2
RE-10	RL-10					RR			IBC								10209033	0.00000	10.00000	PM 43/49/1
RE-10	RL-10					RR			IBC								10209034	0.00000	10.00000	PM 43/49/2
RE-10	RL-10					RR			IBC								10209035	0.00000	10.00000	PM 43/49/3
RE-10	RL-10					RR			IBC								10209036	0.00000	10.00000	PM 43/49/4
RE-10	RL-10					RR			IBC								10210008	0.00000	12.04000	PM 18/32/C
RE-10	RL-10					RR			IBC								10210011	0.00000	10.16000	PM 18/32/A
RE-10	RL-10					RR			IBC								10210012	0.00000	11.35000	PM 18/32/B
RE-10	RL-10					RR			IBC								10210013	0.00000	12.01900	PM 18/32/D
R2	RM		DC		AA	MFR						CP					10211005	0.00000	0.00000	L 5
R2	RM		DC		AA	MFR						CP					10211014	0.00000	1.45600	PM 47/119/B
C	CL		DC	PD	AA	C						CP					10211021	11.00000	0.05700	POR PM 49/109/1
C	CC		DC	PD	AA	C						CP					10211022	0.00000	1.55200	POR PM 49/109/1
R2	RM		DC		AA	MFR						CP					10211024	0.00000	3.33400	PPM 47/119/A+
RE-10	RL-10					RR		EP									10212002	0.00000	22.02300	RS 24/99/1
RE-10	RL-10					RR		EP									10212003	0.00000	22.02200	RS 24/99/2

RE-10	RL-10					RR		EP									10212006	0.00000	15.00300	PM 42/127/1
RE-10	RL-10					RR		EP									10212007	0.00000	15.00300	PM 42/127/2
RE-10	RL-10					RR		EP									10212010	0.00000	8.03000	SEC 10 10 9
RE-10	RL-10					RR		EP									10212012	0.00000	18.23500	RS 29/8/1
RE-10	RL-10					RR		EP									10212014	0.00000	10.00100	PM 50/2/1
RE-10	RL-10					RR		EP									10212015	0.00000	10.00100	PM 50/2/2
RE-10	RL-10					RR		EP									10212016	0.00000	11.51700	PM 50/2/3
RE-10	RL-10					RR		EP									10212018	0.00000	20.06700	PM 50/131/1
RE-10	RL-10					RR		EP									10212019	0.00000	20.06700	PM 50/131/2
RE-10	RL-10					RR											10213001	0.00000	20.08000	PM 11/105/A
RE-10	RL-10					RR											10213002	0.00000	10.00000	PM 11/105/B
RE-10	RL-10					RR											10213003	0.00000	10.00000	PM 11/105/C
RE-10	RL-10					RR											10213004	0.00000	10.00000	PM 11/105/D
RE-10	RL-10					RR											10213005	0.00000	10.00000	PM 14/117/A
RE-10	RL-10					RR											10213006	0.00000	22.21000	PM 14/117/B
RE-10	RL-10					RR											10213007	0.00000	11.94000	PM 14/117/C
RE-10	RL-10					RR											10213010	0.00000	10.00000	PM 14/137/A
RE-10	RL-10					RR											10213011	0.00000	30.33000	PM 14/137/B
RE-10	RL-10					RR											10213012	0.00000	10.00000	PM 14/137/C
RE-10	RL-10					RR											10213013	0.00000	10.00000	PM 14/137/D
RE-10	RL-10					RR											10213014	0.00000	20.01000	PM 10/90/A
RE-10	RL-10					RR											10213016	0.00000	10.03000	PM 10/90/C
RE-10	RL-10					RR											10213017	0.00000	10.03000	PM 10/90/D
RE-10	RL-10					RR											10213019	0.00000	40.10000	PM 15/144/B
RE-10	RL-10					RR											10213020	0.00000	20.20000	PM 15/144/C
RE-10	RL-10					RR											10213021	0.00000	60.66000	PM 15/144/D
RE-10	RL-10					RR											10213022	0.00000	10.01000	PM 35/60/1
RE-10	RL-10					RR											10213023	0.00000	10.00000	PM 35/60/2
RE-10	RL-10					RR											10213024	0.00000	10.34000	PM 35/60/3
RE-10	RL-10					RR											10213025	0.00000	10.01000	PM 35/60/4
RE-10	RL-10					RR											10213026	0.00000	10.10000	PM 40/136/1
RE-10	RL-10					RR											10213027	0.00000	10.00000	
RE-10	RL-10					RR											10213029	0.00000	10.40400	PM 47/125/1
RE-10	RL-10					RR											10213030	0.00000	10.00500	PM 47/125/2
RE-10	RL-10					RR											10214001	0.00000	10.04000	PM 21/36/1
RE-10	RL-10					RR											10214002	0.00000	13.59000	PM 21/36/2
RE-10	RL-10					RR											10214003	0.00000	7.24000	S 1 10 9&35 11 9
RE-10	RL-10					RR											10214004	0.00000	10.00000	PM 26/146/1
RE-10	RL-10					RR											10214005	0.00000	10.27000	PM 26/146/2
RE-10	RL-10					RR											10214006	0.00000	10.00000	PM 26/146/3
RE-10	RL-10					RR											10214007	0.00000	1.38000	SEC 1 10 9
RE-10	RL-10					RR											10214012	0.00000	3.49000	SEC 1 10 9
RE-10	RL-10					RR											10214018	0.00000	10.30000	PM 26/41/1
RE-10	RL-10					RR											10214020	0.00000	10.64000	PM 26/41/3
RE-10	RL-10					RR											10214025	0.00000	0.25000	SEC 1 10 9
RE-10	RL-10					RR											10214039	0.00000	35.08000	PORPAR 2 PM32-56

RE-10	RL-10					RR											10214066	0.00000	15.78000	RS 14/115/B
RE-10	RL-10					RR											10214067	0.00000	14.22000	RS 14/115/A
RE-10	RL-10					RR											10214068	0.00000	10.38500	PM 40/61/1
RE-10	RL-10					RR											10214069	0.00000	10.11000	PM 40/61/2
RE-10	RL-10					RR											10214070	0.00000	10.76000	PM 40/61/3
RE-10	RL-10					RR											10214071	0.00000	11.54100	PM 40/61/4
RE-10	RL-10					RR											10214073	0.00000	10.00000	PM 42/104/2
RE-10	RL-10					RR											10214074	0.00000	10.00000	PM 42/104/3
RE-10	RL-10					RR											10214079	0.00000	13.54300	PM 46/52/1
RE-10	RL-10					RR											10214080	0.00000	10.00000	PM 46/52/2
RE-5	I					I											10214081	0.00000	15.96000	PM 47/10/1
RE-10	RL-10					RR											10214088	0.00000	10.01000	POR RS 27/144
RE-10	RL-10					RR											10214089	0.00000	10.00300	POR RS 27/144
RE-10	RL-10					RR											10214091	0.00000	19.80100	PPM 32/56/1
RE-10	RL-10					RR											10214092	0.00000	10.89600	PPM 29/46/C
RE-5	I					I				MR							10215016	0.00000	9.70000	SEC 12 10 9 ADM
RE-5	I					I											10215025	0.00000	35.47000	POR TR 3 RS 8-90
RE-10	I					I											10215026	11.00000	0.03000	POR TR 3 RS 8-90
RE-5	I					I				MR							10215028	0.00000	20.37600	3 27-83&S12 10 9
PD	RL-10					RR											10216003	0.00000	44.21000	SEC 12 10 9
PD	RE-5					LDR											10216004	0.00000	5.00000	SEC 12 10 9
PD	RE-5					LDR											10216005	0.00000	5.00000	S 7 1010&12 10 9
PD	RE-5					LDR											10216007	0.00000	5.30000	PM 45/89/1
PD	RE-5					LDR											10216008	0.00000	5.02000	PM 45/89/2
PD	RE-5					LDR											10216009	0.00000	6.77000	PM 45/89/3
RE-10	RL-10					RR			IBC	MR							10217005	0.00000	5.00000	RS 10/97 S13109
RE-10	RL-10					RR			IBC								10217007	0.00000	10.10000	S 12&13 10 9 ADM
RE-10	RL-10					RR											10217011	0.00000	14.83000	POR L 7 S12 10 9
RE-10	RL-10					RR											10217013	0.00000	186.07000	SEC 12 10 9 ADM
RE-10	RL-10					RR			IBC								10217014	0.00000	39.78000	S 12&13 10 9 ADM
RE-10	RL-10					RR			IBC								10217016	0.00000	8.28000	POR R/S 10-97
AE	AG-40					RR			IBC								10217017	0.00000	71.67000	RS 26/97
RE-10	AG-40					RR			IBC								10217017	0.00000	71.67000	RS 26/97
RE-10	RL-10					RR											10218001	0.00000	5.65400	PM 5/169/1
RE-10	RL-10					RR											10218002	0.00000	5.66500	PM 5/169/2
RE-10	RL-10					RR											10218003	0.00000	5.01200	PM 5/169/3
RE-10	RL-10					RR											10218004	0.00000	5.01000	PM 5/169/4
RE-10	RL-10					RR											10218005	0.00000	10.14000	PM 13/148/1
RE-10	RL-10					RR											10218006	0.00000	10.13000	PM 13/148/2
RE-10	RL-10					RR											10218007	0.00000	10.14000	PM 13/148/3
RE-10	RL-10					RR											10218008	0.00000	10.13000	PM 13/148/4
RE-10	RL-10					RR		EP									10218010	0.00000	20.18000	RS 20/28/1
RE-10	RL-10					RR											10218015	0.00000	5.00000	SEC 18 10 9
RE-10	RL-10					RR											10218016	0.00000	5.00000	SEC 18 10 9
RE-10	RL-10					RR		EP									10218017	0.00000	40.00000	SEC 18 10 9
RE-10	RL-10					RR											10218018	0.00000	12.38000	SEC 18 10 9

RE-10	RL-10					RR											10218021	0.00000	4.00000	SEC 18 10 9
RE-10	RL-10					RR											10218023	0.00000	10.09000	PM 46/26/1
RE-10	RL-10					RR											10218024	0.00000	14.12900	PM 46/26/2
RE-10	RL-10					RR		EP									10218026	0.00000	10.00000	PM 50/107/1
RE-10	RL-10					RR		EP									10218027	0.00000	10.15000	PM 50/107/2
RE-10	RL-10					RR											10219010	0.00000	9.59000	SEC 19 10 9
RE-10	RL-10					RR											10219011	0.00000	10.62000	SEC 19 10 9
RE-10	RL-10					RR											10219012	0.00000	67.00000	SEC 19 10 9
RE-10	RL-10					RR											10219013	0.00000	13.00000	SEC 19 10 9
RE-10	RL-10					RR											10219014	0.00000	44.56000	POR L 2 19 10 9
RE-10	RL-10					RR											10219015	0.00000	43.81800	POR 18 10 9
RE-10	RL-10					RR											10219016	0.00000	119.65200	SEC 19 10 9
RE-10	RL-10					RR											10220004	0.00000	1.02800	SEC 17 10 9
RE-10	RL-10					RR											10220015	0.00000	2.00000	SEC 17 10 9
RE-10	RL-10					RR											10220040	0.00000	18.91000	PM 37/136/B
RE-10	RL-10					RR											10220041	0.00000	10.00000	PM 37/136/C
RE-10	RL-10					RR											10220042	0.00000	10.00000	PM 37/136/D
RE-10	RL-10					RR											10220043	0.00000	10.00200	PM 37/149/1
RE-10	RL-10					RR											10220044	0.00000	10.00000	PM 37/149/2
RE-10	RL-10					RR											10220045	0.00000	10.00000	PM 37/149/3
RE-10	RL-10					RR											10220046	0.00000	10.00000	PM 37/149/4
RE-10	RL-10					RR											10220057	0.00000	10.13000	PM 50/74/1
RE-10	RL-10					RR											10220058	0.00000	11.50000	PM 50/74/2
RE-10	RL-10					RR											10220059	0.00000	10.00000	PM 50/74/3
RE-10	RL-10					RR											10220060	0.00000	10.10000	PM 50/74/4
RE-10	RL-10					RR											10221008	0.00000	140.25500	SEC 21 & 21 10 9
RE-10	RL-10					RR											10221010	0.00000	1.39000	SEC 20 10 9
RE-10	RL-10					RR											10221011	0.00000	6.97000	SEC 19 10 9
RE-10	RL-10					RR											10221016	0.00000	10.00000	RS 13/82/2
RE-10	RL-10					RR											10221018	0.00000	10.00000	PM 34/4/A
RE-10	RL-10					RR											10221019	0.00000	10.00000	PM 34/4/B
RE-10	RL-10					RR											10221025	0.00000	10.00000	RS 13/82/1
RE-10	RL-10					RR											10221026	0.00000	10.00000	PM 36/53/A
RE-10	RL-10					RR											10221027	0.00000	10.00000	PM 36/53/B
RE-10	RL-10					RR											10222001	0.00000	10.00000	PM 6/84/A
RE-10	RL-10					RR											10222002	0.00000	10.10000	PM 6/84/B
RE-10	RL-10					RR											10222003	0.00000	16.49000	PM 6/84/C
RE-10	RL-10					RR											10222004	0.00000	27.95000	SEC 19 10 9
RE-10	RL-10					RR											10222007	0.00000	10.01000	PM 10/81/1
RE-10	RL-10					RR											10222008	0.00000	10.01000	PM 10/81/2
RE-10	RL-10					RR											10222010	0.00000	0.96000	RS 18/123/1
RE-10	RL-10					RR											10222011	0.00000	0.57000	SEC 19 10 9
RE-10	RL-10					RR											10222012	0.00000	5.29000	SEC 19 10 9
RE-5	RE-10					RR											10222014	11.00000	1.35800	TR 1 RS 18-32
RE-10	RL-10					RR											10223146	0.00000	10.00000	RS 10/126/1
RE-10	RL-10					RR		EP									10223147	0.00000	10.00000	RS 10/126/2

RE-10	RL-10					RR		EP									10223148	0.00000	10.21000	PM 43/55/2
RE-10	RL-10					RR		EP									10223149	0.00000	10.16000	PM 43/55/1
RE-10	RL-10					RR											10223150	0.00000	13.46800	PM 41/136/1
RE-10	RL-10					RR		EP									10223151	0.00000	12.24000	PM 43/55/3
RE-10	RE-5					LDR											10223152	0.00000	1.90000	SEC 17 10 9
A	OS					OS		EP									10224001	11.00000	80.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224001	11.00000	80.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224001	11.00000	80.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224002	11.00000	40.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224003	11.00000	40.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224004	11.00000	40.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224005	11.00000	20.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224006	11.00000	10.00000	SEC 16 10 9
A	OS					OS		EP									10224007	11.00000	5.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224008	11.00000	15.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224009	11.00000	30.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224010	11.00000	2.50000	SEC 16 10 9
RE-10	OS					OS		EP									10224011	11.00000	30.00000	SEC 16 10 9
RE-10	OS					OS		EP									10224012	11.00000	7.50000	SEC 16 10 9
RE-10	RL-10					RR		EP									10224013	0.00000	10.02000	PM 34/104/A
RE-10	RL-10					RR		EP									10224015	0.00000	10.03000	PM 41/75/1
RE-10	RL-10					RR		EP									10224016	0.00000	10.04000	PM 41/75/2
RE-10	RL-10					RR		EP									10224017	0.00000	10.04500	PM 41/75/3
RE-10	RL-10					RR		EP									10225002	0.00000	10.05000	PM 4/42/B
RE-10	RL-10					RR		EP									10225003	0.00000	10.04300	PM 4/42/C
RE-10	RL-10					RR		EP									10225004	0.00000	10.04000	PM 4/42/D
RE-10	RL-10					RR		EP									10225006	0.00000	10.05000	PM 5/161/1
RE-10	RL-10					RR		EP									10225007	0.00000	10.04500	PM 5/161/2
RE-10	RL-10					RR		EP									10225008	0.00000	10.04000	PM 5/161/3
RE-10	RL-10					RR		EP									10225013	0.00000	10.05000	PM 2/85/1
RE-10	RL-10					RR		EP									10225014	0.00000	10.05000	PM 2/85/2
RE-10	RL-10					RR		EP									10225015	0.00000	10.05000	PM 2/85/3
RE-10	RL-10					RR		EP									10225016	0.00000	10.05000	PM 2/85/4
RE-10	RL-10					RR		EP									10225017	0.00000	10.00000	SEC 21 10 9
RE-10	RL-10					RR		EP									10225018	0.00000	10.00000	SEC 21 10 9
RE-10	RL-10					RR		EP									10225019	0.00000	10.00000	SEC 21 10 9
RE-10	RL-10					RR		EP									10225020	0.00000	10.00000	SEC 21 10 9
RE-10	RL-10					RR		EP									10225021	0.00000	10.06000	PM 3/104/A
RE-10	RL-10					RR		EP									10225022	0.00000	10.02100	PM 3/104/B
RE-5	R1A					HDR						CP					10226036	0.00000	1.79000	PM 13/78/A
RE-5	R1A				AA	HDR						CP					10226036	0.00000	1.79000	PM 13/78/A
RE-5	RE-10					RR											10226046	11.00000	1.10000	SEC 21 10 9
RE-5	R1A					HDR						CP					10226054	0.00000	10.06000	SEC 21 10 9
RE-5	R1A					HDR						CP					10226054	0.00000	10.06000	SEC 21 10 9
RE-5	R1A				AA	HDR						CP					10226054	0.00000	10.06000	SEC 21 10 9
RE-5	R1A					HDR						CP					10226057	0.00000	12.11000	RS 15/103/1

RE-10	RL-10					RR											10227101	0.00000	10.01000	L 2
RE-10	RL-10					RR											10227102	0.00000	10.01000	L 3
RE-10	RL-10					RR											10227103	0.00000	10.02000	L 4
RE-10	RL-10					RR											10227104	0.00000	10.88000	L 5
RE-10	RL-10					RR											10227105	0.00000	10.01300	L 6
RE-10	RL-10					RR											10227106	0.00000	10.02000	L 7
RE-10	RL-10					RR											10227107	0.00000	10.01000	L 8
RE-10	RL-10					RR											10227109	0.00000	10.01000	L 10
RE-10	RL-10					RR											10227110	0.00000	10.02000	L 11
RE-10	RL-10					RR											10227111	0.00000	10.76000	L 12
RE-10	RL-10					RR											10227112	0.00000	10.10000	L 13
RE-10	RL-10					RR											10227113	0.00000	10.01000	L 14
RE-10	RL-10					RR											10227114	0.00000	10.01000	L 1
C	CL		DC		AA	C						CP					10231501	0.00000	0.92400	L A
RE-10	RL-10					RR			IBC								10237033	0.00000	10.00100	PM 48/58/B
R2	RM			PD	AA	MFR						CP					10239101	0.00000	0.16000	L 1
R2	RM			PD	AA	MFR						CP					10239102	0.00000	0.07000	L 2B
R2	RM			PD	AA	MFR						CP					10239103	0.00000	0.08000	L 2A
R2	RM			PD	AA	MFR						CP					10239201	0.00000	0.08000	L 3B
R2	RM			PD	AA	MFR						CP					10239202	0.00000	0.08000	L 3A
R2	RM			PD	AA	MFR						CP					10239205	0.00000	0.07000	L 5B
R2	RM			PD	AA	MFR						CP					10239206	0.00000	0.07000	L 5A
R2	RM			PD	AA	MFR						CP					10239207	0.00000	0.07000	L 6B
R2	RM			PD	AA	MFR						CP					10239208	0.00000	0.07000	L 6A
R2	RM			PD	AA	MFR						CP					10239209	0.00000	0.07000	L 7B
R2	RM			PD	AA	MFR						CP					10239210	0.00000	0.07000	L 7A
R2	RM			PD	AA	MFR						CP					10239212	0.00000	0.07000	PM 38/140/1
R2	RM			PD	AA	MFR						CP					10239213	0.00000	0.07000	PM 38/140/2
R2	RM			PD	AA	MFR						CP					10239301	0.00000	0.07000	L 8A
R2	RM			PD	AA	MFR						CP					10239302	0.00000	0.07000	L 8B
R2	RM			PD	AA	MFR						CP					10239303	0.00000	0.08000	L 9A
R2	RM			PD	AA	MFR						CP					10239304	0.00000	0.07000	L 9B
R2	RM			PD	AA	MFR						CP					10239305	0.00000	0.07000	L 10A
R2	RM			PD	AA	MFR						CP					10239306	0.00000	0.07000	L 10B
R2	RM			PD	AA	MFR						CP					10239307	0.00000	0.07000	L 11A
R2	RM			PD	AA	MFR						CP					10239308	0.00000	0.07000	L 11B
R2	RM			PD	AA	MFR						CP					10239309	0.00000	0.07000	L 12A
R2	RM			PD	AA	MFR						CP					10239310	0.00000	0.07000	L 12B
R2	RM			PD	AA	MFR						CP					10239401	0.00000	0.09000	L 13A
R2	RM			PD	AA	MFR						CP					10239402	0.00000	0.09000	L 13B
R2	RM			PD	AA	MFR						CP					10239403	0.00000	0.09000	L 14A
R2	RM			PD	AA	MFR						CP					10239404	0.00000	0.09000	L 14B
R2	RM		DC		AA	MFR						CP					10242101	0.00000	0.00000	L 1
RE-10	RL-10					RR			IBC								10245001	0.00000	10.00100	L 1
RE-10	RL-10					RR			IBC								10245002	0.00000	10.00000	L 2
RE-10	RL-10					RR			IBC								10245003	0.00000	10.00100	L 3

RE-10	RL-10					RR			IBC								10245004	0.00000	10.00000	L 4
RE-10	RL-10					RR			IBC								10245005	0.00000	10.00000	L 5
RE-10	RL-10					RR			IBC								10245006	0.00000	10.00000	L 6
RE-10	RL-10					RR			IBC								10245007	0.00000	10.00000	L 7
RE-10	RL-10					RR			IBC								10245008	0.00000	10.00000	L 8
RE-10	RL-10					RR			IBC								10245009	0.00000	10.00000	L 9
RE-10	RL-10					RR			IBC								10245010	0.00000	10.16000	L 10
RE-10	RL-10					RR			IBC								10245011	0.00000	10.00000	L 11
RE-10	RL-10					RR			IBC								10245012	0.00000	10.00500	L 12
RE-10	RL-10					RR			IBC								10245013	0.00000	10.57500	L 13
RE-10	RL-10					RR		EP									10245014	0.00000	4.72800	L 14
RE-10	RL-10					RR			IBC								10245015	0.00000	11.83800	L 15
RE-10	RL-10					RR			IBC								10245016	0.00000	10.55700	L 16
RE-10	RL-10					RR			IBC								10245017	0.00000	10.01000	L 17
RE-10	RL-10					RR			IBC								10245018	0.00000	10.00000	L 18
R2	RM			PD	AA	MFR						CP					10255001	0.00000	0.11000	L 15A
R2	RM			PD	AA	MFR						CP					10255002	0.00000	0.10000	L 15B
R2	RM			PD	AA	MFR						CP					10255003	0.00000	0.08000	L 16A
R2	RM			PD	AA	MFR						CP					10255004	0.00000	0.09000	L 16B
R2	RM			PD	AA	MFR						CP					10255005	0.00000	0.08000	L 17A
R2	RM			PD	AA	MFR						CP					10255006	0.00000	0.11000	L 17B
R2	RM			PD	AA	MFR						CP					10255007	0.00000	0.10000	L 18B
R2	RM			PD		MFR						CP					10255008	0.00000	0.07000	L 18A
R2	RM			PD	AA	MFR						CP					10255008	0.00000	0.07000	L 18A
R2	RM			PD		MFR						CP					10255009	0.00000	0.10000	L 19B
R2	RM			PD	AA	MFR						CP					10255009	0.00000	0.10000	L 19B
R2	RM			PD		MFR						CP					10255010	0.00000	0.09000	L 19A
R2	RM			PD		MFR						CP					10255011	0.00000	0.12000	L 20B
R2	RM			PD		MFR						CP					10255012	0.00000	0.14000	L 20A
R2	RM			PD		MFR						CP					10255013	0.00000	0.12000	L 21B
R2	RM			PD	AA	MFR						CP					10255013	0.00000	0.12000	L 21B
R2	RM			PD	AA	MFR						CP					10255014	0.00000	0.08000	L 21A
R2	RM			PD	AA	MFR						CP					10255015	0.00000	0.09000	L 22B
R2	RM			PD	AA	MFR						CP					10255016	0.00000	0.08000	L 22A
R2	RM			PD	AA	MFR						CP					10255017	0.00000	0.09000	L 23B
R2	RM			PD	AA	MFR						CP					10255018	0.00000	0.09000	L 23A
R2	RM			PD		MFR						CP					10255019	2.00000	0.00000	ROADWAY AW
R2	RM			PD	AA	MFR						CP					10255019	2.00000	0.00000	ROADWAY AW
R20K	R1A					MDR						CP					10256028	2.00000	0.64000	L V RDWY
RA-40	RL-40					RR											10401008	0.00000	47.56000	SEC 4 11 8
RF	RF-L					OS											10401009	11.00000	0.00000	POR S4 8 &9 11 8
AE	AG-40					AL											10402003	0.00000	130.00000	SEC 10 11 8
AE	AG-40					AL											10402004	0.00000	30.00000	SEC 10 11 8
AE	LA-10					RR											10402007	0.00000	75.29000	SEC 3 11 8
RF	RL-10					RR											10402008	0.00000	8.11000	SEC 3 11 8
AE	LA-10					RR											10402014	0.00000	9.99000	RS 20/46 S10118

RA-40	RL-40					RR											10402018	0.00000	165.95200	RS 23/100/1
RA-20	RL-20					RR											10402019	0.00000	165.95100	RS 23/100/2
RA-20	RL-20					RR											10402020	0.00000	165.95200	RS 23/100/3
RA-40	RL-40					RR											10402021	0.00000	165.95100	RS 23/100/4
RF	RF-L					OS											10402031	11.00000	0.00000	POR SEC 3 11 8
RF	RF-L					OS											10402032	11.00000	0.00000	POR SEC3&10 11 8
RA-40	LA-10					RR											10403001	0.00000	13.89000	RS 13/47/1
AE	AG-40					AL											10403003	0.00000	284.57000	SEC 16 11 8
RA-40	LA-10					RR											10403004	0.00000	41.27000	SEC 16 11 8
RA-40	RL-40					RR											10403005	0.00000	39.94000	SEC 16 11 8
MR	RL-40					RR											10403006	0.00000	434.22000	SEC 21 11 8
RA-40	RL-40					RR											10403006	0.00000	434.22000	SEC 21 11 8
RA-40	RL-40					RR											10403006	0.00000	434.22000	SEC 21 11 8
RA-40	RL-10					RR											10403007	0.00000	1.92000	SEC 20 11 8
RA-20	RL-20					RR											10403008	0.00000	20.00000	PM 21/122/A
RA-20	RL-20					RR											10403009	0.00000	20.00000	PM 21/122/B
RA-20	RL-20					RR											10403010	0.00000	20.00000	PM 21/122/C
MR	RL-40					RR											10403011	0.00000	72.76000	PM 21/122/D
RA-40	RL-10					RR											10403012	0.00000	4.20000	RS 13/47/2
RF	RF-L					OS											10403013	11.00000	0.00000	16 17 20&21 11 8
RF	RF-L					OS											10403013	11.00000	0.00000	16 17 20&21 11 8
AE	AG-40					AL											10404003	0.00000	10.00000	SEC 15 11 8
AE	AG-40					AL											10404004	0.00000	150.00000	SEC 15 11 8
AE	AG-40					AL											10404005	0.00000	80.00000	SEC 15 11 8
RE-10	RL-10					RR			IBC								10404014	0.00000	10.01000	PM 29/92/1
AE	AG-40					AL											10404020	0.00000	40.00000	SEC 22 11 8
RE-10	RL-10					RR			IBC								10404021	0.00000	10.00000	PM 30/141/1
RE-10	RL-10					RR			IBC								10404022	0.00000	10.00000	PM 30/141/2
RE-10	RL-10					RR			IBC								10404023	0.00000	9.65200	PM 30/141/3
RE-10	RL-10					RR			IBC								10404024	0.00000	10.00100	PM 30/141/4
RE-10	RL-10					RR			IBC								10404030	0.00000	29.17000	PM 39/121/1
RE-10	RL-10					RR			IBC								10404031	0.00000	10.04000	PM 39/121/2
RE-10	RL-10					RR			IBC								10404032	0.00000	10.09000	PM 39/121/3
RE-10	RL-10					RR			IBC								10404033	0.00000	10.10000	PM 39/121/4
RE-10	RL-10					RR			IBC								10404039	0.00000	10.02000	PM 40/117/1
RE-10	RL-10					RR			IBC								10404040	0.00000	10.02000	PM 40/117/2
RE-10	RL-10					RR			IBC								10404041	0.00000	10.02000	PM 40/117/3
RE-10	RL-10					RR			IBC								10404042	0.00000	10.02000	PM 40/117/4
RE-10	RL-10					RR			IBC								10404043	0.00000	10.02000	PM 40/118/1
RE-10	RL-10					RR			IBC								10404044	0.00000	10.02000	PM 40/118/2
RE-10	RL-10					RR			IBC								10404045	0.00000	10.02000	PM 40/118/3
RE-10	RL-10					RR			IBC								10404046	0.00000	10.06000	PM 40/118/4
RE-10	RL-10					RR			IBC								10404047	0.00000	10.02000	PM 40/119/1
RE-10	RL-10					RR			IBC								10404050	0.00000	12.58000	PM 40/119/4
RE-10	RL-10					RR			IBC								10404054	0.00000	17.71500	PM 42/129/1
RE-10	RL-10					RR			IBC								10404055	0.00000	53.14500	PM 42/129/2

RE-10	RL-10					RR			IBC								10404059	0.00000	12.93600	PORPAR2&4PM29-9
RE-10	RL-10					RR			IBC								10404060	0.00000	12.16800	PORPAR3&4PM29-9
RE-10	RL-10					RR			IBC								10404061	0.00000	12.02900	PM 46/37/A
RE-10	RL-10					RR			IBC								10404062	0.00000	12.24800	PM 46/37/B
AE	AG-40					AL											10404063	0.00000	97.45200	SEC 14 11 8
AE	AG-40					AL											10404064	0.00000	27.54800	SEC 14 11 8
AE	AG-40					AL											10404065	0.00000	80.00000	SEC 15 11 8
AE	AG-40					AL											10404066	0.00000	40.00000	SEC 22 11 8
AE	AG-40					AL											10404067	0.00000	120.00000	SEC 22 11 8
AE	AG-40					AL											10404068	0.00000	80.00000	SEC 22 11 8
AE	AG-40					AL											10404069	0.00000	80.00000	SEC 22 11 8
AE	AG-40					AL											10404070	0.00000	40.00000	SEC 23 11 8
AE	AG-40					AL											10404071	0.00000	40.00000	SEC 23 11 8
AE	AG-40					AL											10404072	0.00000	160.00000	SEC 23 11 8 ADM
AE	AG-40					AL											10404073	0.00000	160.00000	SEC 23 11 8
AE	AG-40					AL											10404074	0.00000	40.00000	SEC 23 11 8
AE	AG-40					AL											10404075	0.00000	40.00000	SEC 23 11 8
RE-10	RL-10					RR			IBC								10404077	0.00000	10.08000	RS 30/110/2
RE-10	RL-10					RR			IBC								10404078	0.00000	10.16000	RS 30/110/1
AE	AG-40					AL											10404079	0.00000	188.22000	SEC 15&22 11 8
AE	AG-40					AL											10404080	0.00000	296.13000	SEC 15&22 11 8
RA-40	RL-10					RR											10405001	0.00000	17.73000	SEC 29 11 8
RA-40	RL-10					RR											10405002	0.00000	9.77000	SEC 29 11 8
MR	RL-40					RR											10405003	0.00000	74.60000	SEC 28 & 29 11 8
RA-40	RL-40					RR											10405003	0.00000	74.60000	SEC 28 & 29 11 8
MR	RL-40					RR											10405004	0.00000	200.00000	SEC 28 11 8
RA-40	RL-40					RR											10405004	0.00000	200.00000	SEC 28 11 8
RF	RF-L					OS											10405018	11.00000	232.24000	SEC 32 11 8
MR	RL-40					RR											10405020	0.00000	80.00000	SEC 28 11 8
RA-40	RL-40					RR											10405020	0.00000	80.00000	SEC 28 11 8
RF	RF-L					OS											10405021	11.00000	0.00000	S29 31&32 11 8
AE	AG-40					AL											10406002	0.00000	300.00000	SEC 27 & 34 11 8
AE	RL-10					RR											10406006	0.00000	34.95000	RS 13/46 S25118
AE	LA-10					RR											10406007	0.00000	44.82000	SEC 25 11 8 ADM
RA-20	OS					OS		EP									10406008	11.00000	229.08000	SEC 36 11 8
RA-20	OS					OS		EP									10406009	11.00000	40.00000	SEC 36 11 8
RA-20	OS					OS		EP									10406010	11.00000	40.00000	SEC 36 11 8
AE	AG-40					AL											10406011	0.00000	36.85000	SEC 34 11 8
RE-10	OS					OS		EP									10406014	11.00000	12.33000	SEC 36 11 8
RA-40	RL-40					RR											10406017	0.00000	43.20000	SEC 34 11 8
RA-40	RL-40					RR											10406018	0.00000	43.20000	SEC 34 11 8
RA-40	RL-40					RR											10406025	0.00000	43.20000	SEC 34 11 8
RA-40	RL-40					RR											10406026	0.00000	43.20000	SEC 34 11 8
RA-40	RL-40					RR											10406030	0.00000	40.00000	SEC 27 11 8
RA-40	LA-10					RR											10406031	0.00000	40.00000	SEC 27 11 8
RA-40	LA-10					RR											10406034	0.00000	80.00000	SEC 27 11 8

RA-40	LA-10					RR											10406035	0.00000	40.00000	SEC 27 11 8
RF	RF-L					OS											10406036	11.00000	0.00000	34 35 25&26 11
RF	RF-L					LDR											10406037	11.00000	0.00000	25 26 34&35 11 8
AE	AG-40					AL											10406039	0.00000	92.54400	SEC 26 11 8
AE	AG-40					AL											10406040	0.00000	80.00000	SEC 26 11 8
AE	AG-40					AL											10406041	0.00000	160.00000	SEC 26 11 8
AE	AG-40					AL											10406042	0.00000	104.00000	SEC 26 11 8
AE	AG-40					AL											10406043	0.00000	167.32800	SEC 27 11 8
AE	AG-40					AL											10406044	0.00000	26.08000	SEC 34 11 8
AE	AG-40					AL											10406045	0.00000	18.36500	SEC 35 11 8
AE	AG-40					AL											10406046	0.00000	5.51000	SEC 27 11 8
AE	AG-40					AL											10406047	0.00000	80.00000	SEC 27 11 8
AE	PA-20					AL											10406048	0.00000	151.64000	SEC 25 11 8 ADM
AE	PA-20					AL											10406049	0.00000	168.36000	SEC 25 11 8
AE	RL-10					LDR			IBC								10407005	0.00000	145.00000	SEC 7 11 9
AE	RL-10					LDR											10407007	0.00000	143.47200	RS 32/20/8
AE	RL-10					LDR											10407007	0.00000	143.47200	RS 32/20/8
RA-20	RE-10					LDR											10407007	0.00000	143.47200	RS 32/20/8
RA-20	RL-10					RR											10407008	0.00000	1.50000	SEC 5 11 9
RA-20	RL-10					LDR			IBC								10407009	0.00000	85.00000	SEC 8 11 9
RA-20	RL-20					RR											10407011	0.00000	80.00000	SEC 8 11 9
AE	RL-10					LDR											10407015	0.00000	157.08400	RS 32/20/6
RA-20	RL-10					LDR											10407015	0.00000	157.08400	RS 32/20/6
AE	RF-L					TR											10407021	0.00000	162.34100	RS 32/20/5
RA-20	RF-L					TR											10407021	0.00000	162.34100	RS 32/20/5
AE	RF-L					TR											10407022	0.00000	48.96500	RS 32/20/7
RA-20	RF-L					TR											10407022	0.00000	48.96500	RS 32/20/7
RA-20	RF-L					TR											10407022	0.00000	48.96500	RS 32/20/7
RA-20	RF-L					TR											10407022	0.00000	48.96500	RS 32/20/7
RA-20	RF-L					TR											10407022	0.00000	48.96500	RS 32/20/7
R1A	RE-10					LDR											10407024	0.00000	214.00000	SEC 5 11 9
R1	RE-10					C							PLTH				10407025	0.00000	75.00000	SEC 6 11 9
R1A	RE-10					C							PLTH				10407025	0.00000	75.00000	SEC 6 11 9
R1	RE-10					LDR											10407026	0.00000	51.30000	SEC 6 11 9
R1A	RE-10					LDR											10407026	0.00000	51.30000	SEC 6 11 9
RA-40	RL-40					RR											10408001	0.00000	480.00000	SEC 17 11 9
AE	AG-40					AL											10408005	0.00000	264.00000	SEC 21 11 9
RA-40	RL-40					RR											10408011	0.00000	160.00000	SEC 20 11 9
AE	RF-L					TR											10408012	0.00000	16.54000	SEC 16 11 9
RE-10	RL-10					RR											10408020	0.00000	40.34000	RS 12/34 S19119
RE-10	RL-10					RR											10408021	0.00000	39.97000	RS 12/59/D
RE-10	RL-10					RR											10408024	0.00000	40.00000	RS 12/59/A
RE-10	RL-10					RR											10408026	0.00000	40.09000	RS 12/34 S19119
RE-10	RL-10					RR											10408027	0.00000	40.13000	RS 12/34 S19119
RE-10	RL-10					RR											10408028	0.00000	39.90000	RS 12/59/B
RE-10	RL-10					RR											10408029	0.00000	39.94000	RS 12/59/C

RE-10	RL-10					RR											10408030	0.00000	40.36000	RS 12/63/1
RE-10	RL-10					RR											10408031	0.00000	40.62000	RS 12/63/2
RE-10	RL-10					RR											10408032	0.00000	40.36000	RS 12/63/3
RA-40	LA-10					RR											10408033	0.00000	40.62000	RS 12/63/4
RE-10	RL-10					RR											10408035	0.00000	40.17000	RS 12/90 S20119
RE-10	RL-10					RR			IBC								10408042	0.00000	24.00000	RS 12/85/B
RE-10	RL-10					RR											10408045	0.00000	40.12000	RS 12/90 S20119
RE-10	RL-10					RR			IBC								10408046	0.00000	40.12000	RS 12/90 S20119
RE-10	RL-10					RR			IBC								10408047	0.00000	40.07000	RS 12/90 S20119
RE-10	RL-10					RR			IBC								10408049	0.00000	10.00000	PM 37/117/A
RE-10	RL-10					RR			IBC								10408050	0.00000	10.00000	PM 37/117/B
RE-10	RL-10					RR			IBC								10408051	0.00000	10.00000	PM 37/117/C
RE-10	RL-10					RR			IBC								10408059	0.00000	10.00000	PM 44/48/1
RE-10	RL-10					RR			IBC								10408060	0.00000	10.00000	PM 44/48/2
RA-40	OS					OS											10408061	11.00000	160.00000	RS 21/98/1
RA-40	OS					OS			IBC								10408063	11.00000	254.66000	S 20 & 21 11 9
AE	AG-40					AL											10408069	0.00000	201.00000	POR S 21 11 9ADM
AE	AG-40					AL											10408070	0.00000	160.00000	POR S 16 11 9ADM
RE-10	RL-10					RR											10408076	0.00000	40.38000	P R/S12-34&12-75
RE-10	RL-10					RR											10408077	0.00000	40.69000	T4RS12-75&12-34
RA-40	OS					OS			IBC								10409003	11.00000	61.11000	RS 17/101/1
RA-40	RE-10					RR			IBC								10409007	11.00000	12.08000	PM 24/150/2
RA-40	RE-10					RR			IBC								10409008	11.00000	10.08000	PM 24/150/3
RA-40	RE-10					RR			IBC								10409009	11.00000	10.08000	PM 24/150/4
AE	AG-40					AL			IBC								10409011	0.00000	118.00000	SEC 28 11 9
RA-40	RL-10					RR			IBC								10409012	0.00000	9.96000	RS 32/90/1
RA-40	RL-40					RR			IBC								10409013	0.00000	161.03000	RS 27/145/1
RE-10	RL-10					RR			IBC								10409014	0.00000	20.00000	SEC 33 11 9
RE-10	RL-10					RR			IBC								10409016	0.00000	1.22000	SEC 33 11 9
RE-10	RL-10					RR			IBC								10409017	0.00000	19.84000	RS 14/56 S33119
RE-10	RL-10					RR			IBC								10409018	0.00000	20.00000	SEC 33 11 9
RA-40	RF-L					OS											10409023	0.00000	48.00000	SEC 31 11 9
RA-20	RE-10					LDR		EP									10409025	0.00000	15.00000	SEC 31 11 9
RA-40	OS					OS			IBC								10409028	11.00000	0.00000	SW 1/4 28 11 9
RA-40	OS					OS		EP	IBC								10409029	11.00000	0.00000	POR SEC 32 11 9
RA-40	OS					OS		EP	IBC								10409029	11.00000	0.00000	POR SEC 32 11 9
RE-10	OS					OS		EP	IBC								10409029	11.00000	0.00000	POR SEC 32 11 9
RE-10	OS					OS		EP	IBC								10409030	11.00000	0.00000	POR SEC 32 11 9
RE-10	RL-10					RR			IBC								10409032	0.00000	9.88000	RS 14/9/B
RE-10	RL-10					RR			IBC								10409034	0.00000	10.00000	RS 14/9/A
RE-10	RL-10					RR			IBC								10409035	0.00000	10.00000	PM 36/142/1
RE-10	RL-10					RR			IBC								10409036	0.00000	9.88000	PM 36/142/2
RE-10	RL-10					RR			IBC								10409038	0.00000	30.04400	PM 38/87/2
RA-40	LA-10					RR			IBC								10409040	0.00000	45.00000	RS 15/73/B
RA-40	RL-40					RR			IBC								10409041	0.00000	52.00000	RS 15/73/C
RA-40	RL-40					RR			IBC								10409042	11.00000	40.28000	RS 17/119/1

RA-40	RL-40					RR			IBC								10409043	11.00000	40.38200	RS 17/119/2
RA-40	RL-40					RR			IBC								10409044	11.00000	80.66000	RS 17/119/3
RA-40	LA-10					RR			IBC								10409046	0.00000	40.00000	SEC 29 11 9
RA-40	RL-40					RR			IBC								10409047	11.00000	40.00000	SEC 29 11 9
RA-40	RL-40					RR			IBC								10409049	11.00000	53.93000	RS 18/129/1
RA-40	RL-40					RR			IBC								10409050	11.00000	40.30000	RS 18/129/2
RA-40	LA-10					RR			IBC								10409051	0.00000	40.17000	RS 18/129/3
RE-10	RL-10					RR			IBC								10409052	0.00000	30.04000	PM 38/87/1
RA-40	RF-L					OS			IBC								10409057	11.00000	0.00000	POR SEC 30 11 9
RA-40	RF-L					OS			IBC								10409057	11.00000	0.00000	POR SEC 30 11 9
RF	RF-L					OS			IBC								10409057	11.00000	0.00000	POR SEC 30 11 9
RA-40	RF-L					OS		EP	IBC								10409058	11.00000	0.00000	POR SEC 30 11 9
RF	RF-L					OS		EP	IBC								10409058	11.00000	0.00000	POR SEC 30 11 9
RF	RF-L					OS		EP	IBC								10409059	11.00000	0.00000	POR SEC 30 11 9
RF	RF-L					OS		EP									10409060	11.00000	0.00000	POR SEC 31 11 9
RA-20	RE-10					LDR		EP									10409064	11.00000	50.00000	POR SEC 31 11 9
RA-20	RE-10					LDR		EP									10409065	11.00000	393.09000	POR SEC 31 11 9
RA-40	RL-40					RR			IBC								10409066	0.00000	73.89000	SEC 29 11 9
AE	RL-10					RR											10410004	0.00000	10.00000	PM 15/58/D
RE-10	RL-10					RR											10410004	0.00000	10.00000	PM 15/58/D
RE-10	RL-10					RR			IBC								10410006	0.00000	10.05000	PM 15/61/B
RE-10	RL-10					RR			IBC								10410007	0.00000	5.03000	PM 15/61/C
RE-10	RL-10					RR			IBC								10410008	0.00000	5.01000	PM 15/61/D
RA-20	RL-20					RR			IBC								10410010	0.00000	40.33000	PM 15/86/B
RA-40	LA-10					RR			IBC								10410012	0.00000	33.85000	PM 15/86/D
RE-10	RL-10					RR			IBC								10410016	0.00000	6.05300	PM 14/107/4
RE-10	RL-10					RR			IBC								10410017	0.00000	5.00000	PM 17/6/1
RE-10	RL-10					RR			IBC								10410018	0.00000	5.00000	PM 17/6/2
RE-10	RL-10					RR			IBC								10410019	0.00000	5.00000	PM 17/7/1
RE-10	RL-10					RR			IBC								10410020	0.00000	5.00000	PM 17/7/2
RE-10	RL-10					RR			IBC								10410021	0.00000	5.04000	PM 17/69/1
RE-10	RL-10					RR			IBC								10410022	0.00000	5.06000	PM 17/69/2
RE-10	RL-10					RR			IBC								10410023	0.00000	5.06000	PM 17/69/3
RE-10	RL-10					RR			IBC								10410024	0.00000	5.03000	PM 17/69/4
RA-20	RL-20					RR			IBC								10410025	0.00000	18.85900	PM 24/76/A
RA-20	RL-20					RR			IBC								10410026	0.00000	19.31400	PM 24/76/B
RA-40	RL-40					RR			IBC								10410027	0.00000	30.07000	PM 24/91/A
RA-20	RL-10					RR			IBC								10410029	0.00000	15.16000	PM 24/91/C
RE-10	RL-10					RR			IBC								10410031	0.00000	10.00000	PM 25/106/A
RE-10	RL-10					RR			IBC								10410032	0.00000	10.00000	PM 25/106/B
RE-10	RL-10					RR			IBC								10410033	0.00000	20.37000	PM 25/106/C
RE-10	RL-10					RR			IBC								10410036	0.00000	13.00000	SEC 2 11 8
RE-10	RL-10					RR			IBC								10410037	0.00000	6.00000	SEC 2 11 8
RA-40	RL-10					RR			IBC								10410038	0.00000	10.01000	PM 26/136/1
RA-40	RL-10					RR			IBC								10410039	0.00000	10.00000	PM 26/136/2
RA-40	RL-10					RR			IBC								10410040	0.00000	10.00000	PM 26/136/3

RA-40	LA-10					RR			IBC								10410041	0.00000	10.00000	PM 26/136/4
RA-20	RL-10					RR			IBC								10410042	0.00000	6.45000	PM 28/17/1
RA-20	RL-10					RR			IBC								10410043	0.00000	5.00000	PM 28/17/2
RA-20	RL-10					RR			IBC								10410044	0.00000	5.00000	PM 28/17/3
RE-10	RL-10					RR			IBC								10410049	0.00000	10.14000	RS 11/131/1
RE-10	RL-10					RR			IBC								10410050	0.00000	10.12000	RS 11/131/2
RE-10	RL-10					RR			IBC								10410051	0.00000	10.11000	RS 11/131/3
RE-10	RL-10					RR			IBC								10410052	0.00000	10.10000	RS 11/131/4
RA-20	LA-10					RR			IBC								10410053	0.00000	10.00000	PM 24/91/D
RE-10	RL-10					RR			IBC								10410058	0.00000	12.78000	PM 36/137/1
RE-10	RL-10					RR			IBC								10410059	0.00000	10.00000	PM 36/137/2
RE-10	RL-10					RR			IBC								10410060	0.00000	10.27000	PM 38/91/A
RE-10	RL-10					RR			IBC								10410061	0.00000	10.77100	PM 38/91/B
RE-10	RL-10					RR			IBC								10410064	0.00000	10.15000	PM 42/99/1
RE-10	RL-10					RR			IBC								10410065	0.00000	10.00000	PM 42/99/2
RE-10	RL-10					RR			IBC								10410067	0.00000	129.43000	SEC 2 & 11 11 8
RA-40	RL-40					RR			IBC								10410068	0.00000	40.00000	SEC 2 11 8
RE-10	RL-10					RR			IBC								10410069	0.00000	11.18000	38/91/C&POR14/55
RE-10	RL-10					RR			IBC								10411001	0.00000	1.06000	SEC 2 11 8
RE-10	RL-10					RR			IBC								10411005	0.00000	10.02000	PM 16/138/A
RE-10	RL-10					RR			IBC								10411006	0.00000	10.04000	PM 16/138/B
RE-10	RL-10					RR			IBC								10411007	0.00000	10.03000	PM 16/138/C
RE-10	RL-10					RR			IBC								10411008	0.00000	10.05000	PM 16/138/D
RE-10	RL-10					RR			IBC								10411009	0.00000	10.01000	PM 16/137/A
RE-10	RL-10					RR			IBC								10411010	0.00000	10.03000	PM 16/137/B
RE-10	RL-10					RR			IBC								10411011	0.00000	10.01000	PM 16/137/C
RE-10	RL-10					RR			IBC								10411012	0.00000	10.01000	PM 16/137/D
RE-10	RL-10					RR			IBC								10411015	0.00000	14.89000	PM 3/29/A
RE-10	RL-10					RR			IBC								10411016	0.00000	19.86000	PM 3/29/C
RE-10	RL-10					RR			IBC								10411019	0.00000	5.01000	PM 4/16/1
RE-10	RL-10					RR			IBC								10411021	0.00000	9.88000	PM 4/16/3
RE-10	RL-10					RR			IBC								10411022	0.00000	20.00000	SEC 1 11 8
RE-10	RL-10					RR			IBC								10411026	0.00000	5.03000	PM 27/90/1
RE-10	RL-10					RR			IBC								10411027	0.00000	5.02000	PM 27/90/2
RE-10	RL-10					RR			IBC								10411028	0.00000	5.01000	PM 27/90/3
RE-10	RL-10					RR			IBC								10411029	0.00000	5.02000	PM 27/90/4
RE-10	RL-10					RR			IBC								10411030	0.00000	5.02000	PM 27/91/1
RE-10	RL-10					RR			IBC								10411031	0.00000	5.01000	PM 27/91/2
RE-10	RL-10					RR			IBC								10411033	0.00000	5.03000	PM 27/92/1
RE-10	RL-10					RR			IBC								10411034	0.00000	5.03000	PM 27/92/2
RE-10	RL-10					RR			IBC								10411035	0.00000	4.89000	RS 9/60/1
RE-10	RL-10					RR			IBC								10411036	0.00000	5.00000	RS 9/60/2
RE-10	RL-10					RR			IBC								10411037	0.00000	4.74000	PM 29/16/1
RE-10	RL-10					RR			IBC								10411038	0.00000	5.00000	PM 29/16/2
RE-10	RL-10					RR			IBC								10411039	0.00000	5.00000	PM 29/16/3
RE-10	RL-10					RR			IBC								10411040	0.00000	5.00000	PM 29/16/4

RE-10	RL-10					RR			IBC								10411041	0.00000	19.84000	PM 3/29/D
RE-10	RL-10					RR			IBC								10411042	0.00000	12.20000	POR PAR1PM 14-55
RE-10	RL-10					RR			IBC								10412002	0.00000	10.02000	PM 16/77/1
RE-10	RL-10					RR			IBC								10412003	0.00000	10.01000	PM 16/77/2
RE-10	RL-10					RR			IBC								10412004	0.00000	10.07000	PM 16/77/3
RE-10	RL-10					RR			IBC								10412005	0.00000	12.33000	PM 16/77/4
RE-10	RL-10					RR			IBC								10412007	0.00000	10.00000	PM 17/116/1
RE-10	RL-10					RR			IBC								10412008	0.00000	10.00000	PM 17/116/2
RE-10	RL-10					RR			IBC								10412011	0.00000	5.13000	PM 22/55/1
RE-10	RL-10					RR			IBC								10412012	0.00000	5.19000	PM 22/55/2
AE	AG-40					RR			IBC								10412014	0.00000	20.00000	PM 22/140/A
MR	LA-10					RR			IBC								10412017	0.00000	30.00000	PM 22/140/D
RA-20	LA-10					RR			IBC								10412017	0.00000	30.00000	PM 22/140/D
RE-10	RL-10					RR			IBC								10412018	0.00000	12.79000	PM 14/139/D
AE	PA-20					AL											10412019	0.00000	87.00000	87 A SEC 11 11 8
AE	AG-40					AL											10412020	0.00000	80.00000	SEC 11 11 8 ADM
AE	AG-40					AL											10412022	0.00000	80.00000	SEC 11 11 8 ADM
RE-10	RL-10					RR			IBC								10412030	0.00000	13.65000	PM 38/46/1
RE-10	RL-10					RR			IBC								10412031	0.00000	13.21000	PM 38/46/2
RE-10	RL-10					RR			IBC								10412032	0.00000	13.20000	PM 38/46/3
RE-10	RL-10					RR			IBC								10412033	0.00000	10.00500	PM 39/64/1
RE-10	RL-10					RR			IBC								10412034	0.00000	10.08700	PM 39/64/2
RE-10	RL-10					RR			IBC								10412035	0.00000	10.00000	PM 39/64/3
RE-10	RL-10					RR			IBC								10412036	0.00000	10.04000	PM 39/64/4
RE-10	RL-10					RR			IBC								10412041	0.00000	10.00000	RS 15/139/2
RE-10	RL-10					RR			IBC								10412042	0.00000	10.00000	RS 15/139/1
RE-10	RL-10					RR			IBC								10412043	0.00000	10.00000	PM 41/43/1
RE-10	RL-10					RR			IBC								10412044	0.00000	10.23900	PM 41/43/2
RE-10	RL-10					RR			IBC								10412045	0.00000	10.00900	PM 41/43/3
RE-10	RL-10					RR			IBC								10412046	0.00000	10.00000	PM 41/43/4
AE	LA-10					RR											10412049	0.00000	81.21000	S 11 11 8
RE-10	LA-10					RR											10412049	0.00000	81.21000	S 11 11 8
RE-10	LA-10			PD		RR											10412049	0.00000	81.21000	S 11 11 8
AE	AG-40					RR			IBC								10412057	0.00000	43.43000	RS 18/133/B
RE-10	RL-10					RR			IBC								10412059	0.00000	10.00000	PM 45/32/1
RE-10	RL-10					RR			IBC								10412060	0.00000	10.00000	PM 45/32/2
RE-10	RL-10					RR			IBC								10412061	0.00000	10.00000	PM 45/32/3
RE-10	RL-10					RR			IBC								10412062	0.00000	9.92000	PM 45/32/4
AE	AG-40					RR			IBC								10412063	0.00000	36.15000	RS 21/89/1
AE	AG-40					RR			IBC								10412065	0.00000	28.97000	RS 21/89/2
RE-10	RL-10					RR			IBC								10413039	0.00000	40.00000	SEC 12 11 8
RE-10	RL-10					RR			IBC								10413045	0.00000	73.21000	SEC 12 11 8
RE-10	RL-10					RR			IBC								10413047	0.00000	19.92000	PM 49/117/1
RE-10	RL-10					RR			IBC								10413048	0.00000	10.02000	PM 49/117/2
RE-10	RL-10					RR			IBC								10413049	0.00000	10.00000	PM 49/117/3
RA-20	RL-10					RR											10415001	0.00000	11.00000	SEC 15 11 8

AE	AG-40					AL											10415004	0.00000	32.78000	SEC 15 11 8 ADM
RA-20	RL-20					RR											10415005	0.00000	57.56600	PM 45/81/1
RA-20	RL-20					RR											10415006	0.00000	57.56600	PM 45/81/2
MR	RL-40					RR											10415008	0.00000	62.49200	PM 45/81/3
RA-20	RL-40					RR											10415008	0.00000	62.49200	PM 45/81/3
RE-10	RL-10					RR			IBC								10416001	0.00000	10.00000	L 1
RE-10	RL-10					RR			IBC								10416002	0.00000	10.00000	L 2
RE-10	RL-10					RR			IBC								10416003	0.00000	10.00000	L 3
RE-10	RL-10					RR			IBC								10416004	0.00000	10.59700	L 4
RE-10	RL-10					RR			IBC								10416005	0.00000	12.84800	L 5
RE-10	RL-10					RR			IBC								10416006	0.00000	10.00000	L 6
RE-10	RL-10					RR			IBC								10416007	0.00000	10.00200	L 7
RE-10	RL-10					RR			IBC								10416010	0.00000	10.00000	L 10
RE-10	RL-10					RR			IBC								10416014	0.00000	10.00200	L 14
RE-10	RL-10					RR			IBC								10416015	0.00000	10.00000	L 15
RE-10	RL-10					RR			IBC								10416016	0.00000	9.34100	POR LOT 13
RE-10	RL-10					RR			IBC								10416018	0.00000	14.33900	POR LOT 12
RE-10	RL-10					RR			IBC								10416020	0.00000	8.38400	POR LOT 11
RE-10	RL-10					RR			IBC								10416022	0.00000	9.15500	POR LOT 9
RE-10	RL-10					RR			IBC								10416024	0.00000	9.72000	POR L 8 ADM
RE-10	RL-10					RR			IBC								10416026	2.00000	1.23000	S24 11 8 ADM_AW
RE-10	RL-10					RR			IBC								10416028	1.00000	2.00000	SEC 23 11 8 ADM
RE-10	RL-10					RR			IBC								10416029	1.00000	2.06300	SEC 24 11 8 ADM
RE-10	RL-10					RR			IBC								10417002	0.00000	10.00000	PM 27/43/B
RE-10	RL-10					RR			IBC								10417003	0.00000	10.00000	PM 27/43/C
RE-10	RL-10					RR			IBC								10417004	0.00000	10.00200	PM 27/43/D
RE-10	RL-10					RR			IBC								10417005	0.00000	10.00000	PM 21/11/2
RE-10	RL-10					RR			IBC								10417006	0.00000	10.00000	PM 21/11/3
RE-10	RL-10					RR			IBC								10417007	0.00000	10.00000	PM 21/11/4
RE-10	RL-10					RR			IBC								10417009	0.00000	10.00200	PM 28/16/B
RE-10	RL-10					RR			IBC								10417010	0.00000	10.00000	PM 22/32/1
RE-10	RL-10					RR			IBC								10417011	0.00000	10.00000	PM 22/32/2
RE-10	RL-10					RR			IBC								10417012	0.00000	10.00000	PM 22/32/3
RE-10	RL-10					RR			IBC								10417013	0.00000	10.01000	PM 27/41/A
RE-10	RL-10					RR			IBC								10417014	0.00000	10.00500	PM 27/41/B
RE-10	RL-10					RR			IBC								10417015	0.00000	10.02100	PM 27/41/C
RE-10	RL-10					RR			IBC								10417016	0.00000	10.00000	PM 22/31/1
RE-10	RL-10					RR			IBC								10417017	0.00000	10.01000	PM 22/31/2
RE-10	RL-10					RR			IBC								10417018	0.00000	10.00000	PM 22/31/3
RE-10	RL-10					RR			IBC								10417019	0.00000	9.66000	PM 28/126/A
RE-10	RL-10					RR			IBC								10417020	0.00000	10.00000	PM 28/126/B
RE-10	RL-10					RR			IBC								10417021	0.00000	10.00000	PM 28/126/C
RE-10	RL-10					RR			IBC								10417022	0.00000	10.00000	PM 31/124/1
RE-10	RL-10					RR			IBC								10417023	0.00000	10.04000	PM 31/24/2
RE-10	RL-10					RR			IBC								10417024	0.00000	10.00000	PM 42/9/1
RE-10	RL-10					RR			IBC								10417025	0.00000	9.64900	PM 42/9/2

RE-10	RL-10					RR											10418002	0.00000	31.23000	SEC 29 11 8
RA-40	RL-10					RR											10418003	0.00000	11.83000	SEC 29 11 8
RF	RF-L					OS											10418004	11.00000	11.57000	SEC 29 11 8
RF	RF-L					OS											10418009	11.00000	10.25000	SEC 32 11 8
RF	RF-L					OS											10418010	11.00000	1.00000	SEC 32 11 8
RA-40	LA-10					RR											10418015	0.00000	20.37000	SEC 29 11 8
RF	RF-L					OS											10418016	11.00000	76.74000	SEC 29 11 8
RF	RF-L					OS											10418016	11.00000	76.74000	SEC 29 11 8
RF	RF-L					OS											10418017	11.00000	36.58000	SEC 32 11 8
RF	RF-L					OS											10418017	11.00000	36.58000	SEC 32 11 8
RF	RF-L					OS											10418018	11.00000	122.50000	SEC 32 11 8
RF	RF-L					OS											10418019	11.00000	11.25000	SEC 29&32 11 8
RA-40	RL-10					RR											10419001	0.00000	10.07000	PM 27/126/1
RA-40	RL-10					RR											10419002	0.00000	10.70300	PM 27/126/2
RA-40	RL-10					RR											10419003	0.00000	10.02200	PM 27/126/3
RA-40	RL-40					RR											10419006	0.00000	120.00000	SEC 33 11 8
RA-40	RL-40					RR											10419007	0.00000	120.00000	SEC 33 11 8
RA-40	RL-10					RR											10419008	0.00000	0.21000	SEC 33 11 8
RA-40	RL-10					RR											10419009	0.00000	0.27000	SEC 33 11 8
RA-40	RL-10					RR											10419010	0.00000	0.42000	SEC 33 11 8
RA-40	RL-40					RR											10419012	0.00000	40.00000	SEC 33 11 8
RA-40	LA-10					RR											10419013	0.00000	39.80000	RS 10/116 S33118
RA-40	RL-10					RR											10419015	0.00000	12.53000	PM 31/60/A
RA-40	LA-10					RR											10419016	0.00000	10.71000	PM 31/60/B
RA-40	RL-10					RR											10419017	0.00000	14.66000	PM 31/60/C
RA-40	LA-10					RR											10419018	0.00000	59.84700	POR RS 10/116+
RE-5	RL-10					RR											10420004	0.00000	10.98000	PM 9/34/1
RE-10	RL-10					RR											10420005	0.00000	10.04000	PM 9/34/2
RE-10	RL-10					RR											10420006	0.00000	10.00000	PM 9/34/3
RE-10	RL-10					RR											10420007	0.00000	10.04000	PM 9/34/4
RA-20	RE-10					LDR		EP									10421010	11.00000	6.65000	SEC 36 11 8
RA-20	OS					OS		EP									10421011	11.00000	74.51900	TR 1 R/S 12-120
RA-20	RE-10					LDR		EP									10421012	11.00000	86.33000	SEC 36 11 8
RE-10	OS					OS		EP									10421013	11.00000	13.30000	SEC 36 11 8
RE-10	OS					OS		EP									10421014	11.00000	4.14000	SEC 36 11 8
RE-10	RL-10					RR			IBC								10422004	0.00000	10.00000	PM 18/122/4
RE-10	RL-10					RR			IBC								10422005	0.00000	10.00300	PM 25/29/1
RE-10	RL-10					RR			IBC								10422006	0.00000	10.00000	PM 25/29/2
RE-10	RL-10					RR			IBC								10422007	0.00000	10.00000	PM 25/29/3
RE-10	RL-10					RR			IBC								10422008	0.00000	11.25000	PM 22/33/1
RE-10	RL-10					RR			IBC								10422009	0.00000	10.02000	PM 22/33/2
RE-10	RL-10					RR			IBC								10422010	0.00000	10.00000	PM 22/33/3
RE-10	RL-10					RR			IBC								10422013	0.00000	10.62000	PM 18/123/3
RE-10	RL-10					RR			IBC								10422014	0.00000	10.00000	PM 18/123/4
RE-10	RL-10					RR			IBC								10422015	0.00000	11.00000	SEC 24 11 8
AE	LA-10					RR			IBC								10422016	0.00000	31.70000	B 20-121&25 11 8

RA-20	LA-10					RR			IBC								10422016	0.00000	31.70000	B 20-121&25 11 8
RE-10	RL-10					RR			IBC								10422017	0.00000	8.27500	POR PM 18/122/2
RE-10	PA-20					RR			IBC								10422018	1.00000	1.72600	PPM 18/122/2 ADM
RE-10	RL-10					RR			IBC								10422019	0.00000	9.98000	POR PM 18/122/3
AE	PA-20					AL											10422022	0.00000	158.79600	SEC 24 11 8 ADM
RE-10	PA-20					AL											10422022	0.00000	158.79600	SEC 24 11 8 ADM
RA-20	RL-20					RR			IBC								10422024	0.00000	21.23100	PM 18/123/1
RE-10	RE-5					LDR											10424002	0.00000	6.58000	RS 10/128 S36118
RE-5	OS					OS		EP									10424005	11.00000	15.86000	SEC 36 11 8
RE-10	OS					OS		EP									10424014	11.00000	9.26000	PAR 1 P/M 8-117
RE-5	OS					OS		EP									10424014	11.00000	9.26000	PAR 1 P/M 8-117
RE-10	OS					OS		EP									10424015	11.00000	10.35000	PAR 2 P/M 8-117
RE-10	RL-10					RR											10424016	0.00000	10.00000	PM 8/117/3
RE-10	RL-10					RR											10424017	0.00000	10.00000	PM 8/117/4
RE-10	RL-10					RR											10424019	0.00000	10.02000	PM 9/4/B
RE-10	RF-L					TR											10424020	0.00000	10.49000	PM 9/4/C
RE-10	RF-L					TR											10424021	0.00000	10.05000	PM 9/4/D
RE-5	OS					OS		EP									10424026	11.00000	5.00000	PAR A P/M 22-93
RE-5	OS					OS		EP									10424028	11.00000	5.86000	PAR C P/M 22-93
R1A	CC					C							PLTH				10425009	0.00000	7.46000	PM 8/134/3
MP	CL		DC			C							PLTH				10425010	0.00000	9.01000	SEC 6 11 9
RE-5	R1A					MDR							PLTH				10425017	0.00000	1.00000	SEC 6 11 9
R1A	RE-5					LDR											10425032	0.00000	14.00000	SEC 6 11 9
C	CL		DC			C							PLTH				10425035	0.00000	0.30000	SEC 6 11 9
C	CL		DC			C							PLTH				10425036	0.00000	0.38000	SEC 6 11 9
RE-5	CL					C							PLTH				10425036	0.00000	0.38000	SEC 6 11 9
RE-5	R1A					MDR							PLTH				10425037	0.00000	0.00000	POR SEC 6 11 9
R1A	RE-5					LDR											10425040	0.00000	15.47000	RS 29/111/1
C	R1A		DC			MDR							PLTH				10425067	0.00000	1.00000	PM 40/44/2
C	R1A		DC			C							PLTH				10425079	0.00000	3.00000	PM 48/60/2
C	CL		DC			C							PLTH				10425083	0.00000	2.01000	RS 24/136/1
R1A	CC					C							PLTH				10425083	0.00000	2.01000	RS 24/136/1
RE-5	R1A					MDR							PLTH				10425085	0.00000	1.00000	PM 49/116/1
RE-5	R1A					MDR							PLTH				10425086	0.00000	0.91000	PM 49/116/2
C	CC		DC			C							PLTH				10426001	0.00000	1.30000	SEC 6 11 9
C	CL		DC			C							PLTH				10426004	0.00000	0.13000	SEC 6 11 9
R1A	CL					C							PLTH				10426007	0.00000	0.87000	SEC 6 11 9
R1A	CC					C							PLTH				10426009	0.00000	0.00000	POR SEC 6 11 9
R1A	CC					C							PLTH				10426011	0.00000	2.07000	SEC 6 11 9
R1A	CL					C							PLTH				10426016	0.00000	0.00000	SEC 6 11 9
C	CL		DC			C							PLTH				10427002	0.00000	0.88000	SEC 6 11 9
R1A	CC					C							PLTH				10427004	0.00000	1.47000	SEC 6 11 9
C	CL		DC			C							PLTH				10427005	0.00000	0.28000	SEC 6 11 9
C	CC		DC			C							PLTH				10427009	0.00000	1.07000	SEC 6 11 9
C	CC		DC			C							PLTH				10427011	0.00000	1.16000	SEC 6 11 9
C	CC		DC			C							PLTH				10427014	0.00000	1.02500	RS 6/3 SEC6119

C	CC		DC			C							PLTH				10427017	0.00000	4.62000	SEC 6 11 9
R1A	CC					C							PLTH				10427017	0.00000	4.62000	SEC 6 11 9
RE-10	RL-10					RR			IBC								10431007	0.00000	10.00000	PM 29/98/1
RE-10	RL-10					RR			IBC								10431008	0.00000	10.00000	PM 29/98/2
RE-10	RL-10					RR			IBC								10431009	0.00000	10.00000	PM 29/98/3
RE-10	RL-10					RR			IBC								10431012	0.00000	10.00000	PM 30/19/2
RE-10	RL-10					RR			IBC								10431014	0.00000	10.00000	POR PAR 1 30-19
RE-10	RL-10					RR			IBC								10431015	0.00000	10.00000	POR PAR 1 30-19
RE-10	RL-10					RR			IBC								10431016	0.00000	10.00000	PM 31/4/A
RE-10	RL-10					RR			IBC								10431017	0.00000	10.00000	PM 31/4/B
RE-10	RL-10					RR			IBC								10431018	0.00000	10.00000	PM 31/4/C
RE-10	RL-10					RR			IBC								10431026	0.00000	15.00000	RS 11/143 S33119
RE-10	RL-10					RR			IBC								10431030	0.00000	16.10000	SEC 33 11 9
RE-10	RL-10					RR			IBC								10431032	0.00000	10.01000	SEC 33 11 9
RE-10	RL-10					RR			IBC								10431035	0.00000	10.77000	RS 20/125/1
RE-10	RL-10					RR			IBC								10431036	0.00000	10.00000	RS 20/125/2
RE-10	RL-10					RR			IBC								10431039	0.00000	5.77000	RS 11/143 S33119
RE-10	RL-10					RR			IBC								10431040	0.00000	41.07000	RS 11/143 S33119
RE-10	RL-10					RR			IBC								10431049	0.00000	10.01000	POR 3 PM 17 102
RE-10	RL-10					RR			IBC								10431061	0.00000	10.78000	PM 35/88/A
RE-10	RL-10					RR			IBC								10431062	0.00000	10.00000	PM 35/88/B
RE-10	RL-10					RR			IBC								10431063	0.00000	10.00000	PM 35/88/C
RE-10	RL-10					RR			IBC								10431064	0.00000	10.01000	PM 35/88/D
RE-10	RL-10					RR			IBC								10431084	0.00000	10.11000	RS 18/42/1
RE-10	RE-5					LDR			IBC		PL						10431086	0.00000	5.00000	RS 18/42/3
RE-10	RL-10					RR			IBC								10431087	0.00000	10.39000	RS 18/91/2
RE-10	RL-10					RR			IBC								10431089	0.00000	10.39000	RS 18/91/1
RE-10	RL-10					RR			IBC								10431092	0.00000	8.51000	RS 19/108/1
RE-10	RL-10					RR			IBC								10431095	0.00000	7.18800	PPM 17/102/1 ADM
RE-10	RL-10					RR			IBC								10431096	0.00000	12.81300	PPM 17/102/1 ADM
RE-10	RL-10					RR			IBC								10431097	0.00000	1.13400	PPM 17/102/2 ADM
RE-10	RL-10					RR			IBC								10431098	0.00000	8.88900	PPM 17/102/2 ADM
RA-20	RL-10					RR											10433001	0.00000	14.16000	SEC 4 11 9
RA-20	LA-10					RR											10433007	0.00000	4.79000	RS 17/11 S4119
RA-20	RL-10					RR											10433008	0.00000	5.57000	SEC 4 11 9
RA-20	LA-20					AL											10433009	0.00000	10.36000	SEC 4 11 9
RA-20	RL-10					RR											10433011	0.00000	1.50000	SEC 4 11 9
RA-20	RL-10					RR											10433012	0.00000	14.50000	SEC 4 11 9
RA-20	RL-10					RR											10433013	0.00000	5.03000	PM 28/133/1
RA-20	RL-10					RR											10433015	0.00000	5.00000	PM 28/133/2
RA-20	LA-10					RR											10433016	0.00000	4.06900	PM 28/133/3
RA-20	RL-10					RR											10433017	0.00000	5.00000	PM 28/133/4
RA-20	LA-10					RR											10433018	0.00000	7.78000	SEC 4 11 9
RA-20	RE-10					RR											10433019	11.00000	0.12000	SEC 4 11 9
RA-20	RE-10					RR											10433020	11.00000	0.03000	SEC 4 11 9
RA-20	RF-L					TR											10433021	11.00000	0.11000	SEC 4 11 9

RA-20	RF-L					TR											10433022	11.00000	0.27000	SEC 4 11 9
RA-20	RF-L					TR											10433023	11.00000	0.10000	SEC 4 11 9
RA-20	LA-10					RR											10433025	0.00000	7.00000	PM 43/16/1
RA-20	RL-10					RR											10433026	0.00000	4.42200	PM 43/16/2
AE	RL-10					LDR			IBC								10435005	0.00000	55.00000	SEC 7 11 9
AE	RL-10					LDR			IBC								10435006	0.00000	25.00000	SEC 7 11 9
RA-20	LA-10					RR			IBC								10436058	0.00000	17.56000	SEC 8 11 9
RA-20	RL-20					RR			IBC								10436059	0.00000	22.91000	SEC 8 11 9
RE-10	RL-10					RR			IBC								10437001	0.00000	6.20000	PM 18/114/1
RE-10	RL-10					RR			IBC								10437002	0.00000	5.00000	PM 18/114/2
RE-10	RL-10					RR			IBC								10437003	0.00000	6.23000	PM 18/114/3
RE-10	RL-10					RR			IBC								10437007	0.00000	10.12000	PM 19/143/B
RE-10	RL-10					RR			IBC								10437008	0.00000	10.12300	PM 19/143/C
RE-10	RL-10					RR			IBC								10437009	0.00000	10.12000	PM 19/143/D
RE-10	RL-10					RR			IBC								10437010	0.00000	11.52000	PM 21/34/A
RE-10	RL-10					RR			IBC								10437011	0.00000	11.52000	PM 21/34/B
RE-10	RL-10					RR			IBC								10437012	0.00000	5.17000	PM 22/129/A
RE-10	RL-10					RR			IBC								10437013	0.00000	5.17000	PM 22/129/B
RE-10	RL-10					RR			IBC								10437019	0.00000	10.28000	PM 13/85/1
AE	RL-10					LDR			IBC								10437024	0.00000	60.00000	SEC 18 11 9
AE	LA-10					RR			IBC								10437025	0.00000	25.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10437026	0.00000	25.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10437029	0.00000	12.50000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10437030	0.00000	12.50700	RS 15/12/1&32/81
RA-40	RL-40					RR			IBC								10437031	0.00000	80.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10437034	0.00000	5.01000	PM 30/24/A
RE-10	RL-10					RR			IBC								10437035	0.00000	5.02000	PM 30/24/B
RE-10	RL-10					RR			IBC								10437036	0.00000	7.50000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10437037	0.00000	10.13000	PM 19/143/A
RE-10	RL-10					RR			IBC								10437038	0.00000	10.21000	PM 13/85/3
RE-10	RL-10					RR			IBC								10437039	0.00000	10.27000	PM 13/85/4
RE-10	RL-10					RR			IBC								10438001	0.00000	10.39000	PM 15/98/A
RE-10	RL-10					RR			IBC								10438002	0.00000	10.23000	PM 15/98/B
RE-10	RL-10					RR			IBC								10438003	0.00000	10.03000	PM 15/98/C
RE-10	RL-10					RR			IBC								10438004	0.00000	10.46000	PM 15/98/D
RE-10	RL-10					RR			IBC								10438005	0.00000	10.19000	PM 19/46/A
RE-10	RL-10					RR			IBC								10438006	0.00000	10.15000	PM 19/46/B
RE-10	RL-10					RR			IBC								10438007	0.00000	10.07000	PM 19/46/C
RE-10	RL-10					RR			IBC								10438008	0.00000	11.02000	PM 19/46/D
RE-10	RL-10					RR			IBC								10438009	0.00000	10.24000	PM 15/37/1
RE-10	RL-10					RR			IBC								10438010	0.00000	10.40700	PM 15/37/2
RE-10	RL-10					RR			IBC								10438011	0.00000	10.26000	PM 15/37/3
RE-10	RL-10					RR			IBC								10438012	0.00000	10.20400	PM 15/37/4
RE-10	RL-10					RR			IBC								10438013	0.00000	10.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10438015	0.00000	20.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10438016	0.00000	30.00000	SEC 18 11 9

RE-10	RL-10					RR			IBC								10438017	0.00000	4.99000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10438018	0.00000	5.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10438019	0.00000	9.83000	POR PM 2/103/1
RE-10	RL-10					RR			IBC								10438020	0.00000	10.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10438021	0.00000	9.98000	RS 29/138/1
RE-10	RL-10					RR			IBC								10438022	0.00000	9.93000	PM 2/103/2
RE-10	RL-10					RR			IBC								10438023	0.00000	9.99000	RS 16/99 S18119
RE-10	RL-10					RR			IBC								10438024	0.00000	10.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10438025	0.00000	10.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10438026	0.00000	10.00000	SEC 18 11 9
RE-10	RL-10					RR			IBC								10438027	0.00000	10.00000	PM 32/144/A
RE-10	RL-10					RR			IBC								10438028	0.00000	9.79000	PM 32/144/B
RA-40	OS					OS		EP	IBC								10439001	11.00000	18.87000	PM 20/116/A
RE-10	OS					OS		EP	IBC								10439001	11.00000	18.87000	PM 20/116/A
RA-40	OS					OS		EP	IBC								10439002	11.00000	20.69000	PM 20/116/B
RE-10	OS					OS		EP	IBC								10439002	11.00000	20.69000	PM 20/116/B
RE-10	OS					OS		EP									10439003	11.00000	10.00000	PAR 1 P/M 16-43
RE-10	RL-10					RR											10439004	0.00000	10.00000	PM 16/43/2
RE-10	RL-10					RR											10439005	0.00000	10.00000	PM 16/43/3
RE-10	RL-10					RR											10439006	0.00000	10.00000	PM 16/43/4
RE-10	RL-10					RR											10439007	0.00000	10.00000	PM 9/61/A
RE-10	RL-10					RR											10439008	0.00000	10.00000	PM 9/61/B
RE-10	RL-10					RR											10439009	0.00000	10.00000	PM 9/61/C
RE-10	RL-10					RR											10439010	0.00000	10.00000	PM 9/61/D
RE-10	RL-10					RR			IBC								10441001	0.00000	9.00000	L 12
RE-10	RL-10					RR			IBC								10441002	0.00000	10.00000	L 11
RE-10	RL-10					RR			IBC								10441003	0.00000	10.00000	L 9
RE-10	RL-10					RR			IBC								10441004	0.00000	10.00000	L 10
RE-10	RL-10					RR			IBC								10441005	0.00000	10.00000	L 8
RE-10	RL-10					RR			IBC								10441006	0.00000	10.00000	L 7
RE-10	RL-10					RR			IBC								10442001	0.00000	10.00000	L 6
RE-10	RL-10					RR			IBC								10442002	0.00000	10.00000	L 5
RE-10	RL-10					RR			IBC								10442003	0.00000	10.00000	L 4
RE-10	RL-10					RR			IBC								10442004	0.00000	10.00000	L 1
RE-10	RL-10					RR			IBC								10442005	0.00000	10.00000	L 3
RE-10	RL-10					RR			IBC								10442006	0.00000	10.00000	L 2
RE-10	RL-10					RR			IBC								10443001	0.00000	10.46400	PM 35/8/A
RE-10	RL-10					RR			IBC								10443002	0.00000	10.14000	PM 35/8/B
RE-10	RL-10					RR			IBC								10443003	0.00000	10.01000	PM 35/8/C
RE-10	RL-10					RR			IBC								10443004	0.00000	10.03000	PM 35/8/D
RE-10	RL-10					RR			IBC								10443005	0.00000	10.00000	PM 37/144/1
RE-10	RL-10					RR			IBC								10443006	0.00000	10.00000	PM 37/144/2
RE-10	RL-10					RR			IBC								10443007	0.00000	10.00000	PM 37/144/3
RE-10	RL-10					RR			IBC								10443008	0.00000	10.00000	PM 37/144/4
RE-10	RL-10					RR			IBC								10443010	0.00000	10.35900	PM 42/58/1
RE-10	RL-10					RR			IBC								10443011	0.00000	10.10500	PM 42/58/2

RE-10	RL-10					RR			IBC								10443012	0.00000	10.01700	PM 42/58/3
RE-10	RL-10					RR			IBC								10443013	0.00000	10.66200	PM 42/58/4
RA-40	LA-10					RR											10444001	0.00000	20.00000	PM 12/109/A
RA-40	RL-10					RR											10444004	0.00000	5.00000	PM 12/109/D
RA-40	RL-40					RR											10444005	0.00000	73.91000	SEC 28 & 33 11 8
RA-40	RL-10					RR											10444006	0.00000	5.42000	SEC 28 11 8
RA-40	RL-10					RR											10444007	0.00000	10.00000	SEC 28 11 8
RA-40	LA-10					RR											10444008	0.00000	10.00000	SEC 28 11 8
RA-40	LA-10					RR											10444009	0.00000	20.67000	SEC 28 11 8
RA-40	RL-40					RR											10444010	0.00000	40.00000	SEC 28 11 8
RA-40	LA-10					RR											10444011	0.00000	40.00000	SEC 28 11 8
RA-40	LA-10					RR											10444012	0.00000	40.00000	SEC 33 11 8
RA-40	RL-10					RR											10444015	0.00000	10.00000	PM 37/91/1
RA-40	RL-10					RR											10444016	0.00000	5.00000	PM 37/91/2
RA-40	LA-10					RR											10444017	0.00000	120.00000	SEC 28 11 8
RA-40	LA-10					RR											10444018	0.00000	80.00000	SEC 28 11 8
R1A	RE-5					LDR											10445002	0.00000	5.02500	L 2
RE-10	RL-10			PD		RR			IBC								10446101	0.00000	7.28000	L 1
RE-10	RL-10			PD		RR			IBC								10446102	0.00000	6.74000	L 2
RE-10	RL-10			PD		RR			IBC								10446105	2.00000	12.01000	POR LOT B
RE-10	RL-10			PD		RR			IBC								10446107	0.00000	6.94000	PM 46/94/1
RE-10	RL-10			PD		RR			IBC								10446108	0.00000	7.93000	PM 46/94/2
RE-10	RL-10			PD		RR			IBC								10446201	0.00000	10.18000	L 5
RE-10	RL-10			PD		RR			IBC								10446202	0.00000	7.68000	L 6
RE-10	RL-10			PD		RR			IBC								10446203	0.00000	8.50000	L 7
RE-10	RL-10			PD		RR			IBC								10446204	0.00000	9.05000	L 8
RE-10	RL-10			PD		RR			IBC								10446205	0.00000	9.63000	L 9
RE-10	RL-10			PD		RR			IBC								10446206	0.00000	9.34000	L 10
RE-10	RL-10			PD		RR			IBC								10446207	0.00000	7.69000	L 11
RE-10	RL-10			PD		RR			IBC								10446208	0.00000	7.48000	L 12
RE-10	RL-10			PD		RR			IBC								10446209	0.00000	9.16000	L 13
RE-10	RL-10			PD		RR			IBC								10446210	0.00000	7.52000	L 14
RE-10	RL-10			PD		RR			IBC								10446211	0.00000	8.29000	L 15
RE-10	RL-10			PD		RR			IBC								10446212	0.00000	7.95000	L 16
RE-10	RL-10			PD		RR			IBC								10446213	0.00000	10.39000	L 17
RE-10	RL-10			PD		RR			IBC								10446214	0.00000	13.20000	L 18
RE-10	RL-10			PD		RR			IBC								10446215	0.00000	9.13000	L 19
RE-10	RL-10			PD		RR			IBC								10446216	2.00000	6.74000	L A
RE-10	RL-10			PD		RR			IBC								10446218	0.00000	8.74000	L 21
RE-10	RL-10			PD		RR			IBC								10446219	0.00000	6.97000	L 22
RE-10	RL-10			PD		RR			IBC								10446223	0.00000	8.57000	L 31
RE-10	RL-10			PD		RR			IBC								10446224	0.00000	11.75000	L 32
RE-10	RL-10			PD		RR			IBC								10446225	0.00000	8.32000	PM 46/94/4
RE-10	RL-10			PD		RR			IBC								10446226	0.00000	7.16000	PM 46/94/5
RE-10	RL-10			PD		RR			IBC								10446227	0.00000	8.10000	PM 46/94/6
RE-10	RL-10			PD		RR			IBC								10446228	0.00000	8.14000	PM 46/94/7

RE-10	RL-10			PD		RR			IBC								10447103	0.00000	8.62000	L 25
RE-10	RL-10			PD		RR			IBC								10447104	0.00000	7.33000	L 26
RE-10	RL-10			PD		RR			IBC								10447105	0.00000	7.62000	L 27
RE-10	RL-10			PD		RR			IBC								10447106	0.00000	8.28000	L 35
RE-10	RL-10			PD		RR			IBC								10447107	0.00000	8.49000	L 36
RE-10	RL-10			PD		RR			IBC								10447110	0.00000	10.22000	L 39
RE-10	RL-10			PD		RR			IBC								10447111	0.00000	8.11000	L 40
RE-10	RL-10			PD		RR			IBC								10447112	2.00000	13.65000	POR LOT B AW
RE-10	RL-10			PD		RR			IBC								10447120	0.00000	10.39000	RS 23/22/4
RE-10	RL-10			PD		RR			IBC								10447121	0.00000	10.65000	RS 23/22/1
RE-10	RL-10			PD		RR			IBC								10447122	0.00000	9.11000	RS 23/22/2
RE-10	RL-10			PD		RR			IBC								10447123	0.00000	8.09000	PM 46/94/3
RE-10	RL-10			PD		RR			IBC								10447201	0.00000	9.87000	L 33
RE-10	RL-10			PD		RR			IBC								10447202	0.00000	8.74000	L 34
RE-10	RL-10			PD		RR			IBC								10447203	0.00000	7.24000	L 41
RE-10	RL-10			PD		RR			IBC								10447204	0.00000	9.23000	L 42
RE-10	RL-10			PD		RR			IBC								10447205	0.00000	16.38000	L 43
RE-10	RL-10			PD		RR			IBC								10447206	0.00000	15.88000	L 44
RE-10	RL-10			PD		RR			IBC								10447207	0.00000	9.49000	L 45
RE-10	RL-10			PD		RR			IBC								10447208	0.00000	8.64000	L 46
RE-10	RL-10			PD		RR			IBC								10447209	0.00000	12.76000	L 47
RE-10	RL-10			PD		RR			IBC								10447210	0.00000	8.05000	L 54
RE-10	RL-10			PD		RR			IBC								10447211	0.00000	10.74000	L 55
RE-10	RL-10			PD		RR			IBC								10447212	0.00000	11.23000	L 56
RE-10	RL-10			PD		RR			IBC								10447213	0.00000	9.35000	L 57
RE-10	RL-10			PD		RR			IBC								10447214	0.00000	10.53000	L 58
RE-10	RL-10			PD		RR			IBC								10447215	0.00000	10.62000	L 59
RE-10	RL-10			PD		RR			IBC								10447216	0.00000	8.17000	L 60
RE-10	RL-10			PD		RR			IBC								10447217	0.00000	10.24000	L 61
RE-10	RL-10			PD		RR			IBC								10447218	0.00000	13.04000	L 62
RE-10	RL-10			PD		RR			IBC								10447219	0.00000	11.04000	L 63
RE-10	RL-10			PD		RR			IBC								10447220	0.00000	7.47000	L 64
RE-10	RL-10			PD		RR			IBC								10447221	0.00000	8.18000	L 65
RE-10	RL-10			PD		RR			IBC								10447222	0.00000	10.43000	L 66
RE-10	RL-10			PD		RR			IBC								10447223	0.00000	14.89000	L 67
RE-10	RL-10			PD		RR			IBC								10447224	0.00000	14.68000	L 68
RE-10	RL-10			PD		RR			IBC								10447301	0.00000	7.60000	L 48
RE-10	RL-10			PD		RR			IBC								10447302	0.00000	6.21000	L 49
RE-10	RL-10			PD		RR			IBC								10447303	0.00000	8.02000	L 50
RE-10	RL-10			PD		RR			IBC								10447304	0.00000	8.40000	L 51
RE-10	RL-10			PD		RR			IBC								10447305	0.00000	9.39000	L 52
RE-10	RL-10			PD		RR			IBC								10447306	0.00000	9.73000	L 53
RE-10	RL-10			PD		RR			IBC								10448103	0.00000	11.06000	L 70
RE-10	RL-10			PD		RR			IBC								10448104	0.00000	10.09000	L 71
RE-10	RL-10			PD		RR			IBC								10448105	0.00000	11.02000	L 72
RE-10	RL-10			PD		RR			IBC								10448106	2.00000	6.58000	POR LOT B

RE-10	RL-10			PD		RR			IBC								10448107	0.00000	12.55000	L 69
RE-10	RL-10			PD		RR			IBC								10448201	0.00000	9.80000	L 73
RE-10	RL-10			PD		RR			IBC								10448202	0.00000	11.14000	L 74
RE-10	RL-10			PD		RR			IBC								10448203	0.00000	9.62000	L 75
RE-10	RL-10			PD		RR			IBC								10448204	0.00000	8.75000	L 76
RE-10	RL-10			PD		RR			IBC								10448205	0.00000	9.54000	L 77
RE-10	RL-10			PD		RR			IBC								10448206	0.00000	8.51000	L 78
RE-10	RL-10			PD		RR			IBC								10448207	0.00000	9.76000	L 79
RE-10	RL-10			PD		RR			IBC								10448208	0.00000	8.93000	L 80
RE-10	RL-10			PD		RR			IBC								10448209	0.00000	10.00000	L 81
RE-10	RL-10			PD		RR			IBC								10448210	0.00000	10.00000	L 82
RE-10	RL-10			PD		RR			IBC								10448211	0.00000	10.83000	L 83
RE-10	RL-10			PD		RR			IBC								10448212	2.00000	0.73000	LOT C AW
RE-10	RL-10					RR			IBC								10449001	0.00000	9.28900	L 1
RE-10	RL-10					RR			IBC								10449002	0.00000	10.00000	L 2
RE-10	RL-10					RR			IBC								10449003	0.00000	10.00100	L 3
RE-10	RL-10					RR			IBC								10449004	0.00000	10.00100	L 4
RE-10	RL-10					RR			IBC								10449005	0.00000	10.00000	L 5
RE-10	RL-10					RR			IBC								10449006	0.00000	10.00100	L 6
RE-10	RL-10					RR			IBC								10449007	0.00000	10.00000	L 7
RE-10	RL-10					RR			IBC								10449008	0.00000	10.00000	L 8
RE-10	RL-10					RR			IBC								10450001	0.00000	10.01000	PM 42/6/1
RE-10	RL-10					RR			IBC								10450002	0.00000	10.00000	PM 42/6/2
RE-10	RL-10					RR			IBC								10450003	0.00000	10.03000	PM 42/6/3
RE-10	RL-10					RR			IBC								10450008	0.00000	20.01000	PM 45/143/1
RE-10	RL-10					RR			IBC								10450014	0.00000	20.04000	PM 45/143/2
RE-10	RL-10					RR			IBC								10450015	0.00000	20.22700	PM 45/143/4
RE-10	RL-10					RR			IBC								10450016	0.00000	10.00000	PM 50/40/A
RE-10	RL-10					RR			IBC								10450017	0.00000	10.18000	PM 50/40/B
RA-40	RL-10					RR			IBC								10450018	0.00000	120.21200	RS 32/46/1
RE-10	RL-10					RR			IBC								10450018	0.00000	120.21200	RS 32/46/1
RE-10	RL-10					RR			IBC								10450019	0.00000	40.15000	RS 32/46/2
AE	LA-10					RR											10452002	0.00000	218.23000	PM 48/21/1
AE	RL-10					RR			IBC								10452004	0.00000	109.14000	PM 48/21/3
AE	RL-10					RR			IBC								10452005	0.00000	80.16600	PPM 48/21/2 ADM
AE	RL-10					RR			IBC								10452006	0.00000	108.88400	PPM 48/21/2 ADM
AE	RL-10					LDR											10453002	11.00000	156.04700	PAR 2 P/M 48-30
AE	RL-10					LDR											10453003	11.00000	148.01000	PAR 3 P/M 48-30
AE	RL-10					LDR											10453004	11.00000	156.83100	PPM 48/30/4 ADM
AE	RL-10					LDR											10453005	11.00000	140.03700	PM 48/30/5
AE	RL-10					LDR											10453006	11.00000	231.01000	PAR 6 P/M 48-30
AE	RL-10					LDR											10453007	11.00000	181.01000	PAR 7 P/M 48-30
AE	RL-10					LDR											10453008	11.00000	167.00300	PAR 8 P/M 48-30
AE	RF-L					TR											10453009	11.00000	29.00000	PPM 48/30/4 ADM
AE	RL-10					LDR											10453010	11.00000	64.13200	POR PM 48/30/1
AE	RL-10					LDR											10453011	11.00000	144.98500	POR PM 48/30/1

AE	AG-40					AL	A										10501002	0.00000	14.70000	SEC 3 11 9
RA-40	PA-40					AL	A										10501004	0.00000	40.00000	PRS 23/56/1 ADM
AE	AG-40					AL	A										10501005	0.00000	4.00000	SEC 3 11 9
RA-20	LA-20					AL											10501006	0.00000	75.05000	RS 23/56/3
RA-20	LA-20					AL											10501006	0.00000	75.05000	RS 23/56/3
AE	AG-40					AL	A										10501008	0.00000	40.00000	SEC 3 11 9
AE	RL-10					LDR											10501010	0.00000	640.00000	SEC 1 11 9
AE	OS					OS											10501012	11.00000	40.00000	SEC 10 11 9
AE	OS					OS											10501013	11.00000	80.00000	SEC 10 11 9
RA-40	OS					OS											10501013	11.00000	80.00000	SEC 10 11 9
RA-40	OS					OS											10501015	11.00000	10.00000	SEC 10 11 9
RF	RE-10					LDR			IBC								10501020	0.00000	5.75000	SEC 12 11 9
RF	RF-L					TR			IBC								10501023	0.00000	3.01800	RS 19/48/1
AE	RE-5					LDR											10501026	0.00000	5.16800	RS 27/89/2
AE	RL-10					RR											10501027	0.00000	4.88000	SEC 12 11 9
AE	PA-20					AL											10501028	0.00000	1.58000	SEC 12 11 9
AE	RL-10					RR											10501029	0.00000	135.62000	RS 11/145 S12119
AE	RL-20					RR											10501033	11.00000	0.00000	S12 11 9RS11-145
RA-40	OS					OS											10501034	11.00000	0.00000	POR SEC 12 11 9
RA-40	OS					OS											10501034	11.00000	0.00000	POR SEC 12 11 9
RA-40	OS					OS											10501034	11.00000	0.00000	POR SEC 12 11 9
RF	OS					OS											10501034	11.00000	0.00000	POR SEC 12 11 9
RA-40	OS					OS											10501035	11.00000	0.00000	SW 1/4 S10 11 9
RA-40	OS					OS											10501036	11.00000	0.00000	POR SEC 10 11 9
RA-40	OS					OS											10501037	11.00000	0.00000	NW 1/4 S10 11 9
AE	PA-20					AL											10501041	0.00000	116.10000	SEC 3 11 9
AE	OS					OS											10501042	11.00000	0.90000	SEC 3 11 9
AE	OS					OS											10501047	11.00000	87.90000	SEC 10 11 9
AE	OS					OS											10501048	11.00000	141.60000	SEC 10 & 11 11 9
AE	PA-20					AL											10501049	0.00000	4.07400	SEC 10 & 11 11 9
RE-10	OS					OS											10501050	11.00000	0.93000	SEC 11 11 9
AE	AG-40					AL	A										10501052	0.00000	25.39000	POR L2SEC 3 11 9
AE	AG-40					AL	A										10501053	0.00000	156.00000	POR SEC 2&3 11 9
AE	AG-40					AL	A										10501054	0.00000	160.00000	L1,2,3,4 SEC2119
AE	AG-40					AL	A										10501055	0.00000	40.00000	SW1/4NE1/2S2 119
AE	AG-40					AL	A										10501057	0.00000	74.80000	E1/2SW1/4S2 11 9
AE	AG-40					AL	A										10501058	0.00000	160.00000	SE1/4 SEC 2 11 9
AE	AG-40					AL	A										10501059	0.00000	40.00000	SW1/4SW1/4S2 119
AE	AG-40					AL	A										10501060	0.00000	40.00000	NW1/4SW1/4S2 119
RA-20	LA-20					AL	A										10501061	0.00000	199.77000	PRS 23/56/1 ADM
RA-40	PA-40					AL	A										10501061	0.00000	199.77000	PRS 23/56/1 ADM
RA-20	LA-20					AL	A										10501062	0.00000	23.23000	RS 23/56/2
AE	PA-20					AL	A										10501063	11.00000	40.00000	POR SEC 2 11 9
AE	PA-20					AL											10501064	0.00000	80.00000	SEC 12 11 9
AE	PA-20					AL											10501065	0.00000	30.00000	SEC 12 11 9
AE	PA-20					AL											10501066	0.00000	13.80000	SEC 12 11 9

RA-20	RL-20					RR			IBC								10502001	0.00000	40.00000	RS 21/27/1
RA-20	RL-20					RR			IBC								10502002	0.00000	39.95000	SEC 15 11 9
RA-20	RL-20					RR			IBC								10502003	0.00000	80.00000	SEC 14 11 9
AE	AG-40					AL											10502004	0.00000	280.00000	SEC 22 11 9
RA-20	OS					OS			IBC								10502005	11.00000	0.00000	POR SEC 14 11 9
RA-20	RL-20					RR			IBC								10503005	0.00000	40.00000	SEC 36 11 9
RE-10	RF-L					OS			IBC								10503016	0.00000	3.50000	PRS 33/2/2 ADM
RE-10	RF-L					OS			IBC								10503017	0.00000	0.50000	PRS 33/2/1 ADM
RE-10	RF-L					OS			IBC								10503019	0.00000	45.00000	PRS 33/2/1 ADM
RE-10	RF-L					OS			IBC								10503020	0.00000	139.00000	PRS 33/2/2 ADM
RE-10	RL-10					RR											10503021	0.00000	3.00000	SEC 2 10 9 ADM
RA-20	OS					OS											10504003	11.00000	6.15000	SEC 3 11 9
RA-20	RL-10					RR											10504004	0.00000	2.54000	SEC 3 11 9
RA-20	RL-10					RR											10504005	0.00000	1.49000	SEC 3 11 9
RA-20	RL-10					RR											10504006	0.00000	1.45000	SEC 3 11 9
RF	RF-L					TR											10505011	0.00000	6.47000	PM 45/34/2
RF	RF-L					TR											10505012	0.00000	6.96000	SEC 11 11 9
AE	AG-40					TR											10505014	0.00000	98.41000	PM 45/29/2
RF	RF-L					TR											10505018	0.00000	5.36900	POR SEC 11 11 9
AE	PA-20					AL											10505019	0.00000	183.72400	POR P/M 45-29
RF	RF-L					TR											10505021	0.00000	10.88400	SEC 11 11 9
RE-10	RL-10					RR											10505022	0.00000	19.90000	SEC 11 11 9
AE	RE-5					LDR											10506002	0.00000	2.27000	SEC 12 11 9
AE	RE-5					LDR											10506003	0.00000	0.71100	RS 27/89/1
AE	RE-5					LDR											10506004	0.00000	1.40000	RS 11/145 S12119
C	CC					C							LO				10507047	0.00000	2.09000	PM 4/75/A
C	CC					C							LO				10507057	0.00000	4.36000	PORPAR 2 PM4-139
C	CC					C							LO				10507059	0.00000	1.39000	RS 17/105/1
RE-10	RL-10					RR			IBC								10508013	0.00000	1.55000	RS 32/47/1
RE-5	RL-10					RR											10508014	0.00000	5.41000	PM 28/110/1
RE-5	RL-10					RR											10508015	0.00000	5.14000	PM 28/110/2
RE-5	RL-10					RR											10508016	0.00000	5.00000	PM 28/110/3
RE-5	RL-10					RR											10508017	0.00000	5.00000	PM 28/110/4
RE-5	RL-10					RR			IBC								10508023	0.00000	5.48000	PM 24/21/C
RE-5	RL-10					RR			IBC								10508024	0.00000	5.56000	PM 24/21/D
RE-5	RL-10					RR			IBC								10508025	0.00000	4.67000	PM 2/148/C
RE-10	RL-10					RR			IBC								10508027	0.00000	39.31000	PM 8/67/2
RE-10	RL-10					RR			IBC								10508028	0.00000	2.01000	PM 2/148/B
RE-10	RL-10					RR			IBC								10508029	0.00000	5.00000	PM 26/133/A
RE-10	RL-10					RR			IBC								10508033	0.00000	1.52000	SEC 13 11 9
RE-10	RL-10					RR			IBC								10508071	0.00000	8.98000	SEC 13 11 9
RE-10	RF-L					TR			IBC								10508079	0.00000	24.86000	RS 19/68 S13119
RF	RF-L					TR			IBC								10508079	0.00000	24.86000	RS 19/68 S13119
RE-10	RL-10					RR			IBC								10508081	0.00000	10.06700	SEC 13 11 9
RE-10	RL-10					RR			IBC								10508084	0.00000	5.03000	PM 49/37/1
RE-10	RL-10					RR			IBC								10508085	0.00000	5.00000	PM 49/37/2

RE-10	RL-10					RR			IBC								10508086	0.00000	8.36000	PM 49/37/3
RE-5	RL-10					RR			IBC								10508087	0.00000	6.11000	PM 24/21/B
RE-10	RL-10					RR			IBC								10508088	0.00000	10.00000	PM 50/70/1
RE-10	RL-10					RR			IBC								10508089	0.00000	9.93000	PM 50/70/2
RE-10	RL-10					RR			IBC								10509002	0.00000	15.34000	SEC 13 11 9
RE-10	RL-10					RR			IBC								10509003	0.00000	10.33000	SEC 13 11 9
RE-10	RL-10					RR			IBC								10509008	0.00000	89.52000	PM 20/105/2
RE-10	RL-10					RR			IBC								10509010	0.00000	5.00000	SEC 13 11 9
RE-10	RL-10					RR			IBC								10509011	0.00000	35.11000	SEC 13 11 9
RA-40	RL-10					RR			IBC								10510002	0.00000	8.17000	SEC 11 11 9
RA-40	RL-10					RR			IBC								10510003	0.00000	3.85000	SEC 11 11 9
RA-40	PA-20					RR											10510008	0.00000	100.00000	SEC 11 11 9
AP	PA-20					RR											10510011	0.00000	80.91000	RS 17/44/2
RA-40	RL-40					RR											10510012	0.00000	41.99400	RS 17/44/3
RE-10	RL-10					RR			IBC								10510016	0.00000	13.47400	SEC 11 11 9
RA-40	RL-40					RR			IBC								10510017	0.00000	24.70000	POR2 RS17-143ADM
AE	RL-10					RR			IBC								10510018	0.00000	8.00000	POR 2RS17-143ADM
RA-40	RL-40					RR											10510023	0.00000	42.97000	RS 25/55/A
RA-40	LA-10					RR			IBC								10510024	0.00000	41.14000	RS 25/55/B
RE-10	RL-10					RR			IBC								10511001	0.00000	16.08400	SEC 14 11 9
RE-10	RL-10					RR											10511002	0.00000	39.83000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511006	0.00000	1.00000	SEC 13 11 9
RE-10	RL-10					RR			IBC								10511011	0.00000	40.10000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511013	0.00000	10.05000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511017	0.00000	40.11000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511019	0.00000	15.04000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511020	0.00000	9.16000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511023	0.00000	9.80000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511025	0.00000	5.10000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511027	0.00000	5.14000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511030	0.00000	10.05300	R/S 21-68
RE-10	RL-10					RR			IBC								10511031	0.00000	10.05000	SEC 14 11 9
RE-10	RL-10					RR			IBC								10511034	0.00000	10.05000	PM 5/41/A
RE-10	RL-10					RR			IBC								10511035	0.00000	10.05000	PM 5/41/B
RE-10	RL-10					RR			IBC								10511040	0.00000	10.10400	PM 5/119/C
RE-10	RL-10					RR			IBC								10511042	0.00000	9.94300	PM 5/146/A
RE-10	RL-10					RR			IBC								10511043	0.00000	9.94000	PM 5/146/B
RE-10	RL-10					RR			IBC								10511055	0.00000	41.20000	SEC 14 & 11 11 9
RE-10	RL-10					RR			IBC								10511066	0.00000	9.99000	PM 5/146/D
RE-10	RL-10					RR			IBC								10511068	0.00000	10.00000	PM 5/146/C
RE-10	RL-10					RR			IBC								10511070	0.00000	10.00000	PM 42/136/1
RE-10	RL-10					RR			IBC								10511073	0.00000	10.00000	PM 42/136/4
RE-10	RL-10					RR			IBC								10511075	0.00000	5.02500	PM 46/70/1
RE-10	RL-10					RR			IBC								10511076	0.00000	5.02300	PM 46/70/2
RE-10	RL-10					RR			IBC								10511079	0.00000	10.26700	POR SEC 14 11 9
RE-10	RL-10					RR			IBC								10511080	0.00000	15.41900	POR SEC 14 11 9

RE-10	RL-10					RR			IBC								10511081	0.00000	10.06500	RS 30/127/1
RE-10	RL-10					RR			IBC								10511086	0.00000	9.22100	RS 31/25/1
RE-10	RL-10					RR			IBC								10511087	0.00000	5.16000	RS 31/25/2
RA-20	RL-10					RR			IBC								10512002	0.00000	10.05000	SEC 15 11 9
RE-10	RL-10					RR			IBC								10512006	0.00000	9.96000	SEC 15 11 9
RE-10	RL-10					RR			IBC								10512012	0.00000	10.00000	SEC 15 11 9
RA-20	RL-10					RR			IBC								10512013	0.00000	10.12000	SEC 15 11 9
RA-20	LA-10					RR			IBC								10512014	0.00000	10.12000	RS 16/32/1
RA-20	RL-10					RR			IBC								10512015	0.00000	10.12000	SEC 15 11 9
RA-20	LA-10					RR			IBC								10512016	0.00000	10.12000	SEC 15 11 9
RA-20	RL-10					RR			IBC								10512019	0.00000	10.05000	SEC 15 11 9
RA-20	RL-10					RR			IBC								10512021	0.00000	6.02000	PM 5/164/A
RA-20	RL-10					RR			IBC								10512022	0.00000	6.00000	PM 5/164/B
RA-20	LA-10					RR			IBC								10512023	0.00000	6.54000	PM 5/164/C
RA-20	RL-20					RR			IBC								10512024	0.00000	16.56000	SEC 15 11 9
RA-20	RL-20					RR			IBC								10512026	0.00000	16.85000	SEC 15 11 9
RA-20	RL-20					RR			IBC								10512027	0.00000	40.42000	SEC 15 11 9
RA-20	RL-20					RR			IBC								10512029	0.00000	40.17000	SEC 15 11 9
RA-20	RL-20					RR			IBC								10512030	0.00000	39.84000	SEC 15 11 9
RA-20	RL-20					RR											10512031	0.00000	40.47000	SEC 15 11 9
RE-10	RL-10					RR											10512032	0.00000	40.56000	SEC 15 11 9
RE-10	RL-10					RR			IBC								10512035	0.00000	10.01000	PM 16/83/3
RE-10	RL-10					RR			IBC								10512036	0.00000	10.01000	PM 16/83/4
RA-20	RL-10					RR			IBC								10512037	0.00000	10.04000	PM 24/137/2
RA-20	LA-10					RR			IBC								10512038	0.00000	10.06000	PM 24/137/1
RA-20	RL-10					RR			IBC								10512039	0.00000	10.06000	PM 24/137/3
RA-20	RL-10					RR			IBC								10512040	0.00000	10.06000	PM 24/137/4
RA-20	RL-20					RR			IBC								10512044	0.00000	20.20000	RS 20/26/1
RA-20	LA-10					RR			IBC								10513001	0.00000	20.05600	RS 18/118/1
RA-20	LA-10					RR			IBC								10513002	0.00000	20.06000	SEC 15 11 9
RA-20	RL-10					RR			IBC								10513003	0.00000	10.04000	SEC 15 11 9
RA-20	RL-10					RR			IBC								10513004	0.00000	10.02600	RS 19/50/1
RA-20	RL-10					RR			IBC								10513005	0.00000	10.04000	SEC 15 11 9
RA-20	RL-10					RR			IBC								10513006	0.00000	10.04000	SEC 15 11 9
RA-20	RL-10					RR											10513010	0.00000	10.00000	PM 30/47/1
RA-20	RL-10					RR											10513012	0.00000	10.00000	PM 30/47/3
RA-20	RL-20					RR											10513013	0.00000	30.28000	PM 30/47/4
RA-20	RL-20					RR											10513014	0.00000	40.00000	POR RS 8/7
RA-20	RL-20					RR											10513015	0.00000	57.00000	POR RS 8/7
RA-20	LA-10					RR											10513016	0.00000	40.05000	RS 25/64/1
RA-20	RL-10					RR											10513019	0.00000	10.00000	RS 27/41
RE-5	RL-10					RR											10513019	0.00000	10.00000	RS 27/41
RE-5	RL-10					RR											10513019	0.00000	10.00000	RS 27/41
RE-10	RL-10					RR			IBC								10514001	0.00000	8.76000	PM 1/54/1
RE-10	RL-10					RR			IBC								10514002	0.00000	10.26000	PM 1/54/2
RE-10	RL-10					RR			IBC								10514003	0.00000	10.12000	PM 1/54/3

RE-10	RL-10					RR			IBC								10515001	0.00000	40.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515002	0.00000	14.23000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515008	0.00000	21.47000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515009	0.00000	5.05000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515010	0.00000	5.06000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515011	0.00000	10.14000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515012	0.00000	5.19000	PM 18/37/1
RE-10	RL-10					RR			IBC								10515013	0.00000	5.19000	PM 18/37/2
RE-10	RL-10					RR			IBC								10515014	0.00000	5.16000	PM 18/37/3
RE-10	RL-10					RR			IBC								10515015	0.00000	5.22000	PM 32/13/4
RE-10	RL-10					RR			IBC								10515016	0.00000	10.78000	PM 25/124/1
RE-10	RL-10					RR			IBC								10515017	0.00000	10.78000	PM 25/124/2
RE-10	RL-10					RR			IBC								10515018	0.00000	10.16000	PM 13/99/3
RE-10	RL-10					RR			IBC								10515019	0.00000	5.06000	PM 13/99/1
RE-10	RL-10					RR			IBC								10515020	0.00000	5.06000	PM 13/99/2
RE-10	RL-10					RR			IBC								10515021	0.00000	5.08000	PM 16/112/1
RE-10	RL-10					RR			IBC								10515022	0.00000	5.07000	PM 16/112/2
RE-10	RL-10					RR			IBC								10515023	0.00000	5.07000	PM 16/112/3
RE-10	RL-10					RR			IBC								10515024	0.00000	5.06000	PM 16/112/4
RE-10	RL-10					RR			IBC								10515027	0.00000	6.38000	PM 8/61/3
RE-10	RL-10					RR			IBC								10515029	0.00000	20.00000	SEC 13 11 9
RE-10	RL-10					RR			IBC								10515030	0.00000	5.04000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515031	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515032	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515033	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515034	0.00000	5.04000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515035	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515036	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515037	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515038	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515041	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515043	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515045	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515046	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10515048	0.00000	5.42000	24 11 9&19 11 10
RE-10	RL-10					RR			IBC								10515049	0.00000	8.80000	PM 42/73/1
RE-10	RL-10					RR			IBC								10515050	0.00000	10.00000	PM 42/73/2
RE-10	RL-10					RR			IBC								10515053	0.00000	4.84400	PM 44/82/1
RE-10	RL-10					RR			IBC								10515054	0.00000	0.91800	PM 44/82/2
RE-10	RL-10					RR			IBC								10515055	0.00000	6.28000	11-10&9 RS3-128
RE-10	RL-10					RR			IBC								10515060	0.00000	7.23000	RS 24/90/2
RE-10	RL-10					RR			IBC								10515061	0.00000	5.51000	RS 24/90/1
RE-10	RL-10					RR			IBC								10517013	0.00000	5.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10517015	0.00000	10.39000	PM 23/99/B
RE-10	RL-10					RR			IBC								10517016	0.00000	10.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10517017	0.00000	10.00000	SEC 24 11 9

RE-10	RL-10					RR			IBC								10517018	0.00000	20.00000	SEC 24 11 9
RE-10	RL-10					RR			IBC								10517022	0.00000	10.00000	PM 21/3/C
RE-10	RL-10					RR			IBC								10517023	0.00000	8.15000	PM 21/3/D
RE-10	RL-10					RR			IBC								10517024	0.00000	10.36000	RS 8/138
RE-10	RL-10					RR			IBC								10517026	0.00000	5.14000	PM 30/25/A
RE-10	RL-10					RR			IBC								10517027	0.00000	5.20000	PM 30/25/B
RE-10	RL-10					RR			IBC								10517028	0.00000	5.00000	PM 30/25/C
RA-40	RL-40					RR			IBC								10517038	11.00000	0.00000	POR SEC 24 11 9
RE-10	RL-10					RR			IBC								10517040	0.00000	4.99000	RS 14/129/1
RE-10	RL-10					RR			IBC								10517041	0.00000	4.99000	RS 14/129/2
RE-10	RL-10					RR			IBC								10517046	0.00000	10.24200	23/99/A RS27/100
RE-10	RL-10					RR			IBC								10517047	0.00000	5.89200	30/25/D RS27-100
RE-10	RL-10					RR			IBC								10517049	0.00000	4.98000	PM 49/45/1
RE-10	RL-10					RR			IBC								10517050	0.00000	5.00000	PM 49/45/2
RE-10	RL-10					RR			IBC								10519002	0.00000	20.00000	SEC 25 11 9
RE-10	RL-10					RR			IBC								10519023	0.00000	5.00000	SEC 25 11 9
RE-10	RL-10					RR			IBC								10519024	0.00000	5.00000	SEC 25 11 9
RE-10	RL-10					RR			IBC								10519031	0.00000	5.00000	PM 30/64/1
RE-10	RL-10					RR			IBC								10519032	0.00000	4.97000	PM 30/64/2
RE-10	RL-20					AL	A										10519033	0.00000	78.83000	SEC 25 11 9
RE-10	RL-20					AL	A										10519033	0.00000	78.83000	SEC 25 11 9
RE-10	RL-10					RR			IBC								10519035	0.00000	191.80000	SEC 25 11 9
RE-10	RL-10					RR			IBC								10519035	0.00000	191.80000	SEC 25 11 9
RA-20	RL-20					RR			IBC								10520007	0.00000	19.66000	SEC 27 & 28 11 9
RA-20	RE-5					LDR			IBC		PL						10520058	0.00000	5.00000	RS 27/41
RE-10	RL-10					RR			IBC								10522021	0.00000	8.93000	SEC 34 11 9
RE-10	RL-10					RR											10525020	0.00000	7.34000	SEC 25 11 9
RE-10	RE-5					LDR											10525061	0.00000	6.30000	PORPAR B PM4-133
RE-10	RL-10					RR			IBC								10526028	0.00000	10.00000	PM 38/44/3
RE-10	RL-10					RR			IBC								10526029	0.00000	10.00000	PM 38/44/4
RE-10	RL-10					RR			IBC								10526036	0.00000	10.00000	PM 40/53/1
RE-10	RL-10					RR			IBC								10526037	0.00000	10.00000	PM 40/53/2
RE-10	RL-10					RR			IBC								10526038	0.00000	10.00000	PM 40/53/3
RE-10	RL-10					RR			IBC								10526039	0.00000	10.00000	PM 40/53/4
RE-10	RL-10					RR			IBC								10526044	0.00000	10.00000	RS 18/68/1
RE-10	RL-10					RR			IBC								10526045	0.00000	10.00000	RS 18/68/2
RE-10	RL-10					RR											10529016	1.00000	0.19000	ROADWAY
RE-10	RL-10					RR											10529020	0.00000	5.70700	PM 14/135/A
RE-10	RL-10					RR											10529021	0.00000	5.19100	PM 14/135/B
RE-10	RL-10					RR											10529026	0.00000	5.01000	PM 6/168/A
RE-10	RL-10					RR											10529027	0.00000	5.01000	PM 6/168/B
RE-10	RL-10					RR											10529028	0.00000	8.06000	PM 6/168/C
RE-10	RL-10					RR											10529029	0.00000	6.92000	PM 6/168/D
RE-10	RL-10					RR											10529047	0.00000	12.46000	PM 41/119/1
RE-10	RL-10					RR											10529048	0.00000	15.33000	PM 41/119/2
RE-10	RL-10					RR											10529049	0.00000	10.04000	PM 41/119/3

RE-10	RL-10					RR										10529050	0.00000	10.60000	PM 41/119/4
RE-10	RL-10					RR										10529051	0.00000	9.10000	1-10-9 & 35-11-9
RE-10	RL-10					RR										10529055	0.00000	1.02800	SEC 35 11 9
RE-10	RL-10					RR										10529056	0.00000	4.26100	SEC 35 11 9
RE-10	RL-10					RR										10529057	0.00000	8.96200	SEC 35 11 9
RE-10	RL-10					RR										10529058	0.00000	6.90500	SEC 35 11 9
RE-10	RL-10					RR										10529059	0.00000	12.53800	SEC 35 11 9
RE-10	RL-10					RR										10529060	0.00000	0.44100	SEC 35 11 9
RE-10	RL-10					RR										10529063	0.00000	5.14100	PM 14/135/C
RE-10	RL-10					RR										10529064	0.00000	5.00200	PM 14/135/D
RE-10	RL-10					RR										10530005	0.00000	121.91000	SEC 34 11 9
CP	CC		DC			C					CP					10901001	0.00000	1.66000	RS 23/79/1
CP	CR		DC			C					CP					10901002	0.00000	33.35000	SEC 9 9 9
RE-10	RL-10			PD		RR										10901009	0.00000	10.00000	PM 12/114/A
RE-10	RL-10			PD		RR										10901010	0.00000	10.00000	PM 12/114/B
RE-5	RL-10					RR										10901011	0.00000	0.35000	SEC 16 9 9
MR	RL-10					RR										10901012	0.00000	20.00000	SEC 16 9 9
RE-10	RL-10			PD		RR										10901013	0.00000	40.00000	SEC 16 9 9
RE-10	RL-10			PD		RR										10901014	0.00000	80.00000	SEC 16 9 9
RE-10	RL-10			PD		RR										10902001	0.00000	391.47000	SEC 14 & 15 9 9
RA-40	RL-40					RR										10902005	0.00000	40.00000	SEC 22 9 9
RA-20	RL-20					RR										10902006	0.00000	39.94000	RS 15/84/1
RA-20	RL-20					RR										10902009	0.00000	40.00000	SEC 22 9 9
RE-10	RL-10					RR										10902010	0.00000	10.00000	PM 37/42/1
RE-10	RL-10					RR										10902011	0.00000	10.00000	PM 37/42/2
RE-10	RL-10					RR										10902012	0.00000	10.00000	PM 37/42/3
RE-10	RL-10					RR										10902013	0.00000	9.80000	PM 37/42/4
OS	RL-10					RR										10902020	0.00000	9.00000	SEC 15 9 9
RE-10	RL-10					RR										10902021	0.00000	10.00000	PM 44/77/1
RE-10	RL-10					RR										10902022	0.00000	10.00000	PM 44/77/2
RE-10	RL-10					RR										10902023	0.00000	10.00000	PM 44/77/3
RE-10	RL-10					RR										10902024	0.00000	9.84000	PM 44/77/4
RE-5	RM					MFR					SS					10903002	0.00000	0.77000	SEC 2 9 9
RE-5	RM					MFR					SS					10903003	0.00000	0.77000	SEC 2 9 9
RE-5	RM					MFR					SS					10903004	0.00000	0.75500	RS 25/65/1
CG	CC					C					SS					10903005	0.00000	1.06800	RS 21/138/1
CG	CC					C					SS					10903006	0.00000	2.13400	RS 21/138/2
RE-5	CC					C					SS					10903007	0.00000	1.00000	SEC 2 & 11 9 9
C	CC					C					SS					10903008	0.00000	1.03000	SEC 2 & 11 9 9
RE-5	RM					MFR					SS					10903011	0.00000	1.59800	RS 25/27/1
RE-5	RM					MFR					SS					10903013	0.00000	2.20000	SEC 2 9 9
RE-5	RM					MFR					SS					10903014	0.00000	0.97800	POR SEC 2 9 9
RE-5	RM					MFR					SS					10903015	0.00000	1.33000	SEC 2 9 9
RE-5	RM					MFR					SS					10903018	0.00000	1.00000	SEC 2 9 9
RE-5	RM					MFR					SS					10903019	0.00000	0.87000	SEC 2 9 9
RE-5	RM					MFR					SS					10903020	0.00000	0.95000	SEC 2 9 9

RE-5	RM					MFR						SS					10903021	0.00000	3.83000	SEC 2 & 11 9 9
R2	RM			PD		MFR						SS					10903022	0.00000	2.27000	SEC 2 & 11 9 9
RE-5	RM					MFR						SS					10903022	0.00000	2.27000	SEC 2 & 11 9 9
R2	RM			PD		MFR						SS					10903023	0.00000	0.88000	SEC 2 & 11 9 9
RE-5	RM					MFR						SS					10903023	0.00000	0.88000	SEC 2 & 11 9 9
RE-5	RM					MFR						SS					10903025	6.00000	0.15000	SEC 2 9 9
RE-5	RM					MFR						SS					10903026	0.00000	2.75000	SEC 2 9 9
RE-5	RM					MFR						SS					10903027	0.00000	1.10400	RS 25/27/2
RE-5	RM					MFR						SS					10903028	11.00000	0.04000	SEC 2 9 9
C	CL					C						SS					10903030	11.00000	0.10000	SEC 2 9 9
RE-5	RM					MFR						SS					10903032	0.00000	1.44000	SEC 2 9 9
C	CC					C						SS					10903033	0.00000	0.00000	SEC 11 9 9
C	CC					C						SS					10903034	0.00000	0.00000	SEC 2 9 9
RE-5	RM					MFR						SS					10903035	0.00000	6.97300	SEC 2 9 9
R1A	CC					C						SS					10904001	0.00000	1.10000	SEC 1 9 9
R1A	CC					C						SS					10904002	0.00000	2.54000	SEC 1 9 9
R1A	CC					C						SS					10904003	0.00000	1.40000	SEC 1 9 9
R1A	CC					C						SS					10904004	0.00000	0.81000	SEC 1 9 9
R1A	CC					C						SS					10904005	0.00000	0.40000	SEC 1 9 9
R1A	CC					C						SS					10904006	0.00000	0.40000	SEC 1 9 9
C	CC					C						SS					10904007	0.00000	0.21000	SEC 1 9 9
C	CC					C						SS					10904008	0.00000	0.82000	SEC 1 9 9
R1A	CC					C						SS					10904009	0.00000	0.51500	SEC 1 9 9
R1A	CC					C						SS					10904010	0.00000	0.52000	SEC 1 9 9
R1A	CC					C						SS					10904011	0.00000	1.38000	SEC 1 9 9
C	CC					C						SS					10904012	0.00000	1.00000	SEC 1 9 9
C	CC					C						SS					10904013	0.00000	1.62000	RS 12/119/1
C	CC					C						SS					10904014	0.00000	1.00000	SEC 1 9 9
R1A	CC					C						SS					10904015	0.00000	0.79000	RS 30/18/3
R1A	CC					C						SS					10904016	0.00000	1.00000	RS 30/18/1
R1A	CC					C						SS					10904018	0.00000	1.00000	RS 30/18/2
R1A	CC					C						SS					10904019	0.00000	0.43000	RS 30/18/4
R1A	CC					C						SS					10904020	0.00000	0.53000	RS 30/18/5
R1A	CC					C						SS					10904022	0.00000	1.30000	SEC 1 9 9
C	CC					C						SS					10904032	0.00000	1.00000	PM 22/136/1
C	CC					C						SS					10904033	0.00000	1.42000	PM 22/136/2
C	CC					C						SS					10904034	0.00000	1.23500	SEC 1 9 9
C	CC					C						SS					10904035	0.00000	0.50000	SEC 1 9 9
C	CC					C						SS					10904037	0.00000	0.51000	SEC 1 9 9
C	CC					C						SS					10904038	0.00000	0.39000	SEC 1 9 9
C	CC					C						SS					10904039	0.00000	1.61600	SEC 1 9 9
C	CC					C						SS					10904040	0.00000	1.15000	SEC 1 9 9
CP	CC					C						SS					10904064	6.00000	4.72000	SEC 1 9 9
CP	CC					C						SS					10904066	0.00000	4.69000	PM 5/57/1
C	CC					C						SS					10904067	0.00000	1.00000	PM 38/114/1
C	CC					C						SS					10904071	0.00000	0.52400	RS 17/4/1

R1A	CC					C						SS					10904072	0.00000	0.41000	SEC 1 9 9
CP	CC					C						SS					10904073	0.00000	1.00000	SEC 1 9 9
R2	RM			PD		MFR						SS					10905012	0.00000	24.42400	PM 43/70/1
R2A	TC			PD		I						SS					10905017	11.00000	0.00000	POR SEC11&12 9 9
RF	RF-L					MDR						SS					10906001	0.00000	3.00000	RS 17/70 S1299
RE-5	R1A					MDR						SS					10906002	1.00000	0.38000	SEC 12 9 9 NV
RE-5	R1A					MDR						SS					10906003	0.00000	0.62000	SEC 12 9 9
RE-5	R2A					MDR						SS					10906004	0.00000	2.48000	SEC 12 9 8
RE-5	R1A					MDR						SS					10906005	0.00000	1.21000	PM 9/70/1
RE-5	R1A					MDR						SS					10906006	0.00000	1.00000	PM 9/70/2
RE-5	R1A					MDR						SS					10906007	0.00000	1.00000	PM 9/70/3
RE-5	R3A					MDR						SS					10906008	0.00000	3.29800	SEC 12 9 9
RE-5	R3A					MDR						SS					10906009	0.00000	2.79000	PM 1/15/1
RE-5	R2A					MDR						SS					10906010	0.00000	2.59000	PM 1/15/2
RE-5	R1A					MDR						SS					10906011	0.00000	0.62000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906012	0.00000	1.38000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906013	0.00000	1.42000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906014	0.00000	1.18000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906015	0.00000	0.86000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906018	0.00000	2.00000	SEC 12 9 9
RE-5	R3A					MDR						SS					10906019	0.00000	4.30000	SEC 12 9 9
RE-5	R2A					MDR						SS					10906020	0.00000	2.00000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906021	0.00000	1.54000	SEC 12 9 9
RE-5	R2A					MDR						SS					10906022	0.00000	2.50200	RS 31/51/2
RE-5	R1A					MDR						SS					10906023	0.00000	0.88000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906024	0.00000	0.47800	SEC 12 9 9
RE-5	R2A					MDR						SS					10906025	0.00000	2.01000	SEC 12 9 9
RE-5	R2A					MDR						SS					10906026	0.00000	2.38800	SEC 12 9 9
RE-5	R1A					MDR						SS					10906027	0.00000	0.48000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906028	0.00000	1.00000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906029	0.00000	1.39000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906030	0.00000	0.91000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906031	0.00000	1.08000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906033	0.00000	0.34000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906034	0.00000	1.04000	SEC 12 9 9
RE-5	R2A					MDR						SS					10906042	0.00000	0.00000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906043	0.00000	0.00000	SEC 12 9 9
RE-5	R1A					MDR						SS					10906044	0.00000	0.00000	SEC 12 9 9
RE-5	R3A					MDR						SS					10907181	0.00000	5.27400	PM 26/37/3
R1A	TC					MDR						SS					10907185	11.00000	0.00000	POR SEC 12 9 9
CG	CC					C						SS					10908001	0.00000	3.69000	SEC 1 9 9
R1A	CC					C						SS					10908002	0.00000	8.76300	SEC 1 9 9
R1A	CC					C						SS					10908003	0.00000	2.62000	SEC 1 9 9
PA-20	PA-10					LDR											10909003	1.00000	2.86000	SEC 11 & 14 9 9
PA-20	PA-10					LDR											10909005	0.00000	20.00000	PM 31/62/3
PA-20	PA-10					LDR											10909006	0.00000	20.00000	PM 31/62/4

RE-10	RE-5					LDR										10909007	0.00000	21.00000	RS 13/25/1
PA-20	PA-10					LDR										10909010	0.00000	62.77000	PRS 13/25/2 ADM
PA-20	PA-10					LDR										10909011	0.00000	39.37000	PRS 13/25/2 ADM
RE-5	R1A					MDR					SS					10910004	0.00000	1.25000	PM 13/124/2
RE-5	R1A					MDR					SS					10910005	0.00000	1.25000	PM 13/124/3
RE-5	R1A					MDR					SS					10910006	0.00000	1.50000	PM 13/124/1
RE-5	R3A					MDR					SS					10910009	0.00000	3.57000	PM 9/74/C
RE-5	R1A					MDR					SS					10910010	0.00000	1.18000	PM 11/60/4
RE-5	R1A					MDR					SS					10910011	0.00000	1.04000	PM 11/60/3
RE-5	R1A					MDR					SS					10910012	0.00000	1.08000	PM 11/60/2
RE-5	R1A					MDR					SS					10910013	0.00000	1.13000	PM 11/60/1
RE-5	R1A					MDR					SS					10910014	0.00000	1.01000	SEC 12 9 9
RE-5	R1A					MDR					SS					10910015	0.00000	1.86000	RS 11/66 S1299
RE-5	R1A					MDR					SS					10910016	0.00000	2.00000	RS 11/66 S1299
RE-5	R1A					MDR					SS					10910017	0.00000	0.75000	SEC 12 9 9
RE-5	R1A					MDR					SS					10910018	0.00000	0.75000	SEC 12 9 9
RE-5	R1A					MDR					SS					10910019	0.00000	1.75000	SEC 12 9 9
RE-5	R1A					MDR					SS					10910020	0.00000	0.89100	PM 18/7/2
RE-5	R1A					MDR					SS					10910021	0.00000	0.68700	PM 18/7/1
RE-5	R1A					MDR					SS					10910022	0.00000	1.00000	PM 11/123/1
RE-5	R1A					MDR					SS					10910023	0.00000	1.00000	PM 11/123/2
RE-5	R1A					MDR					SS					10910024	0.00000	1.00000	PM 11/123/3
RE-5	R1A					MDR					SS					10910025	0.00000	1.00000	PM 13/50/1
RE-5	R1A					MDR					SS					10910026	0.00000	1.00000	PM 18/108/A
RE-5	R1A					MDR					SS					10910027	0.00000	1.26000	PM 18/108/B
RE-5	R3A					MDR					SS					10910028	0.00000	4.00000	PM 16/57/1
RE-5	R2A					MDR					SS					10910029	0.00000	2.31000	PM 16/57/2
RE-5	R1A					MDR					SS					10910030	0.00000	1.50000	PM 16/57/3
RE-5	R1A					MDR					SS					10910031	0.00000	1.50000	PM 16/57/4
RE-5	R3A					MDR					SS					10910032	0.00000	5.00000	PM 27/93/3
RE-5	R3A					MDR					SS					10910033	0.00000	5.00000	PM 27/93/2
RE-5	R3A					MDR					SS					10910034	0.00000	4.90000	PM 27/93/1
RE-5	R3A					MDR					SS					10910035	0.00000	5.00000	SEC 12 9 9
RE-5	R1A					MDR					SS					10910036	0.00000	2.03000	PM 17/87/D
RE-5	R1A					MDR					SS					10910037	0.00000	1.00000	PM 17/87/C
RE-5	R1A					MDR					SS					10910038	0.00000	1.00000	PM 17/87/B
RE-5	R1A					MDR					SS					10910039	0.00000	1.00000	PM 17/87/A
RE-5	R2A					MDR					SS					10910040	0.00000	2.00000	PM 19/20/3
RE-5	R2A					MDR					SS					10910041	0.00000	2.00000	PM 19/20/2
RE-5	R2A					MDR					SS					10910042	0.00000	2.73000	PM 19/20/1
RE-5	R1A					MDR					SS					10910043	0.00000	1.00000	PM 9/69/1
RE-5	R1A					MDR					SS					10910044	0.00000	2.00000	PM 9/69/2
RE-5	R1A					MDR					SS					10910045	0.00000	1.00000	PM 20/23/A
RE-5	R1A					MDR					SS					10910046	0.00000	1.00000	PM 20/23/B
RE-5	R1A					MDR					SS					10910047	0.00000	1.71000	PM 9/69/4
RE-5	R1A					MDR					SS					10910050	0.00000	1.78000	PM 43/35/1

RE-5	R1A					MDR						SS					10910051	0.00000	1.50000	PM 43/35/2
CP	CC		DC			C						CP					10911114	0.00000	3.34000	PM 36/109/B
CP	CL			PD		C						CP					10911115	0.00000	0.23000	PM 48/107/1
CP	CL			PD		C						CP					10911116	0.00000	0.18600	PM 48/107/2
CP	CL			PD		C						CP					10911117	0.00000	0.11600	PM 48/107/3
CP	CL			PD		C						CP					10911118	0.00000	0.10200	PM 48/107/4
CP	CC			PD		C						CP					10911119	2.00000	1.86800	PM 48/107 AW
CP	CC		DC			C						CP					10920105	0.00000	1.53000	POR
CP	CC		DC			C						CP					10920106	0.00000	0.61000	POR
CP	CC		DC			C						CP					10920107	0.00000	0.85000	POR
CP	CC		DC			C						CP					10920109	0.00000	4.33100	PM 48/43/1
CP	CC		DC			C						CP					10920110	0.00000	0.60100	PM 48/43/2
CP	CC		DC			C						CP					10920114	0.00000	1.02400	PM 48/108/1
CP	CC		DC			C						CP					10920115	0.00000	0.90600	PM 48/108/2
CP	CC		DC			C						CP					10920116	0.00000	1.54300	PM 48/108/3
RE-5	CC					C						CP					10920116	0.00000	1.54300	PM 48/108/3
CP	CC		DC			C						CP					10920117	0.00000	1.57300	PM 48/43/3&4
CP	CC		DC			C						CP					10920205	0.00000	4.60000	L12,13,14,15&16
CP	CC		DC			C						CP					10920301	0.00000	0.39800	PM 33/97/A
CP	CC		DC			C						CP					10920302	0.00000	0.39600	PM 33/97/B
CP	CC		DC			C						CP					10920304	0.00000	0.89800	PM 23/25/D
CP	CC		DC			C						CP					10920305	0.00000	0.65900	PM 23/25/E
CP	CC		DC			C						CP					10920306	0.00000	1.00000	PM 15/44/A
CP	CC		DC			C						CP					10920307	0.00000	1.00000	PM 15/44/B
CP	CC		DC			C						CP					10920308	0.00000	1.00000	PM 13/79/7
CP	CC		DC			C						CP					10920309	0.00000	0.60000	PM 29/8/A
CP	CC		DC			C						CP					10920310	0.00000	0.33600	PM 29/8/B
CP	CC		DC			C						CP					10920311	0.00000	0.23400	PM 31/18/1
CP	CC		DC			C						CP					10920312	0.00000	0.23000	PM 31/18/2
CP	CC		DC			C						CP					10920313	0.00000	4.60700	PAR B&C PM 23-25
CP	CC		DC			C						CP					10920314	0.00000	0.26000	PM 37/105/1
CP	CC		DC			C						CP					10920315	0.00000	5.64000	PM 37/105/2
CP	CC		DC			C						CP					10921101	0.00000	0.91000	POR L 3
CP	CC		DC			C						CP					10921102	0.00000	0.85900	PM 4/129/A
CP	CC		DC			C						CP					10921103	0.00000	0.86700	PM 4/129/B
CP	CC		DC			C						CP					10921104	0.00000	0.92000	PM 4/129/C
CP	CC		DC			C						CP					10921105	0.00000	0.95000	PM 4/129/D
CP	CC		DC			C						CP					10921201	0.00000	0.00000	L 20
CP	CC		DC			C						SS					10921202	0.00000	1.17700	PM 34/69/A
CP	CC		DC			C						CP					10921203	0.00000	1.12000	PM 34/69/B
CP	CC		DC			C						CP					10921205	0.00000	0.86900	PM 27/79/1
CP	CC		DC			C						CP					10921206	0.00000	0.57800	PM 27/79/2
CP	CC		DC			C						CP					10921207	0.00000	0.50600	PM 27/79/3
CP	CC		DC			C						CP					10921212	0.00000	0.95900	PM 25/137/4
CP	CC		DC			C						CP					10921214	0.00000	1.84000	PM 37/44/2
CP	CC		DC			C						CP					10921215	0.00000	0.77100	PM 40/127/1

CP	CC		DC			C						CP					10921216	0.00000	0.77100	PM 40/127/2
CP	CC		DC			C						CP					10921303	0.00000	1.00000	L 22
CP	CC		DC			C						CP					10921304	0.00000	0.23000	PM 32/136/1
CP	CC		DC			C						CP					10921305	0.00000	0.38000	PM 32/136/2
CP	CC		DC			C						CP					10921306	0.00000	0.38000	PM 32/136/3
CP	CC		DC			C						CP					10921307	0.00000	0.23000	PM 32/136/4
CP	CC		DC			C						CP					10921310	0.00000	1.33000	L 23
CP	CC		DC			C						CP					10921401	0.00000	0.95000	L 26
CP	CC		DC			C						CP					10921404	0.00000	1.00000	L 28
CP	CC		DC			C						CP					10921407	0.00000	0.52000	PM 37/100/A
CP	CC		DC			C						CP					10921408	0.00000	0.47000	PM 37/100/B
CP	CC		DC			C						CP					10921409	0.00000	0.56000	POR LOT 31
CP	CC		DC			C						CP					10921410	0.00000	0.55000	POR LOT 31
CP	CC		DC			C						CP					10921411	0.00000	1.03000	L 27
CP	CC		DC			C						CP					10921412	0.00000	1.00000	L 29
CP	CC		DC			C						CP					10923001	0.00000	1.84200	PM 3/83/A
CP	CC		DC			C						CP					10923002	0.00000	9.89000	PM 3/83/B
CP	CC		DC			C						CP					10923003	0.00000	0.57000	SEC 2 9 9
CP	CC		DC			C						CP					10923004	0.00000	4.25000	SEC 2 9 9
CP	CC		DC			C						CP					10923005	0.00000	1.63000	RS 12/48/1
CP	CC		DC			C						CP					10923006	0.00000	1.78000	RS 12/48/2
CP	CC		DC			C						CP					10923007	0.00000	2.06000	RS 12/48/3
CP	CC		DC			C						CP					10923008	0.00000	1.81000	RS 12/48/4
RE-5	RM					MFR						SS					10924001	0.00000	18.20600	SEC 2 & 11 9 9
RE-5	RM					MFR						SS					10924002	0.00000	1.48000	SEC 2 9 9
RE-5	I					I						SS					10924003	0.00000	1.69000	PM 37/24/B
R2	RE-5			PD		LDR											10925012	0.00000	18.73400	PM 16/1/4
CP	CC		DC			C						CP					10926108	2.00000	0.00000	LOT A
MR	TC					LDR			IBC								10931150	11.00000	0.00000	SEC 14&23 9 9
RE-5	TC					LDR			IBC								10931150	11.00000	0.00000	SEC 14&23 9 9
AE	RE-10					LDR			IBC								10932007	0.00000	20.02000	PM 15/93/3
AE	LA-10					LDR			IBC								10932009	0.00000	20.00000	PM 14/140/B
AE	RE-5					LDR			IBC								10932025	11.00000	1.29000	SEC 23 9 9
RE-5	TC					LDR											10933032	11.00000	0.00000	SEC 14 9 9
AE	RE-5					LDR			IBC								10934031	0.00000	4.83000	RS 12/26/1
CPO	RM		DC			MFR						SS					10940211	0.00000	4.82900	L 25
CPO	RM		DC			MFR						SS					10940212	0.00000	1.90000	L 24
CPO	RM		DC			MFR						SS					10940215	0.00000	4.63700	PM 46/147/1
CG	CC		DC			C						SS					10940217	0.00000	0.51100	POR LOT 1
CPO	RM		DC			MFR						SS					10941006	0.00000	0.93000	PM 37/39/F
CPO	RM		DC			MFR						SS					10941007	0.00000	0.85000	PM 37/39/G
CPO	RM		DC			MFR						SS					10941008	0.00000	1.03000	PM 37/39/H
CP	CL		DC	PD		C						CP					10944001	0.00000	0.00000	UNIT 1
CP	CL		DC	PD		C						CP					10944002	0.00000	0.00000	UNIT 2
CP	CL		DC	PD		C						CP					10944003	0.00000	0.00000	UNIT 3
CP	CL		DC	PD		C						CP					10944004	0.00000	0.00000	UNIT 4

CP	CL		DC	PD		C						CP					10944005	0.00000	0.00000	UNIT 5
CP	CL		DC	PD		C						CP					10944006	0.00000	0.00000	UNIT 6
CP	CL		DC	PD		C						CP					10944007	0.00000	0.00000	UNIT 7
CP	CL		DC	PD		C						CP					10944008	0.00000	0.00000	UNIT 8
CP	CL		DC	PD		C						CP					10944009	0.00000	0.00000	UNIT 9
CP	CL		DC	PD		C						CP					10944010	0.00000	0.00000	UNIT 10
CP	CC		DC	PD		C						CP					10944011	2.00000	1.16000	L A
RE-5	TC					LDR			IBC								10945042	11.00000	0.00000	POR SEC 23 9 9
RE-10	TC					LDR			IBC								10945043	11.00000	0.00000	POR SEC 26 9 9
RE-5	TC					LDR			IBC								10945043	11.00000	0.00000	POR SEC 26 9 9
PA-20	I					I						SS					10948017	2.00000	2.28000	RDWY AW
CP	CC			PD		C						CP					10949001	0.00000	0.20900	PM 49/97/1
CP	CC			PD		C						CP					10949002	0.00000	0.20500	PM 49/97/2
CP	CC			PD		C						CP					10949003	0.00000	0.35400	PM 49/97/3
CP	CC			PD		C						CP					10949004	0.00000	0.29400	PM 49/97/4
CP	CC			PD		C						CP					10949005	0.00000	0.20800	PM 49/97/5
CP	CC			PD		C						CP					10949006	0.00000	0.28200	PM 49/97/6
CP	CC			PD		C						CP					10949007	0.00000	0.29000	PM 49/97/7
CP	CC			PD		C						CP					10949008	0.00000	0.35300	PM 49/97/8
CP	CC			PD		C						CP					10949009	0.00000	0.86400	PM 49/97/9
CP	CC			PD		C						CP					10949010	0.00000	0.36700	PM 49/97/10
C	CL			PD		C						SS					10950001	0.00000	0.07100	PM 49/133/1
C	CL			PD		C						SS					10950002	0.00000	0.08600	PM 49/133/2
C	CL			PD		C						SS					10950003	0.00000	0.08800	PM 49/133/3
C	CL			PD		C						SS					10950004	0.00000	0.09300	PM 49/133/4
C	CL			PD		C						SS					10950005	0.00000	0.01900	PM 49/133/5
C	CL			PD		C						SS					10950006	0.00000	0.03200	PM 49/133/6
C	CL			PD		C						SS					10950007	0.00000	0.03200	PM 49/133/7
C	CL			PD		C						SS					10950008	0.00000	0.03400	PM 49/133/8
C	CL			PD		C						SS					10950009	0.00000	0.03400	PM 49/133/9
C	CL			PD		C						SS					10950010	0.00000	0.03400	PM 49/133/10
C	CL			PD		C						SS					10950011	0.00000	0.03400	PM 49/133/11
C	CL			PD		C						SS					10950012	0.00000	0.03400	PM 49/133/12
C	CL			PD		C						SS					10950013	0.00000	0.03400	PM 49/133/13
C	CL			PD		C						SS					10950014	0.00000	0.03400	PM 49/133/14
C	CL			PD		C						SS					10950015	0.00000	0.03400	PM 49/133/15
C	CL			PD		C						SS					10950016	0.00000	0.03400	PM 49/133/16
C	CL			PD		C						SS					10950017	0.00000	0.03400	PM 49/133/17
C	CC			PD		C						SS					10950018	2.00000	2.20500	PM 49/133/A AW
RF	RF-H					AP						EDH		NWEDH	NWEDH		11001033	11.00000	14.57000	SEC 15 10 8
RE-10	RE-5					MDR						EDH					11002007	0.00000	10.42000	PM 16/47/C
RE-10	RE-5					MDR						EDH					11002013	0.00000	10.38000	PM 16/48/A
RE-10	RE-5					MDR						EDH					11002015	0.00000	10.03000	PM 16/48/C
RE-10	R3A					MDR						EDH					11002016	0.00000	5.00000	PM 29/56/2
RE-10	R3A					MDR						EDH					11002017	0.00000	5.00000	PM 29/56/1
RE-10	RE-5					MDR						EDH					11002018	0.00000	9.25000	PM 29/56/3

RF	RF-L					OS										11002025	11.00000	0.00000	SEC 14 10 8
RF	RF-H					AP					EDH		NWEDH	NWEDH		11002027	11.00000	9.78200	RS 31/76/1
RF	RF-H					AP					EDH		NWEDH	NWEDH		11002029	11.00000	4.64000	TR 2 RS 20-6
RE-5	R3A					MDR					EDH					11002035	0.00000	5.00000	PM 46/2/1
RE-10	R3A					MDR					EDH					11002039	0.00000	16.64100	SEC 11&14 10 8
RE-10	R1A					MDR					EDH					11002040	0.00000	2.24000	SEC 14 10 8
RE-10	RE-5					MDR					EDH					11002041	0.00000	7.39000	SEC 14 10 8
RE-10	R3A					MDR					EDH					11002042	0.00000	3.71200	POR SEC 14 10 8
RE-10	R1A					MDR					EDH					11002043	0.00000	1.35000	RS 26/54/A
RE-10	RE-5					MDR					EDH					11002044	0.00000	7.59000	RS 22/100/1
CP	CC		DC			AP					EDH		NWEDH	NWEDH		11003012	0.00000	5.92400	SEC 22 10 8
RF	RF-H					AP					EDH		NWEDH	NWEDH		11013018	11.00000	1.41000	POR LOT H & I
R2	RM			PD		AP					EDH		NWEDH	NWEDH		11013023	2.00000	1.48800	PAR 1 P/M47-82AW
R2	RM			PD		AP					EDH		NWEDH	NWEDH		11013024	0.00000	23.12000	PM 47/82/2
CP	CC		DC			AP					EDH		NWEDH	NWEDH		11013025	11.00000	1.53800	POR LOT L
CP	CC		DC			AP					EDH		NWEDH	NWEDH		11013032	11.00000	0.13200	POR PM 48/135/2
CP	CC		DC			AP					EDH		NWEDH	NWEDH		11013033	11.00000	0.07100	POR PM 48/135/2
CP	CC		DC			AP					EDH		NWEDH	NWEDH		11013035	0.00000	6.86400	PPM 48/135/2 ADM
CP	CC		DC			AP					EDH		NWEDH	NWEDH		11013037	0.00000	1.58500	PPM 48/135/2 ADM
CP	CC		DC			AP					EDH		NWEDH	NWEDH		11013038	11.00000	0.06500	POR PM 48/135/1
CP	CC		DC			AP					EDH		NWEDH	NWEDH		11013039	0.00000	6.98700	PPM 48/135/1 ADM
CP	CC		DC			AP					EDH		NWEDH	NWEDH		11013041	0.00000	1.23000	PPM 48/135/1 ADM
C	R1			PD		AP					EDH		NWEDH	NWEDH		11013042	11.00000	0.00000	GREEN VALLEY RD
CP	R1		DC			AP					EDH		NWEDH	NWEDH		11013042	11.00000	0.00000	GREEN VALLEY RD
R1A	R1					AP					EDH		NWEDH	NWEDH		11013042	11.00000	0.00000	GREEN VALLEY RD
R1A	RF-L					OS										11044010	11.00000	0.00000	FOLSOM LAKE
R1A	RF-L					OS										11044010	11.00000	0.00000	FOLSOM LAKE
RF	RF-L					OS										11044010	11.00000	0.00000	FOLSOM LAKE
RE-10	RE-5					MDR					EDH					11045009	0.00000	10.32900	POR PM 7/148/D
RE-10	R1A					MDR					EDH					11046039	0.00000	1.28000	PM 36/97/B
R1A	R1					AP					EDH		NWEDH	NWEDH		11046082	0.00000	2.42700	SEC 10 & 15 10 8
RE-10	R1A					MDR					EDH					11046085	0.00000	0.00000	PM 36/97/D+
RF	R1A					HDR					EDH					11059016	0.00000	1.56000	POR PAR 1 13-74
RE-10	RE-5					MDR					EDH					11059045	0.00000	11.17600	PM 46/112/1
RE-10	RE-5					MDR					EDH					11059051	0.00000	10.03000	PM 47/53/1
RE-10	RE-5					MDR					EDH					11059052	0.00000	10.22000	PM 47/53/2
RE-10	RE-5					MDR					EDH					11059054	0.00000	14.22400	POR PM 46/112/4
RE-10	RE-5					MDR					EDH					11059055	0.00000	20.76000	PPM 46/112/4&REM
RE-10	R1A					MDR					EDH					11059057	0.00000	1.73000	PM 50/1/A
RE-10	R1A					MDR					EDH					11059058	0.00000	1.37000	PM 50/1/B
RE-10	R1A					MDR					EDH					11059059	0.00000	0.75000	PM 50/1/C
R1	R1A					HDR					EDH					11060209	2.00000	0.00000	RDWYS AW
R1	R1A					HDR					EDH					11060209	2.00000	0.00000	RDWYS AW
RE-5	R1A					HDR					CP					11502006	0.00000	5.00000	PM 32/19/1
RE-10	R1A					HDR					CP					11503003	0.00000	14.06000	PM 6/127/3
RE-10	R1A					HDR					CP					11503004	0.00000	17.91000	PM 6/127/4

RE-10	R1A					HDR					CP					11503014	0.00000	0.76000	RS 14/112 S32109
RE-10	R1A					HDR					CP					11503015	0.00000	1.79000	RS 28/26/1
RE-5	R1A					HDR					CP					11503015	0.00000	1.79000	RS 28/26/1
RE-10	R1A					HDR					CP					11503016	0.00000	0.16200	RS 28/26/2
RE-10	RL-10					RR										11508002	0.00000	9.10000	SEC 19 10 9
RF	R1					HDR					CP					11512015	2.00000	2.50000	POR L G ADM AW
AE	R1					HDR					CP					11537008	11.00000	0.00000	L R RDWY
RE-5	R1					HDR					CP					11537008	11.00000	0.00000	L R RDWY
A	RE-10					AP					EDH		BLH	BLH		11540006	0.00000	14.21000	SEC 31 10 9
A	RE-10					AP					EDH		BLH	BLH		11540007	0.00000	13.22000	SEC 31 10 9
A	RE-10					AP					EDH		BLH	BLH		11540008	0.00000	11.31000	SEC 31 10 9
A	RE-10					AP					EDH		BLH	BLH		11540009	0.00000	11.57000	SEC 31 10 9
RF	RF-H					AP					EDH		SEDH	SEDH		11540011	11.00000	5.03000	SEC 31 10 9
RF	RF-H					AP							SEDH	SEDH		11540012	11.00000	151.70000	RS 10/24
RF	RF-H					AP					EDH		SEDH	SEDH		11540014	11.00000	0.08100	SEC 31 10 9
AE	R1A					HDR					CP					11541001	0.00000	0.00000	
CPO	R1A		DC			HDR					CP					11541001	0.00000	0.00000	
R20K	R1A					HDR					CP					11541001	0.00000	0.00000	
RE-10	RE-5					LDR					CP					11541005	0.00000	146.40000	POR S 19&30 10 9
CPO	R1A		DC			MDR					CP					11541010	11.00000	0.41000	POR PM 42/31/2
MP	RM		DC		AA	MFR					CP					11601001	0.00000	9.85000	SEC 28 10 9
OS	R1			PD	AA	HDR					CP					11601004	0.00000	20.00000	SEC 33 10 9
OS	R1			PD	AA	HDR					CP					11601004	0.00000	20.00000	SEC 33 10 9
OS	R1			PD	AA	HDR					CP					11601004	0.00000	20.00000	SEC 33 10 9
OS	R1			PD	AA	HDR					CP					11601004	0.00000	20.00000	SEC 33 10 9
OS	R1			PD	AA	HDR					CP					11601004	0.00000	20.00000	SEC 33 10 9
RE-5	R1A				AA	HDR					CP					11603004	0.00000	10.00000	SEC 32 & 33 10 9
R1	R1A				AA	HDR					CP					11603007	0.00000	5.35000	PM 13/145/3
RE-5	R1A				AA	HDR					CP					11603007	0.00000	5.35000	PM 13/145/3
RE-5	R1A				AA	HDR					CP					11603013	0.00000	1.43000	RS 7/57/2
RE-5	R1A				AA	HDR					CP					11603014	0.00000	0.04000	SEC 32 10 9
RE-5	R1A				AA	HDR					CP					11603015	0.00000	0.50000	SEC 32 10 9
RE-5	R1A				AA	HDR					CP					11603022	0.00000	1.00000	SEC 32 10 9
RE-5	R1A					HDR					CP					11603024	0.00000	5.00000	SEC 32 10 9
RE-5	R1A				AA	HDR					CP					11603024	0.00000	5.00000	SEC 32 10 9
RE-5	R1A					HDR					CP					11603033	0.00000	5.00000	SEC 32 10 9
RE-5	R1A				AA	HDR					CP					11603033	0.00000	5.00000	SEC 32 10 9
RE-5	R1A					HDR					CP					11603034	0.00000	5.00000	SEC 32 10 9
RE-5	R1A				AA	HDR					CP					11603034	0.00000	5.00000	SEC 32 10 9
RE-5	R1A					HDR					CP					11603035	0.00000	5.00000	SEC 32 10 9
RE-5	R1A				AA	HDR					CP					11603035	0.00000	5.00000	SEC 32 10 9
RE-5	R1A					HDR					CP					11603036	0.00000	5.00000	SEC 32 10 9
RE-5	R1A				AA	HDR					CP					11603038	0.00000	0.50000	PRS 18/149/1 ADM
RE-5	R1A				AA	HDR					CP					11603047	0.00000	3.29000	SEC 32 10 9
RE-5	R1A				AA	HDR					CP					11603048	0.00000	0.23000	PRS 18/149/1 ADM
RE-5	R1A				AA	HDR					CP					11603058	0.00000	0.50000	RS 20/123/1

RE-5	R1A				AA	HDR					CP					11603059	0.00000	0.50000	RS 20/123/2
RE-5	R1A				AA	HDR					CP					11603085	0.00000	0.79000	RS 18/149/2
RE-5	R1A					HDR					CP					11604006	0.00000	5.00000	SEC 33 10 9
RE-5	R1A				AA	HDR					CP					11604006	0.00000	5.00000	SEC 33 10 9
R1	R1A					HDR					CP					11604007	0.00000	5.07000	RS 23/11/1
R1	R1A				AA	HDR					CP					11604007	0.00000	5.07000	RS 23/11/1
RE-5	R1A					HDR					CP					11604008	0.00000	4.72000	SEC 33 10 9
RE-5	R1A				AA	HDR					CP					11604008	0.00000	4.72000	SEC 33 10 9
RE-5	R1A				AA	HDR					CP					11604017	0.00000	5.00000	SEC 33 10 9
RE-5	R1A				AA	HDR					CP					11604018	0.00000	5.00000	SEC 33 10 9
RE-5	R1A					HDR					CP					11604026	0.00000	5.00000	5 A SEC 33 10 9
RE-5	R1A					HDR					CP					11604029	0.00000	5.00000	SEC 33 10 9
RE-5	R1A					HDR					CP					11604030	0.00000	5.00000	SEC 33 10 9
RE-5	R1A				AA	HDR					CP					11604030	0.00000	5.00000	SEC 33 10 9
R2	RM		DC		AA	MFR					CP					11608101	0.00000	0.00000	L 182
R2	RM		DC		AA	MFR					CP					11608102	0.00000	0.00000	L 183
R2	RM		DC		AA	MFR					CP					11608103	0.00000	0.00000	L 184
R2	RM		DC		AA	MFR					CP					11608104	0.00000	0.00000	L 185
R2	RM		DC		AA	MFR					CP					11608105	0.00000	0.00000	L 186
R2	RM		DC		AA	MFR					CP					11608106	0.00000	0.00000	L 187
R2	RM		DC		AA	MFR					CP					11608107	0.00000	0.00000	L 188
R2	RM		DC		AA	MFR					CP					11608108	0.00000	0.00000	L 189
R2	RM		DC		AA	MFR					CP					11608109	0.00000	0.00000	L 190
R2	RM		DC		AA	MFR					CP					11608201	0.00000	0.00000	L 191
R2	RM		DC		AA	MFR					CP					11608304	0.00000	0.00000	L 222
R2	RM		DC		AA	MFR					CP					11608305	0.00000	0.00000	L 223
R2	RM		DC		AA	MFR					CP					11608306	0.00000	0.00000	L 224
R2	RM		DC		AA	MFR					CP					11608308	0.00000	0.43300	L 226
R2	RM		DC		AA	MFR					CP					11608310	0.00000	0.00000	L 228
R2	RM		DC		AA	MFR					CP					11609106	0.00000	0.00000	L 181
R2	RM		DC		AA	MFR					CP					11609107	0.00000	0.00000	POR L 178
R2	RM		DC		AA	MFR					CP					11609108	0.00000	0.00000	POR L 179
R2	RM		DC		AA	MFR					CP					11609109	11.00000	0.00000	POR LOTS 178&179
R2	RM		DC		AA	MFR					CP					11609209	0.00000	0.00000	L 269
R2	RM		DC		AA	MFR					CP					11609210	0.00000	0.00000	L 270
R2	RM		DC		AA	MFR					CP					11609211	0.00000	0.47700	L 271
R2	R1		DC		AA	HDR					CP					11609213	2.00000	0.00000	COMMON AREA
R2	RM			PD	AA	MFR					CP					11609214	0.00000	0.00000	L 273
R2	RM			PD	AA	MFR					CP					11609215	0.00000	0.00000	L 274
R2	RM		DC	PD	AA	MFR					CP					11609216	0.00000	0.00000	PM 42/70/1
R2	RM		DC	PD	AA	MFR					CP					11609217	0.00000	0.00000	PM 42/70/2
R2	RM		DC	PD	AA	MFR					CP					11609218	0.00000	0.00000	PM 42/70/3
R2	RM		DC	PD	AA	MFR					CP					11609219	0.00000	0.00000	PM 42/70/4
R2	RM		DC	PD		MFR					CP					11628108	11.00000	0.09400	TR 1 R/S 24-66
R2	RM		DC	PD		MFR					CP					11628109	0.00000	7.31900	RS 24/66/2
R2	RM		DC	PD	AA	MFR					CP					11628109	0.00000	7.31900	RS 24/66/2

CP	CC		DC	PD		C						CP					11628110	0.00000	5.92000	PM 41/17/1 & 2
CP	CC		DC	PD	AA	C						CP					11628110	0.00000	5.92000	PM 41/17/1 & 2
R2	RM		DC		AA	MFR						CP					11630102	0.00000	10.65000	L D
CP	CC		DC	PD	AA	C						CP					11630104	0.00000	1.05000	PM 34/91/1
CP	CC		DC	PD	AA	C						CP					11630105	0.00000	1.02000	PM 34/91/2
CP	CC		DC	PD	AA	C						CP					11630106	0.00000	1.89000	PM 50/3/1
CP	CL		DC	PD	AA	C						CP					11630107	0.00000	0.84300	PM 50/3/2
CP	CC		DC	PD	AA	C						CP					11630108	0.00000	1.05700	PM 50/3/3
CP	CL		DC	PD	AA	C						CP					11630109	0.00000	0.68400	PM 50/3/4
CP	CL		DC	PD	AA	C						CP					11630110	0.00000	0.67200	PM 50/3/5
CP	CC		DC	PD	AA	C						CP					11630111	0.00000	2.43200	PM 50/3/6
CP	CC		DC	PD	AA	C						CP					11630112	0.00000	5.36600	PM 50/3/7
R2	RM		DC		AA	MFR						CP					11631101	0.00000	0.00000	L 290
R2	RM		DC		AA	MFR						CP					11631102	0.00000	0.00000	L 291
R2	RM		DC		AA	MFR						CP					11631103	0.00000	0.00000	L 292
R2	RM		DC		AA	MFR						CP					11631104	0.00000	0.00000	L 293
R2	RM		DC		AA	MFR						CP					11631105	0.00000	0.00000	L 294
R2	RM			PD	AA	MFR						CP					11631106	0.00000	0.00000	L 295
R2	RM			PD	AA	MFR						CP					11631202	0.00000	0.00000	L 297
R2	RM			PD	AA	MFR						CP					11631203	0.00000	0.00000	L 298
R2	RM			PD	AA	MFR						CP					11631205	0.00000	0.00000	L 300
R2	RM		DC		AA	MFR						CP					11631206	0.00000	0.00000	L 301
R2	RM		DC		AA	MFR						CP					11631208	0.00000	0.00000	L 303
R2	RM		DC		AA	MFR						CP					11631211	0.00000	0.00000	L 302
R2	RM		DC		AA	MFR						CP					11632105	0.00000	2.18000	PM 39/104/1
R2	RM		DC		AA	MFR						CP					11641009	2.00000	0.00000	L A
R2	RM			PD	AA	MFR						CP					11644001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR						CP					11644002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR						CP					11644003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR						CP					11644004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR						CP					11644005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR						CP					11644006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR						CP					11644007	0.00000	0.00000	L 7
R2	RM			PD	AA	MFR						CP					11644008	0.00000	0.00000	L 8
R2	RM			PD	AA	MFR						CP					11644009	0.00000	0.01000	L 9
R2	RM			PD	AA	MFR						CP					11644010	0.00000	0.00000	L 10
R2	RM			PD	AA	MFR						CP					11644011	0.00000	0.00000	L 11
R2	RM			PD	AA	MFR						CP					11644012	2.00000	0.00000	LOT A AW
R2	RM		DC		AA	MFR						CP					11645002	0.00000	0.00000	L 1
R2	RM		DC		AA	MFR						CP					11645002	0.00000	0.00000	L 1
R2	RM		DC		AA	MFR						CP					11645003	0.00000	0.00000	L 2
R2	RM		DC		AA	MFR						CP					11645003	0.00000	0.00000	L 2
R2	RM		DC		AA	MFR						CP					11645004	0.00000	0.00000	L 3
R2	RM		DC		AA	MFR						CP					11645004	0.00000	0.00000	L 3
R2	RM		DC		AA	MFR						CP					11645005	0.00000	0.00000	L 4
R2	RM		DC		AA	MFR						CP					11645005	0.00000	0.00000	L 4

R2	RM		DC		AA	MFR					CP					11645006	0.00000	0.00000	L 5
R2	RM		DC		AA	MFR					CP					11645006	0.00000	0.00000	L 5
R2	RM		DC		AA	MFR					CP					11645007	0.00000	0.00000	L 6
R2	RM		DC		AA	MFR					CP					11645007	0.00000	0.00000	L 6
R2	RM		DC		AA	MFR					CP					11645008	0.00000	0.00000	L 7
R2	RM		DC		AA	MFR					CP					11645008	0.00000	0.00000	L 7
R2	RM		DC		AA	MFR					CP					11645009	0.00000	0.00000	L 8
R2	RM		DC		AA	MFR					CP					11645009	0.00000	0.00000	L 8
R2	RM		DC		AA	MFR					CP					11645010	0.00000	0.00000	L 9
R2	RM		DC		AA	MFR					CP					11645010	0.00000	0.00000	L 9
R2	RM		DC		AA	MFR					CP					11645011	0.00000	0.00000	L 10
R2	RM		DC		AA	MFR					CP					11645011	0.00000	0.00000	L 10
R2	RM		DC		AA	MFR					CP					11645012	0.00000	0.00000	L 11
R2	RM		DC		AA	MFR					CP					11645012	0.00000	0.00000	L 11
R2	RM		DC		AA	MFR					CP					11645013	0.00000	0.00000	L 12
R2	RM		DC		AA	MFR					CP					11645014	0.00000	0.00000	L 13
R2	RM		DC		AA	MFR					CP					11645015	0.00000	0.00000	L 14
R2	RM		DC		AA	MFR					CP					11645016	0.00000	0.00000	L 15
R2	RM		DC		AA	MFR					CP					11645017	2.00000	1.01000	L A AW
R2	RM			PD	AA	MFR					CP					11656001	0.00000	0.00000	L 1
R2	RM			PD	AA	MFR					CP					11656002	0.00000	0.00000	L 2
R2	RM			PD	AA	MFR					CP					11656003	0.00000	0.00000	L 3
R2	RM			PD	AA	MFR					CP					11656004	0.00000	0.00000	L 4
R2	RM			PD	AA	MFR					CP					11656005	0.00000	0.00000	L 5
R2	RM			PD	AA	MFR					CP					11656006	0.00000	0.00000	L 6
R2	RM			PD	AA	MFR					CP					11656007	2.00000	0.39500	L A AW
R1	R1A				AA	HDR					CP					11657001	2.00000	9.31000	LOT A AW
R2	R1		DC	PD		HDR					CP					11657001	2.00000	9.31000	LOT A AW
R2	R1		DC	PD	AA	HDR					CP					11657001	2.00000	9.31000	LOT A AW
R2	RM			PD	AA	MFR					CP					11661001	0.00000	0.00000	UNIT 1
R2	RM			PD	AA	MFR					CP					11661002	0.00000	0.00000	UNIT 2
R2	RM			PD	AA	MFR					CP					11661003	0.00000	0.00000	UNIT 3
R2	RM			PD	AA	MFR					CP					11661004	0.00000	0.00000	UNIT 4
R2	RM			PD	AA	MFR					CP					11661005	0.00000	0.00000	UNIT 5
R2	RM			PD	AA	MFR					CP					11661006	0.00000	0.00000	UNIT 6
R2	RM			PD	AA	MFR					CP					11661007	0.00000	0.00000	UNIT 7
R2	RM			PD	AA	MFR					CP					11661008	0.00000	0.00000	UNIT 8
R2	RM			PD	AA	MFR					CP					11661009	0.00000	0.00000	UNIT 9
R2	RM			PD	AA	MFR					CP					11661010	2.00000	0.00000	LOT A AW
R2	RM		DC	PD	AA	MFR					CP					11662001	0.00000	0.00000	UNIT 1
R2	RM		DC	PD	AA	MFR					CP					11662002	0.00000	0.00000	UNIT 2
R2	RM		DC	PD	AA	MFR					CP					11662003	0.00000	0.00000	UNIT 3
R2	RM		DC	PD	AA	MFR					CP					11662004	0.00000	0.00000	UNIT 4
R2	RM		DC	PD	AA	MFR					CP					11662005	0.00000	0.00000	UNIT 5
R2	RM		DC	PD	AA	MFR					CP					11662006	0.00000	0.00000	UNIT 6
R2	RM		DC	PD	AA	MFR					CP					11662007	2.00000	0.53000	LOT A AW

R1	RF-H					HDR					EDH					11701004	11.00000	7.73000	RS 24/79/2
RF	RF-H					HDR					EDH					11701004	11.00000	7.73000	RS 24/79/2
R&D	CC-SP		DC			AP					EDH		CC	CC		11701008	0.00000	253.92000	SEC 23 9 8
RA-40	RE-10					RR										11702003	11.00000	214.99000	RS 17/25
RA-80	RL-80					RR										11702003	11.00000	214.99000	RS 17/25
RA-80	RL-80					RR										11702003	11.00000	214.99000	RS 17/25
RA-40	RL-40					RR										11702004	0.00000	38.26800	POR RS 7/80/4+
AE	AG-40					AL										11702005	0.00000	286.70000	SEC 25 26 9 8
AE	PA-20					AL										11702006	0.00000	4.30000	SEC 26 9 8
RA-80	RL-80					RR										11702010	0.00000	536.00000	SEC 36 9 8
RA-80	RL-80					RR										11702010	0.00000	536.00000	SEC 36 9 8
AE	RL-40					AL										11702012	0.00000	168.00000	SEC 35 & 36 9 8
RA-40	RL-40					RR										11702013	0.00000	40.84000	RS 7/80/3
RA-40	RL-40					RR										11702014	0.00000	40.59000	RS 7/80/2
RA-40	RL-40					RR										11702015	0.00000	37.52000	POR RS 7/80/1
RA-40	RL-40					RR										11702017	0.00000	228.75000	SEC 30 & 31 9 9
RA-80	RL-80					RR										11702017	0.00000	228.75000	SEC 30 & 31 9 9
RA-80	RL-80					RR										11702017	0.00000	228.75000	SEC 30 & 31 9 9
RA-40	RL-10					RR										11702018	0.00000	12.43000	SEC 29 & 30 9 9
AE	TC					AL										11702020	11.00000	0.00000	SEC 25&26 9 8
AE	TC					AL										11702020	11.00000	0.00000	SEC 25&26 9 8
CC-SP	TC					AL										11702020	11.00000	0.00000	SEC 25&26 9 8
I	TC					RR										11702021	11.00000	0.00000	SEC 36 9 8
I	TC					I					EDH					11702022	11.00000	0.00000	SEC 36 9 8
RA-80	TC					I					EDH					11702022	11.00000	0.00000	SEC 36 9 8
RA-40	TC					RR										11702023	11.00000	0.00000	SEC 30&31 9 9
RA-80	TC					RR										11702023	11.00000	0.00000	SEC 30&31 9 9
RA-80	TC					RR										11702023	11.00000	0.00000	SEC 30&31 9 9
RA-80	RL-80					RR										11702025	2.00000	0.00000	RS 28/106 ADM
RE-10	RL-10					RR										11702025	2.00000	0.00000	RS 28/106 ADM
RF	RF-H					OS					EDH					11705136	11.00000	15.12100	POR LOT 63
R1	R20K					HDR					EDH					11715009	11.00000	9.59700	L A
R1A	R20K					HDR					EDH					11715009	11.00000	9.59700	L A
RF	CG					AP					EDH		SEDH	SEDH		11716024	11.00000	0.41400	RS 26/84/1
RF	CG					AP					EDH		SEDH	SEDH		11716051	0.00000	5.80000	PM 50/17/8
R&D	CG		DC			AP					EDH		SEDH	SEDH		11716062	11.00000	5.28400	WHITE ROCK RD
R&D	CG		DC			AP					EDH		SEDH	SEDH		11716062	11.00000	5.28400	WHITE ROCK RD
CG	R&D			PD		AP					EDH		SEDH	SEDH		11718012	0.00000	2.03600	PM 50/103/1
R&D	CG		DC			AP					EDH		SEDH	SEDH		11718013	0.00000	2.19300	PM 50/103/2
RF	R1					HDR					EDH					11719048	11.00000	0.00000	L R1
R1	R20K					HDR					EDH					11720042	0.00000	1.12800	L 5A
RF	R1					HDR					EDH					11722064	2.00000	0.00000	L R RDWY
OS	R1					HDR					EDH					11726003	0.00000	0.45800	L 100
OS	R1					HDR					EDH					11726004	0.00000	0.34100	L 101
OS	R1					HDR					EDH					11726005	0.00000	0.33800	L 102
OS	R1					HDR					EDH					11726006	0.00000	0.39600	L 103

OS	R1					HDR					EDH					11726007	0.00000	0.30700	L 104
OS	R1					HDR					EDH					11726008	0.00000	0.40400	L 105
OS	R1					HDR					EDH					11726009	0.00000	0.39500	L 106
OS	R1					HDR					EDH					11726010	0.00000	0.31700	L 107
OS	R1					HDR					EDH					11726012	0.00000	0.39200	L 109
OS	R1					HDR					EDH					11726013	0.00000	0.38600	L 110
OS	R1					HDR					EDH					11726014	0.00000	0.42900	L 111
OS	R1					HDR					EDH					11726015	0.00000	0.35900	L 112
OS	R1					HDR					EDH					11726016	0.00000	0.32800	L 113
OS	R1					HDR					EDH					11726017	0.00000	0.30600	L 114
OS	R1					HDR					EDH					11726019	0.00000	0.47400	L 119
OS	R1					HDR					EDH					11726020	0.00000	0.47900	L 120
OS	R1					HDR					EDH					11726021	0.00000	0.36300	L 121
OS	R1					HDR					EDH					11726039	0.00000	0.45300	L 195
OS	R1					HDR					EDH					11726040	0.00000	0.52800	L 196
OS	R1					HDR					EDH					11726041	0.00000	0.53000	L 197
R1	OS					OS					EDH					11726060	11.00000	15.09300	L G
R1	OS					OS					EDH					11726060	11.00000	15.09300	L G
R1	OS					OS					EDH					11726060	11.00000	15.09300	L G
R1	OS					OS					EDH					11726060	11.00000	15.09300	L G
R1	OS					HDR					EDH					11726061	11.00000	1.75500	L H
R1	OS					OS					EDH					11726062	11.00000	8.10800	L J
OS	R1					HDR					EDH					11726063	2.00000	0.00000	L R AW
OS	R1					HDR					EDH					11726063	2.00000	0.00000	L R AW
OS	R1					HDR					EDH					11726063	2.00000	0.00000	L R AW
OS	R1					HDR					EDH					11726063	2.00000	0.00000	L R AW
C	CR		DC			C					EDH					11801003	11.00000	0.44300	POR PM31/10/1
C	CR		DC			C					EDH					11801005	11.00000	0.66800	POR PM 31/10/2
C	CR		DC			C					EDH					11801012	0.00000	16.85200	POR PM 31/10/2
MP	RM		DC			MFR					EDH					11801013	0.00000	20.00000	SEC 11 9 8
C	CR		DC			C					EDH					11801014	0.00000	1.58000	PM 50/23/1
C	CR		DC			C					EDH					11801015	0.00000	0.90000	PM 50/23/2
C	CR		DC			C					EDH					11801016	0.00000	0.77000	PM 50/23/3
C	CC			PD		C					EDH					11802001	11.00000	3.85300	POR TR 1 RS 20/5
R2	R1		DC	PD		HDR					EDH					11805101	11.00000	0.00000	L B AW
R2	R1		DC	PD		HDR					EDH					11805201	11.00000	0.49500	L A1 AW
R2	R1		DC	PD		HDR					EDH					11805202	11.00000	1.48100	L A2 AW
R2	R1		DC	PD		HDR					EDH					11805203	2.00000	1.71200	L A3 AW
R2	R1		DC	PD		HDR					EDH					11806101	0.00000	0.13700	L 1
R2	R1		DC	PD		HDR					EDH					11806102	0.00000	0.13600	L 2
R2	R1		DC	PD		HDR					EDH					11806103	0.00000	0.13100	L 3
R2	R1		DC	PD		HDR					EDH					11806104	0.00000	0.13600	L 4
R2	R1		DC	PD		HDR					EDH					11806105	0.00000	0.14600	L 5
R2	R1		DC	PD		HDR					EDH					11806106	0.00000	0.15600	L 6
R2	R1		DC	PD		HDR					EDH					11806107	0.00000	0.16100	L 7
R2	R1		DC	PD		HDR					EDH					11806201	0.00000	0.14700	L 81

R2	R1		DC	PD		HDR					EDH					11806202	0.00000	0.14400	L 82
R2	R1		DC	PD		HDR					EDH					11806203	0.00000	0.15600	L 83
R2	R1		DC	PD		HDR					EDH					11806204	0.00000	0.21900	L 84
R2	R1		DC	PD		HDR					EDH					11806205	0.00000	0.17200	L 85
R2	R1		DC	PD		HDR					EDH					11806209	0.00000	0.17100	L 89
R2	R1		DC	PD		HDR					EDH					11806210	0.00000	0.16300	L 90
R2	R1		DC	PD		HDR					EDH					11806213	0.00000	0.17300	L 93
R2	R1		DC	PD		HDR					EDH					11806214	0.00000	0.17300	L 94
R2	R1		DC	PD		HDR					EDH					11806215	11.00000	1.18000	POR LOT C AW
R2	R1		DC	PD		HDR					EDH					11806217	0.00000	0.16200	PM 47/66/1
R2	R1		DC	PD		HDR					EDH					11806218	0.00000	0.16700	PM 47/66/2
R2	R1		DC	PD		HDR					EDH					11806220	0.00000	0.13900	PM 47/67/1
R2	R1		DC	PD		HDR					EDH					11806221	0.00000	0.18500	PM 47/67/2
R2	R1		DC	PD		HDR					EDH					11806222	0.00000	0.17500	PM 47/67/3
R2	R1		DC	PD		HDR					EDH					11806301	0.00000	0.20200	L 155
R2	R1		DC	PD		HDR					EDH					11806302	0.00000	0.17300	L 156
R2	R1		DC	PD		HDR					EDH					11806303	0.00000	0.17800	L 157
R2	R1		DC	PD		HDR					EDH					11806304	0.00000	0.18900	L 158
R2	R1		DC	PD		HDR					EDH					11806305	0.00000	0.18800	L 159
R2	R1		DC	PD		HDR					EDH					11806306	0.00000	0.13400	L 160
R2	R1		DC	PD		HDR					EDH					11806307	0.00000	0.15900	L 161
R2	R1		DC	PD		HDR					EDH					11806308	0.00000	0.14000	L 162
R2	R1		DC	PD		HDR					EDH					11807101	0.00000	0.15600	L 8
R2	R1		DC	PD		HDR					EDH					11807102	0.00000	0.14900	L 9
R2	R1		DC	PD		HDR					EDH					11807103	0.00000	0.14200	L 10
R2	R1		DC	PD		HDR					EDH					11807104	0.00000	0.13500	L 11
R2	R1		DC	PD		HDR					EDH					11807105	0.00000	0.13100	L 12
R2	R1		DC	PD		HDR					EDH					11807106	0.00000	0.13800	L 13
R2	R1		DC	PD		HDR					EDH					11807107	0.00000	0.15200	L 14
R2	R1		DC	PD		HDR					EDH					11807108	0.00000	0.15900	L 15
R2	R1		DC	PD		HDR					EDH					11807109	0.00000	0.14800	L 16
R2	R1		DC	PD		HDR					EDH					11807201	0.00000	0.14400	L 72
R2	R1		DC	PD		HDR					EDH					11807202	0.00000	0.13200	L 73
R2	R1		DC	PD		HDR					EDH					11807203	0.00000	0.13500	L 74
R2	R1		DC	PD		HDR					EDH					11807204	0.00000	0.14900	L 75
R2	R1		DC	PD		HDR					EDH					11807205	0.00000	0.15800	L 76
R2	R1		DC	PD		HDR					EDH					11807206	0.00000	0.15400	L 77
R2	R1		DC	PD		HDR					EDH					11807207	0.00000	0.14900	L 78
R2	R1		DC	PD		HDR					EDH					11807208	0.00000	0.15100	L 79
R2	R1		DC	PD		HDR					EDH					11807209	0.00000	0.14200	L 80
R2	R1		DC	PD		HDR					EDH					11807210	11.00000	0.77100	POR LOT C AW
R2	R1		DC	PD		HDR					EDH					11808101	0.00000	0.13300	L 17
R2	R1		DC	PD		HDR					EDH					11808102	0.00000	0.13000	L 18
R2	R1		DC	PD		HDR					EDH					11808103	0.00000	0.13900	L 19
R2	R1		DC	PD		HDR					EDH					11808104	0.00000	0.15200	L 20
R2	R1		DC	PD		HDR					EDH					11808105	0.00000	0.16400	L 21

R2	R1		DC	PD		HDR					EDH					11808106	0.00000	0.17700	L 22
R2	R1		DC	PD		HDR					EDH					11808107	0.00000	0.18400	L 23
R2	R1		DC	PD		HDR					EDH					11808201	0.00000	0.14900	L 65
R2	R1		DC	PD		HDR					EDH					11808202	0.00000	0.14800	L 66
R2	R1		DC	PD		HDR					EDH					11808203	0.00000	0.15500	L 67
R2	R1		DC	PD		HDR					EDH					11808204	0.00000	0.16200	L 68
R2	R1		DC	PD		HDR					EDH					11808207	0.00000	0.16600	L 71
R2	R1		DC	PD		HDR					EDH					11808208	11.00000	0.85500	POR LOT C AW
R2	R1		DC	PD		HDR					EDH					11808210	0.00000	0.16800	PM 47/68/1
R2	R1		DC	PD		HDR					EDH					11808211	0.00000	0.17300	PM 47/68/2
R2	R1		DC	PD		HDR					EDH					11809001	0.00000	0.17900	L 1
R2	R1		DC	PD		HDR					EDH					11809002	0.00000	0.17000	L 2
R2	R1		DC	PD		HDR					EDH					11809003	0.00000	0.16100	L 3
R2	R1		DC	PD		HDR					EDH					11809004	0.00000	0.15200	L 4
R2	R1		DC	PD		HDR					EDH					11809005	0.00000	0.14300	L 5
R2	R1		DC	PD		HDR					EDH					11809006	0.00000	0.13500	L 6
R2	R1		DC	PD		HDR					EDH					11809007	0.00000	0.13300	L 7
R2	R1		DC	PD		HDR					EDH					11809008	0.00000	0.13300	L 8
R2	R1		DC	PD		HDR					EDH					11809009	0.00000	0.15500	L 9
R2	R1		DC	PD		HDR					EDH					11809010	0.00000	0.18100	L 10
R2	R1		DC	PD		HDR					EDH					11809011	0.00000	0.21400	L 11
R2	R1		DC	PD		HDR					EDH					11809012	0.00000	0.23800	L 12
R2	R1		DC	PD		HDR					EDH					11809013	0.00000	0.31100	L 13
R2	R1		DC	PD		HDR					EDH					11809014	0.00000	0.40200	L 14
R2	R1		DC	PD		HDR					EDH					11809015	0.00000	0.35600	L 15
R2	R1		DC	PD		HDR					EDH					11809016	0.00000	0.26100	L 16
R2	R1		DC	PD		HDR					EDH					11809017	0.00000	0.22200	L 17
R2	R1		DC	PD		HDR					EDH					11809018	0.00000	0.12800	L 18
R2	R1		DC	PD		HDR					EDH					11809019	0.00000	0.13300	L 19
R2	R1		DC	PD		HDR					EDH					11809020	0.00000	0.14000	L 20
R2	R1		DC	PD		HDR					EDH					11809021	0.00000	0.14400	L 21
R2	R1		DC	PD		HDR					EDH					11809022	0.00000	0.12600	L 22
R2	R1		DC	PD		HDR					EDH					11809023	0.00000	0.13400	L 23
R2	R1		DC	PD		HDR					EDH					11809024	0.00000	0.19300	L 24
R2	R1		DC	PD		HDR					EDH					11809025	0.00000	0.13600	L 25
R2	R1		DC	PD		HDR					EDH					11809026	0.00000	0.12900	L 26
R2	R1		DC	PD		HDR					EDH					11809027	0.00000	0.13700	L 27
R2	R1		DC	PD		HDR					EDH					11809028	0.00000	0.12900	L 28
R2	R1		DC	PD		HDR					EDH					11809029	0.00000	0.13300	L 29
R2	R1		DC	PD		HDR					EDH					11809030	0.00000	0.12600	L 30
R2	R1		DC	PD		HDR					EDH					11809031	0.00000	0.13300	L 31
R2	R1		DC	PD		HDR					EDH					11809032	0.00000	0.12600	L 32
R2	R1		DC	PD		HDR					EDH					11809033	0.00000	0.13700	L 33
R2	R1		DC	PD		HDR					EDH					11809034	0.00000	0.20300	L 34
R2	R1		DC	PD		HDR					EDH					11809035	0.00000	0.13600	L 35
R2	R1		DC	PD		HDR					EDH					11809036	0.00000	0.13300	L 36

R2	R1		DC	PD		HDR					EDH					11809037	0.00000	0.13500	L 37
R2	R1		DC	PD		HDR					EDH					11809038	0.00000	0.12600	L 38
R2	R1		DC	PD		HDR					EDH					11809039	0.00000	0.12600	L 39
R2	R1		DC	PD		HDR					EDH					11809040	0.00000	0.12600	L 40
R2	R1		DC	PD		HDR					EDH					11809041	0.00000	0.13300	L 41
R2	R1		DC	PD		HDR					EDH					11809042	0.00000	0.13900	L 42
R2	R1		DC	PD		HDR					EDH					11809043	0.00000	0.14000	L 43
R2	R1		DC	PD		HDR					EDH					11809044	0.00000	0.14000	L 44
R2	R1		DC	PD		HDR					EDH					11809045	0.00000	0.14000	L 45
R2	R1		DC	PD		HDR					EDH					11809046	0.00000	0.23600	L 46
R2	R1		DC	PD		HDR					EDH					11809047	0.00000	0.12800	L 47
R2	R1		DC	PD		HDR					EDH					11809048	0.00000	0.13300	L 48
R2	R1		DC	PD		HDR					EDH					11809049	0.00000	0.12600	L 49
R2	R1		DC	PD		HDR					EDH					11809050	0.00000	0.12600	L 50
R2	R1		DC	PD		HDR					EDH					11809051	0.00000	0.16400	L 51
R2	R1		DC	PD		HDR					EDH					11809052	0.00000	0.14500	L 52
R2	R1		DC	PD		HDR					EDH					11809053	0.00000	0.13300	L 53
R2	R1		DC	PD		HDR					EDH					11809054	0.00000	0.13100	L 54
R2	R1		DC	PD		HDR					EDH					11809055	0.00000	0.13100	L 55
R2	R1		DC	PD		HDR					EDH					11809056	0.00000	0.13600	L 56
R2	R1		DC	PD		HDR					EDH					11809057	0.00000	0.12600	L 57
R2	R1		DC	PD		HDR					EDH					11809058	0.00000	0.12700	L 58
R2	R1		DC	PD		HDR					EDH					11809059	0.00000	0.16400	L 59
R2	R1		DC	PD		HDR					EDH					11809060	0.00000	0.18600	L 60
R2	R1		DC	PD		HDR					EDH					11809061	0.00000	0.13000	L 61
R2	R1		DC	PD		HDR					EDH					11809062	0.00000	0.12500	L 62
R2	R1		DC	PD		HDR					EDH					11809063	0.00000	0.13600	L 63
R2	R1		DC	PD		HDR					EDH					11809064	0.00000	0.13900	L 64
R2	R1		DC	PD		HDR					EDH					11809065	0.00000	0.12200	L 65
R2	R1		DC	PD		HDR					EDH					11809066	0.00000	0.12700	L 66
R2	R1		DC	PD		HDR					EDH					11809067	0.00000	0.13300	L 67
R2	R1		DC	PD		HDR					EDH					11809068	0.00000	0.13400	L 68
R2	R1		DC	PD		HDR					EDH					11809069	0.00000	0.14100	L 69
R2	R1		DC	PD		HDR					EDH					11809070	0.00000	0.14200	L 70
R2	R1		DC	PD		HDR					EDH					11809071	0.00000	0.15000	L 71
R2	R1		DC	PD		HDR					EDH					11809072	0.00000	0.15900	L 72
R2	R1		DC	PD		HDR					EDH					11809073	0.00000	0.15900	L 73
R2	R1		DC	PD		HDR					EDH					11809074	0.00000	0.15300	L 74
R2	R1		DC	PD		HDR					EDH					11809075	0.00000	0.14300	L 75
R2	R1		DC	PD		HDR					EDH					11809076	0.00000	0.14500	L 76
R2	R1		DC	PD		HDR					EDH					11809077	0.00000	0.18700	L 77
R2	R1		DC	PD		HDR					EDH					11809078	2.00000	4.63800	L A_AW
R2	R1		DC	PD		HDR					EDH					11809079	2.00000	6.56100	L B_AW
R2	R1		DC	PD		HDR					EDH					11809080	11.00000	0.14600	L C
R2	R1		DC	PD		HDR					EDH					11809081	2.00000	0.00000	ROAD AW
R2	R1		DC	PD		HDR					EDH					11810001	0.00000	0.13900	L 1

R2	R1		DC	PD		HDR					EDH					11810002	0.00000	0.14300	L 2
R2	R1		DC	PD		HDR					EDH					11810003	0.00000	0.13800	L 3
R2	R1		DC	PD		HDR					EDH					11810004	0.00000	0.12600	L 4
R2	R1		DC	PD		HDR					EDH					11810005	0.00000	0.12400	L 5
R2	R1		DC	PD		HDR					EDH					11810006	0.00000	0.15400	L 6
R2	R1		DC	PD		HDR					EDH					11810007	0.00000	0.20800	L 7
R2	R1		DC	PD		HDR					EDH					11810008	0.00000	0.13500	L 8
R2	R1		DC	PD		HDR					EDH					11810009	0.00000	0.13200	L 9
R2	R1		DC	PD		HDR					EDH					11810010	0.00000	0.16800	L 10
R2	R1		DC	PD		HDR					EDH					11810011	0.00000	0.21200	L 11
R2	R1		DC	PD		HDR					EDH					11810012	0.00000	0.14700	L 12
R2	R1		DC	PD		HDR					EDH					11810013	0.00000	0.14500	L 13
R2	R1		DC	PD		HDR					EDH					11810014	0.00000	0.14600	L 14
R2	R1		DC	PD		HDR					EDH					11810015	0.00000	0.12600	L 15
R2	R1		DC	PD		HDR					EDH					11810016	0.00000	0.12600	L 16
R2	R1		DC	PD		HDR					EDH					11810017	0.00000	0.12600	L 17
R2	R1		DC	PD		HDR					EDH					11810018	0.00000	0.12600	L 18
R2	R1		DC	PD		HDR					EDH					11810019	0.00000	0.13600	L 19
R2	R1		DC	PD		HDR					EDH					11810020	0.00000	0.13600	L 20
R2	R1		DC	PD		HDR					EDH					11810021	0.00000	0.12800	L 21
R2	R1		DC	PD		HDR					EDH					11810022	0.00000	0.14400	L 22
R2	R1		DC	PD		HDR					EDH					11810023	0.00000	0.18100	L 23
R2	R1		DC	PD		HDR					EDH					11810024	0.00000	0.17400	L 24
R2	R1		DC	PD		HDR					EDH					11810025	0.00000	0.14900	L 25
R2	R1		DC	PD		HDR					EDH					11810026	0.00000	0.18800	L 26
R2	R1		DC	PD		HDR					EDH					11810027	0.00000	0.16400	L 27
R2	R1		DC	PD		HDR					EDH					11810028	0.00000	0.14000	L 28
R2	R1		DC	PD		HDR					EDH					11810029	0.00000	0.13600	L 29
R2	R1		DC	PD		HDR					EDH					11810030	0.00000	0.13300	L 30
R2	R1		DC	PD		HDR					EDH					11810031	0.00000	0.13300	L 31
R2	R1		DC	PD		HDR					EDH					11810032	0.00000	0.13300	L 32
R2	R1		DC	PD		HDR					EDH					11810033	0.00000	0.14300	L 33
R2	R1		DC	PD		HDR					EDH					11810034	0.00000	0.15500	L 34
R2	R1		DC	PD		HDR					EDH					11810035	0.00000	0.16700	L 35
R2	R1		DC	PD		HDR					EDH					11810036	0.00000	1.32700	L A
RA-40	RL-40					RR										11811002	0.00000	231.05000	PRS 17/117 ADM
RA-40	RL-40					RR										11811003	0.00000	376.82000	PRS 17/117 ADM
RA-40	RL-40					RR										11811003	0.00000	376.82000	PRS 17/117 ADM
RA-40	RL-10					RR										11811004	1.00000	4.78000	SEC 29 & 30 9 9
RA-40	RE-10					RR										11811005	11.00000	2.59000	SEC 30 9 9
RA-40	RE-10					RR										11811006	11.00000	2.79000	SEC 30 9 9
RA-40	RE-10					RR										11811007	11.00000	3.78000	SEC 30 9 9
RA-40	RE-10					RR										11811008	11.00000	2.53000	SEC 30 9 9
RA-40	RE-10					RR										11811009	11.00000	0.38000	SEC 30 9 9
RA-40	RE-10					RR										11811010	11.00000	0.02000	SEC 29 & 30 9 9
AE	RE-5					LDR										11812211	0.00000	0.17000	RS 27/35/8

AE	RE-5					LDR											11812214	0.00000	1.55000	RS 27/35/10
AE	RE-5					LDR											11812215	0.00000	4.58000	RS 27/35/2
C	R&D		DC			AP						EDH		VV	VV		11813036	11.00000	0.00000	POR LATROBE RD
R1A	R&D					R&D						EDH					11817001	0.00000	2.90000	SEC 1 9 8
AE	RE-5					LDR											11817002	0.00000	8.39000	SEC 1 9 8
AE	RE-10					LDR											11817003	0.00000	75.22000	SEC 1 & 12 9 8
AE	RE-10					LDR											11817003	0.00000	75.22000	SEC 1 & 12 9 8
AE	RE-10					LDR											11817004	0.00000	38.31000	PM 48/139/1
AE	RE-10					LDR											11817004	0.00000	38.31000	PM 48/139/1
AE	RE-10					LDR											11817005	0.00000	10.00100	PM 48/139/3
AE	RE-10					LDR											11817008	0.00000	10.00200	PM 49/119/A
AE	RE-10					LDR											11817009	0.00000	10.01600	PM 49/119/B
AE	RE-10					LDR											11817010	0.00000	20.00600	PM 49/119/C
AE	RE-10					LDR											11817011	0.00000	25.41400	PM 49/119/D
RE-10	R1A					HDR						CP					11902036	0.00000	35.11000	PM 46/148/3
RE-10	R1A					HDR						CP					11902037	0.00000	21.03000	PM 46/148/4
OS	MV-TM					LDR											11902056	0.00000	319.99800	PRS 17/45 ADM
OS	MV-TM					LDR											11902056	0.00000	319.99800	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11902056	0.00000	319.99800	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11902056	0.00000	319.99800	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11902056	0.00000	319.99800	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11902056	0.00000	319.99800	PRS 17/45 ADM
OS	MV-TM					LDR											11902057	0.00000	200.00000	POR RS 17/45 ADM
OS	MV-TM					LDR											11902057	0.00000	200.00000	POR RS 17/45 ADM
OS	MV-TM					LDR											11902057	0.00000	200.00000	POR RS 17/45 ADM
RE-5	MV-TM			PD		LDR											11902057	0.00000	200.00000	POR RS 17/45 ADM
RE-5	MV-TM			PD		LDR											11902057	0.00000	200.00000	POR RS 17/45 ADM
R1	R20K					HDR						CP					11902061	0.00000	32.29100	RS 32/143/2
R1	R20K					HDR						CP					11902061	0.00000	32.29100	RS 32/143/2
R1	R20K					HDR						CP					11902061	0.00000	32.29100	RS 32/143/2
R1	R20K					HDR						CP					11902061	0.00000	32.29100	RS 32/143/2
R1	R20K					HDR						CP					11902061	0.00000	32.29100	RS 32/143/2
R1	R20K					HDR						CP					11902061	0.00000	32.29100	RS 32/143/2
RE-10	RL-10					RR											11903012	0.00000	23.09000	RS 16/73/1
OS	MV-TM					LDR											11903013	0.00000	160.00000	RS 17/45 S2299
RE-5	MV-TM			PD		LDR											11903013	0.00000	160.00000	RS 17/45 S2299
RE-5	MV-TM			PD		LDR											11903013	0.00000	160.00000	RS 17/45 S2299
RE-5	MV-TM			PD		LDR											11903013	0.00000	160.00000	RS 17/45 S2299
OS	MV-TM					LDR											11903014	0.00000	57.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903014	0.00000	57.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903014	0.00000	57.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903014	0.00000	57.00000	PRS 17/45 ADM
OS	MV-TM					LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
OS	MV-TM					LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM

RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903015	0.00000	583.00000	PRS 17/45 ADM
OS	MV-TM					LDR											11903016	0.00000	28.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903016	0.00000	28.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903016	0.00000	28.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903016	0.00000	28.00000	SEC 16 9 9 ADM
OS	MV-TM					LDR											11903017	0.00000	292.00000	SEC 16 9 9 ADM
OS	MV-TM					LDR											11903017	0.00000	292.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903017	0.00000	292.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903017	0.00000	292.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903017	0.00000	292.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903017	0.00000	292.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903017	0.00000	292.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903017	0.00000	292.00000	SEC 16 9 9 ADM
RE-5	MV-TM			PD		LDR											11903017	0.00000	292.00000	SEC 16 9 9 ADM
OS	MV-TM					LDR											11903018	0.00000	164.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903018	0.00000	164.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903018	0.00000	164.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903018	0.00000	164.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903018	0.00000	164.00000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903018	0.00000	164.00000	PRS 17/45 ADM
OS	MV-TM					LDR											11903019	0.00000	352.50000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903019	0.00000	352.50000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903019	0.00000	352.50000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903019	0.00000	352.50000	PRS 17/45 ADM
RE-5	MV-TM			PD		LDR											11903019	0.00000	352.50000	PRS 17/45 ADM
A	RE-10					AP						EDH		BLH	BLH		11904003	0.00000	10.21000	S 1 9 8&6 9 9
A	RE-10					AP						EDH		BLH	BLH		11904004	0.00000	10.20000	S 1 9 8&6 9 9
A	RE-10					AP						EDH		BLH	BLH		11908008	0.00000	10.90000	PM 15/53/A
A	RE-10					AP						EDH		BLH	BLH		11908009	0.00000	10.23000	PM 15/53/B
A	RE-10					AP						EDH		BLH	BLH		11908010	0.00000	10.16000	PM 15/53/C
A	RE-10					AP						EDH		BLH	BLH		11908011	0.00000	10.01000	PM 15/53/D
A	RE-10					AP						EDH		BLH	BLH		11909002	0.00000	10.00000	PM 1/96/III
A	RE-10					AP						EDH		BLH	BLH		11909003	0.00000	10.00000	PM 1/96/II
A	RE-10					AP						EDH		BLH	BLH		11909004	0.00000	10.00000	PM 1/96/1
A	RE-10					AP						EDH		BLH	BLH		11909017	0.00000	10.00000	PM 11/137/D
A	RE-10					AP						EDH		BLH	BLH		11909019	0.00000	10.00500	PM 4/143/B
A	RE-10					AP						EDH		BLH	BLH		11909021	0.00000	10.01000	PM 4/143/C
A	RE-10					AP						EDH		BLH	BLH		11909023	0.00000	10.00000	PM 17/1/A
A	RE-10					AP						EDH		BLH	BLH		11909029	0.00000	10.00000	RS 19/39/4

A	RE-10					AP					EDH		BLH	BLH		11909030	0.00000	10.00000	RS 19/39/3
A	RE-10					AP					EDH		BLH	BLH		11909031	0.00000	10.00000	RS 19/39/1
A	RE-10					AP					EDH		BLH	BLH		11909032	0.00000	10.00000	RS 19/39/2
A	RE-10					AP					EDH		BLH	BLH		11909037	0.00000	8.64100	POR PM 1/96/4
A	RE-10					AP					EDH		BLH	BLH		11909045	0.00000	9.09500	POR PM 17/1/C
A	RE-10					AP					EDH		BLH	BLH		11909045	0.00000	9.09500	POR PM 17/1/C
A	RE-10					AP					EDH		BLH	BLH		11909047	11.00000	9.19200	POR PM 17/1/B
A	RE-10					AP					EDH		BLH	BLH		11909051	0.00000	8.54200	POR PM 4/143/A
A	RE-10					AP					EDH		BLH	BLH		11909051	0.00000	8.54200	POR PM 4/143/A
A	RE-10					AP					EDH		BLH	BLH		11909051	0.00000	8.54200	POR PM 4/143/A
A	RE-10					AP					EDH		BLH	BLH		11909053	0.00000	9.74300	POR PM 13/22/A
A	RE-10					AP					EDH		BLH	BLH		11909055	0.00000	9.98700	POR PM 13/22/B
A	RE-10					AP					EDH		BLH	BLH		11909057	0.00000	9.58300	POR PM 13/22/D
A	RE-10					AP					EDH		BLH	BLH		11909059	0.00000	9.58300	POR PM 4/143/D
A	RE-10					AP					EDH		BLH	BLH		11909059	0.00000	9.58300	POR PM 4/143/D
A	RE-10					AP					EDH		BLH	BLH		11909061	0.00000	9.65400	POR PM 17/1/D
A	RE-10					AP					EDH		BLH	BLH		11909065	0.00000	9.58900	POR PM 11/137/C
A	RE-10					AP					EDH		BLH	BLH		11909067	0.00000	9.00800	POR PM 11/137/A
A	RE-10					AP					EDH		BLH	BLH		11909069	0.00000	8.82200	POR PM 13/22/C
A	RE-10					AP					EDH		BLH	BLH		11909069	0.00000	8.82200	POR PM 13/22/C
A	RE-10					AP					EDH		BLH	BLH		11909071	0.00000	9.20800	PPM 11/137/B
A	RE-10					AP					EDH		BLH	BLH		11909072	11.00000	7.29100	HOLLOW OAK DR
A	RE-10					AP					EDH		BLH	BLH		11909072	11.00000	7.29100	HOLLOW OAK DR
A	RE-10					AP					EDH		BLH	BLH		11909072	11.00000	7.29100	HOLLOW OAK DR
A	RE-10					AP					EDH		BLH	BLH		11910011	11.00000	10.00000	SEC 6 9 9
A	RE-10					AP					EDH		BLH	BLH		11910012	0.00000	10.00000	SEC 6 9 9
A	RE-10					AP					EDH		BLH	BLH		11910016	0.00000	9.77000	SEC 6 9 9
A	RE-10					AP							BLH	BLH		11910018	0.00000	10.39000	SEC 6 9 9
A	RE-10					AP					EDH		BLH	BLH		11910035	0.00000	9.41500	SEC 6 9 9
A	RE-10					AP					EDH		BLH	BLH		11910039	0.00000	0.00000	SEC 6 9 9
A	RE-10					AP					EDH		BLH	BLH		11910045	0.00000	13.52900	RS 29/82/1
A	RE-10					AP					EDH		BLH	BLH		11910058	11.00000	0.00000	POR BASS LAKE RD
A	RE-10					AP					EDH		BLH	BLH		11910058	11.00000	0.00000	POR BASS LAKE RD
R3A	R1A					HDR					CP					11919012	0.00000	4.77000	PM 44/90/2
RE-5	R1A					HDR					CP					11928008	0.00000	9.42900	POR RW L G & L A
R20K	R1					HDR					CP					11930225	0.00000	0.40700	RS 32/114/1
RE-10	R1					HDR					CP					11931040	0.00000	0.38300	L 24 R/S 27-57
R20K	R1					HDR					CP					11931041	0.00000	0.73300	RS 32/143/1
RE-5	RF-H			PD		TR										11933001	0.00000	21.38200	L A
R2	RM			PD		MFR					EDH					12002006	11.00000	0.06200	POR LOT 17&LOT K
R2	RM			PD		MFR					EDH					12002007	0.00000	6.11100	POR L 17&L K ADM
R2	RM		DC			HDR					EDH					12005001	0.00000	74.73000	PM 45/106/1
R2	RM		DC			MFR					EDH					12005004	0.00000	4.60000	SEC 34 35 10 8
OS	R1					HDR					EDH					12007002	0.00000	121.95000	REM P/M 38-33
OS	R1					HDR					EDH					12007002	0.00000	121.95000	REM P/M 38-33
OS	R1					HDR					EDH					12007002	0.00000	121.95000	REM P/M 38-33

OS	R1					HDR					EDH					12007002	0.00000	121.95000	REM P/M 38-33
OS	R1					HDR					EDH					12007002	0.00000	121.95000	REM P/M 38-33
OS	R1					HDR					EDH					12007002	0.00000	121.95000	REM P/M 38-33
OS	R1					HDR					EDH					12007002	0.00000	121.95000	REM P/M 38-33
OS	R1					HDR					EDH					12007002	0.00000	121.95000	REM P/M 38-33
OS	R1					HDR					EDH					12007002	0.00000	121.95000	REM P/M 38-33
RA-40	R1					HDR					EDH					12007003	0.00000	0.00000	SEC 10 9 8 ADMIN
RF	RF-H					HDR					EDH					12013101	11.00000	0.00000	L B
R2	RM		DC			MFR					EDH					12014101	0.00000	5.12000	L A
RF	RF-H					PF					EDH					12015003	11.00000	10.76000	S 2 3 10&11 9 8
CP	CC		DC			C					EDH					12015004	0.00000	0.25000	PM 47/59/1
CP	CC		DC			C					EDH					12015005	0.00000	0.36000	PM 47/59/2
CP	CC		DC			C					EDH					12015006	0.00000	0.66000	PM 47/59/3
CP	CC		DC			C					EDH					12015007	0.00000	0.81000	PM 47/59/4
CP	CC		DC			C					EDH					12015008	0.00000	1.24000	PM 46/77/5
CP	CC		DC			C					EDH					12015009	0.00000	0.87000	PM 46/77/6
CP	CL		DC			C					EDH					12015010	11.00000	0.32000	PM 46/77AW/A
CP	CC		DC			C					EDH					12015011	11.00000	0.71100	RS 29/145/15
RF	RF-H					OS					EDH					12016623	11.00000	0.00000	POR LOT D
RF	RF-H					OS					EDH					12016629	0.00000	8.99000	POR LOT D
RF	RF-H					OS					EDH					12016630	11.00000	0.97000	POR LOT D
RF	RF-L					HDR					EDH					12017108	11.00000	0.00000	L B
RF	RF-H					OS					EDH					12017211	11.00000	0.00000	L C
RF	RF-L					HDR					EDH					12018505	11.00000	0.00000	L A
R2	RM		DC			MFR					EDH					12028001	0.00000	14.91000	L A
R2	RM		DC			MFR					EDH					12033101	0.00000	0.00000	UNIT 1
R2	RM		DC			MFR					EDH					12033102	0.00000	0.00000	UNIT 2
R2	RM		DC			MFR					EDH					12033103	0.00000	0.00000	UNIT 3
R2	RM		DC			MFR					EDH					12033104	0.00000	0.00000	UNIT 4
R2	RM		DC			MFR					EDH					12033105	0.00000	0.00000	UNIT 5
R2	RM		DC			MFR					EDH					12033106	0.00000	0.00000	UNIT 6
R2	RM		DC			MFR					EDH					12033107	0.00000	0.00000	UNIT 7
R2	RM		DC			MFR					EDH					12033108	0.00000	0.00000	UNIT 8
R2	RM		DC			MFR					EDH					12033109	0.00000	0.00000	UNIT 9
R2	RM		DC			MFR					EDH					12033110	0.00000	0.00000	UNIT 10
R2	RM		DC			MFR					EDH					12033111	0.00000	0.00000	UNIT 11
R2	RM		DC			MFR					EDH					12033112	0.00000	0.00000	UNIT 12
R2	RM		DC			MFR					EDH					12033113	0.00000	0.00000	UNIT 13
R2	RM		DC			MFR					EDH					12033114	0.00000	0.00000	UNIT 14
R2	RM		DC			MFR					EDH					12033115	0.00000	0.00000	UNIT 15
R2	RM		DC			MFR					EDH					12033116	0.00000	0.00000	UNIT 16
R2	RM		DC			MFR					EDH					12033117	0.00000	0.00000	UNIT 17
R2	RM		DC			MFR					EDH					12033118	0.00000	0.00000	UNIT 18
R2	RM		DC			MFR					EDH					12033119	0.00000	0.00000	UNIT 19
R2	RM		DC			MFR					EDH					12033120	0.00000	0.00000	UNIT 20
R2	RM		DC			MFR					EDH					12033121	0.00000	0.00000	UNIT 21

R2	RM		DC			MFR					EDH					12033122	0.00000	0.00000	UNIT 22
R2	RM		DC			MFR					EDH					12033123	0.00000	0.00000	UNIT 23
R2	RM		DC			MFR					EDH					12033124	0.00000	0.00000	UNIT 24
R2	RM		DC			MFR					EDH					12033125	0.00000	0.00000	UNIT 25
R2	RM		DC			MFR					EDH					12033126	2.00000	0.00000	L A AW
R2	RM		DC			MFR					EDH					12033127	2.00000	0.00000	L B AW
R2	RM		DC			MFR					EDH					12033128	2.00000	0.00000	L C AW
RF	RF-H					HDR					EDH					12038112	2.00000	0.00000	L B AW
RF	R1					HDR					EDH					12052221	11.00000	0.10000	POR L 75-77 ADM
R2	RM			PD		MFR					EDH					12062001	0.00000	0.00000	L 1
R2	RM			PD		MFR					EDH					12062002	0.00000	0.00000	L 2
R2	RM			PD		MFR					EDH					12062003	0.00000	0.00000	L 3
R2	RM			PD		MFR					EDH					12062004	0.00000	0.00000	L 4
R2	RM			PD		MFR					EDH					12062005	0.00000	0.00000	L 5
R2	RM			PD		MFR					EDH					12062006	0.00000	0.00000	L 6
R2	RM			PD		MFR					EDH					12062007	0.00000	0.00000	L 7
R2	RM			PD		MFR					EDH					12062008	0.00000	0.00000	L 8
R2	RM			PD		MFR					EDH					12062009	0.00000	0.00000	L 9
R2	RM			PD		MFR					EDH					12062010	0.00000	0.00000	L 10
R2	RM			PD		MFR					EDH					12062011	0.00000	0.00000	L 11
R2	RM			PD		MFR					EDH					12062012	0.00000	0.00000	L 12
R2	RM			PD		MFR					EDH					12062013	0.00000	0.00000	L 13
R2	RM			PD		MFR					EDH					12062014	0.00000	0.00000	L 14
R2	RM			PD		MFR					EDH					12062015	0.00000	0.00000	L 15
R2	RM			PD		MFR					EDH					12062016	0.00000	0.00000	L 16
R2	RM			PD		MFR					EDH					12062017	0.00000	0.00000	L 17
R2	RM			PD		MFR					EDH					12062018	0.00000	0.00000	L 18
R2	RM			PD		MFR					EDH					12062019	0.00000	0.00000	L 19
R2	RM			PD		MFR					EDH					12062020	0.00000	0.00000	L 20
R2	RM			PD		MFR					EDH					12062021	0.00000	0.00000	L 21
R2	RM			PD		MFR					EDH					12062022	0.00000	0.00000	L 22
R2	RM			PD		MFR					EDH					12062023	0.00000	0.00000	L 23
R2	RM			PD		MFR					EDH					12062024	0.00000	0.00000	L 24
R2	RM			PD		MFR					EDH					12062025	0.00000	0.00000	L 25
R2	RM			PD		MFR					EDH					12062026	0.00000	0.00000	L 26
R2	RM			PD		MFR					EDH					12062027	0.00000	0.00000	L 27
R2	RM			PD		MFR					EDH					12062028	0.00000	0.00000	L 28
R2	RM			PD		MFR					EDH					12062029	0.00000	0.00000	L 29
R2	RM			PD		MFR					EDH					12062030	0.00000	0.00000	L 30
R2	RM			PD		MFR					EDH					12062031	0.00000	0.00000	L 31
R2	RM			PD		MFR					EDH					12062032	0.00000	0.00000	L 32
R2	RM			PD		MFR					EDH					12062033	0.00000	0.00000	L 33
R2	RM			PD		MFR					EDH					12062034	0.00000	0.00000	L 34
R2	RM			PD		MFR					EDH					12062035	0.00000	0.00000	L 35
R2	RM			PD		MFR					EDH					12062036	0.00000	0.00000	L 36
R2	RM			PD		MFR					EDH					12062037	0.00000	0.00000	L 37

R2	RM			PD		MFR					EDH					12062038	0.00000	0.00000	L 38
R2	RM			PD		MFR					EDH					12062039	0.00000	0.00000	L 39
R2	RM			PD		MFR					EDH					12062040	0.00000	0.00000	L 40
R2	RM			PD		MFR					EDH					12062041	0.00000	0.00000	L 41
R2	RM			PD		MFR					EDH					12062042	0.00000	0.00000	L 42
R2	RM			PD		MFR					EDH					12062043	0.00000	0.00000	L 43
R2	RM			PD		MFR					EDH					12062044	0.00000	0.00000	L 44
R2	RM			PD		MFR					EDH					12062045	0.00000	0.00000	L 45
R2	RM			PD		MFR					EDH					12062046	0.00000	0.00000	L 46
R2	RM			PD		MFR					EDH					12062047	0.00000	0.00000	L 47
R2	RM			PD		MFR					EDH					12062048	0.00000	0.00000	L 48
R2	RM			PD		MFR					EDH					12062049	0.00000	0.00000	L 49
R2	RM			PD		MFR					EDH					12062050	0.00000	0.00000	L 50
R2	RM			PD		MFR					EDH					12062051	0.00000	0.00000	L 51
R2	RM			PD		MFR					EDH					12062052	0.00000	0.00000	L 52
R2	RM			PD		MFR					EDH					12062053	2.00000	0.00000	L A AW
R2	RM			PD		MFR					EDH					12062054	2.00000	0.00000	L B AW
R2	RM			PD		MFR					EDH					12064001	0.00000	0.00000	L 53
R2	RM			PD		MFR					EDH					12064002	0.00000	0.00000	L 54
R2	RM			PD		MFR					EDH					12064003	0.00000	0.00000	L 55
R2	RM			PD		MFR					EDH					12064004	0.00000	0.00000	L 56
R2	RM			PD		MFR					EDH					12064005	0.00000	0.00000	L 57
R2	RM			PD		MFR					EDH					12064006	0.00000	0.00000	L 58
R2	RM			PD		MFR					EDH					12064007	0.00000	0.00000	L 59
R2	RM			PD		MFR					EDH					12064008	0.00000	0.00000	L 60
R2	RM			PD		MFR					EDH					12064009	0.00000	0.00000	L 61
R2	RM			PD		MFR					EDH					12064010	0.00000	0.00000	L 62
R2	RM			PD		MFR					EDH					12064011	0.00000	0.00000	L 63
R2	RM			PD		MFR					EDH					12064012	0.00000	0.00000	L 64
R2	RM			PD		MFR					EDH					12064013	0.00000	0.00000	L 65
R2	RM			PD		MFR					EDH					12064014	0.00000	0.00000	L 66
R2	RM			PD		MFR					EDH					12064015	0.00000	0.00000	L 67
R2	RM			PD		MFR					EDH					12064016	0.00000	0.00000	L 68
R2	RM			PD		MFR					EDH					12064017	0.00000	0.00000	L 69
R2	RM			PD		MFR					EDH					12064018	0.00000	0.00000	L 70
R2	RM			PD		MFR					EDH					12064019	0.00000	0.00000	L 71
R2	RM			PD		MFR					EDH					12064020	0.00000	0.00000	L 72
R2	RM			PD		MFR					EDH					12064021	0.00000	0.00000	L 73
R2	RM			PD		MFR					EDH					12064022	0.00000	0.00000	L 74
R2	RM			PD		MFR					EDH					12064023	0.00000	0.00000	L 75
R2	RM			PD		MFR					EDH					12064024	0.00000	0.00000	L 76
R2	RM			PD		MFR					EDH					12064025	0.00000	0.00000	L 77
R2	RM			PD		MFR					EDH					12064026	0.00000	0.00000	L 78
R2	RM			PD		MFR					EDH					12064027	0.00000	0.00000	L 79
R2	RM			PD		MFR					EDH					12064028	0.00000	0.00000	L 80
R2	RM			PD		MFR					EDH					12064029	0.00000	0.00000	L 81

R2	RM			PD		MFR						EDH					12064030	0.00000	0.00000	L 82
R2	RM			PD		MFR						EDH					12064031	0.00000	0.00000	L 83
R2	RM			PD		MFR						EDH					12064032	0.00000	0.00000	L 84
R2	RM			PD		MFR						EDH					12064033	0.00000	0.00000	L 85
R2	RM			PD		MFR						EDH					12064034	0.00000	0.00000	L 86
R2	RM			PD		MFR						EDH					12064035	0.00000	0.00000	L 87
R2	RM			PD		MFR						EDH					12064036	0.00000	0.00000	L 88
R2	RM			PD		MFR						EDH					12064037	0.00000	0.00000	L 89
R2	RM			PD		MFR						EDH					12064038	0.00000	0.00000	L 90
R2	RM			PD		MFR						EDH					12064039	0.00000	0.00000	L 91
R2	RM			PD		MFR						EDH					12064040	0.00000	0.00000	L 92
R2	RM			PD		MFR						EDH					12064041	0.00000	0.00000	L 93
R2	RM			PD		MFR						EDH					12064042	0.00000	0.00000	L 94
R2	RM			PD		MFR						EDH					12064043	0.00000	0.00000	L 95
R2	RM			PD		MFR						EDH					12064044	0.00000	0.00000	L 96
R2	RM			PD		MFR						EDH					12064045	0.00000	0.00000	L 97
R2	RM			PD		MFR						EDH					12064046	0.00000	0.00000	L 98
R2	RM			PD		MFR						EDH					12064047	0.00000	0.00000	L 99
R2	RM			PD		MFR						EDH					12064048	0.00000	0.00000	L 100
R2	RM			PD		MFR						EDH					12064049	2.00000	0.00000	L A AW
CP	CC		DC			C						EDH					12069003	11.00000	2.58000	RS 29/145/1 2 &3
CP	CC		DC			C						EDH					12069003	11.00000	2.58000	RS 29/145/1 2 &3
R1	CL					C						EDH					12069003	11.00000	2.58000	RS 29/145/1 2 &3
R1	CL					C						EDH					12069003	11.00000	2.58000	RS 29/145/1 2 &3
R1	CL					C						EDH					12069003	11.00000	2.58000	RS 29/145/1 2 &3
R1	CL					C						EDH					12069003	11.00000	2.58000	RS 29/145/1 2 &3
CP	CC		DC			C						EDH					12069004	0.00000	0.00000	POR PM 39/123/2
R1	CC					C						EDH					12069004	0.00000	0.00000	POR PM 39/123/2
CP	CC		DC			C						EDH					12069005	11.00000	3.85400	RS 29/145/8-12
CP	CC		DC			C						EDH					12069007	0.00000	0.74800	PM 50/90/A1
CP	CC		DC			C						EDH					12069008	0.00000	0.96200	PM 50/90/A2
CP	CC		DC			C						EDH					12069009	0.00000	1.60800	PM 50/90/B
R1A	R20K			PD		HDR						EDH					12070008	11.00000	0.96400	L R
OS	R1					AP						EDH		SEDH	SEDH		12104004	11.00000	12.79000	L F
OS	R1					AP						EDH		SEDH	SEDH		12112020	2.00000	1.65800	TR 1RS 25/148AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12112020	2.00000	1.65800	TR 1RS 25/148AW
OS	R1					AP						EDH		SEDH	SEDH		12112021	11.00000	0.00000	POR RS 25/148/2
RF	RF-H					C						EDH					12116003	0.00000	98.31300	SEC 2 11 9 8
RF	RF-H					C						EDH					12116003	0.00000	98.31300	SEC 2 11 9 8
C	CC		DC			C						EDH					12117001	0.00000	0.33900	PM 48/44/6
C	CC		DC			C						EDH					12117007	0.00000	1.32400	PM 45/87/8
C	CC		DC			C						EDH					12117009	0.00000	1.68600	PM 48/144/1
C	CC		DC			C						EDH					12117010	0.00000	0.99700	PM 48/44/2
C	CC		DC			C						EDH					12117011	0.00000	1.28800	PM 48/44/3
C	CC		DC			C						EDH					12117012	0.00000	2.13200	PM 48/44/4
C	CC		DC			C						EDH					12117013	0.00000	2.08300	PM48/44/5

C	CC		DC			C						EDH					12117014	11.00000	0.04500	PM 48/44/A
C	CC		DC			C						EDH					12118001	0.00000	2.82300	PM 45/87/9
C	CC		DC			C						EDH					12118002	0.00000	5.23800	PM 45/87/10
C	CC		DC			C						EDH					12118003	0.00000	1.47500	PM 45/87/11
C	CC		DC			C						EDH					12118006	0.00000	1.18600	PM 45/87/14
C	CC		DC			C						EDH					12118008	0.00000	1.19200	PM 45/87/16
C	CC		DC			C						EDH					12118009	11.00000	0.17700	PM 45/87/A
C	CC		DC			C						EDH					12118010	0.00000	0.92700	RS 22/88/1
C	CC		DC			C						EDH					12118012	0.00000	1.17000	PM 48/25/A
C	CC		DC			C						EDH					12118013	0.00000	1.81000	PM 48/25/B
C	CC		DC			C						EDH					12118014	11.00000	0.52000	RS 20/45/1
C	CC		DC			C						EDH					12118015	0.00000	1.10500	RS 22/88/2
CP	CC		DC			C						EDH					12118016	0.00000	0.61000	SEC 11 9 8
C	CC			PD		AP						EDH		SEDH	SEDH		12121017	0.00000	0.54100	PM 45/127/1
C	CC			PD		AP						EDH		SEDH	SEDH		12121020	0.00000	0.43900	PM 47/40/2
C	CC			PD		AP						EDH		SEDH	SEDH		12121021	0.00000	0.88600	PM 47/40/3
C	CC			PD		AP						EDH		SEDH	SEDH		12121026	0.00000	1.10000	PM 47/44/2
C	CC			PD		AP						EDH		SEDH	SEDH		12121027	0.00000	1.03000	PM 47/44/3
C	CC			PD		AP						EDH		SEDH	SEDH		12121028	0.00000	0.58000	PM 47/44/4
C	CC			PD		AP						EDH		SEDH	SEDH		12121029	0.00000	0.53000	PM 47/44/5
C	CC			PD		AP						EDH		SEDH	SEDH		12121030	0.00000	0.33000	PM 47/44/6
C	CC			PD		AP						EDH		SEDH	SEDH		12121031	0.00000	0.52000	PM 47/44/7
C	CC			PD		AP						EDH		SEDH	SEDH		12121032	0.00000	1.10000	PM 47/44/8
C	CC			PD		AP						EDH		SEDH	SEDH		12121033	0.00000	0.35000	PM 47/44/9
C	CC			PD		AP						EDH		SEDH	SEDH		12121035	0.00000	0.41000	PM 47/44/11
C	CC			PD		AP						EDH		SEDH	SEDH		12121036	0.00000	0.35000	PM 47/44/12
C	CC			PD		AP						EDH		SEDH	SEDH		12121037	11.00000	10.01000	PM 47/40/1
C	CC			PD		AP						EDH		SEDH	SEDH		12121039	11.00000	4.00000	POR 35 10 8
C	CC			PD		AP						EDH		SEDH	SEDH		12121040	0.00000	2.54000	PM 48/89/A
C	CC			PD		AP						EDH		SEDH	SEDH		12121041	2.00000	2.03200	PM 48/89/B AW
R1A	R&D					R&D						EDH					12128001	0.00000	2.20000	SEC 1 9 8
R1A	CC					C						EDH					12128002	6.00000	3.44000	SEC 2 & 11 9 8
C	CC			PD		C						EDH					12128003	0.00000	9.53000	PM 19/43/1
R1A	CC					C						EDH					12128005	0.00000	1.83000	PM 19/43/2
AE	R&D					R&D						EDH					12128012	0.00000	24.68800	PM 48/139/2
CG	CR			PD		C						EDH		SEDH	SEDH		12128015	0.00000	1.81000	PM 33/116/1
C	CR		DC			C						EDH		SEDH	SEDH		12128016	0.00000	1.49000	PM 33/116/2
R1	OS			PD		AP						EDH		SEDH	SEDH		12201005	11.00000	9.88000	POR LOT G
OS	R1					AP						EDH		SEDH	SEDH		12205043	0.00000	0.38200	RS 26/35/7
OS	R1					AP						EDH		SEDH	SEDH		12214004	2.00000	0.00000	L R RDWY AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12218020	11.00000	0.34500	L Z
R1	OS			PD		AP						EDH		SEDH	SEDH		12224027	2.00000	0.62000	L S AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12227025	11.00000	0.21700	L W
R1	OS			PD		AP						EDH		SEDH	SEDH		12230053	2.00000	1.55100	L A AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12232044	2.00000	7.17300	L B AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12234031	2.00000	4.65100	L C AW

R1	OS			PD		AP						EDH		SEDH	SEDH		12235022	2.00000	4.52300	RS 26/56/2 AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12236033	2.00000	5.55300	L A AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12240041	2.00000	0.79100	L A AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12242052	2.00000	5.99100	POR L A ADM AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12243024	2.00000	17.85500	POR L A ADM AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12244124	2.00000	1.08100	L C AW
OS	R1					AP						EDH		SEDH	SEDH		12246002	2.00000	2.17700	PM 48/72/1 AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12246005	2.00000	16.09700	RS 32/150/1 AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12246005	2.00000	16.09700	RS 32/150/1 AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12246005	2.00000	16.09700	RS 32/150/1 AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12247015	2.00000	42.81400	L 9 AW
OS	R1					AP						EDH		SEDH	SEDH		12258028	0.00000	1.03000	RS 27/93/B
R1	OS			PD		AP						EDH		SEDH	SEDH		12270004	2.00000	16.53700	PM 48/137/D AW
R1	CL					C						EDH					12272002	0.00000	0.52000	RS 16/147/2
R1	CC					C						EDH					12272003	0.00000	1.11000	RS 16/147/3
AE	RE-10					LDR											12272007	0.00000	27.01000	SEC 1 9 8
AE	RE-10					LDR											12272007	0.00000	27.01000	SEC 1 9 8
AE	RE-5					AP						EDH		SEDH	SEDH		12272009	0.00000	57.78000	RS 32/43/1&2
R1	CR					AP						EDH		SEDH	SEDH		12272009	0.00000	57.78000	RS 32/43/1&2
R1	RE-5					AP						EDH		SEDH	SEDH		12272009	0.00000	57.78000	RS 32/43/1&2
R1	CR					AP						EDH		SEDH	SEDH		12272009	0.00000	57.78000	RS 32/43/1&2
OS	R20K					AP						EDH		SEDH	SEDH		12302006	0.00000	71.94300	L A
OS	R20K					AP						EDH		SEDH	SEDH		12302006	0.00000	71.94300	L A
OS	R20K					AP						EDH		SEDH	SEDH		12302006	0.00000	71.94300	L A
R20K	OS					AP						EDH		SEDH	SEDH		12302007	2.00000	36.10200	POR L F ADM AW
R20K	OS					AP						EDH		SEDH	SEDH		12302007	2.00000	36.10200	POR L F ADM AW
R20K	OS					AP						EDH		SEDH	SEDH		12302007	2.00000	36.10200	POR L F ADM AW
R20K	OS					AP						EDH		SEDH	SEDH		12302008	2.00000	20.68000	POR L F ADM AW
R20K	OS					AP						EDH		SEDH	SEDH		12302008	2.00000	20.68000	POR L F ADM AW
OS	R1					AP						EDH		SEDH	SEDH		12302010	0.00000	16.91800	POR L B ADM
OS	R1					AP						EDH		SEDH	SEDH		12302010	0.00000	16.91800	POR L B ADM
R20K	R1					AP						EDH		SEDH	SEDH		12302010	0.00000	16.91800	POR L B ADM
R20K	OS					AP						EDH		SEDH	SEDH		12302019	11.00000	3.55000	SEC 26 10 8 RDWY
OS	R1					AP						EDH		SEDH	SEDH		12303075	0.00000	12.93000	PM 47/130/4
CP	CC					AP						EDH		SEDH	SEDH		12304006	11.00000	0.00000	L MM
CP	CC			PD		AP						EDH		SEDH	SEDH		12304007	0.00000	24.90000	L 20
CP	R1					AP						EDH		SEDH	SEDH		12304008	1.00000	0.00000	L NN
R1	OS			PD		AP						EDH		SEDH	SEDH		12322005	2.00000	4.27000	POR L A2 AW
R1	OS			PD		AP						EDH		SEDH	SEDH		12323041	2.00000	2.71300	REM PAR1PM47-130
R1	OS			PD		AP						EDH		SEDH	SEDH		12326005	2.00000	56.83400	POR L E ADM AW
R20K	OS					AP						EDH		SEDH	SEDH		12326005	2.00000	56.83400	POR L E ADM AW
R20K	OS					AP						EDH		SEDH	SEDH		12326005	2.00000	56.83400	POR L E ADM AW
OS	R1					AP						EDH		SEDH	SEDH		12326007	0.00000	26.55500	L D
R1	OS			PD		AP						EDH		SEDH	SEDH		12327025	2.00000	19.67600	PM 49/146/2 AW
C	CC			PD		C						EDH					12401003	0.00000	17.83100	SEC 22 10 8
RE-5	R3A					MDR						EDH					12401004	0.00000	5.00400	PM 14/109/1

RE-5	R3A					MDR					EDH					12401006	0.00000	5.01000	PM 25/98/B
RE-5	R3A					MDR					EDH					12401007	0.00000	5.01000	PM 12/61/C
R2	OS		DC			PF					EDH					12401012	11.00000	8.21000	RS 18/50/2&31/85
R2	R1A		DC			MDR					EDH					12404019	11.00000	0.73000	L B
R1	CC			PD		HDR					EDH					12414033	0.00000	6.85100	L A
R1	R1A			PD		HDR					EDH					12415025	0.00000	1.34500	L 41
R1	R1A			PD		HDR					EDH					12415026	0.00000	1.01100	L 42
R2A	OS					OS					EDH					12429002	2.00000	35.77000	POR LOT A AW
RF	RF-L					TR										12429005	11.00000	99.83200	SEC 21 10 8
C	RE-5			PD		AP					EDH		NWEDH	NWEDH		12429006	11.00000	0.00000	POR GREEN VLY RD
C	RE-5		DC			AP					EDH		NWEDH	NWEDH		12429006	11.00000	0.00000	POR GREEN VLY RD
CP	RE-5		DC			AP					EDH		NWEDH	NWEDH		12429006	11.00000	0.00000	POR GREEN VLY RD
R1	RE-5					AP					EDH		NWEDH	NWEDH		12429006	11.00000	0.00000	POR GREEN VLY RD
R1	RE-5			PD		AP					EDH		NWEDH	NWEDH		12429006	11.00000	0.00000	POR GREEN VLY RD
R1	RE-5			PD		AP					EDH		NWEDH	NWEDH		12429006	11.00000	0.00000	POR GREEN VLY RD
R2A	RE-5					AP					EDH		NWEDH	NWEDH		12429006	11.00000	0.00000	POR GREEN VLY RD
R2A	RE-5					AP					EDH		NWEDH	NWEDH		12429006	11.00000	0.00000	POR GREEN VLY RD
RF	RE-5					AP					EDH		NWEDH	NWEDH		12429006	11.00000	0.00000	POR GREEN VLY RD
C	CC			PD		C					EDH					12430103	0.00000	9.55300	POR SEC 21 10 8
R2A	CC					C					EDH					12430105	11.00000	1.76600	POR S 21&28 10 8
C	CC		DC			C					EDH					12430117	0.00000	0.78000	PM 14/145/3
C	CC		DC			C					EDH					12430119	0.00000	0.23000	PM 14/129/A
C	CC		DC			C					EDH					12430120	0.00000	0.16900	PM 14/129/B
C	CC		DC			C					EDH					12430121	0.00000	0.23000	PM 14/129/C
R1	CC					C					EDH					12430124	0.00000	0.50000	PPM 10/1/3
R1	CC					C					EDH					12430125	0.00000	0.50000	PPM 10/1/3
C	CC		DC			C					EDH					12430126	0.00000	0.77900	POR P3 P/M 46-65
C	CC		DC			C					EDH					12430127	0.00000	1.07200	POR P2 P/M 46-65
C	CC		DC			C					EDH					12430128	0.00000	1.21800	POR P1 P/M 46-65
C	CC		DC			C					EDH					12430129	0.00000	0.50000	SEC 21 10 8
C	CC		DC			C					EDH					12430130	0.00000	2.06000	PM 5/180/2
C	CC		DC			C					EDH					12430131	0.00000	0.48900	PPM 6/65/A
C	CC		DC			C					EDH					12430132	0.00000	0.86300	PPM 6/65/B
C	CC		DC			C					EDH					12430133	0.00000	0.65000	POR PAR A PM3-88
C	CC		DC			C					EDH					12430134	0.00000	0.46000	PM 14/128/1
C	CC		DC			C					EDH					12430135	0.00000	0.40800	POR PM 14/128/2
R2A	R1A					MDR					EDH					12430137	0.00000	2.00000	PM 3/90/A
R2A	R1A					MDR					EDH					12430138	0.00000	2.00000	PM 3/90/B
C	CC		DC			C					EDH					12430144	0.00000	0.32000	PM 14/145/2
C	CC			PD		C					EDH					12430145	0.00000	2.38000	PM 50/82/1
C	CC			PD		C					EDH					12430146	0.00000	2.11000	PM 50/82/2
C	CC			PD		C					EDH					12430147	0.00000	3.59000	PM 50/82/3
R2A	CL					C					EDH					12430148	11.00000	0.01000	PM 50/82/R
C	CC		DC			C					EDH					12430149	0.00000	0.19000	PM 14/145/1
RE-5	R2A					MDR					EDH					12431101	0.00000	2.00000	POR RS 1/86/1
RE-5	R1A					MDR					EDH					12431102	0.00000	2.00000	POR RS 1/86/1

RE-5	R1A					MDR						EDH					12431103	0.00000	1.64000	RS 30/19/1
RE-5	R1A					MDR						EDH					12431104	0.00000	1.28200	RS 26/65/1
RE-5	R1A					MDR						EDH					12431106	0.00000	1.86600	RS 30/19/2
RE-5	R2A					MDR						EDH					12431115	0.00000	2.16000	POR RS 1/86/5
C	CC		DC			C						EDH					12504023	0.00000	1.00000	PM 47/73/D
C	CC		DC			C						EDH					12508101	0.00000	2.45600	L A
RF	RF-H					PF						EDH					12509004	11.00000	4.27000	SEC 22 10 8
RF	RF-H					OS						EDH					12509005	11.00000	3.30000	SEC 22 10 8
RF	RF-H					OS						EDH					12509006	11.00000	1.00000	SEC 27 10 8
RF	RF-H					OS						EDH					12509007	11.00000	0.38000	SEC 27 10 8
RF	RF-H					OS						EDH					12510001	11.00000	3.70000	SEC 27 10 8
R1	OS					OS						EDH					12510002	11.00000	0.84000	SEC 26 10 8
RF	RF-H					OS						EDH					12510004	11.00000	0.20000	SEC 27 10 8
RF	RF-H					OS						EDH					12510006	11.00000	3.65000	PPM 50/83/2 ADM
R1	OS					OS						EDH					12511002	11.00000	0.04000	RS 13/96 S27108
RF	RF-H					OS						EDH					12511004	11.00000	4.92000	SEC 27 10 8
RF	RF-H					OS						EDH					12511005	11.00000	2.28000	PPM 50/83/2 ADM
RF	RF-H					PF						EDH					12511009	11.00000	39.50000	26 27 34 35 10 8
RF	RF-H					HDR						EDH					12515224	11.00000	1.34000	POR L B & D
RF	RF-H					HDR						EDH					12516228	11.00000	3.40000	POR LOT D
RF	RF-H					OS						EDH					12519113	11.00000	1.86000	PM 50/83/1
RF	R1					HDR						EDH					12520301	11.00000	0.00000	L A
RF	RF-H					HDR						EDH					12522319	11.00000	0.00000	L B
R2	RM		DC			MFR						EDH					12525109	0.00000	0.28000	PM 10/125/1
R2	RM		DC			MFR						EDH					12525110	0.00000	0.25000	PM 10/125/2
R2	RM		DC			MFR						EDH					12525111	0.00000	0.25000	PM 10/125/3
R2	RM		DC			MFR						EDH					12525112	0.00000	0.23000	PM 10/125/4
R2	RM		DC			MFR						EDH					12525113	0.00000	0.25000	PM 10/125/5
R2	RM		DC			MFR						EDH					12525114	0.00000	0.28000	PM 10/125/6
R2	RM		DC			MFR						EDH					12525115	0.00000	0.24000	PM 10/125/7
R2	RM		DC			MFR						EDH					12525116	0.00000	0.27000	PM 10/125/8
R2	RM		DC			MFR						EDH					12525120	0.00000	0.34000	PM 42/111/1
R2	RM		DC			MFR						EDH					12525121	0.00000	0.00000	PM 42/111/2
R2	R1		DC			HDR						EDH					12525128	11.00000	0.00000	PEDESTRIAN LANE
RF	R1					HDR						EDH					12526401	11.00000	0.00000	L A
RF	R1					HDR						EDH					12533001	11.00000	0.00000	L A
RF	RF-H					PF						EDH					12534111	11.00000	0.00000	L A
RA-40	R1A					LDR						EDH					12549218	0.00000	0.17000	PRS 22/98/1 ADM
R1	OS					OS						EDH					12550006	11.00000	0.00000	L C
R1	OS					OS						EDH					12552119	11.00000	0.00000	L B
R1	OS					OS						EDH					12552204	11.00000	0.00000	L A
RE-10	R1A					HDR						EDH					12560001	0.00000	2.00000	SEC 23 10 8
RE-10	R1A					HDR						EDH					12560002	0.00000	3.00000	SEC 23 10 8
C	CC			PD		C						EDH					12565306	0.00000	0.08300	PM 44/128/1
C	CC			PD		C						EDH					12565307	0.00000	0.13800	PM 44/128/2
C	CC			PD		C						EDH					12565308	0.00000	0.09300	PM 44/128/3

C	CC			PD		C						EDH					12565309	0.00000	0.08000	PM 44/128/4
C	CC			PD		C						EDH					12565310	0.00000	0.14800	PM 44/128/5
C	CC			PD		C						EDH					12565311	0.00000	0.07700	PM 44/128/6
C	CC			PD		C						EDH					12565312	2.00000	2.34000	PM 44-128-7 AW
C	CC			PD		C						EDH					12565316	0.00000	2.51000	POR PAR2PM38-107
RF	RF-H					OS						EDH					12569117	11.00000	0.56200	POR L E ADM
RF	RF-H					OS						EDH					12570105	11.00000	0.92300	POR L E ADM
RF	RF-H					OS						EDH					12573021	11.00000	0.22200	L K
RF	RF-H					OS						EDH					12574242	11.00000	0.77300	L 1
R1	OS					OS						EDH					12575004	11.00000	10.25400	L J
RF	RF-L					OS											12601001	11.00000	12.79000	SEC 5 10 8
RF	RF-L					OS											12601002	11.00000	367.60000	SEC 3 & 4 10 8
RF	RF-L					OS											12601003	11.00000	59.20000	SEC 9 10 8
RF	RF-L					OS											12601004	0.00000	0.66000	SEC 3 10 8
RA-40	RL-10					RR											12601005	0.00000	11.56000	SEC 3 10 8
RA-40	RL-40					RR											12601006	0.00000	53.81000	SEC 3 10 8
RA-40	RL-10					RR											12601007	0.00000	7.04000	SEC 3 10 8
AE	RE-10					LDR						EDH					12602001	0.00000	20.00000	SEC 24 10 8
AE	RE-10					LDR						EDH					12602002	0.00000	140.50000	SEC 24 10 8
AE	RE-10					LDR						EDH					12602003	0.00000	80.00000	SEC 24 10 8
AE	RF-L					OS						EDH					12602004	0.00000	0.00000	R/W SEC 24 10 8
RF	RF-L					OS											12604013	11.00000	36.50000	PM 2/38/1
RF	RF-L					OS											12604014	11.00000	5.82000	PM 2/38/2
RF	RF-L					OS											12604018	11.00000	48.47000	POR PAR B 2-113
RF	RF-L					OS											12604019	11.00000	0.50000	SEC 2 10 8
RE-5	R2A					MDR						EDH					12607005	0.00000	2.70000	SEC 23 10 8
PA-20	R2A					MDR						EDH					12607018	0.00000	2.77000	POR RS 2/147/2
PA-20	RE-5					MDR						EDH					12607024	0.00000	10.95000	POR RS 2/147/2+
RE-5	R1A					MDR						EDH					12607028	2.00000	0.00000	SEC 23 10 8 AW
RE-5	R1A					MDR						EDH					12607032	0.00000	11.06800	PORPAR1 PM41-123
RE-10	R1A					MDR						EDH					12610021	11.00000	0.33000	SEC 14 10 08
RE-10	R1A					MDR						EDH					12610021	11.00000	0.33000	SEC 14 10 08
RE-10	RE-5					MDR						EDH					12610022	0.00000	10.97000	SEC 14 10 08
AE	RE-5					LDR											12610025	11.00000	1.32000	RS 23/90/1
RF	RF-L					OS											12611002	11.00000	0.73000	SEC 2 10 8
RF	RF-L					OS											12611003	11.00000	0.70000	SEC 2 10 8
RF	RF-L					OS											12611004	11.00000	0.70000	SEC 2 10 8
RF	RF-L					OS											12611005	11.00000	0.70000	SEC 2 10 8
RF	RF-L					OS											12611006	11.00000	6.00000	SEC 2 10 8
RF	RF-L					OS											12611007	11.00000	4.80000	SEC 2 10 8
RF	RF-L					OS											12611008	11.00000	3.50000	SEC 2 10 8
RF	RF-L					OS											12611009	11.00000	1.00000	SEC 2 10 8
RF	RF-L					OS											12611010	0.00000	0.00000	
RA-20	RE-10					LDR		EP									12612007	0.00000	55.40300	RS 17/27 S1108
RA-20	RE-10					LDR		EP									12612019	0.00000	265.58000	SEC 1 10 8
R1A	RE-5					LDR											12613081	11.00000	0.00000	GREEN VALLEY RD

R1A	RE-5					LDR											12613081	11.00000	0.00000	GREEN VALLEY RD
AE	RE-10					LDR						EDH					12615023	0.00000	39.38500	POR SEC 24 10 8
RE-5	R1A					HDR						EDH					12618027	0.00000	4.37000	LOT 79&S23 10 8
R1A	R1					HDR						EDH					12618035	11.00000	0.00000	GREEN VALLEY RD
RE-10	R1					HDR						EDH					12618035	11.00000	0.00000	GREEN VALLEY RD
RE-5	R1A					HDR						EDH					12622001	0.00000	5.16000	SEC 23 10 8
RE-5	R1A					HDR						EDH					12622002	0.00000	5.04000	SEC 23 10 8
R20K	R1A					HDR						EDH					12622003	11.00000	0.78000	SEC 23 10 8
RE-10	R1A					HDR						EDH					12622003	11.00000	0.78000	SEC 23 10 8
RE-10	R1A					HDR						EDH					12622006	0.00000	5.95000	SEC 23 10 8
RA-20	RE-10					LDR		EP									12625039	0.00000	6.80100	PRS 28/129/1 ADM
RE-5	R1A					MDR						EDH					12627140	2.00000	1.50600	RS 17/52/2
RE-5	R1A					MDR						EDH					12627302	0.00000	0.90800	L 38
RE-5	R1A					MDR						EDH					12627313	2.00000	1.09000	RS 17/52/1
RE-10	R1A					HDR						EDH					12629226	0.00000	0.42600	POR L 6
RE-10	RL-10					RR											31702001	0.00000	142.32000	RS 11/28 S61010
RA-20	OS					OS											31702002	11.00000	0.00000	POR SEC 6 10 10
RE-5	OS					OS											31702003	11.00000	0.00000	POR SEC 6 10 10
AE	AG-40					AL	A		IBC								31703001	0.00000	26.87000	RS 29/113/1
RE-10	RL-10					RR	A		IBC								31703002	0.00000	6.38000	PM 5/28/A
RE-10	RL-10					RR	A		IBC								31703003	0.00000	3.55000	PM 5/28/B
RE-10	LA-10					RR	A		IBC								31703004	0.00000	11.16000	SEC 5 10 10
AE	AG-40					AL	A		IBC								31703006	0.00000	113.73000	PRS 29/113/2 ADM
RE-10	RL-20					AL	A		IBC								31703007	0.00000	54.00000	SEC 5 10 10
RA-20	LA-10					RR			IBC								31703008	0.00000	45.23000	RS 14/75/C
AE	AG-40					RR			IBC								31703009	0.00000	4.62000	PRS 29/113/2 ADM
RA-20	LA-20					AL	A		IBC								31703011	0.00000	32.09000	POR TR B RS14-75
RA-20	LA-20					AL	A		IBC								31703012	0.00000	24.32000	POR TR B RS14-75
RA-20	LA-20					AL	A		IBC								31703013	0.00000	59.79000	POR TR A RS14-75
AE	AG-40					AL	A		IBC								31703014	0.00000	55.89000	POR TR A RS14-75
RE-5	RL-10					RR	A		IBC								31704001	0.00000	0.00000	SEC 4 10 10
RE-5	RL-10					RR	A		IBC								31704002	0.00000	5.81000	RS 13/105 S41010
RE-5	RL-10					RR	A		IBC								31704003	0.00000	11.72000	SEC 4 10 10
RE-10	RL-20					AL	A										31704004	0.00000	26.09000	SEC 4 10 10
RE-5	RL-10					RR	A		IBC								31704009	0.00000	9.21000	SEC 4 10 10
RE-10	RL-20					AL	A		IBC								31704010	0.00000	25.43000	RS 13/105 S41010
RE-5	RL-10					AL	A		IBC								31704010	0.00000	25.43000	RS 13/105 S41010
RE-10	RL-20					AL	A		IBC								31704015	11.00000	40.00000	SEC 4 10 10
RE-10	RL-10					RR	A		IBC								31704025	0.00000	8.94000	PM 30/119/1
RE-5	PA-10					RR	A		IBC								31704026	0.00000	10.00000	PM 30/119/2
RE-5	PA-10					RR	A		IBC								31704027	0.00000	10.00000	PM 30/119/3
RE-10	RL-10					RR	A		IBC								31704030	0.00000	2.90000	PM 34/135/1
RE-5	RL-10					RR	A		IBC								31704030	0.00000	2.90000	PM 34/135/1
RE-10	RL-10					RR	A		IBC								31704031	0.00000	2.37000	PM 34/135/2
RE-5	RL-10					RR	A		IBC								31704031	0.00000	2.37000	PM 34/135/2
RE-5	RL-10					RR	A		IBC								31704031	0.00000	2.37000	PM 34/135/2

RE-5	RL-10					RR	A		IBC								31704040	0.00000	5.33000	PM 37/75/1
RE-5	RL-10					RR	A		IBC								31704042	0.00000	5.41900	PM 37/75/3
RE-5	RL-10					RR	A		IBC								31704043	0.00000	5.03000	PM 37/75/4
RE-5	RL-10					RR	A		IBC								31704049	0.00000	5.01000	PM 37/83/A
RE-5	RL-10					RR	A		IBC								31704050	0.00000	5.00300	PM 37/83/B
RE-5	RL-10					RR	A		IBC								31704052	0.00000	5.39000	PM 37/83/D
RE-5	RL-10					RR	A		IBC								31704054	0.00000	3.36000	PPM 37/101/1 ADM
RE-5	RL-10					RR	A		IBC								31704055	0.00000	1.65000	PPM 37/101/2 ADM
RE-5	RL-10					RR	A		IBC								31704056	0.00000	1.84000	PPM 37/101/1 ADM
RE-5	RL-10					RR	A		IBC								31704057	0.00000	4.86100	PPM 37/101/2 ADM
RE-5	RL-10					RR	A		IBC								31704058	0.00000	5.90000	PM 37/101/3
RE-5	RL-10					RR	A		IBC								31704059	0.00000	5.05000	PM 37/101/4
RE-5	RL-10					RR	A		IBC								31704073	0.00000	5.00000	PM 41/116/1
RE-5	RL-10					RR	A		IBC								31704074	0.00000	5.14900	PM 41/116/2
RE-5	RL-10					RR	A		IBC								31704075	0.00000	5.14100	PM 41/148/1
RE-5	RL-10					RR	A		IBC								31704076	0.00000	5.00000	PM 41/148/2
RE-5	RL-10					RR	A		IBC								31704077	0.00000	5.00000	PM 42/126/1
RE-5	RL-10					RR	A		IBC								31704078	0.00000	5.67900	PM 42/126/2
RE-5	RL-10					RR	A		IBC								31704081	0.00000	5.00400	PM 43/45/1
RE-5	RL-10					RR	A		IBC								31704082	0.00000	5.00000	PM 43/45/2
RE-5	RL-10					RR	A		IBC								31704084	0.00000	5.00000	PM 43/81/1
RE-5	RL-10					RR	A		IBC								31704085	0.00000	5.46000	PM 43/81/2
AE	PA-20					AL	A										31704086	0.00000	27.64000	RS26-132 4 10 10
RE-5	RL-10					RR	A		IBC								31704090	0.00000	5.19300	PM 37/75/2
RE-5	RL-10					RR	A		IBC								31704091	0.00000	5.09000	PM 50/42/1
RE-5	RL-10					RR	A		IBC								31704092	0.00000	5.59000	PM 50/42/2
RE-5	R1A					MDR						PVIL					31705002	0.00000	1.07000	SEC 4 10 10
RE-5	R1A					MDR						PVIL					31705003	0.00000	1.24000	SEC 4 10 10
RE-5	R1A					MDR						PVIL					31705004	0.00000	1.10000	SEC 4 10 10
RE-5	R2A					MDR						PVIL					31705006	0.00000	2.49000	PM 11/71/A
RE-5	R1A					MDR						PVIL					31705008	0.00000	1.82300	SEC 4 10 10
RE-5	R3A					MDR						PVIL					31706101	0.00000	3.26000	PM 1/139/A
RE-5	R2A					MDR						PVIL					31706102	0.00000	2.66000	PM 1/139/B
RE-5	R3A					MDR						PVIL					31706103	0.00000	4.05000	PM 1/139/C
RE-5	R1A					MDR						PVIL					31706104	0.00000	0.00000	POR L 18
RE-5	R2A					MDR						PVIL					31706106	0.00000	0.00000	POR LOT 18
RE-5	R2A					MDR						PVIL					31707101	0.00000	0.00000	POR SEC 4 10 10
RE-5	R1A					MDR						PVIL					31707102	0.00000	0.44000	SEC 4 10 10
RE-5	R2A					MDR						PVIL					31707103	0.00000	2.81000	SEC 4 10 10
RE-5	R2A					MDR						PVIL					31707105	0.00000	0.00000	POR L 19
RE-5	R2A					MDR						PVIL					31707106	0.00000	0.00000	POR L 19
RE-5	R1A					MDR						PVIL					31707107	0.00000	0.00000	POR LOT 18
RE-5	R3A					MDR						PVIL					31707108	0.00000	0.00000	POR L 18
RE-5	R1A					MDR						PVIL					31707109	0.00000	1.54000	PM 1/139/D
C	CC					C						PVIL					31711116	0.00000	1.17000	L 58
RA-20	RE-10					LDR											31712003	0.00000	9.98800	RS 18/81/1

RE-5	I					I				MR							31712008	0.00000	30.30000	SEC 7 10 10 ADM
RA-20	RE-5					LDR			IBC								31716010	0.00000	1.87000	SEC 9 10 10
RA-20	RE-10					LDR			IBC								31716013	0.00000	10.00000	RS 9/90/A
RA-20	RE-10					LDR			IBC								31716015	0.00000	10.00000	RS 9/90/C
RA-20	LA-10					LDR			IBC								31716016	0.00000	10.00000	RS 9/90/B
RA-20	RE-10					LDR			IBC								31716037	0.00000	10.00000	SEC 9 10 10
PD	RE-5					LDR			IBC								31716058	0.00000	9.05900	PRS 20/69/1 ADM
R2A	RE-5					LDR											31719025	0.00000	6.59000	PM 16/144/D
PD	RE-5					LDR											31719043	11.00000	2.58000	SEC 18 10 10
RE-5	PA-10					LDR			IBC								31724032	0.00000	34.25000	PM 44/2/2
SA-10	PA-10					LDR			IBC								31724032	0.00000	34.25000	PM 44/2/2
PA-20	PA-10					LDR			IBC								31725009	0.00000	20.62000	PM 9/57/B
AE	RE-5					LDR						EDDS					31725048	11.00000	1.90000	SEC 15&16 10 10
PD	RE-5					LDR			IBC								31728101	0.00000	3.01900	L 19
PD	RE-5					LDR			IBC								31728102	0.00000	3.01000	L 20
PD	RE-5					LDR			IBC								31728201	0.00000	3.60900	L 21
PD	RE-5					LDR			IBC								31728202	0.00000	3.79000	L 22
PD	RE-5					LDR			IBC								31728301	0.00000	3.40000	L 23
PD	RE-5					LDR			IBC								31728302	0.00000	3.31000	L 24
PD	RE-5					LDR			IBC								31728303	0.00000	3.25000	L 25
PD	RE-5					LDR			IBC								31728304	0.00000	3.05000	L 26
PD	RE-5					LDR			IBC								31728305	2.00000	26.19000	LOT B
PD	RE-5					LDR			IBC								31728306	0.00000	3.90000	L 32
PD	RE-5					LDR			IBC								31728307	0.00000	3.95000	L 33
PD	RE-5					LDR			IBC								31728308	0.00000	4.91400	L 34
PD	RE-5					LDR			IBC								31728309	0.00000	3.61500	L 35
PD	RE-5					LDR			IBC								31728310	0.00000	4.39500	L 36
PD	RE-5					LDR			IBC								31728311	0.00000	3.08100	L 37
PD	RE-5					LDR			IBC								31728312	0.00000	3.19700	L 38
PD	RE-5					LDR			IBC								31728313	0.00000	3.26000	L 51
PD	RE-5					LDR			IBC								31728314	0.00000	3.21000	L 52
PD	RE-5					LDR			IBC								31728315	0.00000	5.53200	L 53
PD	RE-5					LDR			IBC								31728316	0.00000	8.35000	L 54
PD	RE-5					LDR			IBC								31728401	0.00000	3.48000	L 27
PD	RE-5					LDR			IBC								31728402	0.00000	3.08000	L 28
PD	RE-5					LDR			IBC								31728403	0.00000	3.46000	L 29
PD	RE-5					LDR			IBC								31728404	0.00000	3.55000	L 30
PD	RE-5					LDR			IBC								31728405	0.00000	3.31000	L 31
PD	RE-5					LDR			IBC								31728501	0.00000	9.16000	L 1
PD	RE-5					LDR			IBC								31728502	0.00000	5.08000	L 2
PD	RE-5					LDR			IBC								31728503	0.00000	9.71600	L 3
PD	RE-5					LDR			IBC								31728504	0.00000	4.09200	L 4
PD	RE-5					LDR			IBC								31728505	0.00000	3.31000	L 5
PD	RE-5					LDR			IBC								31728506	0.00000	3.40800	L 6
PD	RE-5					LDR			IBC								31728507	0.00000	3.95000	L 7
PD	RE-5					LDR			IBC								31728508	0.00000	6.01800	L 8

PD	RE-5					LDR			IBC								31728509	0.00000	4.26000	L 9
PD	RE-5					LDR			IBC								31728510	0.00000	3.10000	L 10
PD	RE-5					LDR			IBC								31728511	0.00000	3.49000	L 11
PD	RE-5					LDR			IBC								31728512	0.00000	3.31000	L 12
PD	RE-5					LDR			IBC								31728513	0.00000	3.43000	L 13
PD	RE-5					LDR			IBC								31728514	0.00000	3.11600	L 14
PD	RE-5					LDR			IBC								31728515	0.00000	3.66000	L 15
PD	RE-5					LDR			IBC								31728516	0.00000	3.51700	L 16
PD	RE-5					LDR			IBC								31728517	0.00000	4.48000	L 17
PD	RE-5					LDR			IBC								31728518	0.00000	3.39400	L 18
PD	RE-5					LDR			IBC								31728519	2.00000	3.13000	LOT A AW
PD	RE-5					LDR			IBC								31728601	0.00000	3.44900	L 47
PD	RE-5					LDR			IBC								31728602	0.00000	3.01000	L 48
PD	RE-5					LDR			IBC								31728603	0.00000	3.04500	L 49
PD	RE-5					LDR			IBC								31728604	0.00000	3.05000	L 50
PD	RE-5					LDR			IBC								31728701	0.00000	3.00000	L 39
PD	RE-5					LDR			IBC								31728702	0.00000	3.04000	L 40
PD	RE-5					LDR			IBC								31728703	0.00000	3.01000	L 41
PD	RE-5					LDR			IBC								31728704	0.00000	3.06300	L 42
PD	RE-5					LDR			IBC								31728705	0.00000	3.04100	L 43
PD	RE-5					LDR			IBC								31728706	0.00000	4.25200	L 44
PD	RE-5					LDR			IBC								31728707	0.00000	3.00000	L 45
PD	RE-5					LDR			IBC								31728708	0.00000	3.54000	L 46
PD	RE-5					LDR			IBC								31729002	0.00000	5.08800	L 56
PD	RE-5					LDR			IBC								31729003	0.00000	5.85000	L 57
PD	RE-5					LDR			IBC								31729004	2.00000	1.44000	LOT C
PD	RE-5					LDR			IBC								31729005	2.00000	0.30000	L C-1 AW
PD	RE-5					LDR			IBC								31729006	0.00000	8.41000	L 58
PD	RE-5					LDR			IBC								31729007	0.00000	3.95900	L 59
PD	RE-5					LDR			IBC								31729008	2.00000	10.30000	LOT E
PD	RE-5					LDR			IBC								31729010	0.00000	3.00000	L 61
PD	RE-5					LDR			IBC								31729011	0.00000	3.14000	L 62
PD	RE-5					LDR			IBC								31729012	0.00000	4.29000	L 63
PD	RE-5					LDR			IBC								31729013	0.00000	5.39000	L 64
PD	RE-5					LDR			IBC								31729014	0.00000	4.38000	L 65
PD	RE-5					LDR			IBC								31729015	0.00000	3.95000	L 66
PD	RE-5					LDR			IBC								31729016	0.00000	4.53000	L 67
PD	RE-5					LDR			IBC								31729017	0.00000	5.65000	L 68
PD	RE-5					LDR			IBC								31729018	0.00000	4.62000	L 69
PD	RE-5					LDR			IBC								31729019	0.00000	3.81000	L 70
PD	RE-5					LDR			IBC								31729020	0.00000	3.93000	L 71
PD	RE-5					LDR			IBC								31729021	0.00000	4.31800	L 72
PD	RE-5					LDR			IBC								31729022	0.00000	3.02800	L 75
PD	RE-5					LDR			IBC								31729023	0.00000	3.02800	L 76
PD	RE-5					LDR			IBC								31729024	0.00000	3.01000	L 77
PD	RE-5					LDR			IBC								31729025	0.00000	3.00000	L 78

PD	RE-5					LDR			IBC								31729026	0.00000	3.01000	L 79
PD	RE-5					LDR			IBC								31729027	0.00000	3.04000	L 80
PD	RE-5					LDR			IBC								31729028	0.00000	3.03000	L 81
PD	RE-5					LDR			IBC								31729029	0.00000	3.01000	L 82
PD	RE-5					LDR			IBC								31729030	0.00000	5.36000	L 83
PD	RE-5					LDR			IBC								31729031	0.00000	3.91000	L 84
PD	RE-5					LDR			IBC								31729032	0.00000	3.16000	L 85
PD	RE-5					LDR			IBC								31729033	0.00000	3.12000	L 86
PD	RE-5					LDR			IBC								31729034	0.00000	3.00800	L 87
PD	RE-5					LDR			IBC								31729035	0.00000	3.00100	L 88
PD	RE-5					LDR			IBC								31729036	0.00000	3.00100	L 89
PD	RE-5					LDR			IBC								31729037	0.00000	3.36000	L 90
PD	RE-5					LDR			IBC								31729038	0.00000	3.30000	L 91
PD	RE-5					LDR			IBC								31729039	0.00000	5.94000	L 92
PD	RE-5					LDR			IBC								31729040	0.00000	3.68000	L 93
PD	RE-5					LDR			IBC								31729041	0.00000	3.00000	L 94
PD	RE-5					LDR			IBC								31729042	0.00000	3.06000	L 95
PD	RE-5					LDR			IBC								31729043	0.00000	3.00000	L 105
PD	RE-5					LDR			IBC								31729044	0.00000	3.06000	L 106
PD	RE-5					LDR			IBC								31729045	0.00000	3.00000	L 107
PD	RE-5					LDR			IBC								31729046	0.00000	3.01300	L 108
PD	RE-5					LDR			IBC								31729047	0.00000	5.47000	L 109
PD	RE-5					LDR			IBC								31729048	0.00000	3.59000	L 110
PD	RE-5					LDR			IBC								31729049	0.00000	3.55000	L 111
PD	RE-5					LDR			IBC								31729050	0.00000	3.03000	L 112
PD	RE-5					LDR			IBC								31729051	0.00000	3.03000	L 113
PD	RE-5					LDR			IBC								31729052	0.00000	3.09200	L 114
PD	RE-5					LDR			IBC								31729053	0.00000	3.00000	L 115
PD	RE-5					LDR			IBC								31729054	0.00000	3.01000	L 116
PD	RE-5					LDR			IBC								31729055	0.00000	3.06000	L 117
PD	RE-5					LDR			IBC								31729056	2.00000	8.52000	LOT D
PD	RE-5					LDR			IBC								31729057	0.00000	3.20000	L 118
PD	RE-5					LDR			IBC								31729058	0.00000	3.80000	L 119
PD	RE-5					LDR			IBC								31729059	0.00000	3.94000	L 55
PD	RE-5					LDR			IBC								31729060	2.00000	0.51000	LOT G-1
PD	RE-5					LDR			IBC								31729061	0.00000	3.29000	RS 14/72/A
PD	RE-5					LDR			IBC								31730002	0.00000	3.43000	L 74
PD	RE-5					LDR			IBC								31730003	0.00000	3.08000	L 96
PD	RE-5					LDR			IBC								31730004	0.00000	3.11000	L 97
PD	RE-5					LDR			IBC								31730005	0.00000	9.72000	L 98
PD	RE-5					LDR			IBC								31730006	0.00000	7.64000	L 99
PD	RE-5					LDR			IBC								31730007	0.00000	3.02000	L 100
PD	RE-5					LDR			IBC								31730008	0.00000	3.05000	L 101
PD	RE-5					LDR			IBC								31730009	0.00000	3.82000	L 102
PD	RE-5					LDR			IBC								31730010	0.00000	4.00000	L 103
PD	RE-5					LDR			IBC								31730011	0.00000	3.94000	L 104

PD	RL-10					RR			IBC								31730012	2.00000	20.43000	POR L G ADM AW
PD	OS					AL	A		IBC								31730013	2.00000	40.85000	POR L G ADM AW
PD	RE-5					LDR			IBC								31730014	0.00000	3.09000	L 73
PD	RE-5					LDR			IBC								31731101	0.00000	3.11300	L 120
PD	RE-5					LDR			IBC								31731102	0.00000	3.50100	L 121
PD	RE-5					LDR			IBC								31731103	0.00000	6.41000	L 122
PD	RE-5					LDR			IBC								31731104	0.00000	15.51000	L 123
PD	RE-5					LDR			IBC								31731105	0.00000	3.57000	L 124
PD	RE-5					LDR			IBC								31731106	0.00000	3.38100	L 125
PD	RE-5					LDR			IBC								31731107	0.00000	3.40000	L 126
PD	RE-5					LDR			IBC								31731108	0.00000	10.10000	L 127
PD	RE-5					LDR			IBC								31731109	0.00000	5.54300	L 128
PD	RE-5					LDR			IBC								31731110	0.00000	3.02400	L 129
PD	RE-5					LDR			IBC								31731111	0.00000	3.15000	L 130
PD	RE-5					LDR			IBC								31731112	0.00000	3.10000	L 131
PD	RE-5					LDR			IBC								31731113	0.00000	3.00200	L 132
PD	RE-5					LDR			IBC								31731114	0.00000	3.06000	L 133
PD	RE-5					LDR			IBC								31731115	0.00000	2.10000	POR L 134 ADM
PD	RE-5					LDR			IBC								31731116	0.00000	1.28000	POR L 134 ADM
PD	RE-5					LDR			IBC								31731117	0.00000	3.10800	L 135
PD	RE-5					LDR			IBC								31731118	0.00000	3.37000	L 136
PD	RE-5					LDR			IBC								31731119	0.00000	3.05000	L 137
PD	RE-5					LDR			IBC								31731120	0.00000	3.01000	L 138
PD	RE-5					LDR			IBC								31731121	0.00000	3.00700	L 139
PD	RE-5					LDR			IBC								31731122	0.00000	3.00000	L 140
PD	RE-5					LDR			IBC								31731123	0.00000	10.97000	L 141
PD	RE-5					LDR			IBC								31731124	0.00000	12.83200	L 142
PD	RE-5					LDR			IBC								31731125	0.00000	4.65000	L 143
PD	RE-5					LDR			IBC								31731126	0.00000	4.43700	L 144
PD	RE-5					LDR			IBC								31731127	0.00000	7.67000	L 145
PD	RL-10					RR			IBC								31731128	2.00000	3.60000	POR L H ADM AW
PD	RL-10					RR			IBC								31731129	2.00000	8.28000	POR L H ADM AW
PD	RE-5					LDR			IBC								31731201	0.00000	3.01400	L 146
PD	RE-5					LDR			IBC								31731202	0.00000	3.49800	L 147
PD	RE-5					LDR			IBC								31731301	0.00000	3.31000	L 148
PD	RE-5					LDR			IBC								31731401	0.00000	1.86000	POR L 149 ADM
PD	RE-5					LDR			IBC								31731402	0.00000	1.28000	POR L 149 ADM
PD	RE-5					LDR			IBC								31731403	0.00000	3.88000	L 150
PD	RE-5					LDR			IBC								31731404	0.00000	3.22000	L 151
PD	RE-5					LDR			IBC								31731405	0.00000	3.09600	L 152
PD	RE-5					LDR			IBC								31731406	2.00000	1.12000	LOT H-1 AW
PD	RE-5					LDR			IBC								31731407	0.00000	3.49200	L 153
PD	RE-5					LDR			IBC								31731501	0.00000	3.03000	L 154
PD	RE-5					LDR			IBC								31731502	0.00000	3.02000	L 155
PD	RE-5					LDR			IBC								31731503	0.00000	3.08000	L 156
PD	RE-5					LDR			IBC								31731504	0.00000	3.01000	L 157

PD	RE-5					LDR			IBC								31731507	0.00000	3.01000	POR L 159
PD	RE-5					LDR			IBC								31731508	0.00000	6.01700	L 160
PD	RE-5					LDR			IBC								31731509	0.00000	6.01000	L 161
PD	RE-5					LDR			IBC								31731510	0.00000	3.07800	L 162
PD	RE-5					LDR			IBC								31731511	0.00000	3.00500	L 163
PD	RE-5					LDR			IBC								31731512	0.00000	3.00200	L 164
PD	RE-5					LDR			IBC								31731513	0.00000	3.01000	L 165
PD	RE-5					LDR			IBC								31731514	0.00000	2.12000	POR L 166 ADM
PD	RE-5					LDR			IBC								31731515	0.00000	0.88000	POR L 166 ADM
PD	RE-5					LDR			IBC								31731516	0.00000	3.02800	L 167
PD	RE-5					LDR			IBC								31731517	0.00000	3.10900	L 168
PD	RE-5					LDR			IBC								31731518	0.00000	3.26000	L 169
PD	RE-5					LDR			IBC								31731519	0.00000	3.43000	L 170
PD	RE-5					LDR			IBC								31731520	0.00000	3.33300	L 171
PD	RE-5					LDR			IBC								31731521	0.00000	3.19000	L 158
PD	RE-5					LDR			IBC								31732101	0.00000	3.98000	L 172
PD	RE-5					LDR			IBC								31732102	0.00000	3.34400	L 173
PD	RE-5					LDR			IBC								31732103	0.00000	4.55400	L 174
PD	RE-5					LDR			IBC								31732104	0.00000	3.07000	L 175
PD	RE-5					LDR			IBC								31732105	0.00000	3.67000	L 176
PD	RE-5					LDR			IBC								31732106	0.00000	3.02000	L 177
PD	RE-5					LDR			IBC								31732107	0.00000	3.00000	L 178
PD	RE-5					LDR			IBC								31732108	0.00000	3.15000	L 179
PD	RE-5					LDR			IBC								31732109	0.00000	3.72000	L 180
PD	RE-5					LDR			IBC								31732110	0.00000	3.34000	L 181
PD	RE-5					LDR			IBC								31732111	0.00000	3.00200	L 182
PD	RE-5					LDR			IBC								31732112	0.00000	3.21900	L 183
PD	RE-5					LDR			IBC								31732114	0.00000	7.68000	L 185
PD	RE-10					RR			IBC								31732201	2.00000	16.17000	POR L G-1 ADM AW
PD	RL-10					RR			IBC								31732202	2.00000	1.20000	POR L G-1 ADM AW
PD	RE-5					LDR			IBC								31732203	0.00000	6.73600	L 186
PD	RE-5					LDR			IBC								31732204	0.00000	4.68000	L 187
PD	RE-5					LDR			IBC								31732205	0.00000	6.88500	L 188
PD	RE-5					LDR			IBC								31732206	0.00000	9.57000	L 189
PD	RE-5					LDR			IBC								31732207	0.00000	19.02500	L 190
PD	RE-5					LDR			IBC								31732208	0.00000	19.08600	L 191
PD	RE-5					LDR			IBC								31732209	0.00000	6.86000	L 192
PD	RE-5					LDR			IBC								31732210	0.00000	3.90000	L 193
PD	RE-5					LDR			IBC								31732211	0.00000	5.01800	L 194
PD	RE-5					LDR			IBC								31732301	0.00000	3.04700	L 195
PD	RE-5					LDR			IBC								31732302	0.00000	3.07000	L 196
PD	RE-5					LDR			IBC								31732303	0.00000	4.26600	L 197
PD	RE-5					LDR			IBC								31732304	0.00000	3.31000	L 198
PD	RE-5					LDR			IBC								31732305	0.00000	3.24000	L 199
PD	RE-5					LDR			IBC								31732401	0.00000	3.02500	L 200
PD	RE-5					LDR			IBC								31732402	0.00000	3.01000	L 201

PD	RE-5					LDR			IBC								31733101	0.00000	5.26900	L 214
PD	RE-5					LDR			IBC								31733102	0.00000	12.59100	L 213
PD	RE-5					LDR											31733103	0.00000	29.34100	L 215
PD	RE-5					LDR			IBC								31733104	0.00000	5.30000	L 216
PD	RE-5					LDR			IBC								31733105	0.00000	6.30600	L 217
PD	RE-5					LDR			IBC								31733106	0.00000	10.60600	L 218
PD	RE-5					LDR			IBC								31733107	0.00000	16.48500	L 219
PD	RE-5					LDR			IBC								31733108	0.00000	9.26700	L 220
PD	RE-5					LDR			IBC								31733109	0.00000	11.72200	L 221
PD	RE-5					LDR			IBC								31733110	0.00000	8.84100	L 222
PD	RE-5					LDR			IBC								31733111	0.00000	3.37400	L 223
PD	RE-5					LDR			IBC								31733112	0.00000	3.76500	L 224
PD	RE-5					LDR			IBC								31733113	0.00000	9.27700	L 225
PD	RE-5					LDR											31733114	2.00000	37.78000	LOT 803 AW
PD	RE-5					LDR			IBC								31733201	0.00000	4.49000	L 226
PD	RE-5					LDR			IBC								31733202	0.00000	6.13700	L 227
PD	RE-5					LDR			IBC								31733203	0.00000	5.69600	L 228
PD	RE-5					LDR			IBC								31733204	0.00000	10.22500	L 229
PD	RE-5					LDR			IBC								31733205	0.00000	5.96100	L 230
PD	RE-5					LDR			IBC								31733301	0.00000	8.73600	L 231
PD	RE-5					LDR			IBC								31733302	0.00000	4.12000	L 232
PD	RE-5					LDR			IBC								31733303	0.00000	5.35700	L 238
PD	RE-5					LDR			IBC								31733401	0.00000	3.56700	L 233
PD	RE-5					LDR			IBC								31733402	0.00000	3.77300	L 234
PD	RE-5					LDR			IBC								31733403	0.00000	4.00100	L 235
PD	RE-5					LDR			IBC								31733404	0.00000	6.31400	L 236
PD	RE-5					LDR			IBC								31733405	0.00000	4.04000	L 237
PD	RE-5					LDR											31734102	0.00000	3.43600	L 202
PD	RE-5					LDR											31734103	0.00000	3.78100	L 203
PD	RE-5					LDR											31734104	0.00000	4.38200	L 204
PD	RE-5					LDR											31734105	0.00000	3.19200	L 205
PD	RE-5					LDR											31734106	0.00000	3.63400	L 206
PD	RE-5					LDR											31734107	0.00000	4.22600	L 207
PD	RE-5					LDR											31734108	0.00000	5.91400	L 208
PD	RE-5					LDR											31734109	0.00000	5.56000	L 209
PD	RE-5					LDR											31734110	0.00000	9.82200	L 210
PD	RE-5					LDR											31734111	0.00000	3.44700	L 211
PD	RE-5					LDR			IBC								31734112	0.00000	9.21300	L 212
PD	RE-5					LDR											31734113	0.00000	5.78000	LOT801 ADM PAR
PD	RE-5					LDR			IBC								31734201	0.00000	5.83400	L 239
PD	RE-5					LDR			IBC								31734202	0.00000	4.00000	L 240
PD	RE-5					LDR			IBC								31734203	0.00000	6.44400	L 241
PD	RE-5					LDR			IBC								31734204	0.00000	3.12000	L 242
PD	RE-5					LDR			IBC								31734205	0.00000	3.53800	L 257
PD	RE-5					LDR			IBC								31734206	0.00000	3.21400	L 258
PD	RE-5					LDR			IBC								31734207	0.00000	3.00200	L 259

PD	RE-5					LDR											31734301	0.00000	5.04400	L 243
PD	RE-5					LDR											31734302	0.00000	6.35200	L 244
PD	RE-5					LDR											31734303	0.00000	8.15100	L 249
PD	RE-5					LDR											31734304	0.00000	4.14400	L 250
PD	RE-5					LDR											31734305	0.00000	5.41400	L 251
PD	RE-5					LDR											31734306	0.00000	3.98100	L 252
PD	RE-5					LDR											31734307	2.00000	60.40000	LOT 802 AW
PD	RE-5					LDR											31734401	0.00000	3.16200	L 245
PD	RE-5					LDR											31734402	0.00000	3.00200	L 246
PD	RE-5					LDR											31734403	0.00000	3.03100	L 247
PD	RE-5					LDR											31734501	0.00000	3.73600	L 248
PD	RE-5					LDR											31734502	2.00000	1.13200	LOT 800 AW
PD	RE-5					LDR											31735101	0.00000	3.36300	L 260
PD	RE-5					LDR											31735102	0.00000	3.28900	L 261
PD	RE-5					LDR											31735103	0.00000	3.04500	L 262
PD	RE-5					LDR											31735104	0.00000	3.01800	L 263
PD	RE-5					LDR											31735105	0.00000	3.03600	L 264
PD	RE-5					LDR											31735106	0.00000	4.39300	L 265
PD	RE-5					LDR											31735107	0.00000	4.40200	L 266
PD	RE-5					LDR											31735108	0.00000	7.22000	L 267
PD	RE-5					LDR											31735109	0.00000	3.03000	L 268
PD	RE-5					LDR											31735110	0.00000	3.01400	L 269
PD	RE-5					LDR											31735111	0.00000	3.00100	L 270
PD	RE-5					LDR											31735112	0.00000	3.00100	L 271
PD	RE-5					LDR											31735113	0.00000	3.22700	L 272
PD	RE-5					LDR											31735114	0.00000	4.24900	L 273
PD	RE-5					LDR											31735115	0.00000	4.73300	L 274
PD	RE-5					LDR											31735116	0.00000	8.87800	L 275
PD	RE-5					LDR											31735117	0.00000	28.06200	L 276
PD	RE-5					LDR											31735118	0.00000	14.72300	L 277
PD	RE-5					LDR											31735119	0.00000	10.13900	L 278
PD	RE-5					LDR											31735120	0.00000	5.70500	L 279
PD	RE-5					LDR											31735121	0.00000	4.04600	L 280
PD	RE-5					LDR											31735122	0.00000	3.10100	L 281
PD	RE-5					LDR											31735123	2.00000	1.88400	LOT 804 AW
PD	RE-5					LDR											31735201	0.00000	3.01400	L 282
PD	RE-5					LDR											31735202	0.00000	5.02300	L 283
PD	RE-5					LDR											31735203	0.00000	6.00200	L 284
PD	RE-5					LDR											31735204	0.00000	4.19300	L 285
PD	RE-5					LDR											31735205	0.00000	3.37900	L 286
PD	RE-5					LDR											31735206	0.00000	3.23200	L 287
PD	RE-5					LDR											31735207	0.00000	5.16900	L 288
PD	RE-5					LDR											31735208	0.00000	3.77600	L 289
PD	RE-5					LDR											31735209	0.00000	3.59100	L 290
PD	RE-5					LDR											31735210	0.00000	3.47300	L 291
PD	RE-5					LDR											31735211	0.00000	3.00900	L 292

PD	RE-5					LDR			IBC								31736101	0.00000	3.01400	L 253
PD	RE-5					LDR											31736102	0.00000	3.42000	L 254
PD	RE-5					LDR			IBC								31736201	0.00000	4.00800	L 256
PD	RE-5					LDR			IBC								31736204	0.00000	3.48300	L 294
PD	RE-5					LDR			IBC								31736205	0.00000	5.16000	L 295
PD	RE-5					LDR			IBC								31736210	0.00000	6.02100	L 298
PD	RE-5					LDR			IBC								31736213	0.00000	3.91000	L 300
PD	RE-5					LDR			IBC								31736214	0.00000	7.12200	L 301
PD	RE-5					LDR			IBC								31736215	0.00000	4.31400	L 302
PD	RE-5					LDR			IBC								31736216	0.00000	3.44400	L 303
PD	RE-5					LDR			IBC								31736217	0.00000	4.65000	L 297
PD	RE-5					LDR			IBC								31736218	0.00000	5.17400	L 299
PD	RE-5					LDR			IBC								31736219	0.00000	3.40000	L 293
PD	RE-5					LDR			IBC								31736220	0.00000	3.94900	L 296
PD	RE-5					LDR			IBC								31736303	0.00000	3.43900	L 305
PD	RE-5					LDR			IBC								31736304	0.00000	3.52200	L 306
PD	RE-5					LDR			IBC								31736305	0.00000	13.40600	L 307
PD	RE-5					LDR			IBC								31736306	0.00000	8.33900	POR L 308 ADM
PD	RE-5					LDR			IBC								31736307	0.00000	1.02800	POR L 308 ADM
PD	RE-5					LDR			IBC								31736308	0.00000	4.77700	POR L 309 ADM
PD	RE-5					LDR			IBC								31736309	0.00000	1.21200	POR L 309 ADM
PD	RE-5					LDR			IBC								31736310	0.00000	3.22400	L 310
PD	RE-5					LDR			IBC								31736311	0.00000	2.91700	L 311
PD	RE-5					LDR			IBC								31736317	0.00000	3.69300	L 315
PD	RE-5					LDR			IBC								31736319	0.00000	3.55200	L 317
PD	RE-5					LDR			IBC								31736322	0.00000	3.61500	L 319
PD	RE-5					LDR			IBC								31736325	0.00000	3.18600	L 255
PD	RE-5					LDR			IBC								31736327	0.00000	3.38600	L 304
PD	RE-5					LDR			IBC								31736328	0.00000	23.01000	L 312
PD	RE-5					LDR			IBC								31736329	0.00000	4.29000	L 318
PD	RE-5					LDR			IBC								31736330	0.00000	3.39100	L 320
PD	RE-5					LDR			IBC								31736331	0.00000	17.67000	L 313
PD	RE-5					LDR			IBC								31736333	0.00000	3.94600	POR LOT 316
PD	RE-5					LDR			IBC								31736334	0.00000	3.76000	LOT 321&POR L316
PD	RE-5					LDR			IBC								31736335	0.00000	4.72000	PM 49/44/1
PD	RE-5					LDR			IBC								31736336	2.00000	3.55000	PM 49/44/2 AW
PD	RE-5					LDR			IBC								31737101	0.00000	7.24000	POR L 322 ADM
PD	RE-5					LDR			IBC								31737102	0.00000	2.27700	POR L 323 ADM
PD	RE-5					LDR			IBC								31737103	0.00000	2.21000	POR L 324 ADM
PD	RE-5					LDR			IBC								31737105	0.00000	0.40400	POR L 322 ADM
PD	RE-5					LDR			IBC								31737106	0.00000	3.02000	POR L 323 ADM
PD	RE-5					LDR			IBC								31737107	0.00000	2.68100	POR L 324 ADM
PD	RE-5					LDR			IBC								31737109	0.00000	3.83000	L 325
PD	RE-5					LDR											31737204	0.00000	5.63700	L 343
PD	RE-5					LDR											31737205	0.00000	13.19000	L 344
PD	RE-5					LDR											31737206	0.00000	6.89400	L 345

PD	RE-5					LDR											31737207	0.00000	5.85800	L 346
PD	RE-5					LDR											31737208	0.00000	8.01000	L 347
PD	RE-5					LDR			IBC								31737210	0.00000	5.60800	RS 24/141/1
PD	RE-5					LDR			IBC								31737211	0.00000	22.59900	PRS 24/141/2 ADM
PD	RE-5					LDR			IBC								31737212	0.00000	12.81800	PRS 24/141/2 ADM
PD	RE-5					LDR			IBC								31738105	0.00000	5.04900	L 326
PD	RE-5					LDR			IBC								31738109	0.00000	4.08000	L 330
PD	RE-5					LDR			IBC								31738114	0.00000	3.10000	PM 45/59/1
PD	RE-5					LDR			IBC								31738117	0.00000	5.92000	PM 49/85/1
PD	RE-5					LDR			IBC								31738118	0.00000	19.45000	PM 49/85/2
PD	RE-5					LDR			IBC								31738201	0.00000	7.27000	L 331
PD	RE-5					LDR			IBC								31738202	0.00000	5.79000	L 332
PD	RE-5					LDR			IBC								31738207	0.00000	5.67000	L 337
PD	RE-5					LDR			IBC								31738208	0.00000	4.47500	POR L 338 ADM
PD	RE-5					LDR			IBC								31738212	0.00000	1.76000	POR L 338 ADM
PD	RE-5					LDR			IBC								31738215	0.00000	3.05000	PM 43/135/1
PD	RE-5					LDR			IBC								31738219	0.00000	3.03000	RS 24/85/1
PD	RE-5					LDR			IBC								31738221	0.00000	3.47000	RS 24/85/2
PD	RE-5					LDR			IBC								31738222	0.00000	7.61000	RS 24/85/3
PD	RE-5					LDR			IBC								31738224	0.00000	11.11000	RS 25/108/2
PD	RE-5					LDR			IBC								31738225	0.00000	60.89100	RS 25/108/1
RE-10	RL-10					RR			IBC								31739003	0.00000	3.24000	SEC 9 10 10 ADM
OS	RE-10					LDR			IBC								31739004	0.00000	3.88000	SEC 9 10 10 ADM
RE-5	TC					LDR			IBC								31901001	11.00000	18.18000	POR S29&32 10 10
RE-5	TC					LDR			IBC								31901002	11.00000	5.72000	POR SEC 31 10 10
RA-20	TC					LDR			IBC								31901003	11.00000	20.20000	POR SEC 33 10 10
RE-5	TC					LDR			IBC								31901003	11.00000	20.20000	POR SEC 33 10 10
RE-5	TC					LDR			IBC								31901003	11.00000	20.20000	POR SEC 33 10 10
A	RE-10					LDR											31906032	0.00000	38.41000	SEC 21 10 10
A	RE-10					LDR											31906038	0.00000	46.43000	SEC 21 10 10
A	RE-10					LDR											31906039	0.00000	34.22000	SEC 21 10 10
A	RE-5					LDR											31906040	0.00000	0.70000	SEC 21 10 10
A	RE-5					LDR											31906041	0.00000	0.09000	SEC 21 10 10
SA-10	PA-10					LDR											31906048	0.00000	3.10000	SEC 21 10 10
A	RE-10					LDR			IBC								31907020	0.00000	20.00000	SEC 21 10 10
A	RE-5					LDR			IBC								31907032	0.00000	5.37000	SEC 21 10 10
A	RE-10					LDR											31907033	0.00000	40.00000	SEC 21 10 10
A	RE-10					LDR											31907034	0.00000	35.87000	SEC 21 10 10
A	RE-5					LDR											31907076	0.00000	4.13000	L38T10NR10ESEC21
RE-10	RE-5					LDR			IBC								31909130	0.00000	7.07900	PM 19/86/2
RA-20	LA-10					LDR			IBC								31917008	0.00000	5.69000	SEC 33 10 10
RE-5	LA-10					LDR			IBC								31917008	0.00000	5.69000	SEC 33 10 10
RE-10	RE-5					LDR			IBC								31919029	0.00000	5.00000	SEC 28 10 10
RE-10	RE-5					LDR			IBC								31919032	0.00000	21.11000	RS 24/109
TC	RE-5					LDR			IBC								31920006	0.00000	4.50000	SEC 28 10 10
A	RE-5					LDR			IBC								31920018	0.00000	5.20000	SEC 28 10 10

A	RE-5					LDR											31920019	0.00000	0.01000	SEC 27 10 10
RE-10	RE-5					LDR			IBC								31921016	0.00000	10.00000	PM 10/13/A
RE-10	RE-5					LDR			IBC								31921017	0.00000	10.02000	PM 10/13/B
RE-10	RE-5					LDR			IBC								31921045	0.00000	10.00000	PM 10/13/C
PD	CC					C			IBC		PL						31921052	11.00000	37.73900	PPM 1/163/9 ADM
PD	CC					LDR			IBC								31921053	11.00000	4.63000	PPM 1/163/9 ADM
RF	RF-H					TR			IBC								31922015	0.00000	18.20000	SEC 31 10 10
RA-20	LA-10					LDR			IBC								31925002	0.00000	54.76000	SEC 33 10 10
RA-20	LA-10					LDR			IBC								31925004	0.00000	119.94000	SEC 33 10 10
RE-5	R&D					R&D						EDDS					31926001	0.00000	62.01000	SEC 33 10 10
RE-5	I					I						EDDS					31926005	0.00000	6.06000	SEC 33 10 10
RE-5	CR					C						EDDS					31926008	0.00000	10.18000	RS 18/88/1
RE-5	R1A					HDR						EDDS					31926024	2.00000	0.50000	SEC 33 10 10 AW
RE-5	R1A					HDR						EDDS					31926026	0.00000	1.13000	SEC 33 10 10
RE-5	R1A					HDR						EDDS					31926027	0.00000	1.66000	SEC 33 10 10
RE-5	R1A					HDR						EDDS					31926028	2.00000	0.12000	SEC 33 10 10 AW
RE-5	R1A					HDR						EDDS					31926030	0.00000	2.00000	SEC 33 10 10
RE-5	R1A					HDR						EDDS					31926031	0.00000	1.57000	SEC 33 10 10
RE-5	R1A					HDR						EDDS					31926035	0.00000	0.62000	SEC 33 10 10
RE-5	I					I						EDDS					31926060	0.00000	9.62000	PM 34/64/2
RE-5	RM					MFR						EDDS					31926062	0.00000	5.16000	PM 39/77/2
R2	RM			PD		MFR						EDDS					31926063	0.00000	0.83000	PM 39/77/3
RE-5	R1A					HDR						EDDS					31926081	0.00000	1.98000	RS 26/10/2
RE-5	R1A					HDR						EDDS					31926082	0.00000	1.98000	RS 26/10/1
RE-10	R1A					HDR						EDDS					31926086	0.00000	5.22000	RS 27/37/4
RE-10	R1A					HDR						EDDS					31926092	0.00000	2.01000	RS 27/37/2
RE-10	R1A					HDR						EDDS					31926093	0.00000	2.00000	RS 27/37/1
RE-10	R1A					HDR						EDDS					31926095	0.00000	2.00000	PM 48/115/1
RE-10	R1A					HDR						EDDS					31926096	0.00000	2.00000	PM 48/115/2
RF	RF-H					OS						EDDS					31927001	2.00000	17.15000	LOT 49 AW
CP	CL					C						EDDS					31937027	0.00000	0.36000	PM 30/40/45
CP	CL					C						EDDS					31937028	0.00000	0.46000	PM 30/40/44
CP	CL					C						EDDS					31937029	0.00000	0.49000	PM 30/40/43
CP	CC					C						EDDS					31937033	0.00000	1.02300	PM 30/40/46 & 47
AE	PA-20					AL	A										32103005	0.00000	41.39900	PM 46/47/1
AE	PA-20					AL	A										32103006	0.00000	47.57300	PM 46/47/2
AE	PA-20					AL	A										32103007	0.00000	12.88800	PM 46/47/3
RE-5	RL-10					RR	A										32104001	0.00000	3.81000	RS 19/41 S31010
RE-5	RL-10					RR	A										32104006	0.00000	5.06000	PM 13/108/1
RE-5	RL-10					RR	A										32104007	0.00000	5.05000	PM 13/108/2
RE-5	RL-10					RR	A										32104008	0.00000	5.04000	PM 13/108/3
RE-5	RL-10					RR	A										32104009	0.00000	5.05000	PM 13/108/4
RE-5	LA-10					RR	A										32104012	0.00000	19.88400	RS 22/30/1
RE-5	RL-10					RR	A										32104015	0.00000	5.24000	PM 39/127/1
RE-5	RL-10					RR	A										32104016	0.00000	5.24000	PM 39/127/2
RE-5	RL-10					RR	A										32104017	0.00000	6.02000	PM 39/127/3

RE-5	R1A					MDR						PVIL					32105001	0.00000	1.89000	SEC 4 10 10
RE-5	R1A					MDR						PVIL					32105002	0.00000	1.40000	SEC 3 10 10
RE-5	R1A					MDR						PVIL					32105003	0.00000	0.51000	SEC 4 10 10 ADM
RE-5	R1A					MDR						PVIL					32105004	0.00000	0.51000	SEC 3 10 10 ADM
RE-5	R1A					MDR						PVIL					32105005	0.00000	1.55000	SEC 4 10 10 ADM
RE-5	R1A					MDR						PVIL					32105006	0.00000	1.45000	SEC 3 10 10 ADM
RE-5	R1A					MDR						PVIL					32105007	0.00000	1.70000	SEC 4 10 10 ADM
RE-5	R1A					MDR						PVIL					32105008	0.00000	1.34000	SEC 3 10 10 ADM
RM	R1					HDR						PVIL					32105009	0.00000	27.73000	SEC 3 10 10
RE-5	R3A					MDR						PVIL					32105011	0.00000	4.53000	SEC 3 10 10
RE-5	RL-10					RR	A										32105012	0.00000	10.00000	SEC 3 10 10
RE-5	RL-10					RR	A										32105013	0.00000	10.04000	SEC 3 10 10
RE-5	RL-10					RR	A										32105015	0.00000	10.03000	PM 18/78/1
RE-5	RL-10					RR	A										32105017	0.00000	5.00000	RS 17/17/1
RE-5	RL-10					RR	A										32105018	0.00000	5.00300	RS 17/17/2
RE-5	R1A					MDR						PVIL					32105019	0.00000	1.43000	PM 46/87/1
RE-5	R1A					MDR						PVIL					32105020	0.00000	1.39000	PM 46/87/2
RE-5	R1A					MDR						PVIL					32105021	2.00000	0.18000	PAR A PM 46-87AW
RE-10	RL-20					AL	A										32106003	0.00000	21.30000	SEC 3 10 10
RE-10	RL-10					RR	A										32107002	0.00000	1.00000	SEC 3 10 10
RE-10	RL-10					RR	A										32107003	0.00000	0.46000	SEC 3 10 10
RE-10	RL-10					RR	A										32107004	0.00000	5.24000	RS 31/92/1
RE-10	RL-10					RR	A										32107005	0.00000	5.17000	SEC 3 10 10
RE-10	RL-10					RR	A										32107006	0.00000	3.83000	SEC 3 10 10
RE-10	RL-10					RR	A										32107007	0.00000	5.73000	SEC 3 10 10
RE-10	RL-10					RR	A										32107008	0.00000	5.54000	SEC 3 10 10
RE-10	RL-10					RR	A										32107009	0.00000	0.12000	SEC 3 10 10
RE-10	RL-10					RR	A										32107011	0.00000	5.37000	SEC 2&3 10 10
RE-10	RL-20					AL	A										32108003	0.00000	8.65000	PPM 14/58/2 ADM
RE-10	RL-20					AL	A										32108007	0.00000	2.06000	PPM 15/120/B ADM
RA-20	LA-20					AL	A										32108008	0.00000	3.82000	PPM 15/120/D ADM
RE-10	RL-20					AL	A										32108009	0.00000	10.08000	PM 15/120/A
RE-10	RL-20					AL	A										32108010	0.00000	10.00000	PM 28/149/A
RE-10	RL-20					AL	A										32108011	0.00000	14.77000	PRS 11/74/1 ADM
RE-10	RL-20					AL	A										32108012	0.00000	15.70000	PRS 11/74/2 ADM
RE-10	RL-10					RR	A										32109001	0.00000	16.03000	SEC 3 10 10
RE-10	RL-10					RR	A										32109002	0.00000	6.90000	SEC 2 10 10
RE-10	RL-10					RR	A										32109003	0.00000	17.16000	SEC 2 10 10
RE-10	RL-20					AL	A										32109008	0.00000	7.96000	PPM 15/120/B ADM
RE-10	RL-20					AL	A										32109009	0.00000	10.00000	PM 15/120/C
RA-20	LA-20					AL	A										32109010	0.00000	7.82000	PPM 15/120/D ADM
RE-10	RL-20					AL	A										32109016	0.00000	25.45000	PRS 11/74/2 ADM
RE-10	RL-10					RR	A										32110001	0.00000	4.40000	SEC 2 10 10
RE-10	RL-10					RR	A										32110003	0.00000	6.34000	SEC 2 10 10
RE-10	RL-10					RR	A										32110004	0.00000	12.25000	PRS 11/74/2 ADM
AE	PA-20					AL	A										32110006	0.00000	39.58000	RS443 S 2 10 10

AE	PA-20					AL	A										32111001	0.00000	18.44000	PPM 33/7/2 ADM
RA-20	RE-5					MDR					PL						32111003	0.00000	2.57000	SEC 2 10 10
RA-20	LA-20					AL	A										32111005	0.00000	5.58000	SEC 2 10 10
RA-20	LA-20					AL	A										32111007	0.00000	9.43000	SEC 2 10 10
AE	PA-20					AL	A										32111008	0.00000	12.93000	SEC 2 10 10
RA-20	RE-5					MDR					PL						32111011	0.00000	1.33000	2 10 10&35 11 10
RA-20	RE-5					MDR					PL						32111015	0.00000	5.46000	PM 35/20/1
RA-20	RE-5					MDR					PL						32111018	0.00000	2.72000	PM 35/20/2
RA-20	LA-20					AL	A										32112007	0.00000	27.46000	SEC 2 10 10 ADM
RE-10	RL-20					AL	A										32112007	0.00000	27.46000	SEC 2 10 10 ADM
RE-10	RL-20					AL	A										32112009	0.00000	1.30000	SEC 2 10 10
RE-10	RL-20					AL	A										32112010	0.00000	12.74000	SEC 2 10 10
RA-20	LA-20					AL	A										32112011	0.00000	108.57900	SEC 2 10 10 ADM
RA-20	LA-20					AL	A										32113001	0.00000	31.25000	SEC 1 10 10
AE	PA-20					AL	A										32113002	0.00000	26.77000	SEC 1 10 10
AE	PA-20					AL	A										32113003	0.00000	53.03000	PM 4/172/1
RA-20	RE-5					MDR						PVIL					32114001	0.00000	48.33000	SEC 1 10 10
RE-10	RE-5					MDR						PVIL					32114001	0.00000	48.33000	SEC 1 10 10
RA-20	LA-20					AL	A										32114002	0.00000	19.82000	PM 4/172/3
RE-5	R2A					MDR						PVIL					32114003	0.00000	2.47000	SEC 1 10 10
RE-5	R2A					MDR						PVIL					32114004	0.00000	2.49300	PM 9/133/1
RE-5	R2A					MDR						PVIL					32114005	0.00000	2.42000	SEC 1 10 10
RE-5	R2A					MDR						PVIL					32114006	0.00000	2.39500	PM 9/105/1
RE-5	R2A					MDR						PVIL					32114009	0.00000	2.00000	PM 9/105/2
RE-5	R1A					MDR						PVIL					32114010	0.00000	2.00000	PM 9/105/3
RE-5	R1A					MDR						PVIL					32114013	0.00000	2.00000	PM 14/106/B
RE-5	R2A					MDR						PVIL					32114014	0.00000	2.20000	PM 14/106/C
RE-5	R2A					MDR						PVIL					32114015	0.00000	2.50000	PM 14/106/D
RE-5	R2A					MDR						PVIL					32114016	0.00000	2.00000	PM 14/106/A
RE-5	R1A					MDR						PVIL					32114017	0.00000	0.00000	SEC 1 10 10
RE-5	R2A					MDR						PVIL					32114019	0.00000	2.49200	PM 9/133/2
RA-20	LA-20					RR	A										32116001	0.00000	16.37000	PM 4/172/2
RE-5	RL-10					RR											32116002	0.00000	4.13200	RS 17/148/1
RA-20	LA-20					RR	A										32116003	0.00000	1.72000	SEC 1 10 10
AE	PA-20					AL	A										32116004	0.00000	35.50000	PM 4/172/4
RE-5	RL-10					RR											32116009	0.00000	0.44000	SEC 1 10 10
RE-5	RL-10					RR											32116010	0.00000	0.64000	RS 30/133/1
RA-20	LA-10					RR											32116011	0.00000	7.41000	SEC 1 10 10
RE-5	LA-10					RR											32116011	0.00000	7.41000	SEC 1 10 10
RA-20	RL-10					RR											32116012	0.00000	13.05000	PM 16/81/A
RE-5	RL-10					RR											32116012	0.00000	13.05000	PM 16/81/A
RA-20	RL-10					RR											32116014	0.00000	11.42000	PM 16/81/C
RA-20	RL-10					RR											32116017	0.00000	10.12600	RS 19/124/1
RE-5	RL-10					RR											32117001	0.00000	1.42000	SEC 1 10 10
RE-5	RL-10					RR											32117002	0.00000	1.24000	SEC 1 10 10
RE-5	RL-10					RR											32117003	0.00000	0.56000	SEC 1 10 10

RE-5	RL-10					RR											32117004	0.00000	0.30000	SEC 1 10 10
RE-5	RL-10					RR											32117005	0.00000	1.15000	SEC 1 10 10
RE-5	RL-10					RR											32117006	0.00000	1.15000	SEC 1 10 10
RE-5	RL-10					RR											32117008	0.00000	1.09000	RS 12/12 S11010
RE-5	RL-10					RR											32117009	0.00000	1.14700	POR SEC1 10 10
RE-5	RL-10					RR											32117010	0.00000	1.14700	POR SEC 1 10 10
RE-5	RL-10					RR											32117011	0.00000	1.14700	POR SEC 1 10 10
R3A	R1A					HDR						PVIL					32118007	0.00000	2.08000	SEC 1 10 10
RE-5	RL-10					RR											32118009	0.00000	1.98000	SEC 1 10 10
RE-5	RL-10					RR											32118010	0.00000	0.98000	SEC 1 10 10
RE-5	RL-10					RR											32118011	0.00000	4.00000	SEC 1 10 10
RA-20	RL-10					RR											32118012	0.00000	7.60000	SEC 1 10 10
RE-5	RL-10					RR											32118013	0.00000	2.53000	SEC 1 10 10
RA-20	RL-10					RR											32118014	0.00000	4.00000	SEC 1 10 10
R1	R1A					MDR						PVIL					32118015	0.00000	0.32000	SEC 1 10 10
RE-5	R1A					MDR						PVIL					32118016	0.00000	0.92600	SEC 1 10 10
R1	R1A					MDR						PVIL					32118017	0.00000	0.34000	RS 13/113/1
R1	R1A					MDR						PVIL					32118018	0.00000	1.00000	PM 6/100/A
R1	R1A					MDR						PVIL					32118019	0.00000	1.02500	PM 6/100/B
R1	R1A					MDR						PVIL					32118023	0.00000	0.43000	PM 4/163/A
RE-5	R3A					MDR						PVIL					32118036	0.00000	4.80100	RS 7/2/3
RE-5	R1A					MDR						PVIL					32118037	0.00000	1.12400	RS 7/2/4
RE-5	R2A					MDR						PVIL					32118038	0.00000	2.12000	RS 7/2/2
RE-5	R1A					MDR						PVIL					32118039	0.00000	2.09000	RS 7/2/1
R3A	R1A					HDR						PVIL					32118040	0.00000	1.18000	SEC 1 10 10
R3A	R1A					HDR						PVIL					32118041	0.00000	2.00000	SEC 1 10 10
R1	R1A					MDR						PVIL					32118042	0.00000	0.23000	SEC 1 10 10
R1	R1A					MDR						PVIL					32118043	0.00000	0.33000	SEC 1 10 10
R1	R1A					MDR						PVIL					32118045	0.00000	0.52000	SEC 1 10 10
R1	R1A					MDR						PVIL					32118050	0.00000	0.23000	SEC 1 10 10
R1	R1A					MDR						PVIL					32118051	0.00000	1.91000	S1 10 10&6 10 11
R3A	R1A					HDR						PVIL					32120130	2.00000	0.50000	PRS 13/50/1 AW
R1	R1A					MDR						PVIL					32121001	0.00000	0.69700	SEC 1 10 10
R1	R1A					MDR						PVIL					32121002	0.00000	0.13000	SEC 1 10 10
R1	R1A					MDR						PVIL					32121003	0.00000	0.18000	SEC 1 10 10
R1	R1A					MDR						PVIL					32121004	0.00000	0.13000	SEC 1 10 10
RA-20	RL-10					RR											32121005	0.00000	0.07000	SEC 1 10 10
R1	R1A					MDR						PVIL					32121006	0.00000	0.00000	.22 A SEC 1 10 1
R1	R1A					MDR						PVIL					32121007	0.00000	0.10000	SEC 1 10 10
R1	R1A					MDR						PVIL					32121008	0.00000	0.13000	SEC 1 10 10
RE-10	RL-10					RR	A										32123006	0.00000	10.00000	PM 30/110/A
RE-10	LA-10					RR	A										32123007	0.00000	10.00000	PM 30/110/B
RE-10	RL-10					RR	A										32123008	0.00000	10.52000	PM 30/110/C
RE-10	LA-10					RR	A										32123009	0.00000	10.00000	PM 30/110/D
RE-5	RL-10					AL	A										32124003	0.00000	20.00000	PM 33/69/2
RE-5	LA-10					RR	A										32124004	0.00000	17.45000	PM 33/69/3

RE-5	RL-10					RR	A										32124005	0.00000	17.14000	PM 33/69/4
RE-5	RL-10					RR	A										32124006	0.00000	10.16000	PM 42/2/1
RE-5	LA-10					RR	A										32124007	0.00000	10.16000	PM 42/2/2
PVILLE	TC					AP						PVIL			PVIL		32301008	11.00000	0.00000	POR T 10 R 10
RE-5	R1A					MDR						PVIL					32302003	0.00000	1.60000	PM 9/15/1
RE-5	R1A					MDR						PVIL					32302007	0.00000	1.75000	SEC 10 10 10
RE-5	R1A					MDR						PVIL					32302008	0.00000	1.89900	SEC 10 10 10
RE-5	R1A					MDR						PVIL					32302022	0.00000	1.00000	PM 12/144/B
RE-5	R1A					MDR						PVIL					32302023	0.00000	1.01000	PM 12/144/C
RE-5	R1A					MDR						PVIL					32302029	0.00000	1.04000	PM 21/48/A
RE-5	R1A					MDR						PVIL					32302030	0.00000	1.23000	PM 21/48/B
RE-5	R2A					MDR						PVIL					32302036	0.00000	2.62300	PM 12/144/A
RA-20	RE-10					LDR			IBC								32303002	0.00000	17.04000	SEC 10 10 10
RA-20	RE-10					LDR			IBC								32303004	0.00000	17.00000	SEC 10 10 10 ADM
RA-20	RE-5					LDR			IBC								32303005	0.00000	3.00000	SEC 10 10 10 ADM
RA-20	RE-10					LDR			IBC								32303006	0.00000	20.00000	SEC 10 10 10
RE-10	R2A					MDR						PVIL					32303008	0.00000	2.32500	PM 25/50/A
RA-20	RE-10					LDR			IBC								32303011	0.00000	10.63000	RS 8/47 S101010
RE-10	R1A					MDR						PVIL					32304004	0.00000	1.08000	SEC 10 10 10
RE-10	R3A					MDR						PVIL					32304006	0.00000	4.36000	SEC 10 10 10
RE-10	R3A					MDR						PVIL					32304007	0.00000	3.82600	RS 32/62/1
RE-5	R1A					MDR						PVIL					32304008	0.00000	1.27000	SEC 10 10 10
RE-5	R1A					MDR						PVIL					32304009	0.00000	1.67000	PM 6/116/A
RE-5	R2A					MDR						PVIL					32304010	0.00000	2.09100	PM 6/116/B
RE-5	R1A					MDR						PVIL					32304011	0.00000	1.70800	PM 6/116/C
RE-5	R1A					MDR						PVIL					32304012	0.00000	1.10000	PM 6/116/D
RE-5	R1A					MDR						PVIL					32304013	0.00000	0.82000	SEC 10 10 10
RE-10	R1A					MDR						PVIL					32304018	0.00000	0.94000	SEC 3 10 10
RE-10	R2A					MDR						PVIL					32304022	0.00000	2.62000	PM 20/7/1
RE-10	R2A					MDR						PVIL					32304023	0.00000	2.18000	PM 20/7/2
RE-10	R2A					MDR						PVIL					32304024	0.00000	2.19200	PM 20/7/3
RE-10	R2A					MDR						PVIL					32304025	0.00000	2.35000	PM 20/7/4
RE-5	R1A					MDR						PVIL					32304041	0.00000	0.42000	SEC 10 10 10
RE-5	R3A					MDR						PVIL					32304042	0.00000	3.02000	SEC 10 10 10
RE-5	R1A					MDR						PVIL					32304043	0.00000	1.14800	SEC 10 10 10
RE-10	RE-5					MDR						PVIL					32304054	0.00000	10.00100	POR TR 1 RS11-99
RE-5	R1A					MDR						PVIL					32304056	11.00000	0.27000	SEC 10 10 10
RE-10	R2A					MDR						PVIL					32304059	0.00000	3.18000	SEC 3&10 10 10
RE-10	RE-5					MDR						PVIL					32304060	0.00000	5.02400	PM 20/150/B
RE-10	RE-5					MDR						PVIL					32304062	0.00000	7.67000	PM 46/46/1
RE-10	R3A					MDR						PVIL					32304063	0.00000	5.02000	PM 46/46/2
RE-10	R3A					MDR						PVIL					32304064	0.00000	5.01700	PM 20/150/A
RE-10	RE-5					MDR						PVIL					32304065	0.00000	8.57900	POR RS 11/99/1&2
RE-5	R1A					MDR						PVIL					32305002	0.00000	1.41000	SEC 10 10 10
RE-5	R2A					MDR						PVIL					32305043	0.00000	2.09800	SEC 10 10 10
RA-20	RE-10					LDR			IBC								32314001	0.00000	8.00000	PRS 17/69/1 ADM

RA-20	RE-5					LDR			IBC								32314002	0.00000	2.00000	PRS 17/69/1 ADM
RA-20	RE-10					LDR			IBC								32314017	0.00000	8.50000	SEC 10 10 10
RA-20	R1A					MDR						PVIL					32314026	0.00000	0.28000	SEC 10 10 10
RA-20	R1A					MDR						PVIL					32314028	0.00000	1.10000	PM 21/53/1
RA-20	R1A					MDR						PVIL					32314029	0.00000	1.63000	PM 21/53/2
RA-20	R1A					MDR						PVIL					32314030	0.00000	1.78000	PM 21/53/3
RA-20	R1A					MDR						PVIL					32314035	0.00000	1.01000	PM 32/59/A
RA-20	R1A					MDR						PVIL					32314036	0.00000	1.01000	PM 32/59/B
RA-20	R1A					MDR						PVIL					32314037	0.00000	1.01000	PM 32/59/C
RA-20	R1A					MDR						PVIL					32314038	0.00000	2.06000	PM 32/59/D
RA-20	RE-5					LDR			IBC								32314044	0.00000	4.34000	PPM 47/27/1 ADM
RA-20	RE-10					LDR			IBC								32314045	0.00000	14.16000	PM 47/27/2
RA-20	RE-10					LDR			IBC								32314046	0.00000	18.34000	PPM 47/27/1 ADM
RA-20	LA-20					RR	A										32317013	0.00000	11.85000	SEC 11 10 10
AE	PA-20					AL	A										32317014	0.00000	5.30000	SEC 11 10 10
AE	PA-20					AL	A										32317030	0.00000	45.06000	SEC 11 10 10
RA-20	LA-20					AL	A										32317030	0.00000	45.06000	SEC 11 10 10
RA-20	LA-20					AL	A										32317032	0.00000	10.05000	PM 29/15/1
RA-20	LA-20					RR	A										32317045	0.00000	10.87400	RS 23-127
RE-5	RL-10					RR	A										32317045	0.00000	10.87400	RS 23-127
RE-5	RL-10					RR	A										32317050	0.00000	5.00000	RS 26/129/1
RE-5	RL-10					RR	A										32317051	0.00000	5.00000	RS 26/129/2
RA-20	LA-20					RR	A										32318005	0.00000	14.47000	SEC 11 10 10
RA-20	LA-20					RR	A										32318008	0.00000	4.24000	PM 14/73/C
RA-20	LA-20					RR	A										32318009	0.00000	8.02200	SEC 11 10 10
RA-20	LA-20					RR	A										32318010	0.00000	2.12000	SEC 11 10 10
R3A	R1A					MDR						PVIL					32320076	0.00000	1.00000	PM 31/57/2
R3A	R1A					MDR						PVIL					32320077	0.00000	1.00000	PM 31/57/3
R3A	R1A					MDR						PVIL					32320078	0.00000	1.00000	PM 31/57/4
RA-20	R3A					MDR						PVIL					32321003	0.00000	5.00000	SEC 11 10 10
RE-10	R3A					MDR						PVIL					32321005	0.00000	5.00000	PM 13/14/A
RE-10	R3A					MDR						PVIL					32321006	0.00000	5.01000	PM 13/14/B
RE-10	RE-5					MDR						PVIL					32321007	0.00000	5.00600	PM 13/14/C
RE-5	R3A					MDR						PVIL					32321009	0.00000	4.43200	PM 38/30/1
RE-5	R2A					MDR						PVIL					32323003	0.00000	2.20000	SEC 11 10 10
RA-20	LA-20					AL	A										32323011	0.00000	20.00000	SEC 11 10 10
RE-10	RL-20					AL	A										32323012	0.00000	20.06000	RS 24/52/1
RA-20	LA-20					AL	A										32324007	0.00000	61.46000	POR 11 10 10
RA-20	LA-20					AL	A										32324008	0.00000	20.05000	RS 24/52/2
RE-5	R1A					MDR						PVIL					32325007	0.00000	1.06000	SEC 11 10 10
RE-5	R1A					MDR						PVIL					32325023	0.00000	1.86000	SEC 12 10 10
RE-5	R2A					MDR						PVIL					32325039	0.00000	2.78000	RS 29/25/1
RE-5	R1A					MDR						PVIL					32325041	11.00000	0.24000	SEC 11 10 10
RE-5	R2A					MDR						PVIL					32326008	0.00000	2.53000	SEC 11 10 10
RE-5	R1A					MDR						PVIL					32330001	0.00000	0.17000	SEC 11 10 10
RE-5	R1A					MDR						PVIL					32330002	0.00000	0.52000	SEC 11 10 10

RE-5	R1A					MDR						PVIL					32330003	0.00000	0.80000	SEC 11 10 10
RE-5	R1A					MDR						PVIL					32330004	0.00000	0.86000	SEC 11 10 10
RE-5	R1A					MDR						PVIL					32330005	0.00000	0.64000	SEC 11 10 10
RE-5	R1A					MDR						PVIL					32330008	0.00000	1.49600	RS 26/26/1
RE-5	R1A					MDR						PVIL					32330009	0.00000	0.95600	RS 15/112S121010
RE-5	R1A					MDR						PVIL					32330010	0.00000	1.64000	SEC 12 10 10
RE-5	R1A					MDR						PVIL					32330011	0.00000	0.64000	SEC 11&12 10 10
RE-5	R1A					MDR						PVIL					32331001	11.00000	0.91000	SEC 11 10 10
RE-5	R2A					MDR						PVIL					32331002	0.00000	2.00000	PM 21/30/1
RE-5	R1A					MDR						PVIL					32331013	0.00000	1.02000	PM 29/80/B
RE-5	R1A					MDR						PVIL					32331014	0.00000	0.22000	PRS 19/77/1 ADM
RE-5	R1A					MDR						PVIL					32331015	0.00000	0.37000	PRS 9/146/3 ADM
RE-5	R1A					MDR						PVIL					32331017	0.00000	0.63000	PRS 9/146/3 ADM
RE-5	R1A					MDR						PVIL					32331018	0.00000	1.00000	RS 9/146/1
RE-5	R3A					MDR						PVIL					32331019	0.00000	3.48000	SEC 11&12 10 10
RE-5	R1A					MDR						PVIL					32331021	0.00000	0.86300	PRS 19/77/1 ADM
RE-5	R1A					MDR						PVIL					32358013	0.00000	1.05000	RS 30/132/1
RE-5	R2A					MDR						PVIL					32358014	0.00000	2.01000	S 12 & 13 10 10
RE-10	RE-5					MDR						PVIL					32361001	0.00000	6.83000	PM 30/92/1
RE-10	RE-5					MDR						PVIL					32361002	0.00000	5.02000	PM 30/92/2
RE-5	R2A					MDR						PVIL					32361005	0.00000	2.85000	PM 18/42/A
RE-5	R2A					MDR						PVIL					32361006	0.00000	3.01000	PM 18/42/B
RE-5	R2A					MDR						PVIL					32361007	0.00000	3.00000	PM 18/42/C
RE-5	R3A					MDR						PVIL					32361008	0.00000	3.00000	PM 18/42/D
AE	RE-10					LDR						EDDS					32364001	0.00000	74.47000	PRS 26/1/1 ADM
AE	RE-10					LDR						EDDS					32364002	0.00000	61.43000	PRS 26/1/2 ADM
AE	RE-5					LDR			IBC								32364005	0.00000	8.68000	PRS 26/1/4 ADM
AE	RE-10					LDR						EDDS					32364006	0.00000	13.88000	PRS 26/1/1 ADM
AE	RE-10					LDR						EDDS					32364007	0.00000	27.44000	PRS 26/1/2 ADM
AE	RE-10					LDR						EDDS					32364009	0.00000	79.71500	POR RS 26/1/3
AE	RE-10					LDR						EDDS					32364011	0.00000	116.84900	PRS 26/1/4 ADM
PVILLE	TC					MDR						PVIL					32501009	11.00000	6.80000	SEC 13 10 10
R1A	TC					MDR						PVIL					32501009	11.00000	6.80000	SEC 13 10 10
PVILLE	TC					AP						PVIL			PVIL		32501010	11.00000	7.00000	SEC 13 10 10
AE	RE-10					LDR						EDDS					32502018	11.00000	10.86600	SEC 15 10 10
AE	RE-5					PF						EDDS					32504018	11.00000	1.95000	SEC 15 10 10
AE	AG-40					AL			IBC								32505015	0.00000	20.00000	PM 34/129/A
AE	AG-40					AL			IBC								32505016	0.00000	26.82000	PM 34/129/B
RE-10	RL-20					AL			IBC								32505019	0.00000	15.75600	RS 28/119/1
RE-5	RL-20					AL			IBC								32505019	0.00000	15.75600	RS 28/119/1
R1A	RL-20					AL			IBC								32505020	0.00000	16.81100	RS 28/119/2
RE-10	RL-20					AL			IBC								32505020	0.00000	16.81100	RS 28/119/2
RE-5	RL-20					AL			IBC								32505020	0.00000	16.81100	RS 28/119/2
R1A	RE-5					LDR						EDDS					32508004	11.00000	0.00000	SEC 15 10 10
R1A	RE-5					LDR						EDDS					32508016	0.00000	24.68000	SEC 15 10 10
R1A	RE-5					LDR						EDDS					32508020	0.00000	2.00000	PM 12/138/3

R1A	RE-5					LDR					EDDS					32508021	0.00000	2.16000	PM 12/138/4
R1A	RE-5					LDR					EDDS					32508042	0.00000	1.39000	PM 37/73/A
R1A	RE-5					LDR					EDDS					32508043	0.00000	1.28000	PM 37/73/B
R1A	RE-5					LDR					EDDS					32508044	0.00000	1.23000	PM 37/122/A
R1A	RE-5					LDR					EDDS					32508045	0.00000	1.28000	PM 37/122/B
RE-10	RE-5					MDR					EDDS					32509002	0.00000	23.62000	PM 1/12/A
R1	R1A					MDR					EDDS					32509008	0.00000	23.64000	PM 33/42/A &REM
RA-20	LA-10					LDR		IBC								32510014	0.00000	5.01000	PM 32/96/2
RA-20	RE-10					LDR		IBC								32510015	0.00000	6.05000	PM 32/96/3
RA-20	RE-10					LDR		IBC								32510017	0.00000	5.15000	PM 32/96/1
RA-20	RE-10					LDR		IBC								32510027	0.00000	10.01000	RS 22/77/1
RE-5	RE-10					LDR		IBC								32510027	0.00000	10.01000	RS 22/77/1
RA-20	RE-5					LDR		IBC								32510028	0.00000	5.02000	RS 22/77/2
R1A	RE-5					LDR		IBC								32511024	0.00000	4.16000	SEC 14 10 10
RE-5	R1A					MDR					PVIL					32512001	0.00000	1.01000	SEC 14 10 10
RE-5	R2A					MDR					PVIL					32512002	0.00000	2.08700	RS 26/21
I	R1A					MDR					PVIL					32512018	0.00000	0.41000	SEC 14 10 10
R1A	PVILLE					AP					PVIL			PVIL		32512022	2.00000	0.00000	SEC 14 10 10
R1	R1A					MDR					PVIL					32512023	0.00000	0.67400	SEC 14 10 10
R1	R1A					MDR					PVIL					32512082	0.00000	0.20900	PM 39/92/1
R1	R1A					MDR					PVIL					32512083	0.00000	0.21000	PM 39/92/2
R2A	R1A					HDR					PVIL					32516002	0.00000	3.14000	SEC 14 10 10
R2A	R1A					HDR					PVIL					32516009	0.00000	4.27000	SEC 14 10 10
R2A	R1A					HDR					PVIL					32516010	0.00000	4.42000	SEC 14 10 10
RE-10	RE-5					MDR					PVIL					32516011	0.00000	22.64000	SEC 14 10 10
I	CC					C					PVIL					32516028	0.00000	2.01000	SEC 14 10 10
PVILLE	CL					C					PVIL					32516028	0.00000	2.01000	SEC 14 10 10
C	CL					C					PVIL					32516029	0.00000	0.65000	SEC 14 10 10
PVILLE	CL					C					PVIL					32516029	0.00000	0.65000	SEC 14 10 10
R2A	R1A					HDR					PVIL					32516035	0.00000	2.25000	RS 9/100/2
R2A	R1A					HDR					PVIL					32516036	0.00000	1.00000	RS 9/100/1
C	PVILLE					AP					PVIL			PVIL		32516037	0.00000	0.40000	SEC 14 10 10
R1	PVILLE					AP					PVIL			PVIL		32516037	0.00000	0.40000	SEC 14 10 10
RE-10	R1A					MDR					PVIL					32518009	0.00000	0.84700	SEC 14 10 10
RE-10	R1A					MDR					PVIL					32518010	0.00000	1.04000	SEC 14 10 10
RE-10	R1A					MDR					PVIL					32518011	0.00000	1.46000	SEC 14 10 10
R1A	RE-5					LDR		IBC								32518012	0.00000	2.26000	PM 8/104/A
R1A	CR					C					EDDS					32522008	0.00000	0.89000	SEC 14 10 10
R1A	CR					C					EDDS					32522009	0.00000	5.58000	SEC 14 10 10
R1A	CR					C					EDDS					32522010	0.00000	5.33000	SEC 14 10 10
R1A	RM					MFR					EDDS					32522014	0.00000	1.00000	SEC 14 10 10
R1A	CR					C					EDDS					32522015	0.00000	1.92000	PM 2/144/A
R1A	CR					C					EDDS					32522016	0.00000	0.99000	PM 2/144/B
R1A	CR					C					EDDS					32522017	0.00000	0.99000	PM 2/144/C
R1A	CR					C					EDDS					32522018	11.00000	0.00000	SEC 14 10 10
R1A	CR					C					EDDS					32522019	0.00000	0.70000	SEC 14 10 10

R1A	CR					C						EDDS					32522020	0.00000	1.55000	SEC 23 10 10
R1A	CL					C						EDDS					32522026	0.00000	0.88800	SEC 14 10 10
R1A	RM					MFR						EDDS					32522036	0.00000	1.61000	SEC 14 10 10
R1A	RM					MFR						EDDS					32522037	0.00000	1.00000	SEC 14 10 10
R1A	CR					C						EDDS					32522048	0.00000	3.45000	POR SEC 23 10 10
R1A	CR					C						EDDS					32522049	0.00000	6.64000	POR SEC 23 10 10
R1A	RM					MFR						EDDS					32522055	11.00000	0.06500	RS 30/59/1
R1A	RM					MFR						EDDS					32522056	0.00000	4.39300	SEC 14 10 10
R1A	CL					C						EDDS					32522057	11.00000	0.06000	RS 30/59/2
R1A	RM					MFR						EDDS					32522058	0.00000	0.60600	SEC 14 10 10
R1A	RM					MFR						EDDS					32523001	0.00000	1.31000	SEC 14 10 10
R1A	RM					MFR						EDDS					32523002	0.00000	0.75000	SEC 14 10 10
R1A	RM					MFR						EDDS					32523006	0.00000	0.95000	SEC 14 10 10
R1A	CL					C						EDDS					32523007	0.00000	0.61000	SEC 14 10 10
R1A	RM					MFR						EDDS					32523021	0.00000	0.91000	SEC 14 10 10
R1A	RM					MFR						EDDS					32523022	0.00000	0.24000	SEC 14 10 10
R1A	CC					C						EDDS					32523026	11.00000	0.05100	RS 28/134
RE-5	R1A					MDR						PVIL					32529004	0.00000	1.01000	SEC 13 10 10
RE-5	R1A					MDR						PVIL					32529005	0.00000	2.42000	SEC 13 10 10
R2	R2A					MDR						PVIL					32531085	0.00000	4.91500	RS 28/136/A
RE-5	R1A					MDR						PVIL					32535043	0.00000	2.08000	PM 2/12/1
RE-5	R1A					MDR						PVIL					32535044	0.00000	1.00000	PM 2/12/2
RE-5	R1A					MDR						PVIL					32535045	0.00000	1.10000	PM 2/12/3
RE-5	R1A					MDR						PVIL					32535046	0.00000	1.09000	PM 2/12/4
RE-10	R1A					MDR						EDDS					32540013	11.00000	0.00000	POR LOT B
RE-10	R1A					MDR						EDDS					32540014	11.00000	0.08000	POR LOT B
RE-5	R1A					MDR						EDDS					32544002	0.00000	1.14000	SEC 14 10 10
RE-5	R1A					MDR						EDDS					32544003	11.00000	0.87000	SEC 14 10 10
R20K	TC					I						EDDS					32701001	11.00000	6.05000	SEC 24 10 10
C	TC			PD		C						EDDS					32701002	11.00000	1.41000	SEC 24 10 10
R2A	TC					I						EDDS					32701003	11.00000	1.55000	SEC 24 10 10
R2A	TC					I						EDDS					32701004	11.00000	1.55000	SEC 24 10 10
I	TC					I						EDDS					32701005	11.00000	1.74000	SEC 24 10 10
I	TC					I						EDDS					32701006	11.00000	1.90000	SEC 24 10 10
I	TC			PD		PF						EDDS					32701007	11.00000	0.05000	SEC 24 10 10
RE-10	TC					I						EDDS					32701008	11.00000	1.70000	SEC 24 10 10
OS	RE-5			PD		LDR											32706003	0.00000	1.87000	SEC 22 10 10
OS	RE-5			PD		LDR											32706003	0.00000	1.87000	SEC 22 10 10
OS	RE-5			PD		LDR											32706003	0.00000	1.87000	SEC 22 10 10
OS	RE-5			PD		LDR											32706004	0.00000	2.50000	SEC 22 10 10
OS	RE-5			PD		LDR											32706010	0.00000	146.70000	PM 50/51/1
OS	RE-5			PD		LDR											32706010	0.00000	146.70000	PM 50/51/1
OS	RE-5			PD		LDR											32706010	0.00000	146.70000	PM 50/51/1
OS	RE-5			PD		LDR											32706010	0.00000	146.70000	PM 50/51/1
OS	RE-5			PD		LDR											32706010	0.00000	146.70000	PM 50/51/1
OS	R3A			PD		MDR						EDDS					32706012	0.00000	9.09000	PM 50/51/3

OS	R3A			PD		MDR						EDDS					32706012	0.00000	9.09000	PM 50/51/3
OS	R3A			PD		MDR						EDDS					32706012	0.00000	9.09000	PM 50/51/3
C	CR			PD		C						EDDS					32707012	0.00000	3.33800	PM 7/109/D
R3A	CR					C						EDDS					32707015	0.00000	1.00000	PM 8/133/2
CP	CR			PD		C						EDDS					32707027	0.00000	2.66000	PM 31/25/A
A	RE-5					LDR											32708002	0.00000	1.32000	SEC 27 10 10
R1A	CR					C						EDDS					32709001	0.00000	16.18000	SEC 22 10 10
RE-5	CR					C						EDDS					32709001	0.00000	16.18000	SEC 22 10 10
C	CR			PD		C						EDDS					32709003	0.00000	1.22000	SEC 22 10 10
C	CC			PD		C						EDDS					32709006	0.00000	1.50000	SEC 22 10 10
R3A	CC					C						EDDS					32709007	0.00000	2.42000	PM 4/72/A
C	CL			PD		C						EDDS					32709010	11.00000	0.01000	SEC 22 10 10
C	CC			PD		C						EDDS					32709011	0.00000	3.81000	SEC 22 10 10
R1A	CR					C						EDDS					32710008	0.00000	0.85000	SEC 23 10 10
CG	CR			PD		C						EDDS					32711002	0.00000	9.48000	SEC 23 10 10
RE-10	CR					C						EDDS					32711005	0.00000	20.11000	PM 9/117/2
CG	CR			PD		C						EDDS					32711006	0.00000	20.16000	PM 9/117/3
CG	CR			PD		C						EDDS					32711008	0.00000	20.04200	PPM 9/117/1
R3A	CR					C						EDDS					32712005	0.00000	1.76000	SEC 23 10 10
R3A	CR					C						EDDS					32712006	0.00000	1.00000	SEC 23 10 10
R1A	CR					C						EDDS					32712007	0.00000	1.33000	RS 18/135/1
R1A	CR					C						EDDS					32712009	0.00000	5.55000	SEC 23 10 10
CG	CR			PD		C						EDDS					32712019	0.00000	4.18000	PM 16/6/1
CG	CR			PD		C						EDDS					32712020	0.00000	4.00000	PM 16/6/2
CG	CR			PD		C						EDDS					32712021	0.00000	3.00000	PM 16/6/3
CG	CR			PD		C						EDDS					32712022	0.00000	4.00000	PM 16/6/4
R3A	CR					C						EDDS					32712029	0.00000	1.15000	PM 22/92/A
R3A	CR					C						EDDS					32712030	0.00000	3.14000	PM 22/92/B
CG	CR			PD		C						EDDS					32713001	0.00000	1.74000	SEC 23 10 10
CG	CR			PD		C						EDDS					32713002	0.00000	2.28000	SEC 23 10 10
C	CR			PD		C						EDDS					32713003	0.00000	2.38000	SEC 23 10 10
CG	CC			PD		C						EDDS					32713012	0.00000	0.75000	SEC 23 10 10
CG	CC			PD		C						EDDS					32713013	0.00000	1.63000	SEC 23 10 10
CG	CC			PD		C						EDDS					32713014	0.00000	0.89000	SEC 23 10 10
RE-5	R3A					MDR						EDDS					32713018	11.00000	3.56000	SEC 23 10 10
RE-5	CC					C						EDDS					32713019	11.00000	0.92000	SEC 23 10 10
C	CC			PD		C						EDDS					32713020	11.00000	5.13000	SEC 23 10 10
R1A	CC					C						EDDS					32713022	0.00000	0.19000	RS 14/127/1
R1A	CC					C						EDDS					32713023	0.00000	0.28000	SEC 23 10 10
R1A	CC					C						EDDS					32713024	0.00000	0.29000	SEC 23 10 10
R1A	CC					C						EDDS					32713025	0.00000	2.03000	SEC 23 10 10
R1A	CC					C						EDDS					32713026	0.00000	1.00000	SEC 23 10 10
CG	CC			PD		C						EDDS					32713027	0.00000	0.51000	PM 10/103/A
CG	CC			PD		C						EDDS					32713028	0.00000	0.50000	PM 10/103/B
CP	CR			PD		C						EDDS					32713040	0.00000	0.68000	PM 30/149/1
CP	CR			PD		C						EDDS					32713041	0.00000	0.66000	PM 30/149/2

CG	CC			PD		C						EDDS					32713053	0.00000	1.03000	PM 48/75/3
CG	CC			PD		C						EDDS					32713054	0.00000	0.80000	PM 48/75/4
CG	CC			PD		C						EDDS					32713055	0.00000	0.80000	PM 48/75/5
CG	CC			PD		C						EDDS					32713056	0.00000	0.42000	PM 48/75/6
CG	CC			PD		C						EDDS					32713060	0.00000	0.89000	PM 48/75/10
CG	CC			PD		C						EDDS					32713061	11.00000	3.51000	RS 31/149/8&13
CG	CC			PD		C						EDDS					32713061	11.00000	3.51000	RS 31/149/8&13
RE-5	CC					C						EDDS					32713061	11.00000	3.51000	RS 31/149/8&13
TC	CC					C						EDDS					32713061	11.00000	3.51000	RS 31/149/8&13
CG	CC			PD		C						EDDS					32713062	0.00000	0.86000	PM 48/75/7 & 8
R1A	CC					C						EDDS					32713063	11.00000	0.04900	RS 28/134
R1A	CC					C						EDDS					32713064	0.00000	0.87100	SEC 23 10 10
R1A	CC					C						EDDS					32713065	11.00000	0.18500	RS 28/134
R1A	CC					C						EDDS					32713066	0.00000	1.44200	SEC 23 10 10
CG	CC			PD		C						EDDS					32713076	0.00000	4.52000	RS 28/65/A
CG	CC			PD		C						EDDS					32713077	0.00000	2.21000	RS 28/65/B
CG	CC			PD		C						EDDS					32713078	0.00000	0.95000	RS 28/65/C
R1A	CL					C						EDDS					32713079	11.00000	0.02300	RS 31/149/11
R1A	CC					C						EDDS					32713080	0.00000	0.39700	SEC 23 10 10
CG	CL			PD		C						EDDS					32713081	11.00000	0.04700	RS 31/149/9
CG	CC			PD		C						EDDS					32713082	0.00000	0.68300	PPM30/76&RS16/55
R1A	CC					C						EDDS					32714005	0.00000	0.19000	RS 28/13/1
R1A	CC					C						EDDS					32714006	0.00000	0.75000	SEC 23 10 10
CPO	CC			PD		C						EDDS					32714007	0.00000	4.77000	SEC 23 10 10
R1A	CC					C						EDDS					32714030	0.00000	1.00000	PM 14/72/A
R1A	CC					C						EDDS					32714033	0.00000	0.90000	PM 15/74/1
R1A	CC					C						EDDS					32714034	0.00000	1.00000	PM 15/74/2
C	CC		DC	PD		C						EDDS					32714044	0.00000	3.67000	PM 39/59/1
R1A	CC					C						EDDS					32714045	11.00000	0.11000	POR PARA PM14-18
R1A	CC					C						EDDS					32714046	0.00000	1.80800	POR PARA PM14-18
C	CC			PD		C						EDDS					32715003	0.00000	10.00000	PM 18/12/A
C	CC					C						EDDS					32716002	0.00000	0.91000	RS 15/150/1
MP	RM					MFR						EDDS					32716031	0.00000	14.11000	S 22&23 10 10
CG	CC		DC			C						EDDS					32716040	0.00000	2.30000	PM 47/31/1
CG	CC		DC			C						EDDS					32716043	0.00000	1.84600	POR PM 47/31/2
C	CC					C						EDDS					32716049	11.00000	0.00000	PPM 49/8/1
C	CC					C						EDDS					32716050	0.00000	0.00000	PPM 49/8/1
C	CC					C						EDDS					32716050	0.00000	0.00000	PPM 49/8/1
CG	CC		DC			C						EDDS					32716050	0.00000	0.00000	PPM 49/8/1
R1A	RM					MFR						EDDS					32717053	0.00000	4.56000	SEC 23 10 10
R1A	RM					MFR						EDDS					32717054	0.00000	4.44000	SEC 23 10 10
R1A	RM					MFR						EDDS					32717055	0.00000	0.00000	SEC 23 10 10
R1A	RM					MFR						EDDS					32717055	0.00000	0.00000	SEC 23 10 10
RE-5	R1A					MDR						EDDS					32719003	0.00000	1.54000	S 13 & 24 10 10
RE-5	R1A					MDR						EDDS					32719004	0.00000	1.11600	S 13 & 24 10 10
RE-5	R2A					MDR						EDDS					32719006	0.00000	2.64000	S 23 & 24 10 10

RE-5	R1A					MDR						EDDS					32719007	0.00000	1.50000	SEC 24 10 10
RE-5	R1A					MDR						EDDS					32719008	0.00000	0.49000	SEC 24 10 10
RE-5	R1A					MDR						EDDS					32719009	0.00000	0.33000	SEC 24 10 10
RE-5	R1A					MDR						EDDS					32719026	0.00000	1.00000	PM 10/29/B
RE-5	R1A					MDR						EDDS					32719029	0.00000	1.00000	PM 22/105/1
RE-5	R1A					MDR						EDDS					32719030	0.00000	1.14200	PM 22/105/2
RE-5	R1A					MDR						EDDS					32719031	0.00000	1.40000	PM 22/105/3
RE-5	R1A					MDR						EDDS					32720040	0.00000	1.00000	PM 21/134/3
RE-5	R1A					MDR						EDDS					32720041	0.00000	1.00000	PM 21/134/4
RE-5	R1A					MDR						EDDS					32720042	0.00000	1.00000	PM 21/135/1
RE-5	R1A					MDR						EDDS					32720043	0.00000	1.00000	PM 21/135/2
RE-5	R1A					MDR						EDDS					32720044	0.00000	1.00000	PM 21/135/3
RE-5	R1A					MDR						EDDS					32720045	0.00000	1.48000	PM 21/135/4
RE-5	R1A					MDR						EDDS					32720052	0.00000	1.00000	PM 26/62/A
RE-5	R1A					MDR						EDDS					32720053	0.00000	1.00000	PM 26/62/B
R1A	CC					C						EDDS					32720066	0.00000	1.00000	PM 38/142/1
R1A	CC					C						EDDS					32720067	0.00000	1.00000	PM 38/142/2
R1A	CC					C						EDDS					32720068	0.00000	1.00100	PM 38/142/3
RE-5	R3A					MDR						EDDS					32720071	0.00000	5.00000	PM 44/17/3
R1A	CC					C						EDDS					32721101	0.00000	0.30100	SEC 23 10 10
R1A	CC					C						EDDS					32721102	0.00000	0.40000	SEC 23&24 10 10
R1A	CC					C						EDDS					32721103	0.00000	0.27900	S 23& S24 10 10
R1A	CC					C						EDDS					32721104	0.00000	0.96600	S 23 & 24 10 10
R1A	CC					C						EDDS					32721106	2.00000	0.13000	SEC 24 10 10 AW
R1A	CC					C						EDDS					32721109	0.00000	2.30000	SEC 24 10 10
R1A	CC					C						EDDS					32721111	0.00000	1.68000	SEC 24 10 10
R1A	CC					C						EDDS					32721114	0.00000	1.38000	SEC 24 10 10
R1A	CC					C						EDDS					32721116	0.00000	0.91000	SEC 24 10 10
R1A	CC					C						EDDS					32721118	0.00000	0.87000	SEC 24 10 10
R1A	CC					C						EDDS					32721121	0.00000	1.28100	SEC 24 10 10
R1A	CC					C						EDDS					32721125	0.00000	1.88800	POR SEC 24 10 10
C	RM			PD		MFR						EDDS					32721205	0.00000	6.42900	PM 32/53/3
R2	RM			PD		MFR						EDDS					32721205	0.00000	6.42900	PM 32/53/3
C	CL			PD		C						EDDS					32721206	11.00000	0.64000	PORPAR 2 PM32-53
C	CC			PD		C						EDDS					32721206	11.00000	0.64000	PORPAR 2 PM32-53
R2	CC			PD		C						EDDS					32721206	11.00000	0.64000	PORPAR 2 PM32-53
R2	CC			PD		C						EDDS					32721206	11.00000	0.64000	PORPAR 2 PM32-53
C	RM			PD		MFR						EDDS					32721207	0.00000	3.60400	PORPAR 2 PM32-53
C	RM			PD		MFR						EDDS					32721207	0.00000	3.60400	PORPAR 2 PM32-53
R2	RM			PD		MFR						EDDS					32721207	0.00000	3.60400	PORPAR 2 PM32-53
C	CC			PD		C						EDDS					32721208	0.00000	0.75000	PORPAR A PM33-76
R2	CC			PD		C						EDDS					32721208	0.00000	0.75000	PORPAR A PM33-76
C	CC			PD		C						EDDS					32721209	11.00000	0.12000	PORPAR A PM33-76
R2	CC			PD		C						EDDS					32721209	11.00000	0.12000	PORPAR A PM33-76
C	CC			PD		C						EDDS					32721211	11.00000	0.14000	PORPAR B PM33-76
C	CC			PD		C						EDDS					32721212	0.00000	1.89000	PORPAR C PM33-76

C	CC			PD		C						EDDS					32721213	11.00000	0.12000	PORPAR C PM33-76
C	CC			PD		C						EDDS					32721214	11.00000	0.13000	PORPAR D PM33-76
C	CC			PD		C						EDDS					32721217	0.00000	3.27600	RS 20/97/1
C	CC			PD		C						EDDS					32721218	0.00000	2.47000	PM 34/146/A
R2	CC			PD		C						EDDS					32721218	0.00000	2.47000	PM 34/146/A
C	CC			PD		C						EDDS					32721220	0.00000	0.74900	PM 49/53/1
C	CC			PD		C						EDDS					32721221	0.00000	0.75900	PM 49/53/2
C	CC			PD		C						EDDS					32721222	0.00000	0.67500	PM 49/53/3
C	CC			PD		C						EDDS					32721223	0.00000	1.02600	PM 49/53/4
C	CC			PD		C						EDDS					32721224	0.00000	0.88500	PM 49/53/5
C	CC			PD		C						EDDS					32721228	11.00000	1.20000	POR PAR 1PM32-53
C	CC			PD		C						EDDS					32721228	11.00000	1.20000	POR PAR 1PM32-53
R2	CC			PD		C						EDDS					32721228	11.00000	1.20000	POR PAR 1PM32-53
C	CC			PD		C						EDDS					32721229	0.00000	1.56000	PM 49/137/1 2& 3
R1A	CC					C						EDDS					32721303	0.00000	0.81800	SEC 24 10 10
R1A	CC					C						EDDS					32721304	0.00000	0.95000	SEC 24 10 10
C	CC		DC			C						EDDS					32721306	0.00000	0.96200	PORPAR2 PM 29-60
C	CC		DC			C						EDDS					32721308	0.00000	12.52100	PORPAR1 PM 29-60
R1A	CC					C						EDDS					32721308	0.00000	12.52100	PORPAR1 PM 29-60
R1A	CC					C						EDDS					32721308	0.00000	12.52100	PORPAR1 PM 29-60
R20K	R1A					MDR						EDDS					32721322	0.00000	1.15800	24 10 10RS15-134
R1A	CC					C						EDDS					32721325	0.00000	1.46000	SEC 24 10 10
CG	CC			PD		C						EDDS					32721328	0.00000	1.69400	PM 50/79/1
CG	CC			PD		C						EDDS					32721329	0.00000	0.76100	PM 50/79/2
CG	CC			PD		C						EDDS					32721330	0.00000	1.58700	PM 50/79/3
C	CC			PD		C						EDDS					32721401	11.00000	0.00000	MISSOURI FLAT RD
R1A	CC					C						EDDS					32721401	11.00000	0.00000	MISSOURI FLAT RD
RE-10	RE-5					LDR			IBC								32722011	0.00000	37.48000	RS 6/44 S241010
RE-10	RE-5					LDR			IBC								32722011	0.00000	37.48000	RS 6/44 S241010
RE-10	I					I						EDDS					32723001	0.00000	19.22000	RS 9/16 S241010
RE-10	I					I						EDDS					32723012	0.00000	20.00000	SEC 24 10 10
RE-5	I					I						EDDS					32723012	0.00000	20.00000	SEC 24 10 10
C	CR			PD		C						EDDS					32724022	0.00000	18.51200	PM 48/40/1
C	CR			PD		C						EDDS					32724023	0.00000	0.89600	PM 48/40/2
RE-10	I					I						EDDS					32725018	0.00000	3.50000	SEC 24 10 10
RE-10	I					I						EDDS					32725019	0.00000	2.00000	SEC 24 10 10
RE-10	I					I						EDDS					32725020	0.00000	0.00000	POR SEC 24 10 10
RE-10	I					I						EDDS					32725021	0.00000	0.00000	POR SEC 24 10 10
RE-10	I					I						EDDS					32725022	0.00000	0.00000	POR SEC 24 10 10
RE-10	I					I						EDDS					32725024	0.00000	19.77200	RS 17/85/1
R1A	CC					C						EDDS					32726005	0.00000	1.29000	SEC 24 10 10
R1A	CC					C						EDDS					32726006	0.00000	0.88000	SEC 24 10 10
I	CG					C						EDDS					32726025	0.00000	2.26000	PM 5/147/H
CG	R1A					MDR						EDDS					32726027	0.00000	2.03000	SEC 24 10 10
I	CC					C						EDDS					32726039	0.00000	3.80000	SEC 24 10 10
I	CC					C						EDDS					32727008	0.00000	2.94000	PM 5/147/I

I	CG					C						EDDS					32727009	11.00000	0.02000	SEC 24-10-10
I	CG					C						EDDS					32727010	0.00000	1.41000	S 24 & 25 10 10
RE-10	I					I						EDDS					32727032	0.00000	0.90000	POR PAR 1 28-96
CP	CR			PD		C						EDDS					32729059	11.00000	0.17000	RS 31/149/2,3&10
CP	CR			PD		C						EDDS					32729059	11.00000	0.17000	RS 31/149/2,3&10
CP	CR			PD		C						EDDS					32729059	11.00000	0.17000	RS 31/149/2,3&10
CP	CR			PD		C						EDDS					32729060	0.00000	19.87000	POR PM 30/149/3
C	CC			PD		C						EDDS					32730002	0.00000	0.17000	PM 40/87/2
C	CC			PD		C						EDDS					32730006	0.00000	0.10000	PM 40/87/1
C	CC			PD		C						EDDS					32730007	0.00000	0.09000	PM 40/87/3
C	CC			PD		C						EDDS					32730008	0.00000	1.77000	PM 40/87/4
RE-10	TC					MDR						EDDS					32901001	11.00000	0.00000	SEC 26 10 10
RE-10	TC					MDR						EDDS					32901002	11.00000	0.00000	SEC 26 10 10
RE-10	TC					MDR						EDDS					32901003	11.00000	0.00000	SEC 26 10 10
R1A	TC					MDR						EDDS					32901004	11.00000	0.00000	S 25 & 26 10 10
R2A	RE-5					LDR											32902050	0.00000	5.00500	PM 48/29/B
R2A	RE-5					LDR											32902051	0.00000	4.00800	PM 48/29/A
R1A	RM					MFR						EDDS					32904014	0.00000	1.00000	PM 29/131/A
R1A	RM					MFR						EDDS					32904015	0.00000	1.00000	PM 29/131/B
R1A	RM					MFR						EDDS					32904016	0.00000	1.00000	PM 29/131/C
R1A	RM					MFR						EDDS					32904025	0.00000	1.00000	PM 32/101/1
R1A	RM					MFR						EDDS					32904026	0.00000	1.00000	PM 32/101/2
R1A	RM					MFR						EDDS					32904027	0.00000	1.00000	PM 32/101/3
R1A	RM					MFR						EDDS					32904029	0.00000	2.00000	PM 34/98/A
R1A	RM					MFR						EDDS					32904030	0.00000	1.00000	PM 34/98/B
R1A	RM					MFR						EDDS					32904031	0.00000	1.00000	PM 34/98/C
R2	RM					MFR						EDDS					32904038	0.00000	3.07000	PM 36/47/A
R2	RM					MFR						EDDS					32904039	0.00000	3.06900	PM 36/47/B
R2	RM					MFR						EDDS					32904040	0.00000	3.16700	PM 36/47/C
R2	RM					MFR						EDDS					32904041	0.00000	9.43000	PM 36/47/D
RE-5	R2A					MDR						EDDS					32907007	0.00000	0.56000	SEC 27 10 10
RE-10	R1A					HDR						EDDS					32910007	0.00000	1.45000	SEC 27 10 10
RE-10	R1A					HDR						EDDS					32910012	0.00000	3.52000	SEC 27 10 10
C	CC					C						EDDS					32911134	0.00000	1.19000	PM 34/32/B
C	CC					C						EDDS					32911204	0.00000	2.60000	L 23
RE-5	R2A					MDR						EDDS					32911205	0.00000	2.90000	POR L 26
R1A	CL					C						EDDS					32911220	0.00000	0.38300	POR L 27
CP	RM					MFR						EDDS					32911238	0.00000	3.13000	PAR 4 23-61 AMND
R1A	RM					MFR						EDDS					32916101	0.00000	0.00000	POR L 17 & 18
MP	RM					MFR						EDDS					32916102	0.00000	0.00000	POR L 18
C	CL					C						EDDS					32916107	0.00000	0.38000	PM 17/78/A
C	CC					C						EDDS					32916108	0.00000	1.19000	PM 17/78/B
C	CL					C						EDDS					32916109	0.00000	0.31000	POR L 18
C	CL					C						EDDS					32916110	0.00000	0.23000	POR L 18
MP	RM					MFR						EDDS					32916202	0.00000	2.29200	POR L 17
R1	R1A					MDR						EDDS					32916206	0.00000	1.48000	POR L 17RS10-125

R1	R1A					MDR					EDDS					32916207	0.00000	0.00000	POR L 17RS10-125
CP	CL					C					EDDS					32916211	11.00000	0.00000	POR L 19
MP	RM					MFR					EDDS					32916239	0.00000	1.75000	SEC 26 10 10
MP	RM					MFR					EDDS					32916240	0.00000	0.75000	SEC 26 10 10
MP	RM					MFR					EDDS					32916241	0.00000	2.46500	POR L 17 18 19
CP	CC					C					EDDS					32916257	0.00000	1.31500	POR L 19
CP	CL					C					EDDS					32916258	0.00000	0.85000	PM 24/15/A
CP	CL					C					EDDS					32916259	0.00000	0.25000	PM 24/15/B
RE-10	RE-5					MDR					EDDS					32917115	0.00000	10.00000	L 10
RE-10	R1A					MDR					EDDS					32917148	0.00000	1.00000	PM 23/69/1
RE-10	R1A					MDR					EDDS					32917149	0.00000	1.00000	PM 23/69/2
RE-10	R2A					MDR					EDDS					32917150	0.00000	2.00000	PM 23/69/3
RE-10	R1A					MDR					EDDS					32917151	0.00000	1.00000	PM 23/69/4
RE-10	R1A					MDR					EDDS					32917173	0.00000	1.99100	PORLOT8 RS15-92
RE-10	R1A					MDR					EDDS					32917174	0.00000	3.40600	RS 27/52/1
RE-10	R1A					MDR					EDDS					32917175	0.00000	1.59900	RS 27/52/2
RE-10	R1A					MDR					EDDS					32917183	0.00000	1.86000	RS 32/22/1
RE-10	R2A					MDR					EDDS					32917184	0.00000	2.32000	RS 32/22/2
RE-5	R1A					MDR					EDDS					32918102	0.00000	0.61000	POR L 25
RE-5	R1A					MDR					EDDS					32918103	0.00000	1.00000	PM 6/86/2
RE-5	R3A					MDR					EDDS					32918104	0.00000	5.04000	PM 6/86/1
RE-5	R3A					MDR					EDDS					32918108	0.00000	4.18000	RS 27/30
RE-5	R1A					MDR					EDDS					32918109	0.00000	1.79000	POR L 30
RE-5	R3A					MDR					EDDS					32918110	0.00000	3.50000	POR L 30
RE-10	R2A					MDR					EDDS					32918138	0.00000	2.15000	SEC 26 10 10 ADM
RE-5	R1A					MDR					EDDS					32918139	0.00000	1.46000	PM 11/106/1
RE-5	R1A					MDR					EDDS					32918140	0.00000	1.00000	PM 11/106/2
RE-5	R1A					MDR					EDDS					32918141	0.00000	1.00000	PM 11/106/3
RE-5	R1A					MDR					EDDS					32918148	0.00000	1.09000	PM 27/2/1
RE-5	R1A					MDR					EDDS					32918149	0.00000	1.09000	PM 27/2/2
RE-5	R1A					MDR					EDDS					32918150	0.00000	1.02000	PM 27/2/3
RE-5	R1A					MDR					EDDS					32918151	0.00000	1.10000	PM 27/2/4
RE-10	R3A					MDR					EDDS					32919103	11.00000	3.65000	POR BLK 1
RE-10	R1A					MDR					EDDS					32919107	0.00000	0.00000	POR L 6 B 1
RE-5	R1A					HDR					EDDS					32919110	0.00000	6.00000	PM 24/57/1
RE-5	R1A					HDR					EDDS					32919111	0.00000	5.00000	PM 24/57/2
RE-5	R1A					HDR					EDDS					32919118	0.00000	5.45000	PM 24/57/4
RE-5	R1A					HDR					EDDS					32919119	0.00000	5.02000	PM 24/57/3
RE-10	RE-5					MDR					EDDS					32919120	0.00000	11.90000	POR LOT 6 BLK 1
RE-10	RE-5					MDR					EDDS					32919121	0.00000	10.05000	POR L 6 BLK 1
RE-10	R2A					MDR					EDDS					32920103	0.00000	0.00000	POR L 6
RE-10	R1A					MDR					EDDS					32920105	0.00000	0.00000	POR L 5
RE-10	R1A					MDR					EDDS					32920106	0.00000	2.00000	POR L 5
RE-10	R1A					MDR					EDDS					32920108	1.00000	0.00000	POR L 5
RE-10	R2A					MDR					EDDS					32920110	0.00000	3.00000	POR L 5
RE-10	R1A					MDR					EDDS					32920121	0.00000	1.02000	SEC 26 10 10

RE-10	RE-5					MDR						EDDS					32920122	0.00000	5.15000	SEC 26 10 10
RE-10	R2A					MDR						EDDS					32920123	0.00000	3.41000	SEC 26 10 10 ADM
RE-10	RE-5					MDR						EDDS					32920133	0.00000	8.00000	PM 15/89/1
RE-10	R1A					MDR						EDDS					32920139	0.00000	1.79900	PM 20/117/1
RE-10	R1A					MDR						EDDS					32920140	0.00000	1.45000	PM 20/117/2
RE-10	R1A					MDR						EDDS					32920141	0.00000	1.00000	PM 21/126/A
RE-10	R1A					MDR						EDDS					32920142	0.00000	1.00000	PM 21/126/B
RE-10	R1A					MDR						EDDS					32920143	0.00000	1.00000	PM 21/126/C
RE-10	R1A					MDR						EDDS					32920145	0.00000	1.00800	PM 24/85/A
RE-10	R3A					MDR						EDDS					32920146	0.00000	3.39000	PM 24/85/B
RE-10	R1A					MDR						EDDS					32920147	0.00000	1.44000	PM 27/94/A
RE-10	R1A					MDR						EDDS					32920148	0.00000	1.00400	PM 27/94/B
RE-10	R1A					MDR						EDDS					32920149	0.00000	1.02000	PM 28/57/1
RE-10	R1A					MDR						EDDS					32920150	0.00000	1.03000	PM 28/57/2
RE-10	R1A					MDR						EDDS					32920151	0.00000	1.02000	PM 28/57/3
RE-10	RE-5					MDR						EDDS					32920166	0.00000	8.75000	POR L 7
RE-10	R1A					HDR						EDDS					32921102	0.00000	5.97000	POR LOT 14 BLK 1
RE-10	RE-5					MDR						EDDS					32921105	0.00000	0.00000	POR L 6 & 7 B 1
RE-5	R1A					HDR						EDDS					32921108	0.00000	12.21000	PM 15/25/B
R2	RM					MFR						EDDS					32922132	0.00000	1.20400	PM 46/92/2
R2	RM					MFR						EDDS					32922133	0.00000	1.21000	PM 46/92/3
R2	RM					MFR						EDDS					32922134	0.00000	2.19600	PM 46/92/4
RE-10	R1A					MDR						EDDS					32922201	0.00000	0.00000	L 34
RE-10	R3A					MDR						EDDS					32922202	0.00000	3.96000	SEC 26 10 10
RE-10	RE-5					MDR						EDDS					32922203	0.00000	6.49000	SEC 26 10 10
RE-10	RE-5					MDR						EDDS					32922204	0.00000	10.00000	SEC 26 10 10
RE-10	R3A					MDR						EDDS					32923002	0.00000	5.00000	SEC 26 10 10
RE-10	R3A					MDR						EDDS					32923003	0.00000	5.00000	S 26 & 35 10 10
RE-10	R1A					MDR						EDDS					32923020	0.00000	1.00000	PM 28/75/1
RE-10	R1A					MDR						EDDS					32923021	0.00000	1.00000	PM 28/75/2
RE-10	R1A					MDR						EDDS					32923022	0.00000	1.00000	PM 28/75/3
RE-10	R1A					MDR						EDDS					32923023	0.00000	1.00000	PM 28/75/4
RE-10	R1A					MDR						EDDS					32923024	0.00000	1.00000	PM 28/104/1
RE-10	R1A					MDR						EDDS					32923025	0.00000	1.00000	PM 28/104/2
RE-10	R1A					MDR						EDDS					32923026	0.00000	1.00000	PM 28/104/3
RE-10	R1A					MDR						EDDS					32923027	0.00000	1.00000	PM 29/82/1
RE-10	R1A					MDR						EDDS					32923028	0.00000	1.00000	PM 29/82/2
RE-10	R1A					MDR						EDDS					32923029	0.00000	1.00000	PM 29/82/3
RE-10	R1A					MDR						EDDS					32923030	0.00000	1.22000	PM 29/82/4
CP	CC					C						EDDS					32923032	11.00000	0.41000	SEC 25 10 10
R1	CC					C						EDDS					32923032	11.00000	0.41000	SEC 25 10 10
RE-10	R1A					MDR						EDDS					32923046	0.00000	1.00000	PM 26/95/D
I	CG					C						EDDS					32926109	0.00000	0.83000	SEC 25 10 10
I	CG					C						EDDS					32926111	0.00000	2.00000	PM 7/79/2
I	CG					C						EDDS					32926112	0.00000	0.57000	PM 19/127/1
I	CG					C						EDDS					32926113	0.00000	1.43000	PM 19/127/2

I	CG					C						EDDS					32926115	0.00000	0.76000	PM 20/77/B
I	CG					C						EDDS					32926117	0.00000	0.97000	PM 31/127/1
I	CG					C						EDDS					32926118	0.00000	0.48000	PM 31/127/2
I	CG					C						EDDS					32926119	0.00000	0.60000	PM 37/132/1
I	CG					C						EDDS					32926121	0.00000	0.56200	PM 3/17/B
I	CG					C						EDDS					32926122	0.00000	0.94000	PM 3/17/C
I	CG					C						EDDS					32926123	0.00000	2.40200	PM 37/132/2
I	CL					C						EDDS					32927009	11.00000	0.38000	SEC 25 10 10
I	CL					C						EDDS					32927014	2.00000	0.09300	PAR A PM46-38 AW
I	CL					C						EDDS					32927019	11.00000	0.00000	POR 25 10 10
I	CC					C						EDDS					32927020	0.00000	2.79400	PM 46/38/3
I	CC					C						EDDS					32927021	0.00000	2.71100	PM 46/38/1 & 2
I	CG					C						EDDS					32927101	11.00000	4.58000	S25 10 10RS4-100
CP	CM					C						EDDS					32927107	0.00000	1.58700	POR B 4
CP	CM					C						EDDS					32927108	11.00000	0.50000	POR_BLK 4
CP	CM					C						EDDS					32927109	0.00000	1.19900	POR LOT 4 BLK 4
CP	CM					C						EDDS					32927110	11.00000	0.05000	POR LOT 4 BLK 4
C	CC		DC			C						EDDS					32927201	0.00000	6.65000	SEC 25 10 10
MP	RM					MFR						EDDS					32927202	0.00000	11.47000	SEC 25 10 10
RE-10	I					I						EDDS					32928003	0.00000	1.54600	RS 48/34/1
R2	RM					MFR						EDDS					32928009	0.00000	1.29000	PPM 48/34/B ADM
C	CC		DC			C						EDDS					32928012	0.00000	0.91000	PRS 22/20/1 ADM
C	CC		DC			C						EDDS					32928013	0.00000	0.76000	PRS 22/20/1 ADM
CP	CC					C						EDDS					32928013	0.00000	0.76000	PRS 22/20/1 ADM
R2	CC					C						EDDS					32928013	0.00000	0.76000	PRS 22/20/1 ADM
C	CC		DC			C						EDDS					32928016	0.00000	57.06500	PPM 48/34/B ADM
C	RM		DC			MFR						EDDS					32929001	0.00000	3.26100	RS 48/34/2
R2	RM		DC			MFR						EDDS					32929001	0.00000	3.26100	RS 48/34/2
R1	RM					MFR						EDDS					32929003	0.00000	31.16000	SEC 25 10 10
R2	RM		DC			MFR						EDDS					32929003	0.00000	31.16000	SEC 25 10 10
C	RM		DC			MFR						EDDS					32929007	0.00000	0.47200	RS 23/87/2
R2	RM		DC			MFR						EDDS					32929007	0.00000	0.47200	RS 23/87/2
C	RM		DC			MFR						EDDS					32929009	0.00000	8.81000	POR SEC 25 10 10
R2	RM		DC			MFR						EDDS					32929009	0.00000	8.81000	POR SEC 25 10 10
R2	RM		DC			MFR						EDDS					32929010	0.00000	0.72300	RS 23/87/1
R2	RM		DC			MFR						EDDS					32930101	0.00000	0.00000	L 7
C	CM		DC			C						EDDS					32930102	0.00000	2.31400	POR B 13
R2	RM		DC			MFR						EDDS					32930115	0.00000	4.08000	SEC 25 10 10
R2	RM		DC			MFR						EDDS					32930115	0.00000	4.08000	SEC 25 10 10
R1	R1A					HDR						EDDS					32930119	0.00000	17.77500	POR R/S 16-115
R2	RM		DC			MFR						EDDS					32930119	0.00000	17.77500	POR R/S 16-115
C	RM		DC			MFR						EDDS					32930120	0.00000	4.86000	POR SEC 25 10 10
RF	RM					MFR						EDDS					32930120	0.00000	4.86000	POR SEC 25 10 10
C	RM		DC			HDR						EDDS					32931010	0.00000	69.47000	PM 49/54/1
R1	R1A					HDR						EDDS					32931010	0.00000	69.47000	PM 49/54/1
R2	RM		DC			HDR						EDDS					32931010	0.00000	69.47000	PM 49/54/1

R2	RM		DC			MFR					EDDS					32931010	0.00000	69.47000	PM 49/54/1
RF	RM					MFR					EDDS					32931010	0.00000	69.47000	PM 49/54/1
RE-10	R1					HDR					EDDS					32931012	0.00000	57.38900	PM 49/54/3
RE-10	RL-10					RR										32931013	0.00000	15.04000	PM 49/54/4
CG	CC					C					EDDS					32934301	0.00000	0.92000	L 56
RE-5	R1A					HDR					EDDS					32941001	0.00000	16.29000	PM 24/116/1
RE-10	R1A					HDR					EDDS					32941006	0.00000	37.27000	PM 47/20/1
RE-5	R1A					HDR					EDDS					32941006	0.00000	37.27000	PM 47/20/1
RE-5	R1A					HDR					EDDS					32941007	0.00000	5.00000	PM 47/20/2
RE-10	R1A					HDR					EDDS					32941008	0.00000	5.58000	PM 47/20/3
RE-10	R1A					HDR					EDDS					32941009	0.00000	5.15000	PM 47/20/4
RE-10	R1A					HDR					EDDS					32941010	0.00000	5.15000	PM 47/20/5
RE-5	R1A					HDR					EDDS					32941010	0.00000	5.15000	PM 47/20/5
I	TC					I					EDDS					33101001	11.00000	0.00000	T9 &10 R 10E
R2A	TC					I					EDDS					33101001	11.00000	0.00000	T9 &10 R 10E
R1A	TC					MDR					EDDS					33101002	11.00000	0.00000	T9 &10 R 10E
RE-10	TC					C					EDDS					33101003	11.00000	0.00000	T9&10 R10E
RE-5	TC					C					EDDS					33101003	11.00000	0.00000	T9&10 R10E
RE-5	TC					C					EDDS					33101004	11.00000	0.00000	T9 &10 R 10E
R2A	RM					MFR					EDDS					33103002	0.00000	15.39000	PM 7/123/A
R1A	RM					MFR					EDDS					33103006	0.00000	13.47000	PM 7/123/B
R2A	RM					MFR					EDDS					33103007	0.00000	0.86000	SEC 34 10 10
R1A	RM					MFR					EDDS					33103008	0.00000	2.54000	SEC 34 10 10
R1A	RM					MFR					EDDS					33103009	0.00000	1.13000	POR SEC 34 10 10
R1A	CC					C					EDDS					33103010	0.00000	1.28000	SEC 34 10 10
R1A	CL					C					EDDS					33103011	0.00000	0.58000	SEC 34 10 10
R1A	CL					C					EDDS					33103012	0.00000	0.52000	SEC 34 10 10
R1A	RM					MFR					EDDS					33103013	0.00000	1.35000	PM 4/108/1
R1A	RM					MFR					EDDS					33103014	0.00000	1.18000	PM 4/108/2
R1A	RM					MFR					EDDS					33103015	0.00000	0.20000	SEC 34 10 10
R1A	RM					MFR					EDDS					33103018	0.00000	1.36000	SEC 34 10 10
R2	RM			PD		MFR					EDDS					33103035	0.00000	1.67000	PM 27/19/1
R1A	RM					MFR					EDDS					33103036	0.00000	2.84000	PM 27/19/2
R1A	RM					MFR					EDDS					33103037	0.00000	1.10000	PM 42/61/1
R1A	RM					MFR					EDDS					33103038	0.00000	1.01000	PM 42/61/2
R1A	RM					MFR					EDDS					33103039	0.00000	1.21000	PM 42/61/3
R1A	RM					MFR					EDDS					33103040	0.00000	1.01000	PM 42/61/4
RA-20	RM					MFR					EDDS					33105002	0.00000	1.01000	SEC 34 10 10
RA-20	RM					MFR					EDDS					33105005	6.00000	0.00000	SEC 34 10 10
RA-20	RM					MFR					EDDS					33105006	0.00000	0.74000	SEC 34 10 10
RA-20	RM					MFR					EDDS					33105007	0.00000	72.20000	SEC 34 10 10
RA-20	RM					MFR					EDDS					33105008	11.00000	0.10000	SEC 34 10 10
RE-5	R1A					MDR					EDDS					33107003	0.00000	1.50000	SEC 34 10 10
RE-5	R1A					MDR					EDDS					33107005	0.00000	0.86000	SEC 34 10 10
RE-5	R1A					MDR					EDDS					33107006	0.00000	1.86000	SEC 34 10 10
RE-5	R3A					MDR					EDDS					33107007	0.00000	3.76200	RS 19/42/1

AE	AG-40					MDR						EDDS					33107008	0.00000	35.33000	SEC 34 10 10
RE-5	R3A					MDR						EDDS					33109003	0.00000	4.12000	SEC 34 10 10
RE-5	R3A					MDR						EDDS					33109004	0.00000	4.10000	SEC 34 10 10
AE	AG-40					MDR						EDDS					33109005	0.00000	4.60000	SEC 34 10 10
AE	AG-40					MDR						EDDS					33109006	0.00000	20.00000	SEC 34 10 10
R2	RM		DC			MFR						EDDS					33110101	0.00000	0.00000	POR L 1 B 1
CG	CM					C						EDDS					33110104	0.00000	0.00000	POR L 1 B 1
C	CM		DC			C						EDDS					33110105	0.00000	3.35300	SEC 35 10 10
R2	RM		DC			MFR						EDDS					33110110	0.00000	0.74800	PM 15/90/1
R2	RM		DC			MFR						EDDS					33110111	0.00000	0.39000	PM 15/90/2
R2	RM		DC			MFR						EDDS					33110112	0.00000	0.55200	PM 15/90/3
C	CM		DC			C						EDDS					33110113	0.00000	1.19000	PM 24/36/1
C	CM		DC			C						EDDS					33110114	0.00000	1.14000	PM 24/36/2
C	CM		DC			C						EDDS					33110115	0.00000	1.17000	PM 24/36/3
C	CM		DC			C						EDDS					33110116	0.00000	1.13000	PM 24/36/4
C	CM		DC			C						EDDS					33110124	0.00000	1.12600	L5POR4&6B1RS1856
C	CM		DC			C						EDDS					33110126	0.00000	0.48000	RS 23/59/2
C	CM		DC			C						EDDS					33110128	0.00000	0.48800	POR TR1 R/S23-59
C	CM		DC			C						EDDS					33110129	0.00000	0.00000	POR LOTS 2&3
C	CM		DC			C						EDDS					33111101	0.00000	0.00000	POR L 6 B 1
C	CM		DC			C						EDDS					33111102	0.00000	0.00000	POR L 6 B 1
CP	CM					C						EDDS					33111105	0.00000	1.55000	POR L 8 B 1
RE-10	CM					C						EDDS					33111106	0.00000	2.08000	PM 22/54/1
RE-10	CM					C						EDDS					33111107	0.00000	1.00000	PM 22/54/2
CP	CM					C						EDDS					33111202	0.00000	0.00000	POR L 3 & 4 B 2
CP	CM					C						EDDS					33111204	0.00000	0.00000	L 5 B 2
CP	CM					C						EDDS					33111205	0.00000	0.00000	POR B 2
CP	CM					C						EDDS					33111206	0.00000	0.00000	POR L 9 B 2
CP	CM					C						EDDS					33111207	0.00000	0.00000	L 11 POR L 9 B 2
CP	CM					C						EDDS					33111208	0.00000	0.00000	POR B 2
CP	CM					C						EDDS					33111209	0.00000	0.00000	POR L 12 & 14 B2
CP	CM					C						EDDS					33111210	11.00000	0.15000	RS 9-145 TR 2
CP	CM					C						EDDS					33111212	11.00000	0.59000	RS 9-145 TR 1
CP	CM					C						EDDS					33111304	0.00000	0.00000	L 4 & 5 B 3
CP	CM					C						EDDS					33111309	0.00000	0.07000	PM 3/158/A
CP	CM					C						EDDS					33111310	0.00000	0.48000	PM 19/22/B
CP	CM					C						EDDS					33111311	0.00000	0.23000	PM 19/22/C
R1A	RM					MFR						EDDS					33111402	0.00000	0.00000	POR L 1 B 6
R1A	RM					MFR						EDDS					33111403	0.00000	0.00000	POR L 1 B 6
R1A	RM					MFR						EDDS					33111404	0.00000	0.00000	POR L 1 B 6
R1A	RM					MFR						EDDS					33111405	0.00000	0.15000	PM 23/148/1
R1A	RM					MFR						EDDS					33111406	0.00000	0.15000	PM 23/148/2
R1A	RM					MFR						EDDS					33111407	0.00000	0.15000	PM 23/148/3
R1A	RM					MFR						EDDS					33111408	0.00000	0.15000	PM 23/148/4
CP	CM					C						EDDS					33111503	0.00000	0.00000	L 3 B 4
CP	CM					C						EDDS					33111504	0.00000	0.00000	L 4 B 4

CP	CM					C						EDDS					33111505	0.00000	0.41000	L 2 B 4
CP	CM					C						EDDS					33111509	0.00000	0.29000	PM 25/130/B
CP	CM					C						EDDS					33111510	0.00000	0.05400	POR PAR A 25-130
CP	CM					C						EDDS					33111511	0.00000	0.05700	POR PAR A 25-130
CP	CM					C						EDDS					33111512	0.00000	0.06000	POR PAR A 25-130
CP	CM					C						EDDS					33111513	0.00000	0.08000	POR PAR A 25-130
CP	CM					C						EDDS					33111514	0.00000	0.06000	POR PAR A 25-130
CP	CM					C						EDDS					33111601	0.00000	0.27100	RS 21/126/1
C	CM		DC			C						EDDS					33111602	0.00000	0.00000	RS 25/128/1
C	CM		DC			C						EDDS					33112101	0.00000	3.64000	POR L 1 B 9
C	CM		DC			C						EDDS					33112102	0.00000	2.36000	POR L 1 B 9
C	CM		DC			C						EDDS					33112104	0.00000	0.00000	POR L2B9 RS 9-92
C	CM		DC			C						EDDS					33112105	0.00000	0.00000	POR L 2 B 9
C	CM		DC			C						EDDS					33112106	0.00000	0.00000	POR L 2 B 9
C	CM		DC			C						EDDS					33112107	0.00000	0.00000	POR L 2 B 9
C	CM		DC			C						EDDS					33112108	0.00000	0.00000	L 4 5 6 B 9
C	CM		DC			C						EDDS					33112109	0.00000	0.00000	L 3&7B9 RS 9-92
C	CM		DC			C						EDDS					33112110	1.00000	0.00000	POR EMPIRE ST
C	CM		DC			C						EDDS					33112111	0.00000	0.39000	PM 32/36/A
C	CM		DC			C						EDDS					33112113	0.00000	1.01000	PM 45/100/1
C	CM		DC			C						EDDS					33112114	0.00000	2.55000	PM 45/100/2
C	CM					PF						EDDS					33112202	11.00000	0.00000	L1 2 3 B 11
C	CM		DC			C						EDDS					33112207	0.00000	0.58300	PM 48/104/1
C	CM		DC			C						EDDS					33112208	0.00000	0.29300	PM 48/104/2
C	CM					C						EDDS					33112209	0.00000	0.27000	PM 48/104/3
C	CM		DC			C						EDDS					33112209	0.00000	0.27000	PM 48/104/3
R1A	CM					C						EDDS					33113102	0.00000	0.56800	POR L 6 B 15
R1A	CM					C						EDDS					33113103	0.00000	0.00000	POR L 6 B 15
R1A	CM					C						EDDS					33113104	11.00000	3.19000	
AE	CM					C						EDDS					33113105	0.00000	0.38000	L 7 B 15
AE	CM					C						EDDS					33113106	0.00000	0.50000	L 8 B 15
R1A	CM					C						EDDS					33113107	0.00000	0.00000	POR L 11 B 15
R1A	CM					C						EDDS					33113108	0.00000	0.00000	POR L 11 B 15
C	CM		DC			C						EDDS					33113110	0.00000	0.54000	PM 50/91/1
C	CM		DC			C						EDDS					33113111	0.00000	0.79000	PM 50/91/2
C	CM		DC			C						EDDS					33113112	0.00000	2.54000	PM 50/91/3
C	CM		DC			C						EDDS					33113113	0.00000	4.90000	PM 50/91/4
C	CM		DC			C						EDDS					33113201	0.00000	0.00000	L1 B 12
C	CM		DC			C						EDDS					33113202	0.00000	0.09500	POR L 2 B 12
C	CM		DC			C						EDDS					33113203	0.00000	0.09100	POR L 2 & 3 B 12
C	CM		DC			C						EDDS					33113204	0.00000	0.00000	POR L 3 B 12
C	CM		DC			C						EDDS					33113205	0.00000	0.10300	L 4 B 12
CP	CM					C						EDDS					33113207	0.00000	0.09000	RS 19/33/2
C	CM		DC			C						EDDS					33113208	0.00000	0.14000	RS 19/33/1
C	CM		DC			C						EDDS					33113301	0.00000	0.00000	L 7 POR L 8 B 13
C	CM		DC			C						EDDS					33113302	0.00000	0.00000	POR L 4 & 8 B 13

C	CM		DC			C						EDDS					33113303	0.00000	0.00000	POR L 5 B 13
C	CM		DC			C						EDDS					33113304	0.00000	0.27000	POR4B13 RS17-112
CP	CM					C						EDDS					33113307	0.00000	0.00000	POR L 5 B 13
C	CM		DC			C						EDDS					33113308	0.00000	0.00000	POR L 6 B 13
CP	CM					C						EDDS					33113309	0.00000	0.00000	POR L 6 B 13
C	CM		DC			C						EDDS					33113310	0.00000	0.34000	RS 20/111/1
C	CM		DC			C						EDDS					33113312	0.00000	0.54000	RS 20/111/2
RE-10	RM					MFR						EDDS					33114101	0.00000	3.00000	POR B 6
R1A	RM					MFR						EDDS					33114102	0.00000	0.00000	POR B 6
R1A	RM					MFR						EDDS					33114103	0.00000	0.00000	POR L 1 B 6
R1A	RM					MFR						EDDS					33114104	0.00000	0.00000	POR L 1 B 6
R1A	RM					MFR						EDDS					33114105	0.00000	0.12400	POR L 1 B 6
R1A	RM					MFR						EDDS					33114106	0.00000	0.00000	POR L 1 B 6
R1A	RM					MFR						EDDS					33114202	0.00000	0.00000	POR L 2 B 7
R1A	RM					MFR						EDDS					33114203	0.00000	1.55000	POR L 2 B 7
R1A	RM					MFR						EDDS					33114204	0.00000	0.60900	POR L 1 & 2 B 7
RE-10	RM					MFR						EDDS					33114206	0.00000	1.02000	BLK 7
RE-10	RM					MFR						EDDS					33114207	0.00000	1.83000	BLK 7
RE-10	RM					MFR						EDDS					33114209	0.00000	8.93000	PM 23/130/B
RE-10	RM					MFR						EDDS					33114210	0.00000	1.00000	PM 31/29/1
RE-10	RM					MFR						EDDS					33114211	0.00000	1.00000	PM 31/29/2
RE-10	RM					MFR						EDDS					33114212	0.00000	1.00000	PM 31/29/3
RE-10	RM					MFR						EDDS					33114213	0.00000	1.00000	PM 31/29/4
C	CM		DC			C						EDDS					33115101	0.00000	7.12000	RS 25/128/2
R2	RM		DC			MFR						EDDS					33115107	0.00000	0.25000	SEC 35 10 10
R2	RM		DC			MFR						EDDS					33115108	0.00000	0.25000	SEC 35 10 10
C	CM		DC			C						EDDS					33115110	0.00000	0.16000	SEC 35 10 10
R2	RM		DC			MFR						EDDS					33115111	0.00000	0.25000	PM 9/84/A
C	CM		DC			C						EDDS					33115116	0.00000	8.08300	RS 25/128/3
R1A	CM					C						EDDS					33115116	0.00000	8.08300	RS 25/128/3
R2	RM		DC			MFR						EDDS					33115118	0.00000	0.49000	PM 46/39/1
R2	RM		DC			MFR						EDDS					33115119	0.00000	0.34100	PM 46/39/2
R2	RM		DC			MFR						EDDS					33115120	0.00000	0.36300	PM 46/39/3
R2	RM		DC			MFR						EDDS					33115121	0.00000	0.03000	PM 46/39/4
R2	RM					MFR						EDDS					33115122	11.00000	0.09000	POR TR 1 RS18-89
C	CM		DC			C						EDDS					33115124	0.00000	0.89200	POR SEC 35 10 10
R2	RM		DC			MFR						EDDS					33115126	0.00000	0.95100	POR SEC 35 10 10
R2	RM					MFR						EDDS					33115127	11.00000	0.02900	POR SEC 35 10 10
R2	RM		DC			MFR						EDDS					33115128	0.00000	0.24000	POR PAR B PM9-84
R2	RM					MFR						EDDS					33115129	11.00000	0.04000	POR PAR B PM9-84
R2	RM		DC			MFR						EDDS					33116007	0.00000	0.50000	SEC 35 10 10
R1A	R20K					HDR						EDDS					33116018	11.00000	0.05000	SEC 35 10 10
MP	RM					MFR						EDDS					33116021	0.00000	1.04000	PM 24/60/A
MP	RM					MFR						EDDS					33116022	0.00000	1.07000	PM 24/60/B
MP	RM					MFR						EDDS					33116023	0.00000	3.54000	PM 24/60/C
CP	CM					C						EDDS					33117102	0.00000	0.00000	POR L 3 B 16

CP	CM					C						EDDS					33117103	0.00000	0.00000	POR L 3 B 16
CP	CM					C						EDDS					33117104	0.00000	0.00000	POR L 2 B 16
R1A	CM					C						EDDS					33117107	0.00000	0.82600	L 2 B 16
R1A	CM					C						EDDS					33117108	0.00000	0.00000	POR L 2 B 16
R1A	CM					C						EDDS					33117109	0.00000	0.00000	POR L 2 B 16
R1A	CM					C						EDDS					33117110	0.00000	0.00000	POR L 2 B 16
CP	CM					C						EDDS					33117111	0.00000	0.53000	L 3 B 16
CP	CM					C						EDDS					33117112	0.00000	0.71000	L 3 B 16
R1A	CM					C						EDDS					33121156	0.00000	0.00000	
R1A	CM					C						EDDS					33117114	0.00000	0.88000	PM 2/119/3
R1A	CM					C						EDDS					33117115	0.00000	0.27600	PM 2/119/2
CP	CM					C						EDDS					33117116	0.00000	0.15000	PM 2/119/1
CP	CM					C						EDDS					33117117	0.00000	0.00000	POR L 3 B 16
CP	CM					C						EDDS					33117118	0.00000	0.00000	POR L 1 & 3 B 16
CP	CM					C						EDDS					33117119	0.00000	0.00000	POR L 1 & 3 B 16
CP	CM					C						EDDS					33117120	0.00000	0.00000	POR L 1&3 B 16
R1A	CM					C						EDDS					33121154	0.00000	0.00000	
CP	CM					C						EDDS					33117122	0.00000	0.00000	POR L 1 & 3 B 16
CP	CM					HDR						EDDS					33117123	11.00000	0.00000	POR L 3 B 16
CP	CM					C						EDDS					33117130	0.00000	1.32700	RS 9/28 S351010
CP	CM					C						EDDS					33117131	0.00000	0.26000	RS 8/88/2
CP	CM					C						EDDS					33117132	0.00000	0.00000	POR L 3 BLK 16
R1A	CM					C						EDDS					33118101	0.00000	0.00000	L 1
R1A	CM					C						EDDS					33118113	0.00000	1.08000	L 10
R2	R1		DC			HDR						EDDS					33119102	0.00000	0.00000	POR L 2 B 16
R2	RM					MFR						EDDS					33119145	0.00000	0.14000	PM 21/110/A
R2	RM					MFR						EDDS					33119146	0.00000	0.15000	PAR B 21-110 AMD
R2	RM					MFR						EDDS					33119147	0.00000	0.22000	PAR C 21-110 AMD
R2	RM					MFR						EDDS					33119148	0.00000	0.28000	PAR D 21-110 AMD
R1A	I					I						EDDS					33121101	0.00000	5.61000	PL 3 B 16 ADM
R2	RM		DC			MFR						EDDS					33122103	0.00000	0.00000	POR L 3 B 16
C	CM		DC			C						EDDS					33122104	0.00000	0.00000	POR L 3 B 16
R2	RM		DC			MFR						EDDS					33122105	0.00000	0.00000	POR L 3 B 16
R2	RM		DC			MFR						EDDS					33122106	0.00000	0.00000	POR L 3 B 16
C	CM		DC			C						EDDS					33122109	0.00000	0.00000	POR L 3 B 16
C	CM		DC			C						EDDS					33122110	0.00000	0.50000	POR L 3 B 16
C	CM		DC			C						EDDS					33122111	0.00000	0.00000	POR L 3 B 16
C	CM		DC			C						EDDS					33122112	0.00000	0.00000	POR L 3 B 16
C	RM		DC			MFR						EDDS					33122113	0.00000	0.00000	POR L 3 B 16
C	CM		DC			C						EDDS					33122122	0.00000	1.32600	RS 25/52/1
C	CM		DC			C						EDDS					33122124	0.00000	0.00000	POR LOT 3 BLK 16
R1	CM					C						EDDS					33122124	0.00000	0.00000	POR LOT 3 BLK 16
C	CM		DC			C						EDDS					33122125	0.00000	0.00000	POR LOT 3 BLK 16
C	RM		DC			C						EDDS					33122130	0.00000	5.88100	POR L 3 B 16
C	CM		DC			C						EDDS					33122130	0.00000	5.88100	POR L 3 B 16
R2	RM		DC			C						EDDS					33122130	0.00000	5.88100	POR L 3 B 16

C	RM		DC			MFR					EDDS					33122132	0.00000	2.31000	RS 31/12/2
C	RM		DC			MFR					EDDS					33122133	0.00000	0.86000	RS 31/12/1
R2	R1A					HDR					EDDS					33123124	11.00000	0.06000	POR PAR1 PM27-73
C	CM		DC			HDR					EDDS					33123126	11.00000	0.15000	PORPAR B PM31-20
C	CM		DC			HDR					EDDS					33123128	11.00000	0.04400	PORPAR 1 PM40-14
C	CM		DC			C					EDDS					33123138	11.00000	0.78300	RDWY
R2	RM					MFR					EDDS					33123140	0.00000	0.87000	PM 47/98/1
C	CM		DC			C					EDDS					33123141	0.00000	0.81400	PM 47/98/2
C	CM		DC			C					EDDS					33123142	0.00000	0.50300	PM 47/98/3
C	CM		DC			C					EDDS					33123143	0.00000	0.50900	PM 47/98/4
C	CM		DC			C					EDDS					33123145	0.00000	0.65800	PM 47/98/6
C	CM		DC			C					EDDS					33123148	0.00000	0.63500	RS 30/66/1
R2	RM		DC			C					EDDS					33123148	0.00000	0.63500	RS 30/66/1
A	R3A					MDR					EDDS					33125101	11.00000	9.05000	POR BLK15 RS2-37
A	R3A					MDR					EDDS					33125102	11.00000	3.88000	POR BLK15 RS2-37
AE	AG-40					MDR					EDDS					33125103	0.00000	4.03000	L 12 B 15
AE	AG-40					MDR					EDDS					33125104	0.00000	17.60000	L 10 B 15
R1A	CM					C					EDDS					33126107	11.00000	0.10000	POR L11B15 9-109
AE	AG-40					MDR					EDDS					33126117	0.00000	53.29000	RS 20/29/1
AE	AG-40					MDR					EDDS					33126118	0.00000	26.60000	RS 20/29/2
RE-5	R3A					MDR					EDDS					33126119	0.00000	2.68000	RS 20/29/4
R1A	CM					C					EDDS					33126121	0.00000	2.57900	RS 28/47/1
R1A	CM					C					EDDS					33126122	0.00000	1.92800	RS 28/47/2
R1A	CM					C					EDDS					33126123	0.00000	0.00000	POR L 11 B 15
RE-10	RE-5					MDR					EDDS					33127002	0.00000	12.11000	SEC 35 10 10
RA-20	R2A					MDR					EDDS					33127010	0.00000	4.94000	RS 25/43/3
A	R1A					PF					EDDS					33127011	11.00000	51.78000	TR 1 R/S 25-43
AE	AG-40					MDR					EDDS					33128001	0.00000	6.26000	SEC 35 10 10
AE	AG-40					MDR					EDDS					33128002	0.00000	70.73000	SEC 35 10 10
AE	AG-40					MDR					EDDS					33129001	0.00000	34.54000	SEC 35 10 10
RA-20	R2A					MDR					EDDS					33129004	0.00000	4.08000	PM 1/173/2
RA-20	R2A					MDR					EDDS					33129013	0.00000	1.00000	PM 18/121/A
RA-20	R2A					MDR					EDDS					33129021	0.00000	1.10000	PM 24/55/1
RA-20	R2A					MDR					EDDS					33129022	0.00000	1.00000	PM 24/55/2
RA-20	R2A					MDR					EDDS					33129023	0.00000	1.00000	PM 24/55/3
RA-20	R2A					MDR					EDDS					33129024	0.00000	1.00000	PM 24/55/4
RA-20	R2A					MDR					EDDS					33129025	0.00000	1.00000	PM 24/90/1
RA-20	R2A					MDR					EDDS					33129026	0.00000	1.62000	PM 24/90/2
RA-20	R2A					MDR					EDDS					33129027	0.00000	1.23000	PM 24/90/3
RA-20	R2A					MDR					EDDS					33129028	0.00000	1.19000	PM 24/90/4
RA-20	R2A					MDR					EDDS					33129029	0.00000	2.00000	PM 25/110/1
RA-20	R2A					MDR					EDDS					33129030	0.00000	2.00000	PM 25/110/2
R2	RM		DC			MFR					EDDS					33130101	0.00000	0.32000	SEC 36 10 10
R2	RM		DC			MFR					EDDS					33130102	0.00000	0.58000	SEC 36 10 10
R1	RM					MFR					EDDS					33130106	0.00000	0.94000	SEC 36 10 10
R1	RM					MFR					EDDS					33130110	0.00000	1.86000	POR L 1 B 17

R1	RM					MFR					EDDS					33130113	0.00000	3.80200	POR L 1 B 17
R2	RM		DC			MFR					EDDS					33130113	0.00000	3.80200	POR L 1 B 17
R2	OS		DC			OS					EDDS					33130114	11.00000	0.34000	POR L 1 B 17
R1	OS					OS					EDDS					33130116	11.00000	0.21000	S 35 & 36 10 10
R1	RM					MFR					EDDS					33130117	0.00000	4.66000	PM 49/50/1
R1	RM					MFR					EDDS					33130118	0.00000	4.00000	PM 49/50/2
R1	RM					MFR					EDDS					33130121	0.00000	0.48100	RS 30/28/1
R1	RM					MFR					EDDS					33130122	0.00000	5.82000	RS 30/28/2
MP	R1					HDR					EDDS					33131008	0.00000	38.82000	PPM 35/12/2 ADM
CP	CC					C					EDDS					33131009	0.00000	2.01000	PM 35/12/1
MP	CC					C					EDDS					33131009	0.00000	2.01000	PM 35/12/1
R2	RM					MFR					EDDS					33133105	0.00000	0.00000	L 195
R2	RM					MFR					EDDS					33133112	0.00000	0.00000	L 191
R2	RM					MFR					EDDS					33133119	0.00000	0.00000	L 187
R2	RM					MFR					EDDS					33133120	0.00000	0.00000	L 186
R2	RM		DC			MFR					EDDS					33133121	0.00000	0.62700	RS 27/49
R2	RM					MFR					EDDS					33133125	0.00000	0.00000	P L 196 & 197
R2	RM					MFR					EDDS					33133127	0.00000	0.00000	P L 196 & 197
R2	RM					MFR					EDDS					33133130	0.00000	0.00000	L 188
R2	RM					MFR					EDDS					33133131	0.00000	0.00000	L 189
R2	RM					MFR					EDDS					33133133	0.00000	0.00000	L 190
MP	R1					HDR					EDDS					33139008	0.00000	2.80000	PPM 35/12/2 ADM
MP	R1					HDR					EDDS					33139009	0.00000	2.91000	PPM 19/93/B ADM
MP	R1					HDR					EDDS					33139011	0.00000	15.94000	PPM 19/93/B ADM
MP	R1					HDR					EDDS					33139012	0.00000	59.12000	PPM 35/12/2 ADM
A	R1					HDR					EDDS					33140001	11.00000	11.70000	SEC 35&36-10-10
PA-20	R1A					HDR					EDDS					33140002	0.00000	24.36000	SEC 36 10 10
MP	R1					HDR					EDDS					33140005	0.00000	1.73000	PPM 12/60/4 ADM
MP	R1					HDR					EDDS					33140007	0.00000	30.93000	PPM 19/93/B ADM
MP	R1					HDR					EDDS					33142009	0.00000	25.27000	PPM 19/93/B ADM
RA-20	R1A					HDR					EDDS					33142009	0.00000	25.27000	PPM 19/93/B ADM
PA-20	R1A					HDR					EDDS					33142011	11.00000	20.40000	TR 2 R/S 25-43
PA-20	R1A					HDR					EDDS					33142012	0.00000	24.29800	RS 28/137/1
RE-10	RL-10					RR										33143008	0.00000	10.10000	RS 17/43/1
RE-10	RL-10					RR										33143022	0.00000	10.09800	RS 17/43/2
RA-20	R1A					HDR					EDDS					33144001	0.00000	40.00000	SEC 36 10 10
RA-20	R1A					HDR					EDDS					33144002	0.00000	2.90000	SEC 36 10 10
RA-20	R1A					HDR					EDDS					33144003	0.00000	10.00000	RS 8/55 S361010
RA-20	RE-5					LDR										33145002	0.00000	2.09000	PRS 2/87/2 ADM
RA-20	RE-10					LDR										33145006	0.00000	6.94000	PRS 2/87/2 ADM
RE-10	RL-10					RR										33145010	0.00000	10.10000	RS 17/43/3
RE-10	RL-10					RR										33145011	0.00000	10.10000	RS 17/43/4
RE-10	RL-10					RR										33145012	0.00000	9.98100	RS 17/43/5
RE-10	RL-10					RR										33145013	0.00000	9.98100	RS 17/43/6
RE-10	RL-10					RR										33145014	0.00000	9.43000	RS 17/43/7
RA-20	RE-5					MDR				PL						33145017	0.00000	2.48000	PM 13/30/A

RA-20	RE-5					MDR				PL						33145018	0.00000	2.48000	PM 13/30/B
RA-20	RE-5					MDR				PL						33145019	0.00000	2.48000	PM 13/30/C
RA-20	RE-5					MDR				PL						33145020	0.00000	2.48000	PM 13/30/D
RA-20	RE-5					MDR				PL						33145021	0.00000	2.49000	PM 17/120/1
RA-20	RE-5					MDR				PL						33145022	0.00000	2.46000	PM 17/120/2
RA-20	RE-5					MDR				PL						33145023	0.00000	2.48500	PM 17/120/3
RA-20	RE-5					MDR				PL						33145024	0.00000	2.49000	PM 17/120/4
RA-20	RE-10					LDR										33145026	0.00000	5.00000	PM 17/104/B
RA-20	RE-5					LDR										33145027	0.00000	5.00000	PM 17/104/C
RA-20	RE-5					LDR										33145028	0.00000	4.87000	PM 17/104/D
RA-20	RE-10					LDR										33145030	0.00000	10.09000	POR RS 2/87/2
RA-20	RE-5					LDR										33145031	0.00000	5.00000	PM 17/104/A
R2	RM															33150001	0.00000	0.00000	
R2	RM															33150002	0.00000	0.00000	
R2	RM															33150003	0.00000	0.00000	
R2	RM															33150004	0.00000	0.00000	
R2	RM															33150005	0.00000	0.00000	
R2	RM															33150006	0.00000	0.00000	
R2	RM															33150007	0.00000	0.00000	
R2	RM															33150008	0.00000	0.00000	
R2	RM															33150009	0.00000	0.00000	
R2	RM															33150010	0.00000	0.00000	
R2	RM					MFR					EDDS					33150011	2.00000	0.86000	POR LOT A AW
R2	RM					MFR					EDDS					33150013	0.00000	0.00000	UNIT 11
R2	RM					MFR					EDDS					33150014	0.00000	0.00000	UNIT 12
R2	RM					MFR					EDDS					33150015	0.00000	0.00000	UNIT 13
R2	RM					MFR					EDDS					33150016	0.00000	0.00000	UNIT 14
R2	RM					MFR					EDDS					33150017	0.00000	0.00000	UNIT 15
R2	RM					MFR					EDDS					33150018	0.00000	0.00000	UNIT 16
R2	RM					MFR					EDDS					33150019	0.00000	0.00000	UNIT 17
R2	RM					MFR					EDDS					33150020	0.00000	0.00000	UNIT 18
R2	RM															33150021	0.00000	0.00000	
R2	RM															33150022	0.00000	0.00000	
R2	RM					MFR					EDDS					33150023	0.00000	0.00000	UNIT 21
R2	RM					MFR					EDDS					33150024	0.00000	0.00000	UNIT 22
R2	RM					MFR					EDDS					33150025	0.00000	0.00000	UNIT 23
R2	RM					MFR					EDDS					33150026	2.00000	0.52000	L B AW
R2	R1		DC			MFR					EDDS					33157101	0.00000	0.26000	L 1
R2	R1		DC			MFR					EDDS					33157102	0.00000	0.15000	L 2
R2	R1		DC			MFR					EDDS					33157103	0.00000	0.13900	L 3
R2	R1		DC			MFR					EDDS					33157104	0.00000	0.13800	L 4
R2	R1		DC			MFR					EDDS					33157105	0.00000	0.14000	L 5
R2	R1		DC			MFR					EDDS					33157106	0.00000	0.14000	L 6
R2	R1		DC			MFR					EDDS					33157107	0.00000	0.14000	L 7
R2	R1		DC			MFR					EDDS					33157108	0.00000	0.13800	L 8
R2	R1		DC			MFR					EDDS					33157109	0.00000	0.13800	L 9

R2	R1		DC			MFR					EDDS				33157110	0.00000	0.22300	L 10
R2	R1		DC			MFR					EDDS				33157111	0.00000	0.19000	L 11
R2	R1		DC			MFR					EDDS				33157112	0.00000	0.19000	L 12
R2	R1		DC			MFR					EDDS				33157113	0.00000	0.13800	L 13
R2	R1		DC			MFR					EDDS				33157201	0.00000	0.16200	L 14
R2	R1		DC			MFR					EDDS				33157202	0.00000	0.13800	L 15
R2	R1		DC			MFR					EDDS				33157203	0.00000	0.13800	L 16
R2	R1		DC			MFR					EDDS				33157204	0.00000	0.15900	L 17
R2	R1		DC			MFR					EDDS				33157205	0.00000	0.17000	L 18
R2	R1		DC			MFR					EDDS				33157206	0.00000	0.26100	L 19
R2	R1		DC			MFR					EDDS				33157301	0.00000	0.22200	L 20
R2	R1		DC			MFR					EDDS				33157302	0.00000	0.14700	L 21
R2	R1		DC			MFR					EDDS				33157303	0.00000	0.15400	L 22
R2	R1		DC			MFR					EDDS				33157304	0.00000	0.14000	L 23
R2	R1		DC			MFR					EDDS				33157305	0.00000	0.16500	L 24
R2	R1		DC			MFR					EDDS				33157306	0.00000	0.18700	L 25
R2	R1		DC			MFR					EDDS				33157307	0.00000	0.16900	L 26
R2	R1		DC			MFR					EDDS				33157308	0.00000	0.13800	L 27
R2	R1		DC			MFR					EDDS				33157309	0.00000	0.13800	L 28
R2	R1		DC			MFR					EDDS				33157310	0.00000	0.13800	L 29
R2	R1		DC			MFR					EDDS				33157311	0.00000	0.13800	L 30
R2	R1		DC			MFR					EDDS				33157312	0.00000	0.19200	L 31
R2	R1		DC			MFR					EDDS				33158001	0.00000	0.16000	L 32
R2	R1		DC			MFR					EDDS				33158002	0.00000	0.13800	L 33
R2	R1		DC			MFR					EDDS				33158003	0.00000	0.13800	L 34
R2	R1		DC			MFR					EDDS				33158004	0.00000	0.18200	L 35
R2	R1		DC			MFR					EDDS				33158005	0.00000	0.30300	L 36
R2	R1		DC			MFR					EDDS				33158006	0.00000	0.19600	L 37
R2	R1		DC			MFR					EDDS				33158007	0.00000	0.18400	L 38
R2	R1		DC			MFR					EDDS				33158008	0.00000	0.14600	L 39
R2	R1		DC			MFR					EDDS				33158009	0.00000	0.13800	L 40
R2	R1		DC			MFR					EDDS				33158010	0.00000	0.13800	L 41
R2	R1		DC			MFR					EDDS				33158011	0.00000	0.21100	L 42
R2	R1		DC			MFR					EDDS				33158012	0.00000	0.34300	L 43
R2	R1		DC			MFR					EDDS				33158013	0.00000	0.21700	L 44
R2	R1		DC			MFR					EDDS				33158014	0.00000	0.13800	L 45
RE-5	R1A					HDR					EDDS				33159001	0.00000	5.00000	L 1
RE-5	R1A					HDR					EDDS				33159002	0.00000	5.00000	L 2
RE-5	R1A					HDR					EDDS				33159003	0.00000	5.00000	L 3
RE-5	R1A					HDR					EDDS				33159008	0.00000	5.00000	L 6
RE-5	R1A					HDR					EDDS				33159009	0.00000	5.00000	L 4
RE-5	R1A					HDR					EDDS				33159010	0.00000	5.00000	L 5
R2	RM			PD		MFR					EDDS				33161001	0.00000	0.02600	L 17
R2	RM			PD		MFR					EDDS				33161002	0.00000	0.02700	L 16
R2	RM			PD		MFR					EDDS				33161003	0.00000	0.02400	L 15
R2	RM			PD		MFR					EDDS				33161004	0.00000	0.02700	L 14

R2	RM			PD		MFR					EDDS					33161005	0.00000	0.02700	L 13
R2	RM			PD		MFR					EDDS					33161006	0.00000	0.02700	L 12
R2	RM			PD		MFR					EDDS					33161007	0.00000	0.02700	L 11
R2	RM			PD		MFR					EDDS					33161008	0.00000	0.02700	L 10
R2	RM			PD		MFR					EDDS					33161009	0.00000	0.02700	L 9
R2	RM			PD		MFR					EDDS					33161010	0.00000	0.03200	L 8
R2	RM			PD		MFR					EDDS					33161011	0.00000	0.03200	L 7
R2	RM			PD		MFR					EDDS					33161012	0.00000	0.03200	L 6
R2	RM			PD		MFR					EDDS					33161013	0.00000	0.03000	L 5
R2	RM			PD		MFR					EDDS					33161014	0.00000	0.03200	L 4
R2	RM			PD		MFR					EDDS					33161015	0.00000	0.03200	L 3
R2	RM			PD		MFR					EDDS					33161016	0.00000	0.03200	L 2
R2	RM			PD		MFR					EDDS					33161017	0.00000	0.03200	L 1
R2	RM			PD		MFR					EDDS					33161018	2.00000	0.16000	L A AW
R2	RM			PD		MFR					EDDS					33161019	2.00000	0.39000	L B AW
RA-20	R1					HDR					EDDS					33162004	0.00000	13.22000	RS 29/124/4
R1	R1A			PD		HDR					EDDS					33162005	0.00000	12.16000	RS 29/124/5
R2A	R1A					HDR					EDDS					33162011	2.00000	1.31000	SEC 34 10 10 AW
RE-5	R1A					HDR					EDDS					33162011	2.00000	1.31000	SEC 34 10 10 AW
RE-10	RL-10					RR										33162016	0.00000	10.00900	PM 49/110/4
RE-5	RL-10					RR										33162016	0.00000	10.00900	PM 49/110/4
RE-10	RL-10					RR										33162019	0.00000	6.27000	PM 49/110/3
RA-20	RE-10					RR					EDDS					33162024	11.00000	10.00000	PRS 26/117/1&2
CG	CC					C					EDDS					33162029	0.00000	20.00000	RS 30/71/A
RA-20	CR					C					EDDS					33162029	0.00000	20.00000	RS 30/71/A
R2	RM		DC	PD		MFR					CP					08272002	0.00000	0.00000	UNIT 2
R2	RM		DC	PD		MFR					CP					08272001	0.00000	0.00000	UNIT 1
R2	RM		DC	PD		MFR					CP					08272004	0.00000	0.00000	UNIT 4
R2	RM		DC	PD		MFR					CP					08272003	0.00000	0.00000	UNIT 3
R2	RM		DC	PD		MFR					CP					08272006	0.00000	0.00000	UNIT 6
R2	RM		DC	PD		MFR					CP					08272005	0.00000	0.00000	UNIT 5
R2	RM		DC	PD		MFR					CP					08272008	0.00000	0.00000	UNIT 8
R2	RM		DC	PD		MFR					CP					08272007	0.00000	0.00000	UNIT 7
R2	RM		DC	PD		MFR					CP					08272010	0.00000	0.00000	UNIT 10
R2	RM		DC	PD		MFR					CP					08272009	0.00000	0.00000	UNIT 9
R2	RM		DC	PD		MFR					CP					08272012	0.00000	0.00000	UNIT 12
R2	RM		DC	PD		MFR					CP					08272011	0.00000	0.00000	UNIT 11
R2	RM		DC	PD		MFR					CP					08272014	0.00000	0.00000	UNIT 14
R2	RM		DC	PD		MFR					CP					08272013	0.00000	0.00000	UNIT 13
R2	RM		DC	PD		MFR					CP					08272016	0.00000	0.00000	UNIT 16
R2	RM		DC	PD		MFR					CP					08272015	0.00000	0.00000	UNIT 15
R2	RM		DC	PD		MFR					CP					08272018	0.00000	0.00000	UNIT 18
R2	RM		DC	PD		MFR					CP					08272017	0.00000	0.00000	UNIT 17
R2	RM		DC	PD		MFR					CP					08272020	0.00000	0.00000	UNIT 20
R2	RM		DC	PD		MFR					CP					08272019	0.00000	0.00000	UNIT 19
R2	RM		DC	PD		MFR					CP					08272022	0.00000	0.00000	UNIT 22

R2	RM		DC	PD		MFR					CP					08272021	0.00000	0.00000	UNIT 21
R2	RM		DC	PD		MFR					CP					08272024	0.00000	0.00000	UNIT 24
R2	RM		DC	PD		MFR					CP					08272023	0.00000	0.00000	UNIT 23
R2	RM		DC	PD		MFR					CP					08272026	0.00000	0.00000	UNIT 26
R2	RM		DC	PD		MFR					CP					08272025	0.00000	0.00000	UNIT 25
R2	RM		DC	PD		MFR					CP					08272028	0.00000	0.00000	UNIT 28
R2	RM		DC	PD		MFR					CP					08272027	0.00000	0.00000	UNIT 27
R2	RM		DC	PD		MFR					CP					08272030	0.00000	0.00000	UNIT 30
R2	RM		DC	PD		MFR					CP					08272029	0.00000	0.00000	UNIT 29
R2	RM		DC	PD		MFR					CP					08272032	0.00000	0.00000	UNIT 32
R2	RM		DC	PD		MFR					CP					08272031	0.00000	0.00000	UNIT 31
R2	RM		DC	PD		MFR					CP					08272034	0.00000	0.00000	UNIT 34
R2	RM		DC	PD		MFR					CP					08272033	0.00000	0.00000	UNIT 33
R2	RM		DC	PD		MFR					CP					08272036	0.00000	0.00000	UNIT 36
R2	RM		DC	PD		MFR					CP					08272035	0.00000	0.00000	UNIT 35
R2	RM		DC	PD		MFR					CP					08272038	0.00000	0.00000	UNIT 38
R2	RM		DC	PD		MFR					CP					08272037	0.00000	0.00000	UNIT 37
R2	RM		DC	PD		MFR					CP					08272040	0.00000	0.00000	UNIT 40
R2	RM		DC	PD		MFR					CP					08272039	0.00000	0.00000	UNIT 39
CP	CC		DC			C					CP					10926108	2.00000	0.00000	LOT A
CP	CC		DC			C					CP					10927105	0.00000	0.03200	L 11
R2	RM		DC	PD	AA	MFR					CP					11658001	0.00000	0.00000	UNIT 81
R2	RM		DC	PD	AA	MFR					CP					11658002	0.00000	0.00000	UNIT 82
R2	RM		DC	PD	AA	MFR					CP					11658003	0.00000	0.00000	UNIT 83
R2	RM		DC	PD	AA	MFR					CP					11658004	0.00000	0.00000	UNIT 84
R2	RM		DC	PD	AA	MFR					CP					11658005	0.00000	0.00000	UNIT 85
R2	RM		DC	PD	AA	MFR					CP					11658006	0.00000	0.00000	UNIT 86
R2	RM		DC	PD	AA	MFR					CP					11658007	0.00000	0.00000	UNIT 87
R2	RM		DC	PD	AA	MFR					CP					11658008	0.00000	0.00000	UNIT 88
R2	RM		DC	PD	AA	MFR					CP					11658009	0.00000	0.00000	UNIT 89
R2	RM		DC	PD	AA	MFR					CP					11658010	0.00000	0.00000	UNIT 90
R2	RM		DC	PD	AA	MFR					CP					11658011	0.00000	0.00000	UNIT 91
R2	RM		DC	PD	AA	MFR					CP					11658012	0.00000	0.00000	UNIT 92
R2	RM		DC	PD	AA	MFR					CP					11658013	0.00000	0.00000	UNIT 93
R2	RM		DC	PD	AA	MFR					CP					11658014	0.00000	0.00000	UNIT 94
R2	RM		DC	PD	AA	MFR					CP					11658015	0.00000	0.00000	UNIT 95
R2	RM		DC	PD	AA	MFR					CP					11658016	0.00000	0.00000	UNIT 96
R2	RM		DC	PD	AA	MFR					CP					11658017	0.00000	0.00000	UNIT 97
R2	RM		DC	PD	AA	MFR					CP					11658018	0.00000	0.00000	UNIT 98
R2	RM		DC	PD	AA	MFR					CP					11658019	0.00000	0.00000	UNIT 99
R2	RM		DC	PD	AA	MFR					CP					11658020	0.00000	0.00000	UNIT 100
R2	RM		DC	PD	AA	MFR					CP					11658021	0.00000	0.00000	UNIT 101
R2	RM		DC	PD	AA	MFR					CP					11658022	0.00000	0.00000	UNIT 102
R2	RM		DC	PD	AA	MFR					CP					11658023	0.00000	0.00000	UNIT 103
R2	RM		DC	PD	AA	MFR					CP					11658024	0.00000	0.00000	UNIT 104
R2	RM		DC	PD		MFR					CP					11658025	0.00000	0.00000	UNIT 105

R2	RM		DC	PD		MFR					CP					11658026	0.00000	0.00000	UNIT 106
R2	RM		DC	PD		MFR					CP					11658027	0.00000	0.00000	UNIT 107
R2	RM		DC	PD		MFR					CP					11658028	0.00000	0.00000	UNIT 108
R2	RM		DC	PD		MFR					CP					11658029	0.00000	0.00000	UNIT 109
R2	RM		DC	PD		MFR					CP					11658030	0.00000	0.00000	UNIT 110
R2	RM		DC	PD		MFR					CP					11658031	0.00000	0.00000	UNIT 111
R2	RM		DC	PD		MFR					CP					11658032	0.00000	0.00000	UNIT 112
R2	RM		DC	PD	AA	MFR					CP					11658033	0.00000	0.00000	UNIT 113
R2	RM		DC	PD	AA	MFR					CP					11658034	0.00000	0.00000	UNIT 114
R2	RM		DC	PD	AA	MFR					CP					11658035	0.00000	0.00000	UNIT 115
R2	RM		DC	PD	AA	MFR					CP					11658036	0.00000	0.00000	UNIT 116
R2	RM		DC	PD	AA	MFR					CP					11658037	0.00000	0.00000	UNIT 117
R2	RM		DC	PD	AA	MFR					CP					11658038	0.00000	0.00000	UNIT 118
R2	RM		DC	PD	AA	MFR					CP					11658039	0.00000	0.00000	UNIT 119
R2	RM		DC	PD	AA	MFR					CP					11658040	0.00000	0.00000	UNIT 120
R2	RM		DC	PD	AA	MFR					CP					11658041	0.00000	0.00000	UNIT 121
R2	RM		DC	PD	AA	MFR					CP					11658042	0.00000	0.00000	UNIT 122
R2	RM		DC	PD	AA	MFR					CP					11658043	0.00000	0.00000	UNIT 123
R2	RM		DC	PD	AA	MFR					CP					11658044	0.00000	0.00000	UNIT 124
R2	RM		DC	PD	AA	MFR					CP					11658045	0.00000	0.00000	UNIT 125
R2	RM		DC	PD	AA	MFR					CP					11658046	0.00000	0.00000	UNIT 126
R2	RM		DC	PD	AA	MFR					CP					11658047	0.00000	0.00000	UNIT 127
R2	RM		DC	PD	AA	MFR					CP					11658048	0.00000	0.00000	UNIT 128
R2	RM		DC	PD	AA	MFR					CP					11659001	0.00000	0.00000	UNIT 33
R2	RM		DC	PD	AA	MFR					CP					11659002	0.00000	0.00000	UNIT 34
R2	RM		DC	PD	AA	MFR					CP					11659003	0.00000	0.00000	UNIT 35
R2	RM		DC	PD	AA	MFR					CP					11659004	0.00000	0.00000	UNIT 36
R2	RM		DC	PD	AA	MFR					CP					11659005	0.00000	0.00000	UNIT 37
R2	RM		DC	PD	AA	MFR					CP					11659006	0.00000	0.00000	UNIT 38
R2	RM		DC	PD	AA	MFR					CP					11659007	0.00000	0.00000	UNIT 39
R2	RM		DC	PD	AA	MFR					CP					11659008	0.00000	0.00000	UNIT 40
R2	RM		DC	PD	AA	MFR					CP					11659009	0.00000	0.00000	UNIT 41
R2	RM		DC	PD	AA	MFR					CP					11659010	0.00000	0.00000	UNIT 42
R2	RM		DC	PD	AA	MFR					CP					11659011	0.00000	0.00000	UNIT 43
R2	RM		DC	PD	AA	MFR					CP					11659012	0.00000	0.00000	UNIT 44
R2	RM		DC	PD	AA	MFR					CP					11659013	0.00000	0.00000	UNIT 45
R2	RM		DC	PD	AA	MFR					CP					11659014	0.00000	0.00000	UNIT 46
R2	RM		DC	PD	AA	MFR					CP					11659015	0.00000	0.00000	UNIT 47
R2	RM		DC	PD	AA	MFR					CP					11659016	0.00000	0.00000	UNIT 48
R2	RM		DC	PD	AA	MFR					CP					11659017	0.00000	0.00000	UNIT 49
R2	RM		DC	PD	AA	MFR					CP					11659018	0.00000	0.00000	UNIT 50
R2	RM		DC	PD	AA	MFR					CP					11659019	0.00000	0.00000	UNIT 51
R2	RM		DC	PD	AA	MFR					CP					11659020	0.00000	0.00000	UNIT 52
R2	RM		DC	PD	AA	MFR					CP					11659021	0.00000	0.00000	UNIT 53
R2	RM		DC	PD	AA	MFR					CP					11659022	0.00000	0.00000	UNIT 54
R2	RM		DC	PD	AA	MFR					CP					11659023	0.00000	0.00000	UNIT 55

R2	RM		DC	PD	AA	MFR					CP					11659024	0.00000	0.00000	UNIT 56
R2	RM		DC	PD	AA	MFR					CP					11659025	0.00000	0.00000	UNIT 57
R2	RM		DC	PD	AA	MFR					CP					11659026	0.00000	0.00000	UNIT 58
R2	RM		DC	PD	AA	MFR					CP					11659027	0.00000	0.00000	UNIT 59
R2	RM		DC	PD	AA	MFR					CP					11659028	0.00000	0.00000	UNIT 60
R2	RM		DC	PD	AA	MFR					CP					11659029	0.00000	0.00000	UNIT 61
R2	RM		DC	PD	AA	MFR					CP					11659030	0.00000	0.00000	UNIT 62
R2	RM		DC	PD	AA	MFR					CP					11659031	0.00000	0.00000	UNIT 63
R2	RM		DC	PD	AA	MFR					CP					11659032	0.00000	0.00000	UNIT 64
R2	RM		DC	PD	AA	MFR					CP					11659033	0.00000	0.00000	UNIT 65
R2	RM		DC	PD	AA	MFR					CP					11659034	0.00000	0.00000	UNIT 66
R2	RM		DC	PD	AA	MFR					CP					11659035	0.00000	0.00000	UNIT 67
R2	RM		DC	PD	AA	MFR					CP					11659036	0.00000	0.00000	UNIT 68
R2	RM		DC	PD	AA	MFR					CP					11659037	0.00000	0.00000	UNIT 69
R2	RM		DC	PD	AA	MFR					CP					11659038	0.00000	0.00000	UNIT 70
R2	RM		DC	PD	AA	MFR					CP					11659039	0.00000	0.00000	UNIT 71
R2	RM		DC	PD	AA	MFR					CP					11659040	0.00000	0.00000	UNIT 72
R2	RM		DC	PD	AA	MFR					CP					11659041	0.00000	0.00000	UNIT 73
R2	RM		DC	PD	AA	MFR					CP					11659042	0.00000	0.00000	UNIT 74
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R2	RM		DC	PD	AA	MFR					CP					11659044	0.00000	0.00000	UNIT 76
R2	RM		DC	PD	AA	MFR					CP					11659045	0.00000	0.00000	UNIT 77
R2	RM		DC	PD	AA	MFR					CP					11659046	0.00000	0.00000	UNIT 78
R2	RM		DC	PD	AA	MFR					CP					11659047	0.00000	0.00000	UNIT 79
R2	RM		DC	PD	AA	MFR					CP					11659048	0.00000	0.00000	UNIT 80
R2	RM		DC	PD	AA	MFR					CP					11659049	0.00000	0.00000	UNIT 129
R2	RM		DC	PD	AA	MFR					CP					11659050	0.00000	0.00000	UNIT 130
R2	RM		DC	PD	AA	MFR					CP					11659051	0.00000	0.00000	UNIT 131
R2	RM		DC	PD	AA	MFR					CP					11659052	0.00000	0.00000	UNIT 132
R2	RM		DC	PD	AA	MFR					CP					11659053	0.00000	0.00000	UNIT 133
R2	RM		DC	PD	AA	MFR					CP					11659054	0.00000	0.00000	UNIT 134
R2	RM		DC	PD	AA	MFR					CP					11659055	0.00000	0.00000	UNIT 135
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R2	RM		DC	PD	AA	MFR					CP					11660002	0.00000	0.00000	UNIT 2
R2	RM		DC	PD	AA	MFR					CP					11660003	0.00000	0.00000	UNIT 3
R2	RM		DC	PD	AA	MFR					CP					11660004	0.00000	0.00000	UNIT 4
R2	RM		DC	PD	AA	MFR					CP					11660005	0.00000	0.00000	UNIT 5
R2	RM		DC	PD	AA	MFR					CP					11660006	0.00000	0.00000	UNIT 6
R2	RM		DC	PD	AA	MFR					CP					11660007	0.00000	0.00000	UNIT 7
R2	RM		DC	PD	AA	MFR					CP					11660008	0.00000	0.00000	UNIT 8
R2	RM		DC	PD	AA	MFR					CP					11660009	0.00000	0.00000	UNIT 9
R2	RM		DC	PD	AA	MFR					CP					11660010	0.00000	0.00000	UNIT 10
R2	RM		DC	PD	AA	MFR					CP					11660011	0.00000	0.00000	UNIT 11
R2	RM		DC	PD	AA	MFR					CP					11660012	0.00000	0.00000	UNIT 12
R2	RM		DC	PD	AA	MFR					CP					11660013	0.00000	0.00000	UNIT 13

R2	RM		DC	PD	AA	MFR						CP					11660014	0.00000	0.00000	UNIT 14
R2	RM		DC	PD	AA	MFR						CP					11660015	0.00000	0.00000	UNIT 15
R2	RM		DC	PD	AA	MFR						CP					11660016	0.00000	0.00000	UNIT 16
R2	RM		DC	PD	AA	MFR						CP					11660017	0.00000	0.00000	UNIT 17
R2	RM		DC	PD	AA	MFR						CP					11660018	0.00000	0.00000	UNIT 18
R2	RM		DC	PD	AA	MFR						CP					11660019	0.00000	0.00000	UNIT 19
R2	RM		DC	PD	AA	MFR						CP					11660020	0.00000	0.00000	UNIT 20
R2	RM		DC	PD	AA	MFR						CP					11660021	0.00000	0.00000	UNIT 21
R2	RM		DC	PD	AA	MFR						CP					11660022	0.00000	0.00000	UNIT 22
R2	RM		DC	PD	AA	MFR						CP					11660023	0.00000	0.00000	UNIT 23
R2	RM		DC	PD	AA	MFR						CP					11660024	0.00000	0.00000	UNIT 24
R2	RM		DC	PD	AA	MFR						CP					11660025	0.00000	0.00000	UNIT 25
R2	RM		DC	PD	AA	MFR						CP					11660026	0.00000	0.00000	UNIT 26
R2	RM		DC	PD	AA	MFR						CP					11660027	0.00000	0.00000	UNIT 27
R2	RM		DC	PD	AA	MFR						CP					11660028	0.00000	0.00000	UNIT 28
R2	RM		DC	PD	AA	MFR						CP					11660029	0.00000	0.00000	UNIT 29
R2	RM		DC	PD	AA	MFR						CP					11660030	0.00000	0.00000	UNIT 30
R2	RM		DC	PD	AA	MFR						CP					11660031	0.00000	0.00000	UNIT 31
R2	RM		DC	PD	AA	MFR						CP					11660032	0.00000	0.00000	UNIT 32
R2	RM		DC	PD	AA	MFR						CP					11660033	0.00000	0.00000	UNIT 137
R2	RM		DC	PD	AA	MFR						CP					11660034	0.00000	0.00000	UNIT 138
R2	RM		DC	PD	AA	MFR						CP					11660035	0.00000	0.00000	UNIT 139
R2	RM		DC	PD	AA	MFR						CP					11660036	0.00000	0.00000	UNIT 140
R2	RM		DC	PD	AA	MFR						CP					11660037	0.00000	0.00000	UNIT 141
R2	RM		DC	PD	AA	MFR						CP					11660038	0.00000	0.00000	UNIT 142
R2	RM		DC	PD	AA	MFR						CP					11660039	0.00000	0.00000	UNIT 143
R2	RM		DC	PD	AA	MFR						CP					11660040	0.00000	0.00000	UNIT 144
R2	RM		DC	PD	AA	MFR						CP					11660041	0.00000	0.00000	UNIT 145
R2	RM		DC	PD	AA	MFR						CP					11660042	0.00000	0.00000	UNIT 146
R2	RM		DC	PD	AA	MFR						CP					11660043	0.00000	0.00000	UNIT 147
R2	RM		DC	PD	AA	MFR						CP					11660044	0.00000	0.00000	UNIT 148
R2	RM		DC	PD	AA	MFR						CP					11660045	0.00000	0.00000	UNIT 149
R2	RM		DC	PD	AA	MFR						CP					11660046	0.00000	0.00000	UNIT 150
R2	RM		DC	PD	AA	MFR						CP					11660047	0.00000	0.00000	UNIT 151
R2	RM		DC	PD	AA	MFR						CP					11660048	0.00000	0.00000	UNIT 152
CP	CC		DC			C						CP					10926108	2.00000	0.00000	LOT A
CP	CC		DC			C						CP					10927103	0.00000	0.02500	L 13
CP	CC		DC			C						CP					10926103	0.00000	0.02500	L 5
CP	CC		DC			C						CP					10926108	2.00000	0.00000	LOT A
CP	CC		DC			C						CP					10927101	0.00000	0.03200	L 15
CP	CC		DC			C						CP					10926101	0.00000	0.02500	L 7
CP	CC		DC			C						CP					10926108	2.00000	0.00000	LOT A
CP	CC		DC			C						CP					10927107	0.00000	0.02500	L 9
CP	CC		DC			C						CP					10926106	0.00000	0.02500	L 2
CP	CC		DC			C						CP					10926108	2.00000	0.00000	LOT A
CP	CC		DC			C						CP					10927106	0.00000	0.02500	L 10

CP	CC		DC			C						CP					10926105	0.00000	0.03600	L 3
CP	CC		DC			C						CP					10926108	2.00000	0.00000	LOT A
CP	CC		DC			C						CP					10926104	0.00000	0.02500	L 4
CP	CC		DC			C						CP					10927104	0.00000	0.03200	L 12
CP	CC		DC			C						CP					10926108	2.00000	0.00000	LOT A
CP	CC		DC			C						CP					10927102	0.00000	0.02500	L 14
CP	CC		DC			C						CP					10926102	0.00000	0.02500	L 6
CP	CC		DC			C						CP					10926108	2.00000	0.00000	LOT A
CP	CC		DC			C						CP					10927108	0.00000	0.03200	L 8
CP	CC		DC			C						CP					10926107	0.00000	0.02500	L 1
R1	CC					C							PLTH				07105156	0.00000	61.68000	PM 50/128/1
MP	CC		DC			C							PLTH				10425010	0.00000	9.01000	SEC 6 11 9
R1	CC					C							PLTH				07105144	0.00000	244.45300	PM 48/47/2
R1	CC					C							PLTH				10407025	0.00000	75.00000	SEC 6 11 9
R1A	CR					C						SS					07025005	0.00000	13.85000	SEC 1 9 9
RE-10	CC					C							STR				03840027	0.00000	21.62000	SEC 18 11 17
C	R1					C							STR				03840029	0.00000	3.09000	RS 19/94/1
RA-20	RE-5					MDR			IBC		PL						06104271	0.00000	6.48000	PM 47/110/A
RE-10	RM			PD		MFR						CP					08335054	11.00000	0.36000	POR PM 49/111/1
RE-10	CC			PD		C						CP					08335055	0.00000	40.81000	POR PM 49/111/1
RE-10	RM			PD		MFR						CP					08335055	0.00000	40.81000	POR PM 49/111/1
RE-10	R1			PD		HDR						CP					08335055	0.00000	40.81000	POR PM 49/111/1
RF	R1A					HDR						EDDS					32931010	0.00000	69.47000	PM 49/54/1
R3A	CC					C							CO				07128065	0.00000	6.00000	PM 46/105/1
R3A	CC					C							CO				07128066	0.00000	4.50000	PM 46/105/2
R3A	CC					C							CO				07128067	0.00000	4.50000	PM 46/105/3
RE-10	R1					HDR						EDDS					32931012	0.00000	57.38900	PM 49/54/3
CP	CG					C							GT				06122006	0.00000	26.46000	RS 27/137/1
CP	CG					C							GT				06122006	0.00000	26.46000	RS 27/137/1
C	CM		DC			C						EDDS					33122130	0.00000	5.88100	POR L 3 B 16
C	RM		DC			C						EDDS					33123148	0.00000	0.63500	RS 30/66/1

AREA		AA	AV	DC	DFI	DH	DS	EP	MP	MR	PD	PL	T
7.14555374278													
60.58792385300													
4.23607143280													
73.68527591710					DFI								
38.31450466220													
9.52422631914													
9.55438180515													
9.67783341554													
10.07510272900													
35.46659465460													
62.03475536400													
4.77942267332													
3.03299883596					DFI								
1.63056724416					DFI								
1.53098893177					DFI								
17.26474952680					DFI								
11.11374702140					DFI								
88.79042332250													
28.32487395140					DFI								
78.80914685300													
6.48522440656					DFI								
4.26564899805					DFI								
0.02704405714					DFI								
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4.69474169194													
11.41485222980					DFI								
49.43469290410													
1.76922845397													
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35.34336331540					DFI								
38.44921192900					DFI								
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19.96784739590					DFI								
12.92920725410					DFI								
137.98920076600													
20.32236138640					DFI								
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3.24484973445					DFI								
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39.39036617670					DFI								
2.25706966531					DFI								
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26.79289749250													
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2.11754367313					DFI							PL	
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0.36671738555													
2.06754534689													
5.23395119203													
3.22274614419													
3.79218622388													
2.17801928000													
5.08767018275													
6.10045309784													
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3.81199491379					DFI								
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6.76775421350					DFI								
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0.96376736773					DFI								
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Mountain Democrat
Friday, February 27, 2015
PLACERVILLE, CALIFORNIA
99 CENTS

Community Regions: Lines won't change soon

By Chris Daley
From page A1 | February 27, 2015 |

Proponents of last year's ballot Measure O made a final, unsuccessful run at getting the El Dorado County Board of Supervisors to redraw Community Region Boundaries at the board's Feb. 24 meeting. Those boundaries, also referred to as Community Region Lines or CRLs, establish the limits of future development within their area.

Created by the county's General Plan, the Community Regions represent the more urban areas that generally have public water, sewer, transportation infrastructure and more access to health and public safety services. As such they are the areas identified by the General Plan as the most appropriate for higher-density residential and commercial development between now and 2035. Planners also refer to the CRLs as "urban services areas."

The Shingle Springs Community Alliance and Save Our County groups have been the most vocal residents pushing for a reduction of Community Region Lines over the past two years. Their mantra, "Keep Us Rural," describes their demand that county planners and leaders not take actions (or, in this case to reverse prior actions) that would allow large developments in and around neighborhoods that currently are characterized by five-acre or larger properties.

Measure O was defeated approximately two-to-one by voters in November in a bare-knuckle campaign that featured charges and counter-charges of deception, misleading ads, big money from special interests and nefarious backroom deals by politicians and organizations such as the El Dorado County Chamber of Commerce.

That campaign resurfaced during Tuesday's meeting as residents continued to demand that supervisors, in effect, overturn the November vote and use their authority to change the CRLs administratively. District 1 Supervisor Ron Mikulaco recused himself before the vote because he owns property that could be affected by a change in the CRL. The other four supervisors eventually opted to push the issue at least a year down the road. According to established practice, the matter will be taken up as part of the General Plan 5-year Review which the county's Long Range Planning Division expects to present to the board in mid-2016.

In an e-mail to the Mountain Democrat, Long Range Planner Shawna Purvines advised interested residents that, "The General Plan's Introduction section beginning on page 6 does a good job of explaining this and the objectives these areas are intended to achieve." Purvines also stated, "Following the review the board will determine if they want to take further action on amending the CRLs or not." The General Plan is available at the Community Development Agency's Website.

The audience was divided in several different ways and some overlapping ways. A number of speakers suggested that the November vote was not an accurate reflection of the wishes of El Dorado County's residents and voters. They said the election was "bought" by the development community with more than $1 million, some of which was from out-of-county interests.

Carol Louis described it as "the 1 percent buying our county" and said the vote "was not a huge mandate on Measure O." Louis is in the real estate business.

Others in the same industry, however, took the opposite position. Steve Ferry reiterated that "Measure O lost 70 to 30," and Ken Calhoon said, "At some point the Board of Supervisors has to say, 'We've had these discussions and we have to implement the General Plan.'" The reference is that implementing the General Plan follows a process established by county voters that should be adhered to.

On the other hand, Sue Taylor, a founding member of Save Our County, challenged that "the boundary line doesn't reflect what's on the ground … The community is begging you to retract the CRLs (which act as) a continuous bullseye for development. It's been misconstrued, and it's so politicized it's pathetic."

Long-time area rancher Bill Bacchi quipped, "Welcome to the world of land ownership." Bacchi also said he "objects to lies and (character assassination). The General Plan is the way to go."

Some speakers and supervisors agreed that "there's a lot of confusion in the General Plan," as District 4 Supervisor Michael Ranalli admitted. Land use and General Plan maven Art Marinaccio advised, "These issues are complex and you need local experts."

Stanford Report, July 31, 2014

Stanford's Water in the West program offers new way to view groundwater resources

New website, with interactive graphics, illustrates problems caused by California's over-tapped aquifers.

BY TERRY NAGEL

Chris Austin

A new report by the Water in the West program at Stanford identifies a need for more groundwater recharge in California to replenish aquifers. One approach is the use of recharge ponds such as these in the Coachella Valley.

Because groundwater is hidden beneath the earth's surface, for many Californians it's a matter of "out of sight, out of mind."

Residents often take it for granted and do not realize that it is a critical resource, providing 40 percent of the state's water supply during normal years and as much as 60 percent during dry times – like now.

Today, Stanford researchers with Water in the West announced a new project to help Californians understand the importance of groundwater in the state, the problems caused by groundwater overdraft and potential solutions. Their website, "Understanding California's Groundwater," offers new research findings, interactive graphics and a synthesis of existing knowledge on groundwater in California, all designed to advance public understanding of this critical issue.

The researchers point out that current groundwater usage in the state is jeopardizing this resource for future generations. Using groundwater to supplement California's water supply has allowed farmers and communities in California to limp through the current drought, but at the cost of dramatically drawing down the aquifers. That's one of the reasons California legislators are currently considering bills that would overhaul groundwater management.

Groundwater depletion is occurring in many of California's important aquifers, causing land subsidence and infrastructure damage, poorer water quality, higher energy use from pumping, and harm to wildlife and plant communities that depend on groundwater. Groundwater pumping also can diminish river flows, affecting surface-water rights holders and aquatic life, including fish.

"The current trajectory of our groundwater use is not sustainable for the long term. We need to find better tools for managing this water so it is there for us in times of drought and in the future," said Leon Szeptycki, executive director of Water in the West, a joint program of the Stanford Woods Institute for the Environment and The Bill Lane Center for the American West, also at Stanford.

Water in the West's groundwater visualization series includes:

- An **overview** of problems surrounding groundwater use in California and ways to address them. Groundwater is used by 85 percent of California's population and is the sole or primary water source for 6 million residents. The current drought has prompted water users to tap aquifers to replace diminished surface water supplies, exacerbating chronic declines in aquifer levels. Due to a lack of statewide regulation, there are few incentives to prevent overdraft or to live within a "budget" that balances groundwater demand and supply in each basin to sustain groundwater use and aquifer health over time. One graphic, called "Precipitation Was Sparse in 2013-14," shows that California was on its way to being the driest year on record until rain came in February 2014, which brought the state back to about the level of the 1976-77 drought and the 1923-24 "Dustbowl."
- An interactive map showing and analyzing, for the first time, 55 **conflicts between groundwater use and surface water** needs in California. Examples of these conflicts include a state-run fish hatchery in the Owens Valley that uses about half of the area's groundwater and a solar project in the Mojave Desert that would drill new wells to extract groundwater, potentially drying up springs and seeps that support sensitive species. Many people think that groundwater pumping only affects groundwater users. But these conflicts bring to light the groundwater-dependent ecosystems and surface water users affected when groundwater levels drop, and the gaps in current laws for dealing with those conflicts. On the interactive map, site visitors can explore groundwater/surface water battles around the state and filter them by location, type of environmental concern or legal remedy. Visitors can also submit information on new conflicts or add to existing cases.
- Brand new research on **groundwater recharge** in California, which is a method of replenishing aquifers, storing water for times of need. The researchers analyzed the cost of groundwater recharge and found that it is far less expensive than desalination or new reservoirs – two options currently being hotly debated to increase the water supply. They also document substantial interest and potential for additional new recharge

projects in the state. Animations show how California's potential underground storage capacity dwarfs the total capacity of major surface reservoirs in the state.

- An assessment of publicly available **groundwater data** that shows an alarming lack of information about aquifers in California, which hampers the ability of water managers to make good decisions regarding the use of this precious resource over time. For example, of the 18 Western states, California is the only state that prohibits the sharing of well log data from drillers. Interactive graphics illustrate how decisions by well owners, water managers and the public are affected by the amount of information available. Water in the West researchers also identified five key metrics that are essential to effective groundwater management, then scored the 10 hydrologic regions in California on how well they collected and shared these key pieces of information. Of the 10 hydrologic regions across the state, the highest score was 6 points of a possible 10.

James Caruso, a senior planner with San Luis Obispo County, said the need for groundwater information is essential to those seeking to solve the state's water crisis. "The lack of data about groundwater in California is appalling," Caruso noted. "Without information, we are working through solutions in mud."

Research used to create the visualization was carried out by Stanford graduate students Rebecca Nelson, Justin Maynard, Melissa Rohde and Carolina Sanchez, with assistance from Water in the West-affiliated faculty and staff members Leon Szeptycki, David Freyberg, Janny Choy and Tara Moran. Visualizations were created in collaboration with the interactive design firm Halftone, under the direction of Geoff McGhee of The Bill Lane Center for the American West. The Groundwater Visualization project was funded by the California Water Foundation.

About Water in the West

Water in the West is a partnership of the Stanford Woods Institute for the Environment and The Bill Lane Center for the American West. Its mission is to design, articulate and advance sustainable water management for the people and environment of the American West. To learn more, visit waterinthewest.stanford.edu.

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A PRIMER ON CALIFORNIA WATER RIGHTS

Prepared by
Gary W. Sawyers, Esq.

The following is a "primer" on basic California water rights. It is by no means comprehensive, and is intended only as an introduction to California's system of surface and groundwater rights. Specific situations must be analyzed with reference to the operative facts.

Surface Water Rights

California has a unique system of surface water rights that combines a traditional riparian system with the appropriative system found elsewhere in the West. The result is a confused approach to water rights that often leads to more questions that certainty.

For purposes of California law, surface water includes underflow of streams, underground streams, and any other subsurface flow that is identified with a defined bed, bank or channel. Therefore, wells extracting water near a surface water supply may, in fact, be pumping "surface water" for purposes of a water rights analysis.

On many other streams in California, the surface water rights are a tangle of various categories of rights that are virtually impossible to distinguish from one another. Often, historical practice is far more relevant in determining how water is actually allocated than are the underlying water rights. Nevertheless, that historical practice is founded on basic water rights law, which recognizes four basic types of surface water rights.

<u>Riparian Rights</u>. The riparian right is a natural appurtenance to land abutting a watercourse. However, the fact that a parcel of land presently abuts the watercourse does not mean that the entire parcel possesses riparian water rights. California adheres to the "source of title" rule. Under this rule, riparian land is the smallest parcel abutting the stream which has continuously been held under single ownership in the chain of title. In other words, if a 20 acre parcel originally abutting a river is split into a 15 acre portion separated from the river, and a 5 acre parcel is still touching the river, the 15 acre parcel will forever have lost its riparian character. Even if the 15 acre parcel is later purchased by the owner of the 5 acre parcel, the 15 acre parcel will not be restored to its former riparian character. (It is possible to reserve riparian rights to a severed parcel if the reservation is explicit in the deed creating the division, but this infrequently occurs).

Riparian rights can be explicitly severed from otherwise riparian land. Thus, the verification of riparian rights requires a careful examination of the chain of title back to the original paten t, together with a detailed examination of each deed in the chain to determine if riparian rights were reserved to an otherwise severed parcel, or conveyed from an otherwise riparian parcel.

The riparian right is a right to the natural flow of a watercourse. Therefore, there can be no riparian right to store water. Generally, "storage" means the impoundment of water for more than 30 days; riparian water which is "stored" for less than 30 days is usually deemed to have merely been "regulated" within the permissible scope of the underlying riparian right.

Riparian rights are generally senior to pre-1914 and post-1914 appropriative water rights (see below), and are not lost by non-use. However, recent California court decisions suggest that unexercised riparian rights can be subordinated to longstanding downstream appropriative rights in order to avoid unfair disruption of water allocation schemes upon which water users have come to rely. As a result, an unexercised riparian right may be junior to other rights; in a case where a stream is fully appropriated, a junior right may be tantamount to no right at all, and the holder of an unexercised riparian right might find himself or herself with little or no recourse as against his or her neighbors. In addition, the right of a riparian to object to conflicting uses can be lost by prescription (see below).

Riparian right holders generally do not have priorities with respect to other riparians. Instead, each has a "correlative right" to the use of a reasonable share of the total riparian water available in the watercourse, to the extent the riparian can place that water to beneficial use on the riparian's land[1]. As a result, quantification of the riparian right is almost impossible unless there has been a stream-wide adjudication.

<u>Pre-1914 Appropriative Rights</u>. Appropriative water can generally be defined as water that is diverted for use on non-riparian land. Prior to 1914, there was no comprehensive permit system available to establish appropriative water rights in California, and the establishment of such a right required simply posting and recording a notice of intended diversion and the construction and use of actual diversion facilities. The measure of the right was the nature and scope of the use of the water diverted.

Pre-1914 appropriative rights are relatively common. However, they are also fairly difficult to establish, and require evidence of original use prior to 1914 and continued use thereafter. Recorded notices of diversion can sometimes be obtained through county recorder's offices; som

[1] In 1928, the California Constitution was amended making the exercise of all water rights (both surface and groundwater) subject to a paramount limitation of reasonable and beneficial use (see below). This amendment did not affect priorities as among different users and classes of users, but simply put a cap on the right of any user to that amount of water which can be applied to reasonable, beneficial use.

e pre-1914 diverters also file notices or reports of appropriation with the State Water Resources Control Board (the "SWRCB").

The appropriative right is lost by non-use for the prescriptive period, and therefore the continuity of use is as important as the origin of the right. Even if the existence of the right is established, the priority of the right is often difficult to determine unless all rights along the watercourse have been adjudicated. Nevertheless, in the realm of appropriative rights, California adheres to the "first in time, first in right" rule, and a true pre-1914 right will have priority over a post-1914 right.

Post-1914 Appropriative Rights. In 1914, a comprehensive permit system was established in California and all new appropriative uses (both for diversion and storage) subsequent to that year require application to what is now the SWRCB. A "post-1914" appropriative water right will be granted by the SWRCB only after a public process in which the applicant is required to demonstrate the availability of unappropriated water and the ability to place that water to beneficial use. The SWRCB can verify the issuance and priority of any post-1914 water right. However, since even post-1914 rights may be lost by non-use, the continuing vitality of those rights still requires confirmation that the rights have been continually exercised without lengthy interruption (except, of course, for lack of water).

Prescriptive Rights. This final category of surface water rights is obtained by open, notorious, continuous and adverse use for the prescriptive period (in California, five years). Since the use must be adverse, a use which harms one water user may not harm another (for example an upstream water user). The prescriptive right is therefore less of a "water right" than it is the right to prevent another from objecting to one's own water use. One cannot prescript upstream. Since the adverse use must be continuous for the prescriptive period, one year of surplus water can cut off the prescriptive period and will require the would-be prescriptor to begin the prescriptive period again. Furthermore, in one case, the courts have held that since prescription does not run against the State, the SWRCB is not bound to recognize a prescriptive right and that the State may (i) require a prescriptor to apply for an appropriative permit and to comply with all conditions imposed thereon by the SWRCB, and (ii) enjoin the prescriptive use of water by a prescriptor who refuses to do so. As a result, a prescriptive right is also difficult to establish, unless it has been adjudicated; a SWRCB adjudication or court proceeding is necessary to confirm the existence and scope of a prescriptive right.

Groundwater Rights

At present, California groundwater law is found almost entirely in reported court decisions. Unlike the law governing rights to surface water and true underground streams (which is large ly statutory), there is no comprehensive, statewide regulatory scheme governing the extraction or use of groundwater. Therefore, a great many aspects of groundwater law remain unclear or subject to interpretation.

The recent drought resulted in unprecedented groundwater pumping due to surface water shortages. It is therefore predictable that a great many groundwater cases have been (or will be) commenced, potentially resulting in a number of significant appellate decisions in the next few years. It is also quite possible that legislative changes in groundwater law will occur in the foreseeable future. California is one of the few states in the West without a comprehensive statutory framework for groundwater regulation, and there have been a number of recent efforts in the Legislature to enact sweeping groundwater legislation. Although those efforts have been unsuccessful, the recent enactment of AB 3030 (permitting local agencies to develop and implement groundwater management plans) indicates the continued interest in regulating groundwater through legislation.

There has also been a recent effort by California counties to regulate groundwater by virtue of their general municipal police powers. While counties have generally not attempted to regulate groundwater extraction, except with respect to well drilling standards and health and safety concerns, demands of groundwater during the recent drought inspired counties to become more proactive in the groundwater arena. A California court has recently held that groundwater regulation is within a county's police powers and is not otherwise preempted by general State law. As a result of this case, many counties are considering adopting sweeping groundwater ordinances. In particular, counties are concerned with potential mining of groundwater resources for use outside the county. The extent to which counties can regulate groundwater is still an open question.

Prior to 1903, California courts generally applied the English common law rule that a landowner owns beneath the surface of his or her property to "the depths of the earth and up to the heavens." This rule was known as the "absolute ownership" rule because it resulted in a landowner having the right to use as much groundwater as s/he could physically extract from beneath his or her property. There was no limitation on this right.

However, in a landmark case decided in 1903, the California Supreme Court determined that the absolute ownership rule had no place in the arid climate of California. In the wake of the rejection of the rule, the courts established three categories of groundwater rights with respect to native percolating groundwaters (i.e., those not resulting from importation and/or artificial recharge and which are not surface water for purposes of regulation).

Overlying Rights. The courts have consistently upheld the right of a landowner whose land was overlying a groundwater basin to extract and use that groundwater on the overlying land, but have restricted that right to an amount which is reasonable in light of the competing demands of other overlying users. Each such landowner is called an "overlying user"; the right that each such user has is an "overlying right." Since an overlying user's right is limited in relation to other overlying users, this right is sometimes called a correlative right. The quantification of each overlying user's correlative right depends entirely on the facts and circumstances as they exist in the basin. However, the overlying user's correlative right is generally to a reasonable share of the groundwater in the common groundwater basin for use on such landowner's land that overlies the basin.

As among overlying users, it is generally irrelevant who first developed the groundwater. Each overlying user has a right in the common supply, and the exercise of that right entitles each to make a reasonable use of the water for the benefit and enjoyment of his or her overlying land. The correlative right belongs to all overlying landowners in common, and each may use only a reasonable share when the water is insufficient to meet the needs of all.

The overlying right may be used for any reasonable, beneficial use. However, water devoted to public uses (for example, water acquired by municipalities and public utilities for distribution to the public) is not an overlying use. Consequently, at least in theory, the rights of a party extracting groundwater for a public use are no greater, as against other parties, than would be the case if the water was taken out of land that party did not own. However, as a practical matter, overlyers can find it difficult to stop truly public uses of groundwater, even if those uses are based on junior rights (see below).

Appropriative Rights. Any party who does not own land overlying the basin, who owns overlying land but uses the water on nonoverlying land, or who sells the water to the public generally is an "appropriator" and not an overlying user. The courts generally acknowledge the right of an appropriator to take the available surplus from a groundwater basin and apply it to beneficial use inside or outside the basin. For this purpose, "surplus" means available water (that is, water the use of which will not create an overdraft condition) not needed to provide for the needs of all overlying users. (Overdraft is discussed more fully below.) There is no restriction as to where the water may be used, and no requirement that the appropriator be a landowner. The water may generally be used for private or public uses without restriction, subject to the requirement that the use of the water must be reasonable and beneficial.

Among appropriators, the priority of each appropriator's right is determined by the relative timing of the commencement of use, i.e., first in time is first in right.

<u>Prescriptive Rights</u>. There is some question in California as to whether prescriptive rights to groundwater can be asserted. At least one case suggests that the doctrine of prescription (or at least the doctrine of "mutual prescription" pursuant to which all users of a basin prescript as against each other) no longer has a place in California. However, the better view seems to be that prescription can occur relative to groundwater, just as it can with respect to surface water.

Prescriptive rights do not begin to accrue until a condition of overdraft begins. Therefore, it is first necessary to determine when a condition of surplus ends and overdraft begins.

The definition of overdraft was articulated by the California Supreme Court in 1975. There, the court held that overdraft begins when extractions exceed the safe yield of a basin plus any temporary surplus. Safe yield is defined as the maximum quantity of water which can be withdrawn annually from a groundwater supply under a given set of conditions without causing a gradual lowering of the groundwater levels resulting, in turn, in the eventual depletion of the supply. "Temporary surplus" is the amount of water which can be pumped from a basin to provide storage space for surface water which would be wasted during wet years if it could not be stored in the basin.

Once a groundwater basin reaches a condition of overdraft, no <u>new</u> appropriative uses may be lawfully made. If overlying users (who, as discussed below, have priority over appropriative users) begin to consume a greater share of the safe yield, the existing appropriators must cease pumping in reverse order of their priority as against other appropriators. Typically, however, appropriators continue extraction activities unless and until demand is made and/or suit is brought. If an appropriator continues pumping from an overdrafted basin for the prescriptive period (which, as in other contexts, is five years) after the other users from the basin have notice of the over draft condition (through decline of groundwater levels or otherwise), then that appropriator may obtain a prescriptive right good as against any other private (i.e., overlying) user.[2]

If the groundwater basin comes out of an overdraft condition, i.e., there is a surplus, during the five year period, the "continuous adverse use" requirement is not satisfied. In that situation, the five year period begins anew once overdraft conditions return. Prescription generally may not occur as against public entities and public utilities.

As against other prescriptive users, the first in time probably is first in right. It has been held, however, that if multiple prescriptors continue their prescriptive uses for an extended period of time, the concept of "mutual prescription" may apply. Under the mutual prescription doctrine, all such prescriptive users would bear proportionate reductions caused by water shortages, rather than on the basis of temporal priority. However, as noted above, questions exist about the continued viability of the mutual prescription doctrine.

As with prescriptive surface water rights, an adjudication or court proceeding is necessary to confirm the existence and scope of prescriptive rights.

Overlying User v. Appropriator. As long as surplus water is available from the basin, both overlying users and appropriators may pump without restriction, provided the water is applied to reasonable and beneficial uses. Therefore, if the groundwater basin can supply the needs of all overlying users and appropriators without creating a condition of overdraft, all may continue to extract water. If there is a condition of overdraft, the overlying user will generally prevail in a dispute over priority of rights as against an appropriator (*even if* the appropriator is a public entity). This is because the appropriative right is only in the surplus; if there is no surplus, there is no possibility of an appropriative right (although a prescriptive right may develop or exist). Therefore, it is unlikely an appropriator could prevail as against individual overlying users in a dispute over the right to pump native groundwater.

Notwithstanding the priority of overlying users as against appropriators, it does not necessarily follow that overlying users may *prevent* extractions by an appropriator depending upon the timing of an action against the appropriator and the appropriator's use of the water. Where the appropriated water has been put to public use, an injunction prohibiting further appropriation may not necessarily be issued. One court has stated that "where the interests of the public are involved and the court can arrive in terms of money at the loss . . . an absolute injunction should not be

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[2] Some Southern California counties are subject to the additional requirement that notice of extraction in excess of 25 acre-feet per year be filed. If the required notice is not filed in any one year, the prescriptive period starts over.

granted, but an injunction conditional merely upon the failure of the defendant to make good the damage which results from its work. Such an action, if successful, should be regarded in its nature as the reverse of an action in condemnation." Also, an absolute injunction will not be granted where other forms of relief are available and would be adequate.

Overlying User v. Prescriptive User. Prescriptive use establishes a prescriptive right good against the overlying users as to whom the prescription has been effected. The priority between such users depends on the amount used by the overlying users during the prescriptive period. If the overlying users continue to pump at the same or increasing levels during the prescriptive period, then neither the prescriptive user nor the overlying user has priority over the other. Rather, the prescriptive user will obtain in effect a parity, according to the following formula announced by the California Supreme Court:

> The effect of the prescriptive right would be to give to the party acquiring it and take away from the private defendant against whom it was acquired either (i) enough water to make the ratio of the prescriptive right to the remaining rights of the private defendant as favorable to the former in time of subsequent shortage as it was throughout the prescriptive period . . . or (ii) the amount of the prescriptive taking, whichever is less . . .

If an overlying user's use declines during the prescriptive period, the overlying user will lose his or her right (as against a prescriptive user) to the extent of that reduction. Ironically, those who are not exercising their overlying use rights at all may fare quite well in the face of prescriptive uses; based on comments by some courts, it appears prescriptive rights do not impair an overlyer's right to groundwater for new overlying uses for which the need had not yet come into existence during the prescriptive period.

When prescriptive rights have vested and an overlying user continues to pump during the prescriptive period, the overlyer's right to continue pumping will usually be protected. In that case, a court would more likely order a proportionate reduction in pumping by both parties.

Appropriator v. Prescriptive User. Technically, this condition does not often exist, since one cannot be an appropriator unless there is surplus, and one cannot acquire a prescriptive right unless there is overdraft. Nevertheless, a prescriptive user is simply an appropriator whose use has continued for a sufficient period of time in the face of an overdraft condition. If both become prescriptive users, and one is a public entity, the public entity will likely prevail because it can pr escript against the other user, while the private user cannot prescript against the public entity. However, even though a public entity cannot lose its rights by prescription, it is subject to limitations in prescription by the exercise of self help by an overlying user.

Groundwater Resulting From Imported Water. The preceding discussion relates to native groundwater, i.e., percolating groundwater which occurs naturally and is not imported. Imported water is water derived from outside the watershed which is purposefully recharged into the groundwater basin, essentially creating an "account" for the recharger. Imported water does not include the return flow from extracted native groundwater since that water does not add to the overall groundwater supply but instead decreases the amount of extraction from the basin. Assuming no prescriptive rights have attached to imported water used to recharge a basin, the imported water belongs solely to the importer, who may extract it (even if the basin is in overdraft) and use or export it without liability to other basin users.

Common Groundwater Practices. While the legal principles summarized above are those that govern groundwater throughout the State it is important to understand that those principles are often ignored--or at least discounted--in practice. Groundwater is frequently pumped by one landowner and sold or given to another, and groundwater has often been exported from one overdrafted basin to another (especially during the recent drought). Probably more than any other body of natural resource law, groundwater law is often honored more in the breach than in the compliance. Historical practices therefore frequently overrun technicalities, and courts often attempt to honor past practices by finding (sometimes tortured) ways to make the law "fit" the circumstances. Thus, the failure to use groundwater in accordance with the principles summarized above does not necessarily mean that a water user is violating the law or is without rights to the groundwater in question.

Adjudicated Water Rights

Many "water rights" in California are not quantified, but are simply claimed and/or exercised without objection by other parties. However, when competing demands for a common water supply--whether surface water, groundwater or both--become too great, formal adjudications are sometimes commenced by one or more of the competing claimants. Both the SWRCB and the courts can conduct adjudications under appropriate circumstances, which typically result in an enforceable order allocating the water (and the water rights) in the adjudicated stream system, groundwater basin or combined water source. Adjudications typically take years (or even decades) to complete because of the often complex legal and factual issues involved.

Frequently, the result of an adjudication is an equitable apportionment of water that does not "track" with a technical application of water law principles. For example, in a recently completed adjudication in the Mojave Basin, the court noted that strict adherence to priority of rights and correlative rights among water users of equal status created uncertainty and potential economic consequences. Therefore, the court applied a "physical solution" requiring all users of the common water source to share equitably both in the water and in the reduction in use necessary to reduce extractions to safe yield. As is commonly the case in judicial adjudications, the court also retained continuing jurisdiction over the implementation of the adjudication order, making the court an ongoing "player" in the administration of the basin.

Such physical solutions may produce the most appropriate allocation of the water resource, but they also create a number of issues. The adjudication order effectively supersedes water rights law, and any interested party must become familiar with the order's impacts on existing and future involvement with impacted water users. Depending on the adjudication order, a watermaster may be in place with jurisdiction over the affected water, and special procedures may be imposed on parties dealing with the water and water rights involved. Even more vexing is the relatively common situation in which the adjudication order effectively severs the water rights from the land, making them freely transferable separate from the land on which those rights originally arose. Adjudicated water rights therefore can fall into a category distinct from more traditional water rights.

Beneficial Use and the Public Trust Doctrine

Regardless of the nature of the water right in question, two very important principles will always apply. First, under the California Constitution, water must be put to reasonable and beneficial use. No water right grants any party the right to waste or make unreasonable use of water, and any water right can be curtailed or revoked if it is determined that the holder of that right has engaged in a wasteful or unreasonable use of water.

Second, no water user in the State "owns" any water. Instead, a water right grants the holder thereof only the right to use water (called a "usufructuary right"). The owner of "legal title" to all water is the State in its capacity as a trustee for the benefit of the public. The so-called "public trust doctrine" requires the State, as a trustee, to manage its public trust resources (including water) so as to derive the maximum benefit for its citizenry. The benefits to be considered and balanced include economic, recreational, aesthetic and environmental; if at any time the trustee determines that a use of water other than the then current use would better serve the public trust, the State has the power and the obligation to reallocate that water in accordance with the public's interest. Even if the water at issue has been put to beneficial use (and relied upon) for decades, it can be taken from one user in favor of another need or use. The public trust doctrine therefore means that no water rights in California are truly "vested" in the traditional sense of property rights.

Water Contracts, Districts and Mutual Water Companies

At least in theory, all water used in California is developed and diverted based on one or more of the basic rights described above. However, it is common for the water rights relied upon by a water user to be held by another party, as in the case of water users receiving water from a district or mutual water company. In fact, most water users in California probably do not hold the water rights underlying much of their water supply. Nevertheless, those water users have a right to receive water separate and distinct from the water rights which support the diversion of the water in question.

Some water suppliers hold the rights to the water they deliver, while many others must acquire water from the ultimate water rights holder and themselves own nothing more than a contract right. For example, many older districts were formed in order to acquire water rights, and the districts themselves therefore hold the water rights which produce the water they distribute. Conversely, the United States is the record holder of the water rights used to operate the Central Valley Project; districts receiving CVP water supplies simply contract with the United States and distribute their contract supplies to their water users.[3]

In many (but not all) districts which provide agricultural water supplies, the right of a landowner to receive a share of the district's water supply is a matter of statute which accrues automatically by virtue of land ownership. No additional documentation is required. In other situations, a formal contractual relationship between the district and the water user is established, and the contract (rather than a statute) establishes the scope of the water user's right to receive a portion of the district's water supply. Districts currently have broad discretion relative to the use and transferability by water users of water they distribute; however, there are ongoing legislative efforts to grant water users more freedom to transfer district water allocated to them without the consent of the district, effectively transforming district water allocations into the personal property of each water user.

In the case of mutual water companies, the right to receive water from the company follows stock ownership. Mutual water company stock can be either appurtenant to the land in the co

[3] Most CVP water users believe themselves to actually be the beneficial owners of the water rights underlying CVP operations, and that the United States is merely a trustee for those rights holding bare legal title. That important distinction is beyond the scope of these materials.

mpany's service are or completely separate therefrom. Generally, the stock of mutual water com panies formed within the past 25 years is appurtenant to the lands served and passes with convey ances of that land (although separate assignments of stock should still be prepared). For many ol der mutual water companies, the stock (and thus the right to receive water) is completely separat e from the land served, and separate stock assignments are required to transfer the right to receiv e water evidenced by shares. As with districts, mutual water companies currently can control tra nsfers of water allocated to shareholders, but could have that authority significantly curtailed by l egislation granting water users rights to transfer water allocations over the objection of water sup pliers.

BILL ANALYSIS

SENATE THIRD READING
SB 1168 (Pavley)
As Amended August 6, 2014
Majority vote

SENATE VOTE :24-12

WATER, PARKS & WILDLIFE 9-4 APPROPRIATIONS 11-5

Ayes:	Rendon, Bocanegra, Fong, Frazier, Gatto, Gomez, Gonzalez, Rodriguez, Yamada	Ayes:	Gatto, Bocanegra, Bradford, Ian Calderon, Campos, Gomez, Holden, Pan, Quirk, Ridley-Thomas, Weber
Nays:	Bigelow, Dahle, Beth Gaines, Gray	Nays:	Bigelow, Donnelly, Jones, Linder, Wagner

SUMMARY : Requires adoption of a sustainable groundwater sustainability plan (GSP) by January 1, 2020, for all high or medium priority basins as determined by the Department of Water Resources (DWR) according to specified criteria, unless the basin is legally adjudicated or the local agency establishes it is otherwise being sustainably managed. Specifically, this bill :

1)Makes findings including, but not limited to, California's high reliance on groundwater to meet its water needs; the necessity of integrated surface and groundwater management in order to meet the state's water management goals; and the failed wells, deteriorated water quality, environmental damage, and irreversible land subsidence that occur when groundwater is not properly managed.

2)Establishes that it is the policy of the state that all groundwater basins are managed sustainably for multiple economic, social and environmental benefits and that such management is best achieved locally based on best available science.

3)Enacts the Sustainable Groundwater Management Act (Act) with the stated intent of empowering local groundwater agencies to sustainably manage groundwater basins through the development of GSPs.

4)Defines sustainable groundwater management, among other terms.

5)Specifies that groundwater basins are those identified in DWR's Bulletin No. 118, as it may be amended, and includes subbasins.

6)Requires DWR, as part of the existing California Statewide Groundwater Elevation Monitoring (CASGEM) program, to prioritize each basin as either a high, medium, low, or very low priority using factors that include, but are not limited to, population, extent of public wells, overlying irrigated acreage, reliance on groundwater, and any documented impacts upon the basin from overdraft, subsidence, saline intrusion and other water quality degradation.

7)Requires that high and medium priority basins be sustainably managed through a GSP but excepts:

a) Basins, or portions of basins, that were subject to a groundwater adjudication; and,

b) Basins that a local agency can demonstrate are already being sustainably managed.

8)Allows any local agency or combination of agencies to establish a groundwater sustainability agency (GSA) for the purpose of developing and implementing a GSP.

9)Allows a city or county to be the GSA or, in the case of an area where no local agency has assumed management, presumes the county to be the GSA unless the county opts out. If the county opts out and there is no other local agency, requires reporting of groundwater extractions directly to the State Water Resources Control Board (State Water Board).

10)Requires a local agency that is electing to be, or forming, a GSA to give public notice, hold a public hearing, and then notify DWR within 30 days after taking action.

11)Provides for public involvement in the development of GSPs and sets forth a diverse set of interests that should be considered by the GSA during that process.

12)Empowers GSAs to collect information regarding the condition of the basin and then develop and implement a GSP using, as the GSA chooses, powers and authorities provided under the Act including, but not limited to:

a) Acquiring land and water to carry out the plan, including but not limited to spreading, storing, retaining, percolating, transporting, or reclaiming water to recharge the basin or provide water supplies in-lieu of groundwater;

b) Monitoring for compliance and limiting extractions;

c) Proposing, collecting, updating and enforcing fees, consistent with all statutory and Constitutional requirements; and

d) Taking civil enforcement actions against persons who violate adopted rules, regulations, ordinances or resolutions setting authorized levels of groundwater extractions. Penalties may not exceed $1,000 plus $500 per acre-foot for groundwater extracted in excess of what is authorized. Also allows the GSA to charge up to an additional $100 per day if the violation continues 30 days after the local agency has notified the person of the violation.

13)Requires, by June 1, 2016, that DWR develop guidelines regarding:

a) GSP components;

b) Coordination of multiple GSPs for a basin; and,
c) Alternative compliance, including submitting an existing plan as a functional equivalent of a GSP or submitting an analysis of basin conditions that demonstrates the basin is being sustainably managed.

14)Requires that a GSP be completed, adopted, and submitted to

DWR by January 1, 2020, in those high and medium priority basins that require a GSP.

15)Exempts the preparation and adoption of a GSP from the California Environmental Quality Act but does not exempt a project or action to implement the GSP.

16)Requires GSPs to meet certain standards including:

a) Encompassing an entire basin or subbasin; and

b) Being designed to achieve sustainable groundwater management within 20 years of adoption with progress reports to DWR and the State Water Board every five years.

17)Requires a GSA to annually report to DWR its groundwater elevation data, aggregated extraction data, use or availability of surface water for recharge or in-lieu supplies, total water use, and change in groundwater storage.

18)Requires DWR, in consultation with the State Water Board, to establish minimum standards for the adoption of a GSP and provide technical assistance.

19)Allows DWR to adjust basin boundaries, as specified, and re-prioritize low and very low basins according to criteria that include adverse impacts to habitat and surface water resources. If a basin is reprioritized to medium or high, provides two years from the date of reprioritization to form a governance entity for sustainable management and five years to comply with the Act by either adopting a GSA or satisfy one of the alternate means of establishing that the basin is being sustainably managed.

20)Requires DWR, by January 1, 2018, to offer assistance to local agencies in medium and high priority basins that have not yet initiated a GSP and, if there is no positive response, refer the matter to the State Water Board.

21)Allows the State Water Board to designate a basin as "probationary" if one or more of the following occurs:

a) By January 1, 2017, no local agency or collection of local agencies has either formed a GSA or submitted an alternative form of compliance;

b) By January 31, 2020, no local agency or collection of local agencies has adopted a GSP for the basin or DWR has not approved an alternative form of compliance; or,

c) After January 31, 2020, DWR, in consultation with the State Water Board, determines:

i) The GSP is inadequate or not being implemented in a manner that will likely achieve the sustainability goal; and,

ii) The State Water Board has determined that the groundwater basin is in a condition of long-term overdraft or in a condition where groundwater extractions result in significant depletions of interconnected surface waters.

22)Requires the State Water Board to identify deficiencies in a probationary basin and allow a minimum of 180 days for a local agency or GSA to remedy those deficiencies and, if the deficiencies are not remedied, adopt an interim plan after public notice and hearing.

23)Allows the State Water Board to require reporting of groundwater extractions in areas that are either in a probationary basin or not being managed by any local agency; and, charge fees to recover the cost of groundwater management.

24)Allows the State Water Board to exclude a class or category of extractions from the reporting requirement if those extractions are likely to have a minimal impact on basin withdrawals.

25)Allows a GSA to assume duties for measuring groundwater elevations in a basin under the CASGEM program.

26)Requires coordination between local land use planning efforts and groundwater management planning efforts.

EXISTING LAW :

1)Provides the State Water Board with broad powers to regulate the waste and unreasonable use of water, including groundwater.

2)Categorizes groundwater as either a subterranean stream flowing through a known and definite channel or percolating groundwater. Groundwater that is a subterranean stream is subject to the same State Water Board water right permitting requirements as surface water. There is no statewide permitting requirement for percolating groundwater, which is the majority of groundwater.

3)Encourages local agencies to work cooperatively to manage groundwater resources within their jurisdictions and, if not otherwise required by law, to voluntarily adopt GMPs.

4)Requires that a GMP contain components related to funding, management, and monitoring in order for a local agency to be eligible for groundwater project funds administered by DWR.

5)Allows a GMP to voluntarily contain additional listed components.

6)Requires all of the groundwater basins identified in DWR's Groundwater Report, Bulletin No. 118, to be regularly and systematically monitored locally and the information to be readily and widely available.

7)Requires DWR to perform the groundwater elevation monitoring function if no local entity will do so but then bars the county and other entities eligible to monitor that basin from receiving state water grants or loans.

8)Requires DWR to prioritize groundwater basins based on multiple factors including, but not limited to, the level of population and irrigated acreage relying on the groundwater basin as a primary source of water and the current impacts on the groundwater basin from overdraft, subsidence, saline intrusion and other water quality degradation.

FISCAL EFFECT : According to the Assembly Appropriations Committee analysis:

1)Increased annual General Fund costs to DWR of approximately $4 million beginning in fiscal year (FY) 2019-20 to collect and manage data, complete evaluations, and assist the State Water Board in developing interim plans. DWR received $22.5 million in the 2014-15 Budget ($2.5 million for FY 2014-15 and $5 million each year from FY 2015-16 through FY 2018-19 which will fund Bulletin 118 updates and technical assistance.

2)Increased annual GF costs of between $200,000 and $600,000 for two years for State Water Board to adopt a fee schedule and develop evaluations guidelines. Increased out-year costs of between $1 million and $2.5 million (special fund) including state interim plans to be covered by fee revenues.

3)Minor, if any, reimbursable local government costs.

COMMENTS : As Benjamin Franklin warned over 200 years ago, we know the worth of water when the well is dry. Unfortunately, for many Californians that is a stark reality or a pending calamity that has been coming in slow-motion for 50 years. In its August 15, 2014, editorial the Sacramento Bee notes that it was in 1962 that an Assembly Interim Committee on Water dodged the issue of needed groundwater management by advising the Legislature it should act if the situation got worse. It got worse. Sixteen years later, in 1978, the Governor's Commission to Review California Water Rights Law, a group commissioned by Governor Jerry Brown, found the groundwater situation was critical and that comprehensive local management had not been undertaken in many overdrafted areas of the state. Again, there was no action.
An August 18, 2014, Los Angeles Times column asserts there is no better time to act than now. The Times notes that the recently-passed $7.545 bond for water-related projects and programs that is scheduled for the November 2014 ballot contains $100 million for planning and implementing groundwater management, $800 million for cleaning up groundwater, $700 million for recycling and $2.7 billion for dam building. As the Los Angeles Times column states, these are projects that can help replenish underground basins but it will take pumping rules to assure taxpayers that they're getting their money's worth. The Times Los Angeles column concludes, the State has been ignoring experts' increasing warnings regarding groundwater depletions for decades and holding off on groundwater regulation since statehood but that this bill and a related measure AB 1739 (Dickinson) of the current legislative session, seek to empower

local governments to manage groundwater sustainably while allowing the state to step in if they fail to do so.

While California uses more groundwater than any other state, it is the last in the Union to lack an enforceable set of statewide groundwater management standards. Groundwater informational hearings in the Assembly Water, Parks & Wildlife Committee and the Senate Natural Resources & Water Committee in March 2014 revealed disturbing statistics on the current degradation of some of California's groundwater basins: between 2003 and 2009 the groundwater aquifers for the Central Valley and its major mountain water source, the Sierra Nevadas, lost almost 26 million acre-feet of water - nearly enough water combined to fill Lake Mead, America's largest reservoir. The findings reflected the effects of California's extended drought and the resulting increased rates of groundwater being pumped for human uses, such as irrigation.
In response to the crisis two bills were introduced in the Legislature, this bill and AB 1739. Following introduction of both bills the authors began extensive stakeholder outreach facilitated by both a nonprofit nonpartisan foundation and an association of water agencies. During this time, the Administration of Governor Brown also proposed statutory language to manage groundwater, made it available on the internet, and started a series of public stakeholder meetings. In July 2014, four professionally facilitated public meetings were convened and led by representatives of both authors as well as the Administration. Following those meetings language was taken from each bill and the Administration's proposal and crafted into one integrated statute. That language was amended into both this bill and AB 1739, making them identical. Both authors also became coauthors of each bill. When the integrated statute came into print, another professionally-facilitated stakeholder meeting was held to get additional input on refinements.

The author states that this bill is needed because California faces a groundwater crisis. The author points out that the cumulative overdraft of our groundwater basins is equivalent to the entire amount of water stored in Lake Tahoe and that in many areas of the state, local groundwater managers lack the tools and authorities to manage the groundwater basins. The author concludes that without improved local management the overdraft in many parts of the state will get even worse over the next

several years. Other supporters add that a new statewide policy for sustainable groundwater management is urgently needed and that this bill addresses one of California's most pressing water management issues. Supporters point out that breadth of the stakeholder involvement process that was used in order to help ensure the right balance of provisions to empower local groundwater management agencies with new tools and authorities and to create an appropriate state backstop that will allow the state to intervene only when needed.

Opponents state they share the author's interest in improving groundwater management but are concerned about the broad scope and specific impacts of this measure. Opponents believe this bill is extraordinarily ambitious and comprehensive and that in its current form it would substantially alter the California landscape and economy for generations to come. Opponents are concerned that this bill could require hundreds of millions of dollars in implementation costs and are worried about potential affects to existing groundwater rights and generate litigation. Opponents maintain the legislation goes beyond the goal of sustainable groundwater management and will adversely affect the agricultural economy and the landscape that is dependent upon it and cause a potential devaluation in some land thus affecting property tax collections in some areas and the services and programs that are dependent upon them. Opponents advocate delaying action in order to avoid what they believe would be unanticipated consequences.

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Local Government Riparian Buffers in the San Francisco Bay Area

San Francisco Bay
Regional Water Quality Control Board

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INTRODUCTION

Background

As indicated in the *Plan for California's Nonpoint Source Pollution Control Program* (Plan), the San Francisco Bay Regional Water Quality Control Board (Water Board) supports local agency efforts to reduce erosion and sedimentation and protect riparian areas. The Plan calls on local agencies to:

- Develop a technical assistance program for project design that will include guidelines for designing projects that avoid wetlands and riparian areas
- Develop a framework linking stream, hydrological, and ecological function to beneficial uses
- Develop criteria for protecting ecological functions and other beneficial use of streams
- Draft Stream Protection Policy

The Water Board is currently working to support local agency efforts to enact stream protection regulations that protect and restore natural stream function. As part of that effort, the Water Board published *A Primer on Stream and River Protection for the Regulator and Program Manager* (April 2003), which discusses the link between channel stability and water quality and outlines ways to avoid excessive erosion and sediment deposition.

The Water Board has also prepared a draft Stream Protection Policy that contains the following objectives for riparian buffer zones:

> Buffer zones shall be maintained or enhanced to protect stream functions. Examples of ways in which buffer zones protect stream functions include: removing agricultural and urban stormwater pollutants, reducing sediment from upland sources, stabilizing stream banks, minimizing changes to the hydrograph by infiltrating stormwater runoff, metering stream baseflow, and supporting vegetation which provides nutrients and shade.

Purpose

This survey of local government efforts to regulate land use for the protection of water quality and habitat for aquatic species was conducted in order to:

1) Determine what land use regulations and management measures local jurisdictions are already undertaking to protect riparian corridors;
2) Inventory riparian buffer widths and the methods used to calculate the width of the buffers
3) Identify obstacles to establishing riparian protection regulations
4) Make recommendations for local governments regarding riparian buffer regulations with the goal of drafting a model ordinance. This can serve as a point of departure for local jurisdictions crafting new or revised ordinances.

Many Bay Area cities and counties have riparian protection policies, rules, or ordinances and others are considering adopting such rules. As the embarks on Total Maximum Daily Load (TMDL) development and implementation and the issuance of Phase 2 Urban Stormwater Permits, we are interested in knowing how local jurisdictions regulate land use to protect water quality and preserve aquatic habitat.

Other topics that will be addressed in this study are:

- The number of cities and counties that are currently working on or considering proposing riparian setback ordinances.
- The key areas of controversial issues that have arisen over riparian buffers in each community

Why Establish Creek Buffers?

Stream buffers can be effectively established through a variety of planning tools, including overlay zoning, creek setback ordinances, and conservation easements. The preparation of local regulations typically involves several components. The first step is to develop the purpose and need for the regulation. Purposes and needs statements contained in ordinances typically cite public safety, hazards reduction, health, and other compelling traditional "police powers" of local government. Protection of environmental habitats has been added to these purposes recently because responsibilities for complying federal and state laws, including the federal Clean Water Act, Endangered Species Act, and the state Porter Cologne and Endangered Species Acts, are increasingly being shifted from federal and state levels to local levels. The next section describes the regulations, which must have a clear and logical connection to the purposes just described. Other sections typically describe enforcement provisions, variances allowed, and often an appeals process.

Riparian zones perform many ecological functions important to enhancing water quality, water quantity, biodiversity, habitat connectivity, and flood capacity. The stream channel itself conveys runoff, supports aquatic plants and animals, provides groundwater recharge, and supplies water to trees and plants that typically thrive in the riparian zone.

Stream buffers are an effective way to physically protect and separate a stream or wetland from future disturbance or encroachment. A network of stream buffers acts as a right-of-way during floods and sustains the integrity of stream ecosystems and habitat (Center for Watershed Protection, www.cwp.org/aquatic_buffers.htm). Riparian forest and wetland buffers, if properly maintained, appear to have a significant capacity to mitigate some of the effects of development. Riparian buffers protect stream function, protect habitat, and provide additional capacity for flood flow conveyance.

The Water Board's Watershed Management Initiative identifies the following major non-point source problems in the San Francisco Bay Region, many of which can be partially or fully addressed through establishment of riparian buffers:

- Elimination of natural channels, including loss of wetlands, wildlife, fisheries and riparian areas;
- Increased sedimentation due to construction activities and land clearing;
- Unmitigated changes in hydrology that upset the geomorphic equilibrium of streams, causing destabilization and erosion of channels, and more frequent flooding;
- Increased pollutant loads associated with urban activities;
- Impairment of fish habitat from water diversions and fish passage barriers due to the construction of in-channel reservoirs and diversion structures, the sedimentation of channels, and the removal of vegetation; and,
- Increased pollutant loads associated with agricultural activities.

Stream Function

The riparian zone functions to decrease sedimentation by intercepting sediment and debris in root zones before sediment-laden runoff enters the stream system. The capture of sediments has the added benefit of trapping particle-bound chemicals and pollutants, preventing them from degrading aquatic environments. Also, the vegetation within a creek buffer will decrease erosion and allow for increased soil infiltration by stabilizing stream banks and slowing flow velocities. In some settings, intact riparian areas will remove pollutants traveling in stormwater or groundwater.

Riparian Habitat

The riparian zone is an ecotone, or transition zone, between aquatic and terrestrial habitats. Because riparian zones contain both aquatic and terrestrial plant and animal species they have unusually high species diversity. Riparian zones are also important migratory corridors. A continuous buffer provides migratory and wildlife corridors, which are of particular value in protecting amphibians and waterfowl populations, as well as fish spawning and nursery areas. According to the U.S. Fish and Wildlife Service, California has lost 90 percent or more of its wetlands, which includes riparian communities. This is despite the fact that according to government biologists, riparian communities in the Western states, such as California, provide habitat for up to 80 percent of western wildlife species. It is estimated that about 50 percent of endangered species require wetlands at some point in their life cycle.

Flood Conveyance

Riparian zones form the part of the floodplain that is closest to the edge of the water body and are the most frequent areas to be inundated. To minimize property damage, it is advantageous for local regulations to include the entire 100-year floodplain within the riparian buffer to reduce flood risks.

Regulatory Context

Federal Clean Water Act Sections 404 and 401

The California Regional Water Quality Control Boards review applications for water quality certifications under Section 401 of the federal Clean Water Act (CWA). CWA Section 401 is tied to CWA Section 404, which requires federally issued permits for all proposed fill and dredge activities in waters of the United States. Section 401 gives states the authority to approve, conditionally approve, or deny a Section 404 permit to ensure that federally permitted actions are consistent with state law. Section 404(b)(1) provides guidance for evaluating project alternatives. It calls for first avoiding impacts, and then minimizing impacts to assure that there is no net loss of fully functional streams, wetlands, and/or water bodies. Implementation of stream protection regulations can go a long way to avoiding impacts and can ease the Section 404/401 permit process for projects. Additionally, projects that avoid all impacts, or potential impacts to waters of the State will not require 401 water quality certification.

California's Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act provides both immediate and long-term authority for the protection of the physical integrity of river and stream environments. The Act directs regional boards to regulate impacts to waters of the State by the issuance of Waste Discharge Requirements (WDRs) for any activity that results in a waste discharge that directly or indirectly impacts waters of the State. WDRs can and are being used to maintain and promote stable waterways. When used to condition discharges such as fill into a water body, WDRs may encourage a balance between erosion, sediment transport, and deposition as a means of avoiding the degradation of water quality. In the past, WDRs were primarily used to regulate point source discharges of liquid or solid waste to land (e.g., septic tank discharges, landfill operations, etc.) However, WDRs are an appropriate means to regulate discharge of waste including fill material, sediment and changes in flow to waterways.

Each of the nine Regional Boards has a master policy document that describes the legal, technical, and programmatic foundation used for protecting water quality. In the Bay Area, this Water Quality Control Plan, or "Basin Plan," details beneficial uses that are directly related to the concern of the physical integrity of stream and river channels. While there are many beneficial uses provided by aquatic ecosystems, the uses best preserved by riparian buffers are: cold freshwater habitat for trout and anadramous salmon and steelhead; fisheries migration including unimpeded river flows; preservation of rare and endangered species; and protection of wildlife habitat. These beneficial uses can be effectively protected and maintained through riparian and wetland land use regulation at the local level.

Federal Clean Water Act Sections 303(d)

Section 303(d) of the CWA requires identification of impaired water bodies (those that do not meet water quality objectives or support designated beneficial uses). Many water bodies in the Bay Area have been listed under Section 303(d) as impaired and the Water Board is developing Total Maximum Daily Loads (TMDLs) to address these impairments. TMDLs create a plan to attain the designated water quality objectives and protect beneficial uses for impaired water bodies. Impairment due to excess sediment, nutrients, and pathogens are common in the Bay Area.

The Water Board is developing TMDLs to address impaired water bodies in the Bay Area. We are encouraging a broad watershed management approach that allows for flexibility in attaining water quality goals and objectives. The TMDL may combine the concept of load allocations with aggressive Best Management Practice programs and local “commitments to action” tied to measurable factors such as extents of riparian setbacks, riparian canopy coverage, and stable vegetated stream banks. TMDLs provide an opportunity to identify and apply locally based remedies to improve watershed conditions.

Endangered Species Act

The Regional Board works cooperatively with the California Department of Fish and Game and the federal U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to assist in the protection of threatened and endangered species. In June 2000, NMFS adopted regulations affecting fourteen groups of salmon and steelhead listed as threatened under the Endangered Species Act (ESA). Other listed aquatic species found in the Bay Area include freshwater shrimp, red-legged frog, western pond turtle, and other non-salmonid fish. In addition to aquatic species there are a number of threatened and endangered birds and mammals that use sensitive riparian and wetland habitat for vital life functions. The ESA provides a variety of tools for saving species threatened with extinction. Review of activities that could affect endangered aquatic species is facilitated by proactive riparian and wetland land use policies.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that the potential environmental impacts of projects be evaluated and that mitigation measures be developed to reduce any identified significant impacts. CEQA requires evaluation of hydrologic, water quality, and biotic resource impacts. Mitigation measures, developed on a project-by-project basis, often include riparian buffers. Local stream protection policies and ordinances limit development in riparian areas and can alleviate the need to conduct a project-specific impact analysis.

Political Reality

Many cities and counties in the Bay Area are struggling to adopt stream protection policies and ordinances to provide a mechanism for complying with the wide range of water quality and endangered species regulations discussed above. However, in many jurisdictions there is concern that riparian buffers could result in undesirable restrictions on private property. These concerns can be addressed through ordinance exceptions or variance provisions. It is important for local government to initiate a stakeholder outreach and education program prior to releasing a draft ordinance for the decision-making body to consider.

On the other hand, in some communities concerned citizens and environmental groups may believe that the riparian protections are not stringent enough or that enforcement mechanisms are weak. The success of riparian buffer regulation lies with the community. The community must be educated about the benefits of riparian protection, what the proposed regulations will and will not allow, how exceptions to the regulations are permitted, and finally, who will implement and enforce the ordinance.

METHODOLOGY

In February 2003, a "Stream Protection and Erosion Control Survey" (Appendix A) was drafted by the Water Board with the intent of being administered to staff in city and county planning departments. In an effort to identify policies that contribute to sediment reduction and aquatic habitat protection throughout the San Francisco Bay region, questions were asked regarding stream and tree protection, and hillside development policies. San Francisco Estuary Project Interns Orrin Cook and Brendan Thompson conducted phone and email surveys between March and November 2003. At times, planning staff deferred questions to their jurisdictions' public works or community development departments, who then replied to the survey questions. Between March and May 2004, the data were fact-checked to ensure that the results were current.

The survey questionnaire consisted of nine questions, and question results were entered into an Excel spreadsheet and then summarized. For survey question #1, which asks if a given General Plan contains policies about the protection of riparian resources, a threshold was established whereby if the General Plan had a clear statement about restricting development in the riparian zone, then an affirmative answer would be assigned. All affirmative responses from city and county staff were checked with that jurisdictions General Plan to ensure the threshold was satisfied. For some of the cities that did not respond to the survey, we were able to access their General Plans online. These cities were included in the survey results for question #1. If the General Plan could not be accessed, then the question was not assigned a response.

Survey question #3 asks if a municipality has a zoning ordinance regarding riparian buffers. If a stream buffer policy existed in the jurisdictions zoning ordinance, municipal code, or supplemental policy document, an affirmative response was assigned. General Plan policies were not included. "Easement" and "setback" policies were included in our definition of a stream buffer. For all of the questions, responses were confirmed by checking the corresponding policy document.

During our study, we discovered that the initial scope of the survey was too broad, given the available resources. Information was gathered on tree protection policy, hillside development policy, and flood hazard issues (see Appendix D). Once much of these data were gathered, it was evident that there was not enough information for analytical applications. Later survey participants were given an abbreviated survey that only asked the questions of the survey that applied to issues of stream resource protection.

Limitations of Study

The survey began with the intention of finding several meaningful, quantitative descriptions to describe stream, tree, and hillside protection policies in the 85 incorporated cities and nine Bay Area counties within the San Francisco Bay Regional Water Quality Control Board (Region 2). Not surprisingly, the absence and presence and characteristics of these policies were not clear-cut, and did not lend themselves to be easily summarized within discrete categories. Consequently, the only absolute quantitative data we can report from this survey is the number of jurisdictions with some form of riparian buffer policy in their city and county codes. We also provide a range of buffer widths prescribed by local regulation, as well as a percentage of jurisdictions with tree protection ordinances and hillside development ordinances (Appendix D).

We intended to develop a rating system that would evaluate the effectiveness of the stream buffer policies. This proved to be unmanageable, as the effectiveness of a given stream buffer policy is a function of many variables. For a list of stream buffer policy characteristics that would be used to develop evaluative criteria of a given policy, see Appendix C. Additionally, we were unable to determine how closely or effectively a given jurisdiction was following their stream protection policies. It is possible that some communities protect their riparian areas more effectively through their design review process than other communities who have an established buffer policy. Although it is difficult to assess the success of these buffer policies, it can be said that vague definitions of allowable land use in buffer zones, or liberal granting of variances do not lend themselves to an effective buffer policy.

We cannot guarantee the accuracy of the information provided by participants. We interviewed senior planners, principal planners, planning directors, city planners, planning managers, assistant planners, and various staff in public works departments. It is also possible that certain participants' unfamiliarity or inexperience could have resulted in inaccurate survey replies.

The reported results reflect conditions that were accurate at the time the surveys were conducted. The information was gathered between March 2003 and May 2004. Since the time interviews were done, General Plans may have been updated or new ordinances may have been implemented.

RESULTS

With 89% of cities reporting, 41% have some form of a stream buffer policy in their municipal code, zoning ordinance, or supplemental policy document. Of the nine counties in the Region 2 jurisdiction, with San Francisco County not responding, 75%, or 6 of 8 have a stream buffer policy established. After examining the General Plans of 81% of the 85 Region 2 cities, we determined that 32% of those cities have General Plans describing an implementation policy that restricts development within riparian zones. A summary of some local stream buffer policies and stream protection approaches is provided in Appendix B.

Of the 59% of cities that do not have a stream buffer policy, 4% are working to adopt such policies, 7% are considering the possibility, 80% are not considering adopting one, and for 9%, it is unknown whether or not they are working on or considering a buffer policy.

See Appendix D for a graphical summary.

FINDINGS

Typical Issues of Controversy

Property Encroachment

Fear of private property encroachment is the most common contention raised at the mention of stream buffer policy. Enactment of a policy has the perceived potential to restrict property owners of some uses or activities on portions of their parcels. This becomes less of an issue in communities with large lots; in cities with small lots, the buffer would have a greater effect on a landowners' "reasonable use," thereby making the implementation of a stream buffer policy much more difficult. Planners expressed a need to accommodate property owners who may have small parcels, or parcels with a high ratio of total property line adjoining a creek. Cupertino is the only city found with a buffer policy that establishes buffer widths based on lot size. In Cupertino, lots less than one acre in size must provide a 50-foot stream buffer zone; sites over one acre must leave 100-foot buffers. Some policies reflect other methods of protecting landowners. In 1990, when the City of San Ramon established a 100-foot stream buffer ordinance within "resource conservation areas," properties that were already parceled prior to conservation district approval were precluded from the ordinance.

In a very small percentage of jurisdictions, a proposed, amended, or approved stream buffer ordinance has met opposition from members of the community. Amidst concerns and debate from citizens opposed to regulation of private property, Napa County Supervisors adopted a stream setback Revision Ordinance that ambitiously expanded upon an existing stream buffer policy (see Appendix B). The Board of Supervisors then withdrew the ordinance after critics of the new policy submitted a referendum petition. According to a senior planner from the County, resistance came from private property owners who thought that the county was taking land unjustifiably. Private landowners argued that the science behind the stream buffer guidelines might not be valid. The fate of the ordinance was determined by a countywide vote in March 2004, whereupon it was defeated. The City of Portola Valley in San Mateo County has also been having difficulty increasing an existing 20-foot from creek center setback policy, due to property owner opposition.

Many landowners have misconceptions about existing and proposed riparian buffer ordinances. Often landowners assume that their land will be transferred to public ownership. In addition, landowners are often unfamiliar with existing land use restrictions and state and federal law pertaining to wetland fill and stream alteration. (Some existing regulations are described in the Introduction). The goal of riparian buffer regulation is to reinforce at the local level Section 404 and Section 401 CWA regulations on all streams (see introduction, pg. 6) and to further provide for a setback from the top of bank to allow for improved water quality, to promote riparian habitat values, and to protect stream banks from erosion.

A Napa county planner noted that if the county could start the entire process again, it would have "done more public scoping and more public education." He emphasized the need for open workshops and town meetings with *scientists* present, since planners and commissioners are often now well versed in stream science. Doing this, he said, would have allowed the public to better understand the environmental benefits of a stream buffer ordinance.

Jurisdictional resistance

Some communities, and more often community groups, have pressured their city or county to adopt a stream buffer ordinance or make an existing ordinance more stringent. However, these groups have occasionally met opposition from the city or county. The governing body often cites a lack of funding, departmental resources, or political will to pursue stream protection legislation. Instead, jurisdictions frequently respond to political pressure by focusing on the design review or permit process as a way to limit development within riparian zones. Though these results may be beneficial, the sincerity of their efforts can sometime be viewed as questionable. As one county senior planner stated, “If you throw enough money at [a proposed development], anything is possible.” This approach also leads to a case-by-case approach to stream setbacks that can be inconsistent and inefficient.

In similar respect to the aggrieved property owner who must compromise development potential because of a riparian buffer, jurisdictions may tend to perceive the buffer as an expensive policy that further depletes an already finite reservoir of developable land. One city planner suggested that setting aside and preserving riparian areas would reduce the amount of land available for development, thereby adversely affecting housing availability and affordability.

Development and a riparian buffer need not always be at odds with one another. We learned from the survey of one instance where the passage of a proposed large residential development would have been facilitated by the presence of a riparian buffer ordinance. The city’s conditions of approval for the development were being heavily contested partly due to public demand for a significant level of riparian protection. If the city had already had a riparian buffer ordinance in place prior to the project introduction, the developer would have presented a different plan at the outset, and the conflict could have been greatly diminished, or avoided entirely. Aside from providing the developer with a level of certainty, the city would be alleviated of the need for extra analysis within the CEQA process. Cities can provide incentives, such as housing density bonuses, for development that avoids riparian areas.

Approaches to Regulation

Throughout the region, cities are employing various tools to regulate riparian zones. No two are quite the same. Appendix B describes some representative policies that demonstrate the wide range of riparian resource management.

The 59% of cities without a stream buffer policy do exercise some regulation of development in their riparian areas. When asked whether or not they regulate land use in riparian zones beyond state and federal law, planners often responded affirmatively, noting that through development permits and CEQA processes, riparian areas are protected. This “case-by-case,” or “project-by-project” approach to riparian regulation may result in inconsistent and inadequate riparian protection. Some planners earnestly described community and planning commission support for protection of riparian resources. It was likely in many of these cities that unwritten buffer policies and other riparian protection guidelines were adhered to by the planning departments, and that even in the absence of an ordinance or formal policy, the watercourses were in good health. In other cases, a case-by-case approach is tantamount to not having a riparian protection policy. In municipalities or counties where the planning commission is more supportive of development, or community interest in preserving riparian zones is lacking, the absence of a formal policy will contribute to degradation of the riparian areas. Without a formal policy, adequate long-term creek stewardship is not assured.

Virtually all the cities in the Bay Area without a stream buffer ordinance have within their General Plan a paragraph that acknowledges and praises the value of their creeks. Far fewer have implementation policies that attempt to actively preserve those waterways. The General Plan of Colma contains a recommended stream setback that does not have specific implementation policies. When a development project comes under review by the planning department, the General Plan recommended stream setback is referenced as an attempt to establish some degree of riparian protection. While such a policy is not as reliable as a code/ordinance, it provides a tool for riparian preservation where a code or ordinance does not exist. It is also an alternative approach to riparian protection for communities where a riparian buffer ordinance is not yet a political possibility. Contra Costa County also has a stream buffer policy within their General Plan. This policy is stronger than the aforementioned, because the policy is not "recommended," but rather states that setback areas "*shall* be provided."

The City of San Jose has a stream buffer policy that is neither in the code nor the General Plan. The city administers a riparian buffer policy through use of a "riparian corridor study" document that describes suggested buffer widths. The document recommends a 100-foot setback, but exemptions are given that may reduce the setback to 50-foot distances.

Some cities protect watercourses by requiring that development projects near riparian areas obtain a special permit. Although a stream buffer requirement is not part of the regulatory process, this approach ensures that every project adjacent to a creek will be evaluated in terms of avoiding watercourse impacts. The permit will typically have conditions of development that are designed to protect riparian functions. Jurisdictions that claim to effectively protect creeks through the design review process could adopt a permit requirement, thereby providing assurance that potential creeks impacts are receiving due consideration. The city of Oakland uses this permit approach (see Appendix B).

There is much variability among the established stream buffer ordinances. Stream buffers are measured from either the top of the stream bank, the centerline of the creek, or sometimes from the outward edge of riparian vegetation. Measuring the buffer from the outward edge of vegetation has the potential to discourage property owners from preserving their riparian zones. Some ordinances use the dimensions of the stream channel to formulate a buffer width, and the calculations can get rather complicated (see Lafayette, Appendix B). Operative assumptions within these policies are that steeper and deeper channels require wider buffer widths. The cities of Orinda and Lafayette in Contra Costa County, and the County of Napa have such policies.

Many policies apply only to waterways that are specifically identified in the text of the codes. These policies are excellent for high-profile waterways, but can leave headwater and other unnamed tributaries unprotected.

While not stream buffer policies *per se*, some cities and counties have floodplain ordinances that will leave a stream buffer as a consequence of limiting development within FEMA or high-risk flood zones. Contra Costa County has a Floodplain Management Ordinance that incidentally protects riparian areas by prohibiting development within a one- to two-foot elevation range above a FEMA or Floodplain Administrator-determined base flood elevation. This approach doesn't specifically target preservation of riparian functions, and will leave higher-elevation watercourses unprotected by the ordinance.

DISCUSSION

Summary of Analysis

Responses to our survey indicate that some city and county planning departments lack awareness of stream issues and functions. Many of the established stream buffer policies have ineffective or sub-optimal buffer distances for effective sediment and pathogen filtration functions. An effective buffer would require increasing buffer distances with gradients; few of the policies we researched account for this need. Also, many of the policies do not mandate that buffers apply to the entire jurisdiction, but rather to special zoning districts and/or areas within the cities and counties.

Most survey participants informed us that their jurisdiction’s General Plan addressed the protection of riparian areas. Upon inspection, the Plans did often have excellent objectives to protect creeks, but the implementation measures lacked a detailed performance standard. In the cities without riparian protection policies, planners often justified their absence by citing the lack of riparian areas within their community.

Analysis/Priority for Water Board Outreach and Implementation

There are many areas in which the Water Board can provide regional leadership. Many city and county planners have a vague familiarity with stream issues. While some planning departments are extremely knowledgeable and competent in riparian science, many planners we spoke with were unaware of stream issues relevant to Water Board goals.

Before the Water Board encourages the adoption of stream buffer policy by local jurisdictions, there must be an effort to educate the community on the water quality, habitat, and property protection benefits of stream buffers. It will be easier to argue the relevance of adopting such policies within cities or counties that still have significant amounts of undeveloped area. However, cities that have either reached, or have nearly exhausted, their reserve of developable land will need to be convinced why their communities would benefit from the enactment of a stream buffer policy.

During the survey, planners from these heavily urbanized or “built-out” cities acknowledged not having or planning stream buffer policies, and justified this by mentioning that the scant developable land is generally devoid of drainages, and all existing watercourses are already in culverts, channelized, or underground. In their opinion, there is no need to adopt an ordinance to protect streams where there are none to protect. Only the most obvious of open-channel, flowing waterways are considered creeks. One city was devoid of riparian protection because, in the planner’s words, “we don’t have too many riparian zones.” This situation appears to be quite common, and is most likely a major reason why riparian issues are perceived as non-existent or irrelevant. An “out-of-sight, out-of-mind” mentality is present, where the role of watercourses in non-point source/sediment transportation is overlooked. The lack of awareness of creek functions may inhibit any beneficial regulations from being considered or enforced. In a built-out community, a riparian buffer policy is critically needed to protect the remaining riparian areas from future re-zoning and/or development intensification.

Survey participants had varying levels of familiarity with the stream protection policies in their jurisdictions' General Plans, municipal codes, and zoning ordinances. A thorough knowledge of municipal code and zoning ordinance regulations was typical. However, often when planners were asked to summarize and evaluate the level of protection of riparian resources in their General Plans, they appeared to be unfamiliar with the associated policies. The apparent lack of familiarity on the part of some planners with these portions of their General Plans suggests that the Plan is not often referenced for riparian protection guidance. The Water Board should encourage actions that are consistent both with local General Plans and with code requirements. An annual training of General Plan policies for planning department employees would be a good way to ensure that the Plan has a role in the decision-making process.

The Water Board should require jurisdictions to include a clear, outlined vision for the protection of their riparian areas in their General Plans. The General Plan policy must serve as guidance for each jurisdiction, and be known and used for decision-making purposes by the corresponding planning department. Implementation measures must be drafted using the active voice (word choice such as "will" and "require," not "should" and "encourage"). We found many General Plan policies for riparian protection were written using a passive voice, suggesting that waterways protection was not a significant priority.

Buffer Distances

Estimates of effective buffer distances for sediment and nutrient filtration vary, but most of the scientific studies suggest distances between 50 and 100 feet for this purpose (Jones & Stokes 2002). Although any buffer distance from the top of bank is helpful for maintaining channel stability, a minimum 33-foot riparian buffer is required for contributing to a significant reduction in sediment levels (Corely et. al. 1999, Peterson et. al. 1992, as cited in Jones and Stokes 2002). In Bay Area cities, approximately 38% of stream buffer policies require a 33-foot or greater minimum buffer distance (Appendix D). The buffer distances in the region vary greatly, and it is likely that many were not chosen based upon specific buffer thresholds designed to satisfy water quality considerations. A scientifically based approach can help quantify buffer-induced benefits to water quality, thereby allowing the Board to more easily quantify TMDL reduction amounts when communicating with the region cities.

Preserving headwater drainages is a critical step in environmental protection and must be conveyed. The culverting and filling of these typically ephemeral watercourses will concentrate flows and destabilize creek channels downstream. Within the assorted stream buffer policies we reviewed, “first-order” or “headwater” streams were not *specifically* identified as watercourses to be protected. However, these streams would be subject to protection in the jurisdictions in which buffer policies identify ephemeral streams as part of the stream network. An additional and important level of protection is given to these streams in the jurisdictions that require wider buffer widths with increasing slope. These streams are typically regulated under sections 404 and 401 of the CWA for fill or alteration of the channel.

Grading and Hillside Ordinances

Another possibility for protecting headwater streams is through local grading and hillside development ordinances. Many jurisdictions either prohibit or limit development beyond a particular average slope threshold. These regulations have the effect of incidentally protecting first-order drainages, but are not a guarantee that these headwater streams will be preserved. While a potentially important tool for maintaining the functional integrity of higher-elevation riparian zones and for reducing erosion, these policies are limited to areas that meet a locally determined slope threshold, and therefore, are not substitutes for a stream buffer policy. However, communities that are built-out at lower elevations could provide a significant level of protection for their creeks by implementing protection within their grading policies in lieu of formal stream buffer regulations.

The Role of Community Outreach

Jurisdictions looking to adopt a stream buffer ordinance should, in general, open the process for public participation and comment. Governments that do not address community concerns or provide scientific justification face the possibility of public outcry and backlash similar to what happened in Napa County. Community outreach and education is especially key in areas where lack of information or misinformation has formed a foundation of opposition. This can include areas with strong agricultural communities or areas with expensive hillside lots.

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APPENDIXES

APPENDIX A

Riparian Resources and Erosion Control Survey

1. Does your General Plan contain policies about protection of riparian resources?

    Do you consider them to be weak, moderate, or strong? Why?

2. Do you regulate land use in riparian zones, beyond State and Federal law? If yes, how?

3. Does your municipality have a zoning ordinance regarding riparian buffers (e.g. biotic resources district, stream conservation area, erosion control ordinance, floodplain regulations)?

- If yes, please answer the following questions:

    When was the ordinance first approved?

    Do you feel that the ordinance is generally weak, moderate, or strong in protecting the riparian corridor?

    How is the regulated stream network defined? (in the General Plan, USGS blue-line streams, other regulatory definition?)

    Where is the setback measured from? (stream center line, top of bank, edge of riparian corridor)

    What are the various stream categories? (upland, urban, lowland)

    What are the setback distances?

    What are the provisions for exceptions or variances?

- If no, is your community currently *working* to approve such an ordinance?

- If not, is your community currently *considering* a riparian buffer ordinance?

4. Does your municipality have a heritage tree ordinance?

    If yes, please answer the following questions:

    Has the ordinance been effective in preserving riparian trees?
    Do residents generally comply with the ordinance?
    What are the provisions for exceptions or variances?

5. Does your municipality have an ordinance that specifically regulates hillside development?

    If yes, please answer the following questions:

    Is there a maximum allowable slope for development?

    How effective are these regulations at reducing soil erosion (weak, moderate, or strong?)

6. Does your community have unresolved flood hazard related to creeks? Please explain.

Are there any plans for flood control projects?

7. What are the main controversies, if any, regarding riparian protection in your community? (property rights advocates, environmental groups want better protection, etc.)

8. Has there been any litigation regarding your stream protection regulations?

9. How can we get a copy of your General Plan or stream/tree/hillslope regulations?

Additional comments:

APPENDIX B

Summaries of Buffer Policies and Stream Protection Approaches

Oakland, Alameda County

In December 1997 the City of Oakland amended their Stormwater Ordinance to include a heightened level of protection to the city's many riparian areas. While not a setback policy, the ordinance requires that construction and development projects nearby creeks first obtain a "creek protection permit" from the city. In order to get permit approval, the applicant must meet criteria and guidelines that are intended to either minimize or avoid negative impacts to the creek area and its natural functions. Activities that are typically not allowed by the city include: construction of structures across a creek; agricultural activities on the creek banks; any disturbance of the creek channel and flow; removal of tree canopies, and the installation of structures on the creek bank.

The City is amending the ordinance to include more-specific standards and guidelines for the development of creekside properties. The standards and guidelines will include criteria regarding slope, soils, flows and types of vegetation, and provide guidance on appropriate setbacks and mitigation measures for development. The amended ordinance will also provide a detailed map of creekside properties subject to the policy.

Fremont, Alameda County

In November 2002, Fremont adopted Measure T that among other things stated, "No development shall be located within a riparian corridor except for otherwise permitted flood control, erosion control, water supply, transportation facilities, fences or hiking or equestrian trails. 'Riparian corridors' are the areas within 200 feet from the center of a permanent or intermittent stream bed." Measure T, however, was geared only at the zone delineated as "Hill Area," which included the Open Space zone and two residential districts. The 200-foot buffer is not applied elsewhere in the city. Other riparian areas in Fremont are protected via the Fremont General Plan and the design review process. A General Plan implementation policy requires that as part of a development application, the "extent and characteristics of riparian corridors shall be carefully assessed to a minimum distance of 100 feet from the center of the creek bed."

Lafayette, Contra Costa County

The City of Lafayette has a creek setback policy in their municipal code that prohibits construction of structures within a creek setback area. The creek setback area is determined by calculating a creek setback line based on the creek depth, steepness of bank, and topography of the top of bank. Project plans must show that proposed work is outside the calculated setback area before the city will issue a building permit. Exceptions are granted if a licensed civil engineer specializing in soils analysis certifies that there is no likelihood of a hazard to persons or property resulting from the proposed construction.

From the City of Lafayette Creek Setback Requirements:

(a) As defined by Section 6-312 and Section 6-355, buildings and structures shall be set back from an unimproved *creek* channel as follows:

(1) Channel Depth of Zero through 21 Feet. If the side slopes of the channel are steeper than 2:1 (horizontal:vertical), the width of the structure *setback* is determined by a line measured from the toe of the slope a distance of twice the channel depth plus the appropriate top-of-bank *setback* as follows:

Channel Depth (Feet)	**Top of Bank *Setback* Minimum Width (Feet)**
0 – 6	12 each side
6 – 12	15 each side
12 – 18	18 each side
18 – 21	21 each side

If the side slopes of the channel are flatter than 2:1 (horizontal:vertical) the structure *setback* is the appropriate *setback* indicated in the table above, measured from the top of the bank.

(2) Channel Depth Exceeding 21 Feet. If the depth of a channel exceeds 21 feet, the width of the structure *setback* is determined by measuring from the toe of the slope a distance of three times the channel depth.

Fairfield, Solano County

In 1992, Fairfield updated their stream protection policies to include a Creekside Ordinance that mandated at least a 200-foot “steam environment zone” that includes “the stream bed, stream banks, and a riparian zone at least 50 feet wide, measured from the top of the channel bank.” In practice, the 200-foot requirement can be split between adjacent property owners in a variety of ways, depending on when one owner bought his/her lot and if it was registered with the city before Fairfield’s first ever stream ordinance in the 1970s. The ordinance applies to eight major stretches of creek and does not apply to low-order drainages, although the City “would still consider these setbacks when dealing with smaller scale streams with any significant riparian coverage.”

Sonoma County

Sonoma County zoning code provides “streamside conservation area” protection to all waterways that are designated as “riparian corridors” in the Open Space Element of the General Plan. The width of the conservation area is determined based upon classification of urban, upland, flatland, or Russian River riparian corridors. The corridors in urban and upland areas have a 50-foot from top of bank conservation area, while streams traversing level flatland areas are required to have a 100-foot wide conservation area. Russian River riparian corridor conservation areas extend 200 feet from the top of bank. New buildings cannot be built within the conservation area, unless the lot would be rendered undevelopable as a result of the setback or develop were designed in such a way as to avoid impacts to riparian habitat. Agricultural setbacks are half the distance of the building setbacks.

In terms of setback-width distances, Sonoma County requires one of the greatest in Region 2. Since the policy only protects the corridors identified in the General Plan, many waterways of all types are left unprotected by the zoning code. The General Plan is currently being updated, and many additional streams are proposed to be designated as riparian corridors. The urban and upland riparian corridor widths are also proposed to be widened to 100 feet from top of bank. Planning Commission hearings on these proposals are tentatively scheduled for Fall 2004.

Napa County

The Napa County Conservation Regulations has been in use since 1991. They use slope percentage adjacent to creeks to formulate required setbacks that range from 35–150 feet. Protected waterways include: those designated by “a solid line or dash and three dots symbol” on the U.S. Geological Survey topographic map; watercourses with well-defined channels at least four-feet deep; and banks steeper than 3:1 (horizontal:vertical) with hydrophilic vegetation or specific streams specified by resolution by the County Board of Supervisors.

The Napa County Board of Supervisors voted 3-1 to adopt a Stream Setback Revision Ordinance on April 8, 2003. This ordinance would have, among other things, increased standard stream setbacks for non-residential projects to 100 to 150 feet on all Class I streams depending on slope, 75 to 150 feet on all Class II streams depending on slope, and 25 feet on all Class III streams. Community critics of the policy, led by property owners who felt the ordinance imposed on their land ownership rights, successfully organized a referendum petition, and the Board of Supervisors reversed their adoption of the policy. The Board of Supervisors decided to put the issue before Napa County voters. The Ordinance was presented as Measure P in March 2004, and was voted down with a 65% majority.

APPENDIX C

Relevant Factors When Evaluating Stream Buffer Policies

A city or county with a setback policy is not necessarily more effective at protecting riparian habitat and functions than a city without a policy. The mindfulness and determination on the part of city and county planners to be aware of potential riparian impacts from all development projects is a vital part of riparian protection. Nevertheless, the effectiveness of a given stream buffer or setback policy is a function of several factors, and a successful ordinance will address some or all of these criteria:

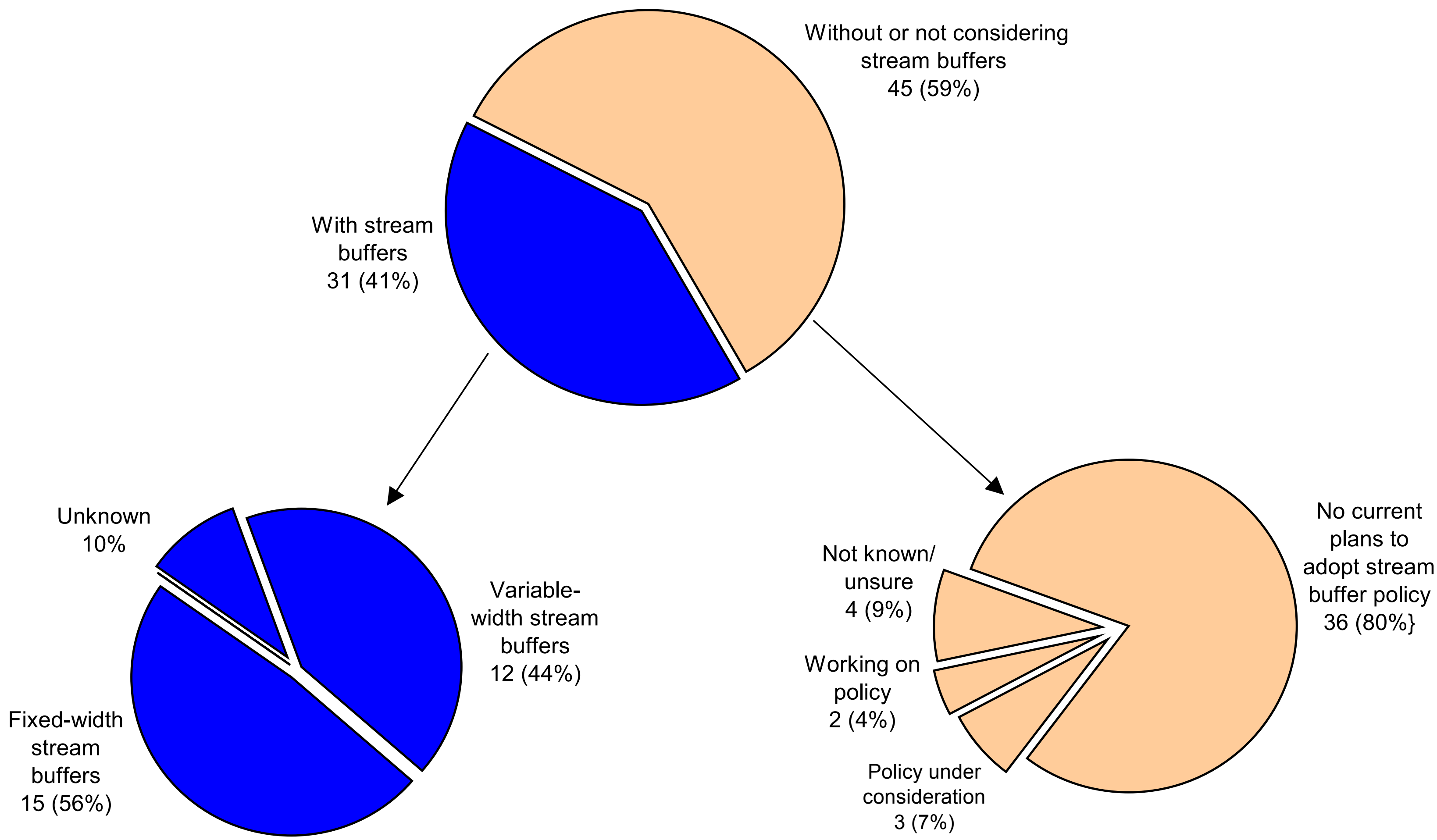
- Buffer width
- Level of enforcement
- Type of watercourses protected
- Breadth of application (i.e., entire city, special districts)
- Provisions for, and frequency of, exemptions and/or variances
- Inclusion of specific directives in General Plan
- Riparian vegetation protection
- Mitigation standards
- Clarity of purpose, goals
- Clarity of definitions

Appendix D

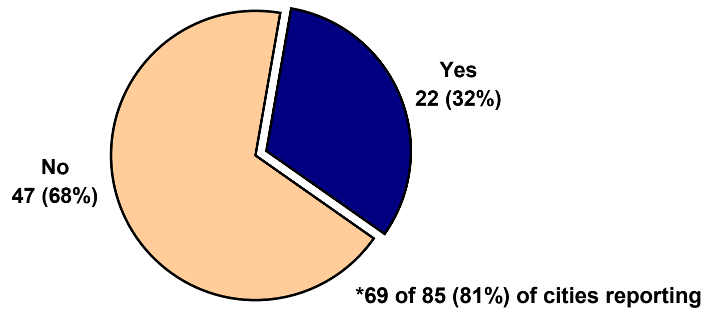
Graphical Summary of Results

RWQCB Region 2 Cities - Stream Buffers

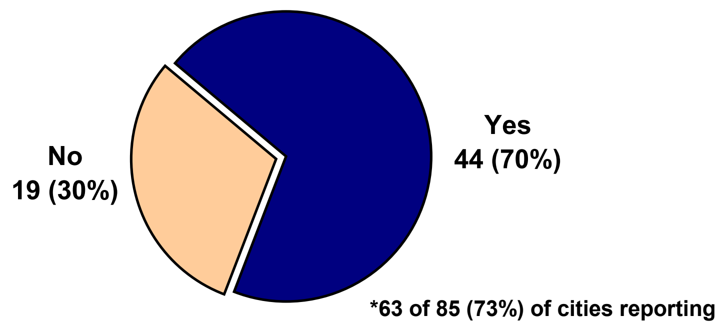
76 of 85 (89%) of cities reporting



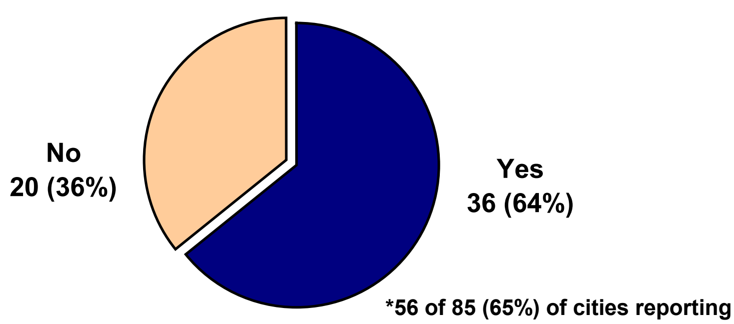
RWQCB Region 2 Cities - Stream Buffer Protection in General Plan



RWQCB Region 2 Cities - Tree Ordinance



RWQCB Region 2 Cities - Hillside Ordinance



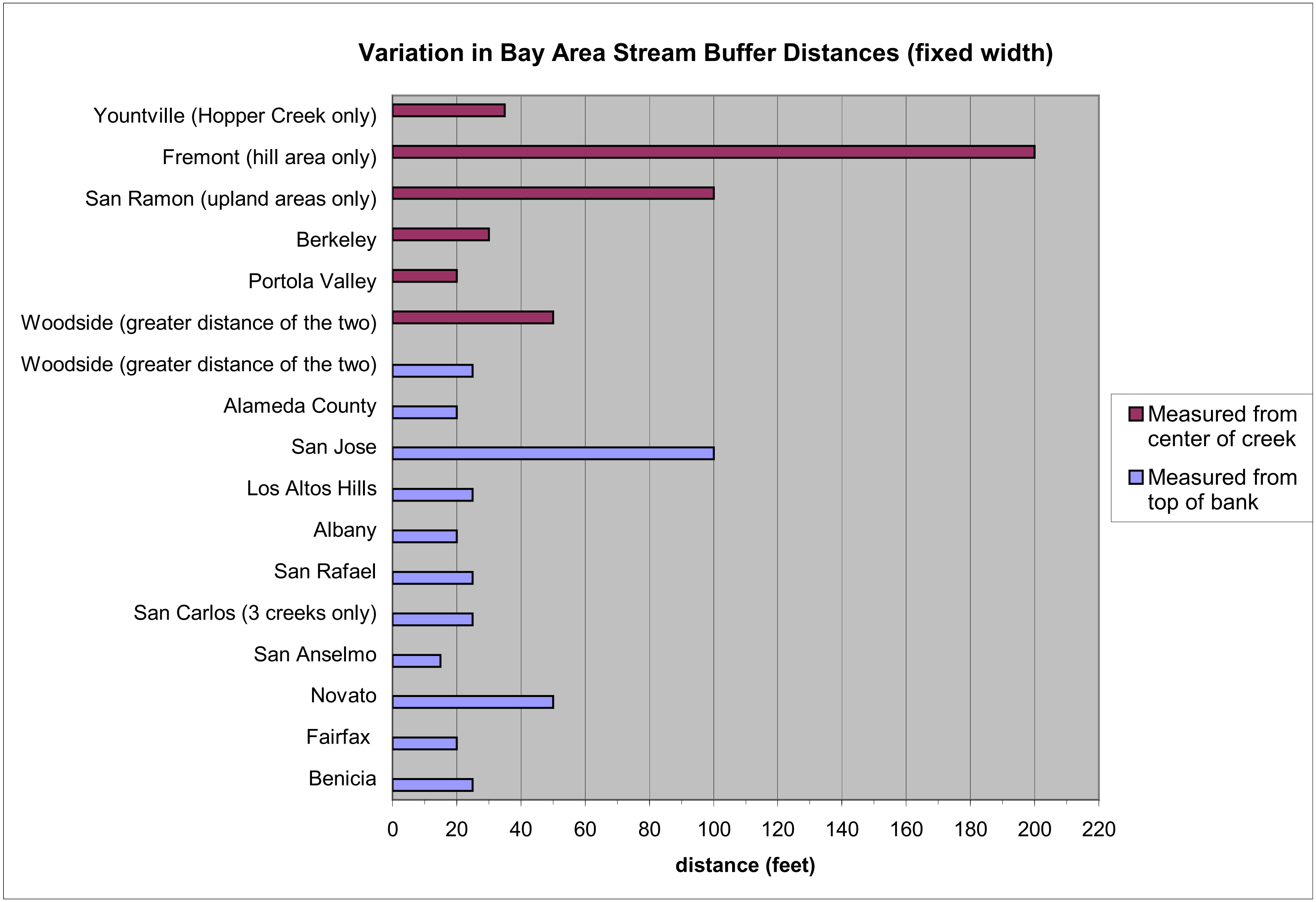
Jurisdiction	Ordinance	General Plan Policy	Planning an Ordinance
Alameda	O	O	O
Albany	X	X	*n/a*
American Canyon		*no response*	
Atherton	O	O	O
Belmont	O	O	?
Belvedere	O	O	O
Benicia	X	X	*n/a*
Berkeley	X	X	*n/a*
Brisbane	O	O	O
Burlingame	O	O	O
Calistoga	X	X	*n/a*
Campbell	O	O	O
Clayton	O	X	O
Colma	O	X	?
Concord	O	O	O
Corte Madera	O	O	O
Cupertino	X	X	*n/a*
Daly City	O	O	O
Danville	O	O	O
Dublin	X	X	*n/a*
East Palo Alto	O	*no response*	
El Cerrito	O	O	X
Emeryville	O	O	O
Fairfax	X	X	*n/a*
Fairfield	X	O	*n/a*
Foster City	O	O	O
Fremont	X	X	*n/a*
Half Moon Bay	X	X	*n/a*
Hayward	O	O	?
Hercules	O	O	?
Hillsborough		*no response*	
Lafayette	X	X	*n/a*
Larkspur	O	O	O
Livermore	O	X	?
Los Altos		*no response*	
Los Altos Hills	X	O	*n/a*
Los Gatos	O	O	O
Martinez	O	O	O
Menlo Park	O	?	?
Mill Valley	X	O	X
Millbrae	O	O	O
Milpitas	O	O	O
Monte Sereno	O	?	?
Moraga	O	O	O
Mountain View	O	O	?
Napa	X	O	*n/a*
Newark	O	O	O
Novato	X	X	*n/a*

Jurisdiction	Ordinance	General Plan Policy	Planning an Ordinance
Oakland	O	?	X
Orinda	X	X	*n/a*
Pacifica	O	O	n
Palo Alto		*no response*	
Petaluma	O	?	*n/a*
Piedmont	O	O	o
Pinole	O	O	o
Pittsburg	O	X	o
Pleasant Hill	O	O	o
Pleasanton		*no response*	
Portola Valley	X	X	X
Redwood City	O	O	O
Richmond		*no response*	
Ross	X	O	*n/a*
San Anselmo	X	?	*n/a*
San Bruno	O	O	O
San Carlos	X	O	*n/a*
San Jose	X	X	*n/a*
San Leandro		*no response*	
San Mateo	O	?	O
San Pablo	O	X	O
San Rafael	X	X	*n/a*
San Ramon	X	O	*n/a*
Santa Clara	O	O	O
Saratoga	X	?	?
Sausalito	X	X	X
Sonoma	X	O	*n/a*
South S.F.	O	O	O
St. Helena	X	O	*n/a*
Suisun City	O	O	?
Sunnyvale	O	O	O
Tiburon	X	X	*n/a*
Union City	O	O	O
Vallejo	O	O	?
Walnut Creek	O	O	O
Woodside	X	X	*n/a*
Yountville	X	O	*n/a*

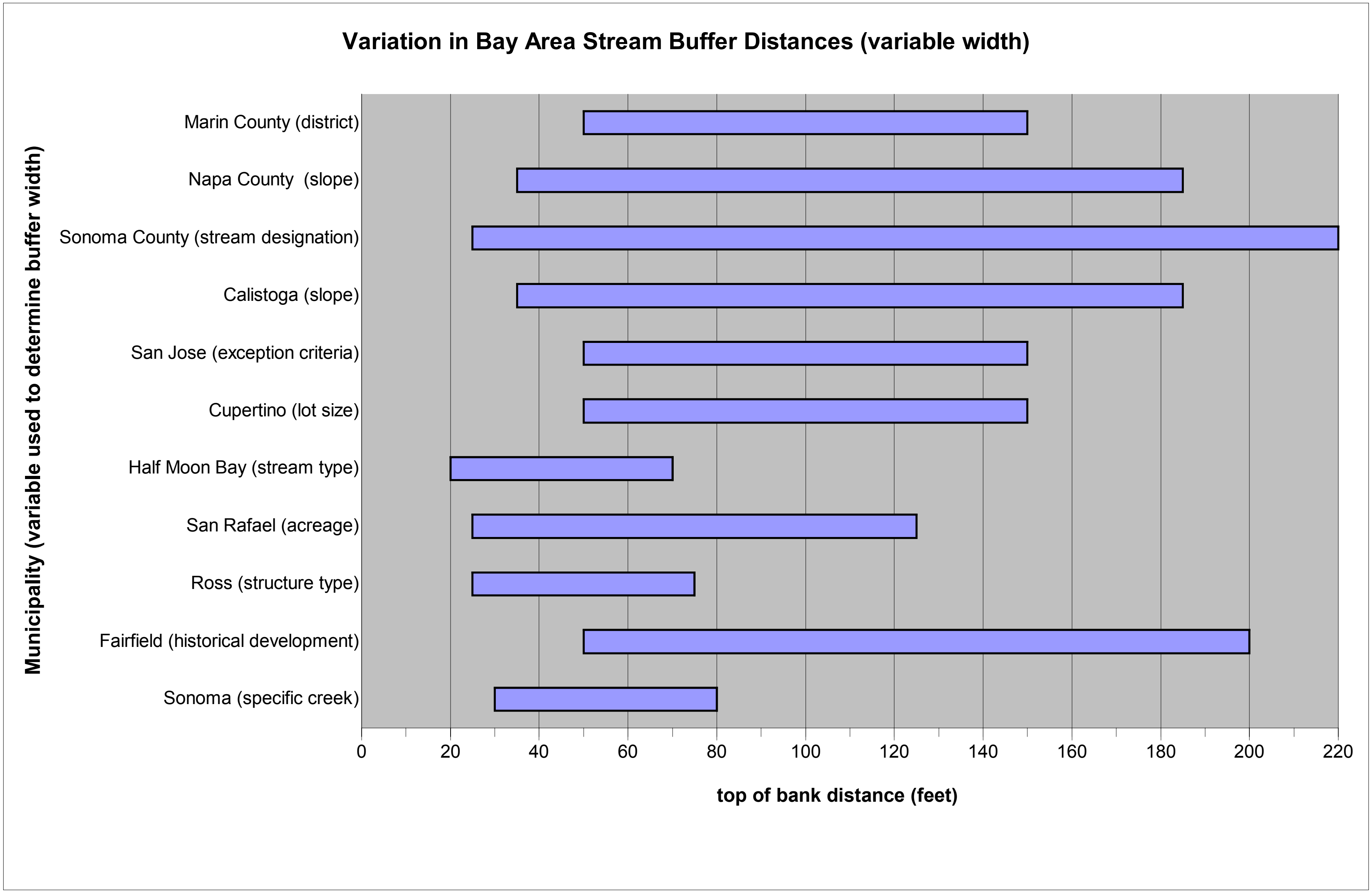
COUNTIES

Alameda	X	?	O
Contra Costa	X	X	*n/a*
Marin	X	X	*n/a*
Napa	X	?	*n/a*
San Francisco		*no response*	
San Mateo	X	X	*n/a*
Santa Clara	O	X	X
Solano	O	X	?
Sonoma	X	X	*n/a*

n/a = not applicable ? = unknown **X** = affirmative **O** = non-affirmative



Variation in Bay Area Stream Buffer Distances (fixed width)
Yountville (Hopper Creek only)
Fremont (hill area only)
San Ramon (upland areas only)
Berkeley
Portola Valley
Woodside (greater distance of the two)
Woodside (greater distance of the two)
Alameda County
San Jose
Los Altos Hills
Albany
San Rafael
San Carlos (3 creeks only)
San Anselmo
Novato
Fairfax
Benicia
0 20 40 60 80 100 120 140 160 180 200 220
distance (feet)
Measured from center of creek
Measured from top of bank


Variation in Bay Area Stream Buffer Distances (variable width)
Municipality (variable used to determine buffer width)
Marin County (district)
Napa County (slope)
Sonoma County (stream designation)
Calistoga (slope)
San Jose (exception criteria)
Cupertino (lot size)
Half Moon Bay (stream type)
San Rafael (acreage)
Ross (structure type)
Fairfield (historical development)
Sonoma (specific creek)
0
20
40
60
80
100
120
140
160
180
200
220
top of bank distance (feet)

The cup's half full without groundwater regulation

LOCAL / POLITICS

This article is related to: Politics and Government, Column, Laws and Legislation, Government, Roger Dickinson, Fran Pavley, Lobbying

George Skelton
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FOLLOW GEORGE SKELTON

@latimesskelton John Mockler was a principled, skilled fighter for skul kids. Not a hired gun who'd sell out his ideals for any interest wi a cqbook. Classy

SHARE THIS

They're all patting themselves on the back in the state Capitol for finally achieving a water bond deal. And that's fine. It was a momentous act..

But what really would be historic — and worth running self-congratulatory reelection ads about — would be to pair the bond proposal with even more important groundwater regulation.

As Senate water committee Chairwoman Fran Pavley (D-Agoura Hills), a leading advocate of groundwater regulation, says of California's falling aquifers: "Just because they're out of sight doesn't mean they should be out of mind."

But they always have been in California.

This is the only Western state that refuses to manage groundwater. It's indefensible. Underground basins supply 40% of the water we use in an average year and nearly 65% during this drought.

“It's like having a bank account that everyone can write checks against, but nobody's responsible for balancing or making sure deposits are made.”

- Lester Snow, California Water Foundation

But there's a laissez-faire attitude that allows landowners to pump all they want — or can — from their plummeting wells.

Even Texas — that bastion of anti-regulation — recently began managing groundwater.

In California, over the past century, water tables have fallen by hundreds of feet in some areas, especially in the crop-rich San Joaquin Valley where land is sinking. In northern San Luis Obispo County, thirsty vineyards have quaffed down aquifers. Out in growing Lancaster, sometimes they have to drill 300 feet deeper for water than they did in the 1930s.

And, according to the California Water Foundation website: "There's another threat that should be of concern to Southern Californians: earthquakes.

"Groundwater is heavy and depresses the earth's upper crust like a weight. Remove that weight and the earth could spring upward. And that change in pressure can trigger more small earthquakes."

How much convincing do the politicians need?

There are two identical groundwater regulation bills struggling to win passage as the Legislature enters the final two weeks of its two-year session. One, SB 1168, is by Pavley; the other, AB 1739, is by Assemblyman Roger Dickinson (D-Sacramento).

The legislation would empower local governments to manage groundwater to make it sustainable by 2040. And if any local entities failed, the state could step in and regulate.

The possibility of state bureaucrats clamping their hands onto well spigots worries farmers.

“The last two weeks of a session is a bad time to finish making the sausage.”

- Dave Puglia, vice president of the Western Growers Assn.

"We should require the counties to get their houses in order, but the state should not be coming in here and saying, 'This is what you're going to do,'" says Paul Wenger, president of the California Farm Bureau Federation, who grows 400 acres of almonds and walnuts near Modesto.

Wenger also thinks the legislation should focus only on the roughly 130 groundwater basins — out of a total 515 — that are in the worst trouble.

No problem, say the legislation's advocates. "That indeed is our priority," Pavley insists.

As for Sacramento seizing well pumps, gubernatorial spokesman Jim Evans asserts: "The goal is for the state to not have to step in at all. The goal is to provide locals the help to manage groundwater on their own."

But the overarching goal is to stop the hemorrhaging of precious groundwater — to quit pumping out more than can seep back in. Preferably, the locals would do that. But if not, the state must.

"We keep building our economy in California on deficit-spending water," says former state water director Lester Snow, who heads the private water foundation.

"It's like having a bank account that everyone can write checks against, but nobody's responsible for balancing or making sure deposits are made. And that's exactly how we're managing groundwater. One day it's going to be depleted."

Gov. Jerry Brown has been pushing for groundwater management, but it's not clear how hard. His focus has been on passing the $7.5-billion bond proposal that will appear on the November ballot.

The bond would pair nicely with groundwater regulation. There's $100 million in the borrowing proposal for planning and implementing groundwater management, which could be spent by local governments.

There's also $800 million for cleaning up groundwater. And if we're going to spend money on decontaminating it — removing toxicants like those polluting the San Fernando Valley aquifer — we should regulate the water's use.

Same thing with $200 million earmarked for capturing storm water, $700 million for recycling and $2.7 billion for dam building. Those projects could help replenish underground basins. And a few pumping rules could assure taxpayers they're getting their money's worth.

With more groundwater available because of public largesse, it would almost be criminal negligence not to regulate it.

But agriculture lobbyists are working the Capitol halls fighting the groundwater legislation. There's not enough time, they argue, to get the bill right. The politicians are moving too fast.

"The last two weeks of a session is a bad time to finish making the sausage," says Dave Puglia, vice president of the Western Growers Assn. He's alluding to the old maxim about laws being like sausages; watching them being made is not a pretty sight.

"There'd be bad consequences to getting it wrong," Puglia says, adding that farmers fret about lost property values if they're denied access to water under their lands.

Dickinson responds: "The consequences of continuing to overdraft our groundwater are too scary to contemplate."

The farm lobby thinks the governor and the Legislature should hold off until next year. But Sacramento has been holding off on groundwater regulation since statehood, ignoring experts who increasingly have warned about California's leaky water bucket.

The politicians should have acted half a century ago when Pat Brown was governor — or at least the last time son Jerry was.

The governor should lead everyone into a room and force a deal, as he did on the water bond. That would be huge and really justify back-slaps.

@latimesskelton

291112 Part 3

California
Water Boards
Protecting California's Water

COMMUNITIES THAT RELY ON A CONTAMINATED GROUNDWATER SOURCE FOR DRINKING WATER

STATE WATER RESOURCES CONTROL BOARD

REPORT TO THE LEGISLATURE

January 2013

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

STATE WATER RESOURCES
CONTROL BOARD
P.O. Box 100 Sacramento, CA 95812
(916) 341-5250
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ABBREVIATIONS AND ACRONYMS

1,2,3-TCP	1,2,3-Trichloropropane
AB 2222	Assembly Bill 2222 (Caballero, Chapter 670, Statutes of 2008)
ARRA	American Recovery and Reinvestment Act of 2009
CDPH	California Department of Public Health
COC	Constituent of Concern
Cr-6	Hexavalent Chromium
DBCP	1,2-Dibromo-3-chloropropane
DDWEM	CDPH Division of Drinking Water and Environmental Management
DLR	Detection Limit for Purposes of Reporting
DPR	Department of Pesticide Regulation
DWR	Department of Water Resources
GAMA	Groundwater Ambient Monitoring and Assessment
HSC	California Health and Safety Code
IRWM	Integrated Regional Water Management
MCL	Maximum Contaminant Level
mg/L	milligrams per liter (parts per million)
NDMA	N-Nitrosodimethylamine
NL	CDPH Notification Level
OEHHA	Office of Environmental Health Hazard Assessment
PCE	Tetrachloroethylene
PICME	DDWEM Permits, Inspections, Compliance, Monitoring and Enforcement (PICME) database

ABBREVIATIONS AND ACRONYMS (cont.)

POE	Point-of-Entry
POU	Point-of-Use
Proposition 50	Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002
Proposition 84	Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act of 2006
SRF	State Revolving Fund (Safe Drinking Water)
SWRCB	State Water Resources Control Board
TCE	Trichloroethylene
µg/L	micrograms per liter (parts per billion)
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
USTCF	Underground Storage Tank Cleanup Fund
UV	Ultraviolet light

EXECUTIVE SUMMARY

AB 2222 (Caballero, Chapter 670, Statutes of 2008) requires the State Water Resources Control Board to submit a report to the Legislature that identifies: 1) communities in California that rely on contaminated groundwater as a primary source of drinking water; 2) the principal contaminants and other constituents of concern; and 3) potential solutions and funding sources to clean up or treat groundwater or provide alternative water supplies.

A "community," for the purposes of this report, is defined as a Community Public Water System (Health and Safety Code Section 116395). When this report refers to communities that rely on a contaminated groundwater source, it is referring to community public water systems that draw water from a contaminated groundwater source prior to any treatment. Over 95 percent of the 38 million Californians get their drinking water from a public water system. The findings in this report do not reflect private domestic wells or other unregulated water systems since the state does not require these groundwater users to sample their wells, and consequently a comprehensive database for these groundwater sources does not exist.

This report identifies 680 community water systems that, prior to any treatment, relied on a contaminated groundwater source during the most recent California Department of Public Health (CDPH) compliance cycle (2002-2010). It is important to note that, according to CDPH, over 98% of Californians on public water supply are served safe drinking water. Although many water suppliers draw from contaminated groundwater sources, most suppliers are able to treat the water or blend it with cleaner supplies before serving it to the public. Consequently, when this report refers to communities that rely on contaminated groundwater, it is referring to community public water systems that draw water from one or more contaminated groundwater wells prior to any treatment or blending.

Some community water systems, however, cannot afford treatment or lack alternative water sources, and have served water that exceeds a public drinking water standard. Of the 680 community water systems that rely on a contaminated groundwater source, 265 have served water that exceeded a public drinking water standard during the most recent CDPH compliance cycle (2002-2010).

For this report, a "principal contaminant" is defined as a chemical detected above a public drinking water standard on two or more occasions between 2002 and 2010. The ten most frequently detected principal contaminants are summarized in the table on the next page.

Ten Most Frequently Detected Principal Contaminants			
Principal Contaminant	**Number of Wells**	**Number of Community Water Systems**	**Type of Contaminant**
Arsenic	587	287	Naturally occurring
Nitrate	451	205	Anthropogenic nutrient[1]
Gross alpha activity	333	182	Naturally occurring
Perchlorate	179	57	Industrial/military use[1]
Tetrachloroethylene (PCE)	168	60	Solvent
Trichloroethylene (TCE)	159	44	Solvent
Uranium	157	89	Naturally occurring
1,2-dibromo-3-chlropropane (DBCP)	118	36	Legacy pesticide
Fluoride	79	41	Naturally occurring
Carbon tetrachloride	52	17	Solvent
Notes: 1. Also can be naturally occurring, but typically at levels below maximum contaminant level			

Potential solutions to address contaminated groundwater sources fall into three categories: pollution prevention, cleanup, and alternative water supplies or treatment. Where pollution prevention and cleanups are not feasible, the focus should be on providing safe drinking water through alternative water supplies or treatment. Public funding for alternative water supplies or treatment is limited, and is non-existent for private domestic well users or other water systems not regulated by the state.

INTRODUCTION

This report has been prepared pursuant to the requirements of AB 2222 (Caballero, Chapter 670, Statutes of 2008) which requires the State Water Resources Control Board (State Water Board), in consultation with the California Department of Public Health (CDPH), Department of Water Resources (DWR), Department of Pesticide Regulation (DPR), Office of Environmental Health Hazard Assessment (OEHHA), and other appropriate agencies, to submit a report to the Legislature that identifies:

- Communities that rely on contaminated groundwater as a primary source of drinking water.
- Principal contaminants, other constituents of concern (COCs), and contamination levels affecting groundwater.
- Potential solutions and funding sources to clean up or treat groundwater, or to provide alternative water supplies, to ensure the provision of safe drinking water.

BACKGROUND

CDPH estimates that 85 percent of California's community public water systems[1] (community water systems), supplying more than 30 million residents, rely on groundwater for at least part of their drinking water supply. California's reliance on groundwater increases during times of drought and will continue to increase with the growing demand from municipal, agricultural, and industrial sources. Changes in surface water availability resulting from possible global climate change may further increase the role of groundwater in California's future water budget. Due to California's reliance on groundwater, and because many community water systems are entirely reliant on groundwater for their drinking water supply, contamination of this resource can have far-reaching consequences.

Many groundwater basins throughout California are contaminated with either naturally occurring or anthropogenic pollutants, or both. As a result, many community water systems in the state incur significant costs to remove the contaminants from the groundwater before serving it to their customers as drinking water. According to CDPH estimates, over 98 percent of Californians using a public water supply receive safe drinking water that meets all public health standards, even though some groundwater sources may contain elevated concentrations of contaminants. This estimate does not include the percentage of people who rely on private domestic wells and other drinking water sources not regulated by the state, since data on the quality of that drinking water does not exist or is not available in a publicly accessible database.

When a groundwater source is contaminated, community water systems must use costly treatment systems to ensure that the water is safe to drink. Where treatment and

[1] A community public water system (community water system) serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents. Community water systems are regulated by CDPH.

alternative water supplies are not available, some community water systems serve contaminated groundwater until a solution is implemented.

Small community water systems typically lack the infrastructure and economies of scale of larger water systems, and in some cases cannot afford to treat or find alternative supplies for a contaminated drinking water source. As a result, small community water systems may be more vulnerable to serving contaminated groundwater to their customers than larger water systems.

In addition, approximately 2 million Californians rely on groundwater from either private domestic wells or other groundwater-reliant systems not regulated by the state. Many of these well owners are unaware of the quality of their well water, because the state does not require them to test their water quality.

Contamination of the state's groundwater resources results in higher costs for ratepayers and consumers due to the necessity of additional treatment and can pose a threat to public health for community water systems that cannot afford the necessary treatment systems. Identification of community water systems that rely on a contaminated groundwater source may help focus available efforts and resources to ensure the provision of safe drinking water. This report identifies community water systems that rely on a contaminated groundwater source for drinking water. This report also includes information on principal contaminants, COCs, contamination levels, potential solutions, and funding sources to clean up, treat, or provide alternative water supplies to ensure the provision of safe drinking water.

This report is not a CDPH compliance report. The most recent CDPH compliance reports are available here: http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Publications.aspx.

Data Included in this Report

The State Water Board used public water quality data and information available in the CDPH Division of Drinking Water and Environmental Management's water quality monitoring database (hereafter referred to as the CDPH database) to develop this report. The CDPH database is the largest source of drinking water quality data in the state. These data are also publicly available on the State Water Board's GeoTracker Groundwater Ambient Monitoring and Assessment (GAMA) groundwater information system http://geotracker.waterboards.ca.gov/gama. The CDPH database includes analytical water quality data for all community water system drinking water sources. Compliance data was obtained from CDPH using the Permits, Inspections, Compliance, Monitoring, and Enforcement (PICME) system information database http://www.cdph.ca.gov/certlic/drinkingwater/Pages/EDTlibrary.aspx.

This report only includes data from community water system sources that were active during the most recent CDPH compliance cycle (January 1, 2002 through December 31, 2010). Furthermore, the data analysis only considered water samples collected from two types of sources:

- Active Raw: Groundwater sampled directly from the well.
- Active Untreated: Groundwater sampled at a point between the well and a treatment system.

Both types of samples are characteristic of ambient, raw groundwater that is used for drinking water. It is important to note that these data do not reflect the quality of water that is served to the public, which is typically treated prior to delivery.

Water Systems or Data Not Evaluated

This report does not evaluate certain types of systems and contaminants for which data is not available, or where the data does not come from a community water system. The types of systems and information that are not included, as well as the rationale for exclusion and limitations associated with those systems and data, are summarized below.

State and Local Small Systems: Water quality data for “state small” systems (systems serving less than 25 people a year, with 5 to 14 service connections) and local small systems (systems serving less than 25 people per year, with two to four service connections). These systems are regulated at a local level and as a result, the data are not available in a readily accessible database.

Private Domestic Wells:
A comprehensive water quality database for domestic wells does not exist. The state does not regulate the quality of private domestic well water, and does not require private domestic well owners to test for water quality. Because the state lacks comprehensive data on these wells, they are excluded from this report.

For information purposes only, some data have been collected by the State Water Board’s GAMA Domestic Well Project and are discussed in Appendix 2.3.

In addition, DPR conducts groundwater monitoring for a wide variety of pesticides. The DPR dataset includes groundwater samples collected from public supply wells, irrigation wells, and domestic wells, although the DPR dataset primarily includes shallow domestic wells in areas where pesticides are used. The DPR data are available to the public from DPR or through the GeoTracker GAMA groundwater information system.

Non-community Systems: Transient non-community water systems, such as rest stops, gas stations, and campgrounds, do not serve the same group of people over time. Another excluded system type is a non-transient non-community water system that serves a similar group of people, but does not serve them year round. An example is a school with its own water system. There are over 13,000 schools in California, the vast majority of which are connected to a community water system. However, approximately 420 schools are not connected to a community water system and rely on their own well for water supply. These school water systems are classified as "non-transient non-community" and, as a result, do not meet the definition of community water system used in this report. Although data on these school systems are not included here, information is available to the public on the internet at the GeoTracker GAMA groundwater information system or directly from CDPH.

Bacteriological Information: Community water systems are required to rigorously test for bacteria since they are a health concern. However, water samples for bacteria are primarily collected within the distribution system, and are not collected from raw groundwater. For instance, the bacteriological data available in the CDPH database constitutes compliance-related reporting that reflects the quality of the water within the distribution system. In addition, most of the compliance-related reports are for total coliform bacteria that naturally occur in soil and groundwater. Total coliform bacteria, while indicative of possible contamination between a well and the surface, does not demonstrate whether groundwater in the aquifer is contaminated.

In 2009, CDPH adopted by reference the Federal Groundwater Rule that provides increased protection against bacteria in drinking water. Where total coliform tests positive as a result of routine sampling, a community water system will be required to conduct a monitoring program at the source. These data will be available as part of the CDPH database in the future.

Definitions Used in this Report

AB 2222 (Caballero, Chapter 670, Statutes of 2008) includes several terms and phrases that do not have statutory or regulatory definition. The definitions used by the State Water Board for these terms and phrases are provided below.

Community Water System: A public water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents (California Health and Safety Code § 116395). Community water systems serve the same group of people, year round, from the same group of water sources.

Groundwater Reliant Community: A community water system that gets at least part of its drinking water from a groundwater source. For the purposes of this report, a community water system with at least one active drinking water well is considered a groundwater-reliant community. Even if a community gets the majority of its drinking water from surface water, there may be parts of that community that are 100 percent reliant on groundwater wells for drinking water. Furthermore, the relative dependence on a well can change based on seasonal precipitation, time of the year, or changing use patterns. Appendix 8 includes information on which community water systems are 100 percent groundwater reliant, those that are 50 to 99 percent groundwater reliant, and those that are less than 50 percent groundwater reliant.

Active Well: A well that was being used to provide drinking water to a community public water system at the time that this report was being drafted (October 2011), and was also sampled two or more times during the most recent CDPH compliance cycle (2002-2010).

Maximum Contaminant Level (MCL): MCLs are health-based protective drinking water standards developed by CDPH which public drinking water systems are required to meet. MCLs take into account the health risk, detectability, treatability, and costs-of-treatment associated with a chemical. Please note that MCLs are used in two ways in this report: to help define a principal contaminant (as explained below) and to help identify community water systems that have served contaminated groundwater to their customers.

Principal Contaminant: A chemical detected in a groundwater source sample above a primary MCL on two or more occasions during the most recent CDPH compliance cycle (2002-2010).

Constituents of Concern: A chemical detected in a groundwater source above a CDPH Notification Level two or more times during the most recent CDPH compliance cycle (2002-2010).

Notification Levels are health-based advisory levels established by CDPH for chemicals in drinking water that lack or do not yet have an MCL. Not every community water system collects samples for constituents with a Notification Level, and as a result, the findings in this report may not capture the full distribution of these contaminants in California's groundwater used for drinking.

Contaminated Groundwater Source: A well where a principal contaminant was detected above an MCL on two or more occasions during the most recent CDPH compliance cycle (2002-2010).

Community that Relies on a Contaminated Groundwater Source for Drinking Water: A community water system where a principal contaminant was detected in an active raw or active untreated drinking-water well, at a concentration above an MCL on two or more occasions during the most recent CDPH compliance cycle (2002-2010). It is important to note that although many water suppliers draw from contaminated groundwater sources, most suppliers are able to treat the water or blend it with cleaner supplies before serving it to the public. Consequently, when this report refers to "communities that rely on a contaminated groundwater source for drinking water", it is referring to community public water systems that draw water from one or more contaminated groundwater wells prior to any treatment or blending. According to CDPH, over 98% of Californians on public water supply are served safe drinking water.

The methods used to identify communities that rely on a contaminated groundwater source for drinking water are outlined in Appendix 1.

SUMMARY OF FINDINGS

The summary below provides a brief description of the findings of this study. A more detailed description of these findings is included in Appendices 1 through 8.

Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

This study identified a total of 2,584 community water systems in California that rely on groundwater as a primary source of drinking water. There are 8,396 active wells that are associated with these groundwater-reliant community water systems.

This study identified 680 community water systems that rely on a contaminated groundwater source. It is important to note that over 98% of Californians using a public water supply receive safe drinking water that meets all health standards. Although many water suppliers draw from contaminated groundwater sources, most of them are able to treat the water or blend the contaminated water with cleaner water before serving it to the public.

There are 1,659 active wells where contamination was detected that are associated with these 680 community water systems. Figure 1 shows the 15 counties (out of the 58 counties in California) with the greatest number of community water systems that rely on contaminated groundwater sources.

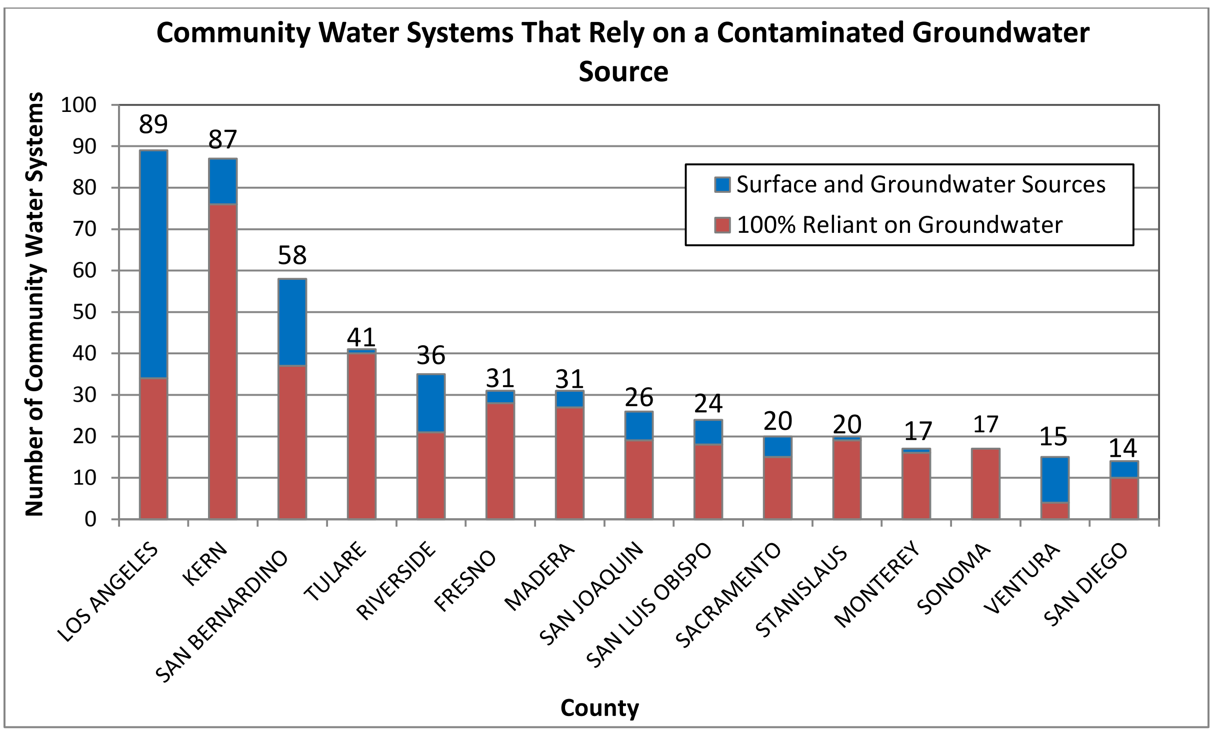

Figure 1: Top 15 Counties with the Greatest Number of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

Of the 680 community water systems that rely on a contaminated groundwater source, 507 systems (75 percent) rely entirely on groundwater. Community water systems that are entirely reliant on groundwater may be highly vulnerable to groundwater contamination, since these community water systems may not have alternative, uncontaminated sources of water. A complete list and additional information on the 680 community water systems that rely on a contaminated groundwater source can be found in Appendix 1 and Appendix 8.

It is important to note that these findings reflect raw, untreated groundwater quality and not necessarily the quality of the water that is eventually served to the public. Community water systems that rely on contaminated groundwater typically treat their well water before it is delivered and consumed. However, in some cases, when a community cannot afford treatment or alternative sources of water are not available, contaminated water is served to the public until a solution is implemented.
CDPH provided a list of community water systems that have received a drinking water quality violation (above the MCL) during the most recent compliance cycle (2002-2010). Of the 680 community water systems that rely on a contaminated groundwater source for drinking water, 265 systems have received a notice of an MCL violation from the CDPH during this period. These community water systems are identified in Appendix 4.

The locations of the 8,396 active wells used by groundwater-reliant community water systems in California are shown in Figure 2. The locations of the 1,659 wells where contaminated groundwater was detected are shown in Figure 3.

Population that Relies on a Contaminated Groundwater Source for Drinking Water

CDPH provides estimates for the population served by each community water system in the state. These population estimates were compiled to understand better the number of people that rely on a contaminated groundwater source (see Appendix 1, Tables 1.3 and 1.4). In total, the 680 community water systems that rely on a contaminated groundwater source serve nearly 21 million people. As discussed previously, the phrase "communities that rely on a contaminated groundwater source for drinking water" is referring to community public water systems that draw water from one or more contaminated groundwater wells prior to any treatment or blending. Most water suppliers are able to treat the contaminated water source or to blend it with cleaner sources of drinking water before distributing it to the public.

Twenty-five percent of the 680 community water systems use surface water in addition to groundwater for their drinking water supply and may be more able to mix water sources to dilute the level of contaminants to a level below the MCL or rely on alternative water supplies when groundwater is contaminated. The community water systems that do not use surface water and are 100 percent reliant on contaminated groundwater serve an estimated 4.1 million people. Many of the community water systems that are 100 percent reliant on groundwater are located in rural areas of the state (see Appendix 1).

In terms of population, many more people are served by community water systems using mixed sources (groundwater and surface water) than those that only use groundwater for drinking. For example, there are 89 community water systems in Los Angeles County that serve approximately 8.4 million people. However, only 11 percent of that population is solely reliant on a contaminated groundwater source. In contrast, Tulare County has 41 community water systems that rely on contaminated groundwater source that serve approximately 205,000 people. Sole reliance on groundwater for these communities stands at 99 percent.

Rural community water systems often tend to be small (serving less than 3,300 people), and the vast majority are 100 percent reliant on a contaminated groundwater source for drinking water. Small rural community water systems, especially those that are low income and experience greater difficulty in obtaining funding solutions, tend to have more physically vulnerable infrastructure and may experience a persistent contamination problem. Larger community water systems may be better able to afford treatment or alternative supply solutions.

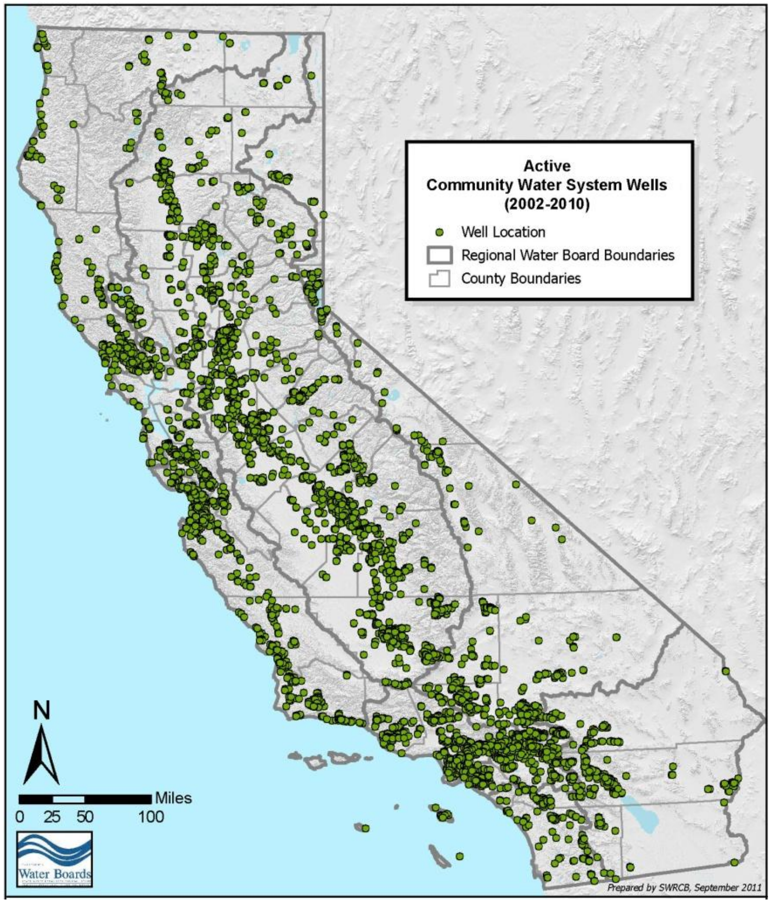

Figure 2: Active Community Water System Wells Sampled Two or More Times between 2002 and 2010 (8,396 Wells / 2,584 Community Water Systems)

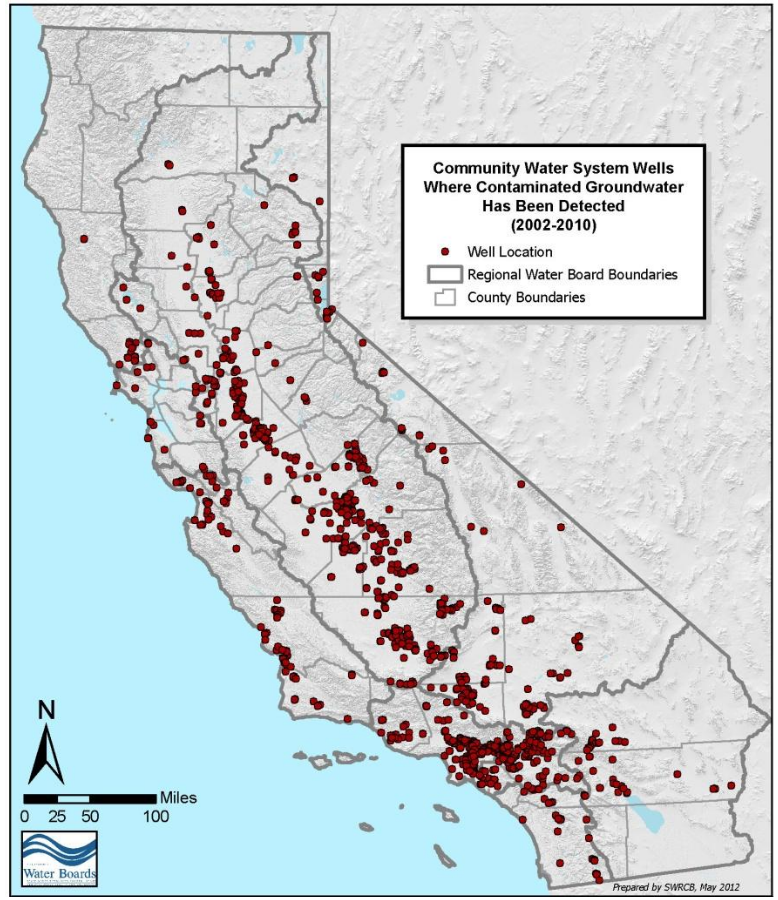

Figure 3: Active Community Water System Wells Where Contaminated Groundwater Has Been Detected Above an MCL Two or More Times between 2002 and 2010 (1,659 Wells / 680 Community Water Systems)

Principal Contaminants

Thirty-one principal contaminants were identified in the community water systems that rely on a contaminated groundwater source (see Figure 4).

The ten most frequently detected principal contaminants (summarized in Table 1) were found in over 90 percent of the active contaminated groundwater sources (wells) identified in this report. Both naturally occurring and anthropogenic principal contaminants were identified (see Figure 4). Approximately 70 percent of the wells were characterized by only one detected principal contaminant.

Information on contaminant levels, the number of detections above the MCL, the date of the most recent detection above the MCL, maximum concentrations, average concentrations, and maps displaying the distribution of principal contaminants, are provided in Appendix 2.

Some principal contaminants were more frequently detected within certain regions of the state, while other principal contaminants were found statewide. Maps showing the distribution of principal contaminants in community water systems are provided in Appendix 2. The number of community water systems where a principal contaminant was detected is shown in Figure 5.

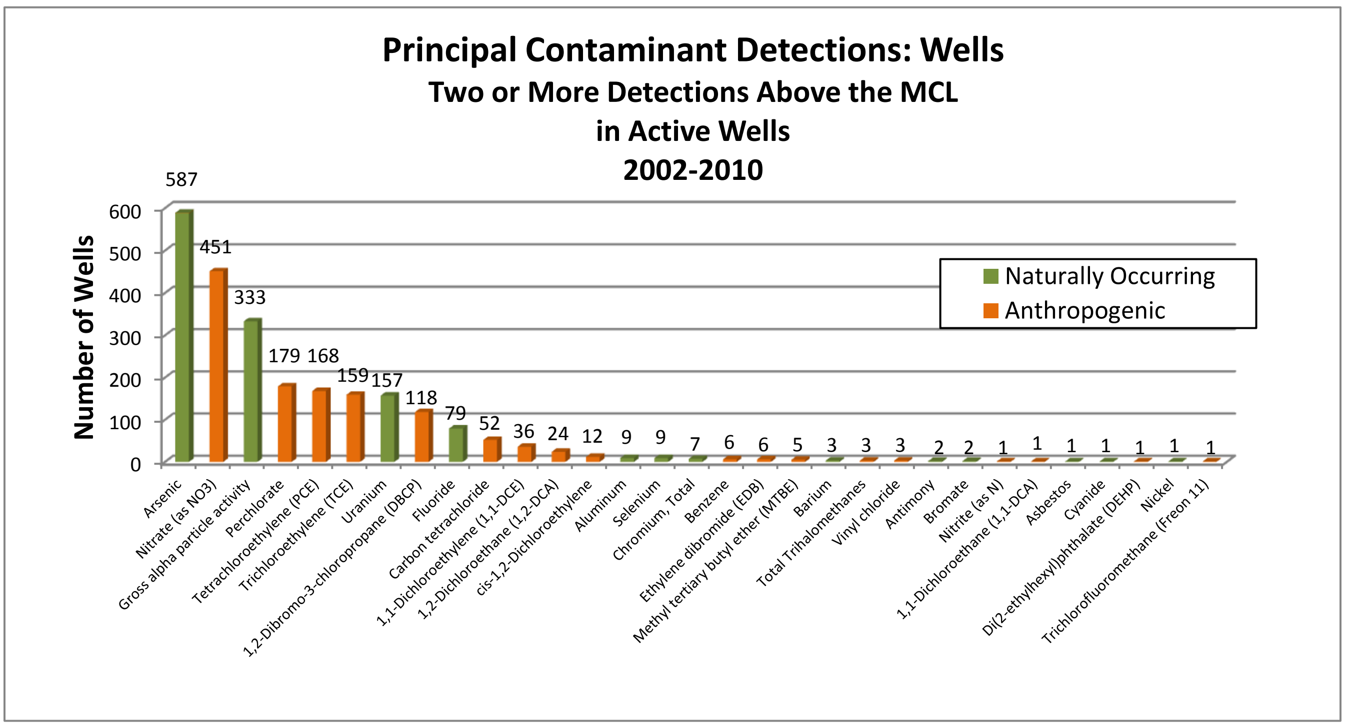

Figure 4: Principal Contaminant Detections in Active Community Water System Wells

Table 1: Ten Most Frequently Detected Principal Contaminants

Principal Contaminant	Number of Wells	Number of Community Water systems	Type of Contaminant
Arsenic	587	287	Naturally occurring
Nitrate	451	205	Anthropogenic nutrient[1]
Gross alpha activity	333	182	Naturally occurring
Perchlorate	179	57	Industrial/military use[1]
Tetrachloroethylene (PCE)	168	60	Solvent
Trichloroethylene (TCE)	159	44	Solvent
Uranium	157	89	Naturally occurring
1,2-dibromo-3-chlropropane (DBCP)	118	36	Legacy pesticide
Fluoride	79	41	Naturally occurring
Carbon tetrachloride	52	17	Solvent

Notes:

1. Also can be naturally occurring, but typically at levels below maximum contaminant level

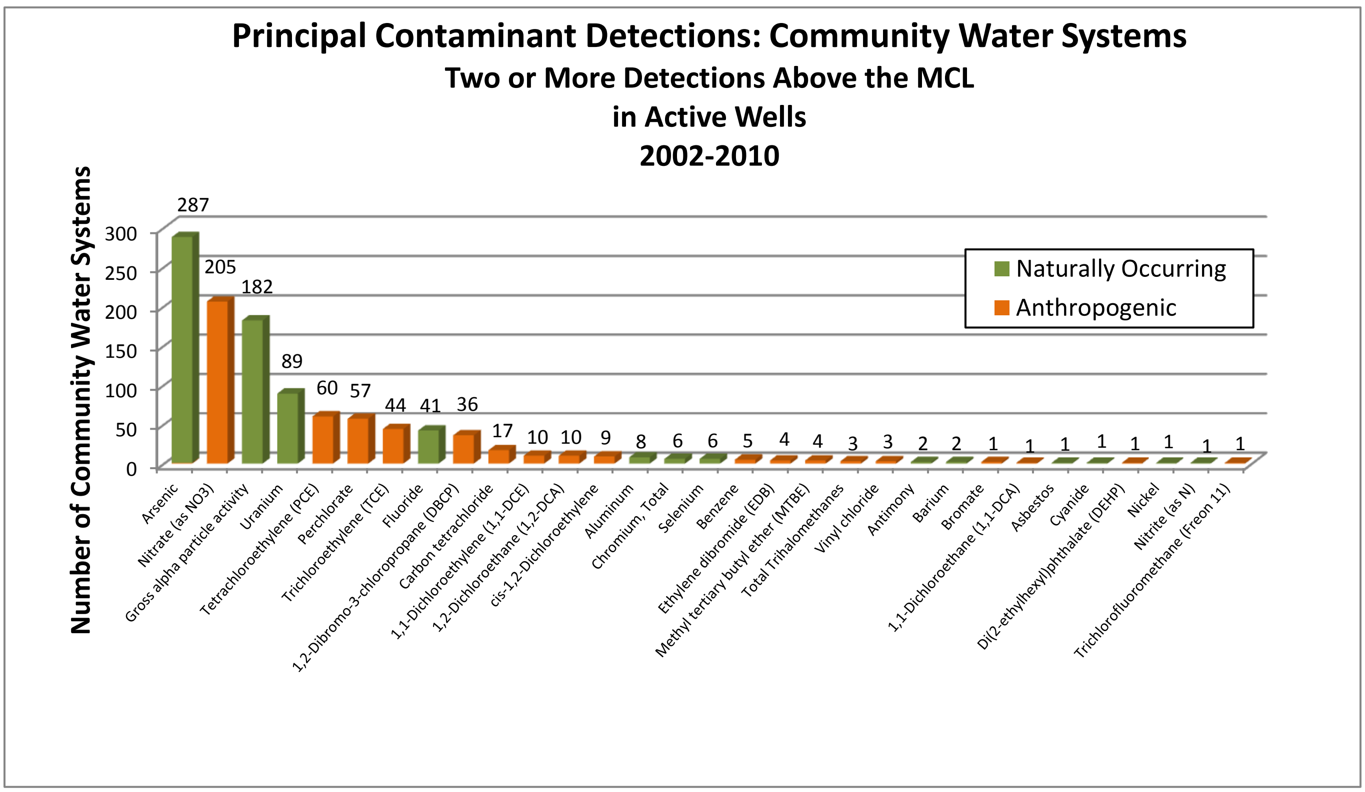

Figure 5: Principal Contaminants in Community Water Systems that Rely on a Contaminated Groundwater Source

Constituents of Concern

This report has identified nine constituents of concern (COCs): Hexavalent Chromium (Cr-6), 1,2,3-Trichloropropane (1,2,3-TCP), Boron, Manganese, Vanadium, 1, 4-Dioxane, N-Nitroso-dimethylamine (NDMA), Lead, and Tertiary butyl alcohol (TBA). The COCs are summarized in Table 3.1, Appendix 3. Cr-6 was also evaluated as an emerging COC, even though it does not have a Notification Level. Cr-6 is a widely detected groundwater contaminant with both anthropogenic and natural sources. A total of 1,378 active wells, in 314 community water systems, had two or more detections of Cr-6 above the 1 microgram per liter (µg/L) CDPH detection limit for the purposes of reporting or DLR. 1,2,3-TCP, which has many industrial and pesticide uses, including as a paint and varnish remover, cleaning and degreasing agent, and a cleaning and maintenance solvent, was the most frequently detected. Both Cr-6 and 1,2,3-TCP have Public Health Goals established by the Office of Environmental Health Hazard Assessment, which is the first step in the establishment of an eventual MCL. Appendix 3 includes additional information on the COCs identified by this report.

Regional Patterns

Regional groundwater patterns may be inferred from the drinking water quality data used in this report. These patterns are based on the available data from community water systems and may not be representative of groundwater quality conditions in certain areas.

In general, naturally occurring contaminants are detected statewide, while anthropogenic contaminants tend to be detected in particular regions of the state. For example, arsenic (naturally occurring) is detected in a wide distribution of community water system wells across the state (see Figure 2.7, Appendix 2). In contrast, nitrate at concentrations above the MCL is considered anthropogenic and is predominantly detected above the MCL in areas of the state with current or historical agricultural activity, including the southern San Joaquin Valley, the Salinas Valley, and in the Southern California Inland Empire (see Figure 2.8, Appendix 2). Volatile organic compounds such as tetrachloroethylene (PCE) and trichloroethylene (TCE) are also anthropogenic, and are largely detected in the Southern California Inland Empire area. A more detailed description of regional trends for the ten most frequently detected principal contaminants is included in Appendix 2. Maps showing the distribution of each of the 31 principal contaminants are also included in Appendix 2.

Potential Solutions to Ensure the Provision of Safe Drinking Water from Groundwater

Although groundwater sources can be contaminated, communities typically use a variety of methods to ensure that they deliver safe drinking water. Solutions to address groundwater contamination affecting drinking water supplies fall in to three broad categories:

- Pollution prevention or source protection,
- Cleanup contaminated groundwater, or
- Provide safe drinking water through treatment or alternative supplies.

These potential solutions are outlined in Table 2 and are discussed in detail in Appendix 5. In general, costs and funding are the primary challenge for each of the identified solutions.

Source protection and pollution prevention are the most effective ways of ensuring a continued supply of safe drinking water. In addition, removal of contaminants from groundwater is important from both a public health and an environmental health perspective. Groundwater cleanups can allow continued use of existing groundwater supplies. However, pollution prevention and cleanups are not always appropriate (e.g., for naturally occurring contaminants), or may not be feasible. Consequently, any practical solution to groundwater contamination must also focus on strategies to provide safe drinking water to consumers through treatment and alternative water supplies. The most common types of solutions associated with providing safe drinking water include:

- Regional consolidation with nearby larger public water systems
- Alternative Sources or Supplies
- Short Term Mitigation Measures (e.g. Bottled Water)
- New Well(s)
- Treatment

When contamination is detected in private domestic wells or other water systems not regulated by the state, cleanup options are limited. Groundwater cleanup efforts are costly and many private domestic well owners may not be able to afford a remediation system. Treatment systems, including point-of-use/point-of-entry (POU/POE), are typically the most cost-effective method of addressing groundwater contamination for small systems and private well owners. Regional consolidation with nearby larger public water systems may be an option for some smaller systems relying on contaminated groundwater source.

Table 2: Cleanup, Treat, or Provide Alternative Sources of Water Supply - Potential Obstacles and Options to Address Obstacles			
Goal	**Related Activities for Achieving Goal**	**Potential Obstacles**	**Options to Address Obstacles**
Provide Safe Drinking Water	Consolidation Self-supply New well Treatment Surface water	Costs Fund availability Location/environment, and availability of clean alternative groundwater or surface supplies Planning and infrastructure support may not be available Multiple contaminants in a well may affect treatment options	Highlight benefits of consolidation, provide seed money for consolidation efforts Make public funds available for meeting other existing public funding criteria Increase available funding
Groundwater Cleanup	Groundwater cleanup programs (USTCF, others)	Scale Cost Fund availability Naturally-occurring contaminants	Support programs that help clean up known groundwater contamination Support efforts to identify sources of groundwater contamination Focus on methods to provide clean drinking water
Pollution Prevention	Continue and support existing programs; Regulatory oversight Monitoring	Naturally-occurring contaminants Prevention too late	Continue to develop and strengthen existing regulatory efforts Expand regulation of emerging pollution sources For identified community water systems, focus on methods to provide clean drinking water

Potential Funding Sources to Clean Up or Treat Groundwater, or to Provide Alternative Water Supplies, to Ensure the Provision of Safe Drinking Water

The need to address water quality issues exceeds the available public funding options. The United States Environmental Protection Agency (USEPA) estimated that over the next 20 years, California will need to spend approximately $40 billion on infrastructure improvements to ensure the delivery of safe drinking water (USEPA Needs Analysis, 2007,http://water.epa.gov/infrastructure/drinkingwater/dwns/upload/2009_03_26_needssurvey_2007_report_needssurvey_2007.pdf). The funding for the estimated $40 billion in infrastructure development and improvements may come from a number of sources, including self-financing, contributions from ratepayers and customers, local government fees, federal and state funding sources, and local loans and grants.

The State of California provides public funding to community water systems in need of financial assistance to address drinking water quality issues. Over the last ten years, three major state public funding sources were made available for public drinking water or water quality improvement projects: Proposition 50, Proposition 84, and the Safe Drinking Water State Revolving Fund (SRF) (see Table 3). Proposition 50 and Proposition 84 directed funds to the State Water Board, CDPH, and DWR. The Safe Drinking Water SRF is administered by the CDPH.

Proposition bond funding to both the State Water Board and CDPH are fully allocated beyond 2012 (see Table 3). CDPH's only public funding source beyond 2012 is the Safe Drinking Water SRF, with annual loan expenditures ranging from $150 million to $250 million. There are limited Proposition 84 bond funds available through DWR for Integrated Regional Water Management (IRWM) Projects. Proposition 84 has allocated $1 billion to DWR to use for IRWM funding; an estimated $774 million remained as of October 2011.

Of the 680 community water systems that are identified as relying on a contaminated groundwater source, 514 have at least applied for funding to address their water quality concerns. Information on which systems have actually received funding is not available. A list of the 680 community water systems and the funding sources to which they have applied is provided in Appendix 6.

CDPH provided a list of community water systems that have received a drinking water quality violation (above the MCL) during the most recent compliance cycle (2002-2010). Of the 680 community water systems that rely on a contaminated groundwater source, 265 systems have received a notice of an MCL violation during this period. According to the funding data, 42 of these 265 systems were <u>not</u> seeking funding as of October 2011 (see Appendix 6) to address their drinking water issues. These systems may lack the institutional knowledge and guidance required to apply for and receive funding, and may require additional assistance in meeting funding criteria developed by administering agencies in order to ensure that safe drinking water is provided to the public with outlined mitigation measures in place.

As of October 2011, there was no public funding available for private domestic well owners or other groundwater systems not regulated by the state. The needs of these systems cannot be assessed until data are available. The lack of data is a significant gap in terms of evaluating raw groundwater quality and in identifying areas with drinking water quality issues.

Table 3: Public Funding Sources That May Be Used to Address Drinking Water Quality Issues, 2002-2012[1]

Funding Source	Type of Project	Total Funding[2] and Status[3]
Proposition 50 (CDPH)	Community water systems; Small systems: monitoring, treatment, infrastructure; Grants for treatment and contaminant removal; Grants for water quality monitoring; Source water protection; Colorado River Use Reduction; Contaminant treatment; UV/Ozone Maximum Contaminant Level (MCL) Violation	$508,000,000 Status: Fully Allocated
State Revolving Fund (CDPH)	Water treatment facilities; other infrastructure; planning; consolidation	$150,000,000[4]
Proposition 50 (DWR)	Integrated Regional Water Management Planning and Implementation	$250,000,000 Status: Fully Allocated
Proposition 50 (State Water Board)	Pollution prevention, reclamation, water quality improvement, blending and exchange projects; source protection; restore/protect surface and groundwater; Integrated Regional Water Management Planning and Implementation	$450,000,000 Status: Fully Allocated
American Reinvestment and Recovery Act (ARRA)	For deposit into State Revolving Fund	$160,000,000 Status: Fully Allocated
Proposition 84 (CDPH)	Emergency Clean Water Grants; Small community infrastructure and nitrate; Grants to reduce or prevent contamination of groundwater that serves as a source of drinking water	$250,000,000 Status: Fully Allocated
Proposition 84 (DWR)	Integrated Regional Water Management Planning and Implementation	$1,000,000,000 Status: <$774,000,000 available[5]

Notes:

1. Funding amounts included in this table based on information available October 2011.
2. Total available funds based upon amounts allocated as found within the California Water Code and original Proposition language, except where noted otherwise.
3. "Status" refers to the estimated amount of funds remaining in each respective funding source.
4. State Revolving Fund (SRF) funding varies annually, based upon allocation from federal government, previous year expenditures, loan and interest repayment, and state matching funds. The value shown here is an approximation based upon previous SRF expenditures and CDPH 2011-2012, Intended Use Plan (CDPH, 2011).
5. As of October 2011. DWR Integrated Regional Water Management (IRWM) funding is ongoing; this number will likely change.

CONCLUSIONS

- Although 98 percent of Californians receive safe drinking water, contamination of groundwater occurs in community water systems across California.
- Community water systems face potential health risks and financial burdens from a contaminated groundwater source used for drinking.
- Additional data are needed to address water quality issues for private domestic well users and water systems not regulated by the state (i.e., local and state small systems with fewer than 15 connections). Water quality data from these sources either do not exist or are not easily available in a centralized database.
- Pollution prevention and cleanup are necessary to protect groundwater resources. However, groundwater cleanup may not always be feasible.
- Providing alternative water supplies or treatment may be the most feasible solution in areas of groundwater contamination.
- Public funding sources to address groundwater supply and contamination issues are limited.

APPENDIX 1 – COMMUNITY WATER SYSTEMS THAT RELY ON A CONTAMINATED GROUNDWATER SOURCE FOR DRINKING WATER

APPENDIX 1: COMMUNITY WATER SYSTEMS THAT RELY ON A CONTAMINATED GROUNDWATER SOURCE

1.1 Data Used

This report used public water quality data and information available in the California Department of Public Health (CDPH) Division of Drinking Water and Environmental Management's water quality monitoring database (hereafter referred to as the CDPH database) to define community public water systems (community water systems) that rely on contaminated groundwater as a primary source of drinking water. CDPH data are available on the State Water Resources Control Board's GeoTracker Groundwater Ambient Monitoring and Assessment (GAMA) groundwater information system. It includes analytical water quality data for all drinking water sources used by a community water system.

Chemical information from the CDPH database was used to identify contaminated groundwater sources (wells) in 2,584 groundwater reliant community water systems in California. The data were filtered so that only "Active Raw" and "Active Untreated" community water system wells that were active at the time this report this report was being drafted (October 2011) and had been sampled at least twice during the most recent CDPH compliance cycle (2002-2010) were used.

- Active Raw: Groundwater sampled directly from the well
- Active Untreated: Groundwater sampled at a point between the well and a treatment system.

These two types of samples are characteristic of ambient, raw groundwater quality that is used as a source for public drinking water supplies. However, data from these two sources may not reflect the quality of water that is delivered to the public, which often undergoes treatment prior to delivery. When a community water system cannot afford treatment and alternative sources of water are not available, data from these two sources may be representative of delivered water.

Data collected from the CDPH-defined "Class C" Community Water Systems were used in this report, which is further described below. Table 1.1 summarizes the types of community water systems in California.

Table 1.1: Types of Community Water Systems in California

Water System Type	Description	Number of Systems	Data used in This Report?	Reason
Class "C" Community Water System	Serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents of the area served by the system (example: homes)	3,037	Yes	Community water systems serve the same group of people, year round, from the same water sources.
Class "N" Transient Non-Community Water System	A system that does not consistently serve the same people. (Example: rest stops, campgrounds, and gas stations).	3,077	No	Exposure to water from these sources is temporary. Any health risks associated with consuming contaminated water from these systems are generally lower than health risks associated with year-round exposure in community systems.
Class "P" Non-Transient Non-Community Water System	Systems that serve the same people, but not year-round. (Example: schools that have their own water system).	1,470	No	Non-transient non-community systems serve a similar group of people but do not serve them year round. Any health risks associated with consuming contaminated water from these systems are generally lower than health risks associated with year-round exposure in community systems.

1.2 Definitions used to Identify Communities that Rely on a Contaminated Groundwater Source for Drinking Water and Findings

AB 2222 (Caballero, Chapter 670, Statutes of 2008) included terms and phrases for which there is no statutory or regulatory definition. To develop the methods that were used to identify communities that rely on a contaminated groundwater source, the State Water Board, in consultation with CDPH, defined the following terms as described in the language of the law:

- Community
- Groundwater Reliant Communities
- Contaminated Groundwater Source
- Principal Contaminant
- Primary Source of Drinking Water
- Constituent of Concern

<u>“Community” and “Groundwater Reliant Community”</u>

The term “community” in this report is considered the same as the California Health and Safety Code (HSC Code § 116395) definition for community water system: a water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents. Community water systems serve the same group of people, year round, from the same group of water sources.

- **<u>Finding</u>**: There are 3,037 community water systems in California.

For the purposes of this report, a community water system with at least one active drinking water well is considered a groundwater-reliant community, even if the percentage of the total drinking water supply that comes from that well is low. Depending on the location of a well in one system, certain neighborhoods or parts of a community may be more reliant on groundwater. Even if a community water system gets the majority of its drinking water from surface water, there may be parts of that community water system that are still 100% reliant on local groundwater wells for their drinking water needs. Furthermore, the relative dependence on a well can change based on seasonal precipitation, time of the year, or changing use patterns.

- **<u>Finding</u>**: There are 2,584 groundwater-reliant community water systems (with at least one drinking water well) in California.

Groundwater-reliant community water systems fall into two categories based upon the distribution of their drinking water sources. Mixed systems use both surface and groundwater for their drinking water supply, and 100-percent groundwater-reliant systems only use groundwater. It is important to distinguish between community water systems that only use groundwater and community water systems that use mixed sources, because those that only use groundwater for their drinking water supply are more vulnerable to groundwater contamination. Appendix 8 includes additional information on which community water systems are 100 percent reliant on groundwater, 50 to 99 percent reliant on groundwater (mixed surface water and groundwater), and less than 50 percent reliant on groundwater (mixed surface water and groundwater).

- **Finding**: There are 2,180 community water systems that are 100 percent groundwater reliant.

"Contaminated Groundwater Source" and "Principal Contaminant"

Contaminated groundwater source is a well in which concentrations of a principal contaminant (see below) are detected above a public drinking water standard (Primary Maximum Contaminant Level, or MCL) on two or more occasions during the most recent CDPH compliance cycle (2002-2010).

A principal contaminant is a chemical that was detected above a primary MCL on two or more occasions during the most recent CDPH compliance cycle (2002-2010). MCLs are health-based protective drinking water standards to be met by public water systems, developed by CDPH, that take into account a chemicals' health risk, detectability, treatability, and costs of treatment. (Note: The gross alpha data evaluated in this report were not adjusted with respect to uranium or radon. The MCL for gross alpha is only used as a benchmark value and does not represent a compliance level.)

The two-detection threshold (two or more detections above an MCL) was used in order to help eliminate reporting errors or other spurious data. The two detections can occur at any time within the CDPH compliance cycle (the nine-year cycle during which every community water system should have collected groundwater quality data, as defined in Health and Safety Code §64400.20).

"Communities that Rely on a Contaminated Groundwater Source"

The CDPH database was reviewed to determine the total number of community water systems that rely on a contaminated groundwater source. The total number of groundwater sources (wells) and contaminated sources were also determined using the CDPH database. This information is provided in Table 1.2, below.

- **Finding:** 680 community water systems rely on a contaminated groundwater source, out of a total of 3,037 community water systems in the state.

1.3 Summary

In summary, a community water system that relies on a contaminated groundwater source for drinking water is defined as a community water system where:

- A chemical was detected in an active raw or active untreated drinking-water well, at a concentration above a California Primary MCL, on two or more occasions (January 1, 2002 through December 31, 2010).

In addition:

- There are 680 communities (22 percent of the total number of community water systems in the state) that rely on a contaminated groundwater source for drinking water.
- There are 1,659 wells with detected principal contaminants in these communities.

These findings are summarized in Table 1.2, below. The locations of all active raw and active untreated wells are shown in Figure 1.1. The location of all wells where groundwater contamination has been detected (using the definitions as described above) are shown in Figure 1.2.

Appendix 2 provides information on which chemicals (principal contaminants) were detected. Appendix 8 lists every community water system, well, and contaminant detected above the MCL (on two or more occasions, 2002 to 2010).

Table 1.2: Summary of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

System Description	Number
Number of community water systems[1] in California, 2002-2010	3,037
Groundwater Reliant community water systems[1] with active[2] wells sampled two or more times between 2002 and 2010	2,584 out of 3,037 (8,396 wells)
Number of community water systems[1] that are 100% reliant on groundwater	2,180 out of 3,037
Community water systems [1] that rely on a contaminated groundwater source (well)	680 out of 3,037 (1,659 out of 8,396 wells)

Notes:

1. In general, drinking water from public supply wells is treated to achieve public drinking water health standards.
2. Active as of the time that this report was being drafted in October 2011

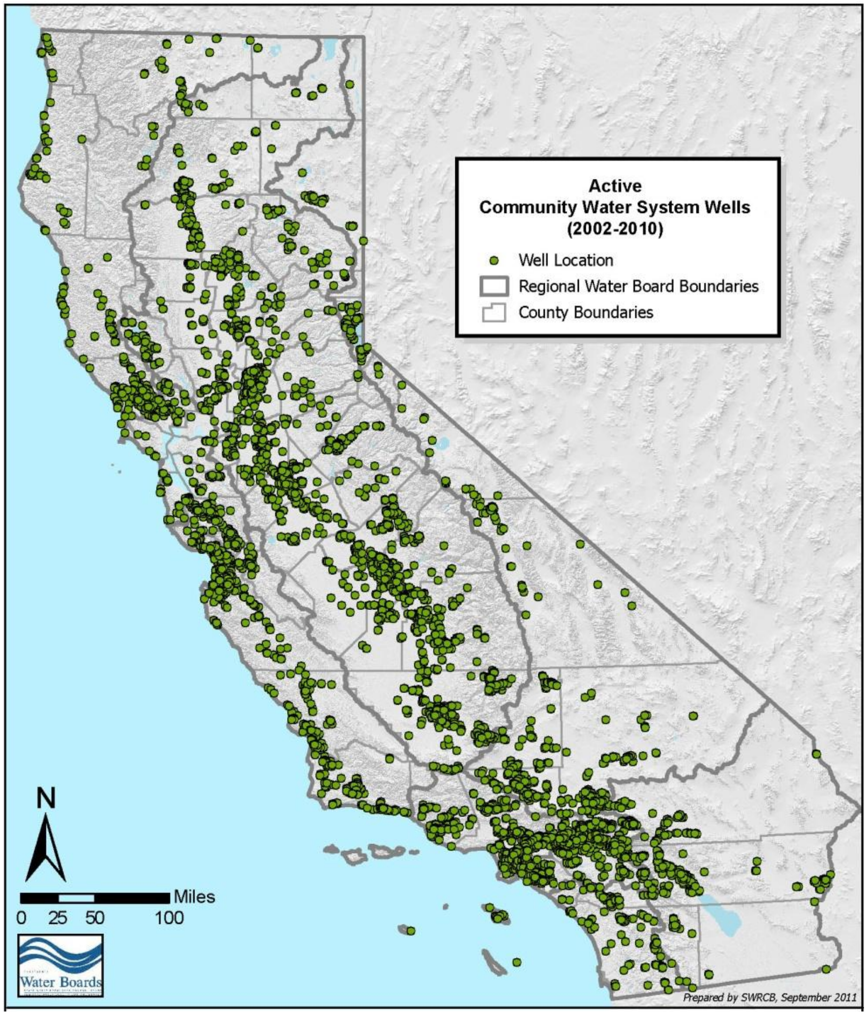

Figure 1.1: Active Community Water System Wells Sampled Two or More Times between 2002 and 2010 (8,396 Wells / 2,584 Community Water Systems)

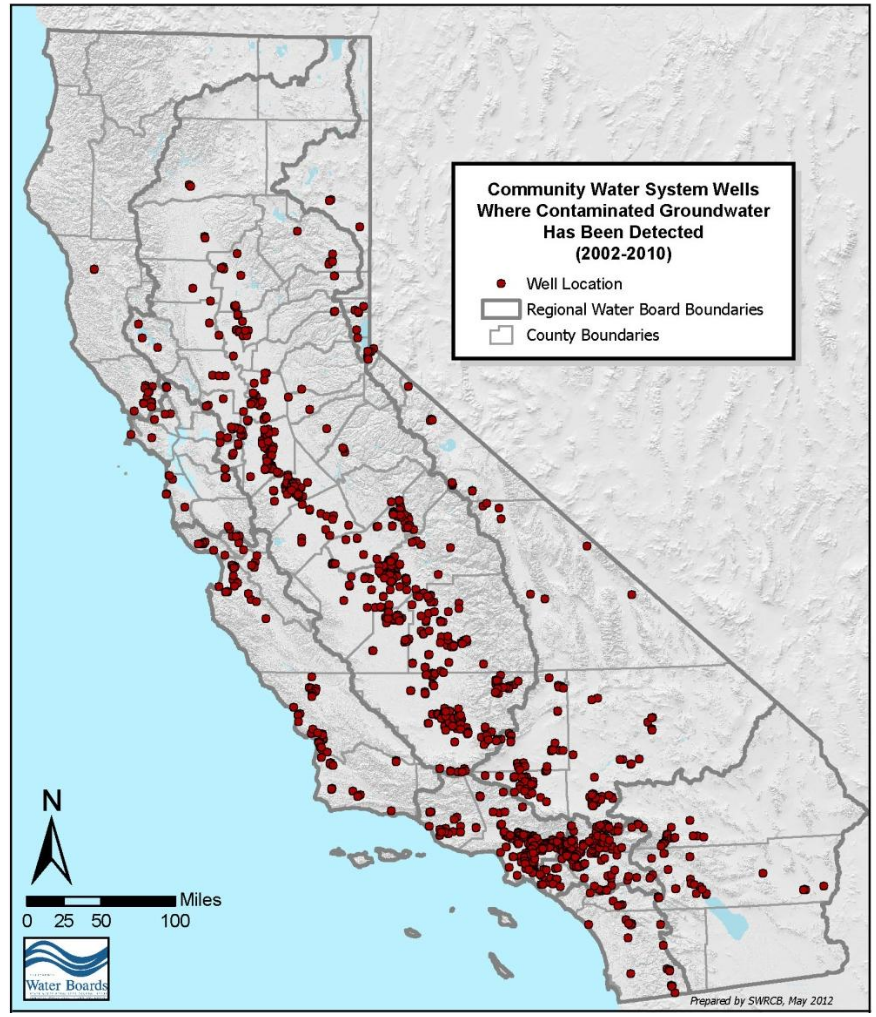

Figure 1.2: Active Community Water System Wells Where Contaminated Groundwater Has Been Detected (Two or More Detections above an MCL, 2002-2010). (1,659 Wells / 680 Community Water Systems)

1.4 Water Systems or Data Not Evaluated

The types of systems and information that are not included, as well as the rationale and limitations associated with those systems and data, are summarized below. The findings in this report do not reflect private domestic wells or other unregulated water systems since the state does not require these groundwater users to sample their wells, and consequently a comprehensive database for these groundwater sources does not exist.

State and Local Small Systems: Water quality data for State Small systems (systems that serve to less than 25 people a year and have five to 14 service connections) and Local Small systems (systems that serve to less than 25 people a year and have two to four service connections) are not included in the CDPH database. These systems are typically regulated at a local or county level; therefore, a comprehensive database for these groundwater sources does not exist.

Private Domestic Wells: Since the state does not require these groundwater users to sample their wells, a comprehensive database for these groundwater sources does not exist.

Some domestic well data is available from the State Water Board's GAMA Domestic Well Project. These data are summarized in Appendix 2. The Department of Pesticide Regulation (DPR) conducts groundwater monitoring for a wide variety of pesticides. The DPR dataset includes test results from public supply wells, irrigation wells, and domestic wells, although the DPR data set primarily includes domestic wells in areas where pesticides are used. The DPR sampling regime often does not include general groundwater chemistry information, or data on principal contaminants other than pesticides. The DPR data is available to the public through the State Water Board's GeoTracker GAMA website.

Non-community Systems: Transient non-community water systems do not serve the same group of people over time, such as rest stops, gas stations, and campgrounds. Another excluded system type is a non-transient non-community water system that serves a similar group of people, but does not serve them year round. An example is a school with its own water system. There are over 13,000 schools in California, the vast majority of which are connected to a community water system. However, approximately 420 schools are not connected to a community water system and rely on their own well for water supply. Drinking water quality for these 420 schools may be of local interest, especially in areas where groundwater quality is a concern. These school water systems are classified as "non-transient non-community" and therefore do not meet the definition of community water system used in this report. Although data on these school systems are not included here, information is available to the public on the internet at the GeoTracker GAMA groundwater information system or directly from CDPH.

Bacteriological Information: Bacteria and other microbes in drinking water are a health concern. CDPH requires that public water systems rigorously test for bacteria.

However, water samples for bacteria are primarily collected within the distribution system, and are not collected from raw groundwater. CDPH was unable to provide any bacteriological data for raw groundwater. The bacteriological data that is available in the CDPH database constitutes compliance-related reporting that reflects the quality of the water within the distribution system. In addition, most of the compliance-related reports are for total coliform bacteria. Total coliform bacteria are ubiquitous in nature, and naturally occur in soil and groundwater. The presence of total coliform bacteria, while indicative of possible communication between a well and the surface, does not demonstrate whether groundwater in the aquifer is contaminated with bacteria. This report evaluates the quality of raw groundwater, for which no data related to bacteriological information were available. As a result, bacteria are not included as a principal contaminant in this report.

The lack of bacteriological data is a significant data gap in terms of evaluating the quality of raw groundwater. In 2009, CDPH adopted by reference the Federal Groundwater Rule. The purpose of the Groundwater Rule is to provide increased protection against bacteria. As part of this new rule, community water systems will conduct monitoring at the source (well) that is triggered by a total coliform positive as a result of routine sampling. These data will be available as part of the CDPH database in the future.

1.5 Population that Relies on a Contaminated Groundwater Source

CDPH provides estimates for the population served by each community water system in the state. These population estimates were compiled to understand the number of people in community water systems that were identified as relying on a contaminated groundwater source (see Table 1.3). In total, the 680 community water systems that rely on a contaminated groundwater source serve nearly 21 million people.

Some of these community water systems use surface water in addition to groundwater for their drinking water supply, and are able to mix water from these sources or rely on alternative water supplies, when groundwater is contaminated. Of the 680 community water systems that rely on a contaminated groundwater source, 506 (74 percent) are 100 percent reliant on groundwater (see Figure 1.3), and 174 use both surface and groundwater (mixed) sources (see Figure 1.4). The community water systems that are 100 percent reliant on a contaminated groundwater source are estimated to serve nearly 4.1 million people. Many of the systems that are 100 percent reliant on groundwater are located in rural areas of the state (see Figures 1.3 and 1.4).

In terms of population, many more people are served by community water systems using mixed sources than those that are 100 percent groundwater reliant. For example, there are 89 community water systems in Los Angeles County that rely on a contaminated groundwater source, serving approximately 8.4 million people. However, only 900,000 use community water systems that are 100 percent reliant on groundwater (approximately 11 percent of the population). In contrast, in Tulare County 41 community water systems rely on a contaminated groundwater source, serving approximately 205,000 people. Here the community water systems that solely rely on groundwater account for 99 percent of the population. In general, rural communities tend to be more heavily reliant on groundwater and have a greater relative number of people that are 100 percent reliant on a contaminated groundwater source for drinking water.

Many of the community water systems that are entirely reliant on groundwater are small (serving less than 3,300 people) and rural. Such community water systems may be more reliant on a contaminated groundwater source than larger community water systems that are better able to afford treatment or alternative supply solutions.

Table 1.4 provides population estimates for drinking water sources in California, including community water systems, community water systems that rely on a contaminated groundwater source, and private domestic wells.

TABLE 1.3: Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water, by County and Population Served

County	Number of Community Water Systems Grouped by Population				Population Served by Community Water Systems				Community Water Systems 100% Reliant on Groundwater	Population 100% Reliant on Groundwater
	Total	Population			Total	Population				
		<3,300	3,300-9,999	≥10,000		<3,300	3,300-9,999	≥10,000		
ALAMEDA	1	0	0	1	54,496	0	0	54,496	0	0
AMADOR	2	2	0	0	70	70	0	0	2	70
BUTTE	6	4	1	1	106,848	359	6,403	100,086	6	106,848
CALAVERAS	1	1	0	0	150	150	0	0	0	0
COLUSA	3	3	0	0	1,038	1,038	0	0	3	1,038
CONTRA COSTA	7	5	0	2	108,729	837	0	107,892	5	837
EL DORADO	3	2	0	1	63,104	3,104	0	60,000	3	63,104
FRESNO	31	23	2	6	657,776	8,484	15,251	634,041	28	101,085
GLENN	1	1	0	0	150	150	0	0	1	150
INYO	8	8	0	0	923	923	0	0	8	923
KERN	87	63	9	33	771,229	28,501	53,261	689,467	76	428,905
KINGS	12	8	1	3	111,177	7,464	0	103,713	12	111,177
LAKE	3	3	0	0	320	320	0	0	3	320
LASSEN	2	1	0	1	12,450	1,500	0	10,950	2	12,450
LOS ANGELES	89	20	14	55	8,469,248	18,891	104,929	8,345,428	34	911,696
MADERA	31	29	1	1	72,186	10,008	4,000	58,178	27	69,022
MARIN	2	2	0	0	106	106	0	0	1	55
MARIPOSA	2	2	0	0	865	865	0	0	2	865
MENDOCINO	1	1	0	0	1,301	1,301	0	0	1	1,301
MERCED	10	4	2	4	170,603	3,020	9,250	158,333	10	170,603
MONO	5	4	1	0	9,356	1,142	8,214	0	4	1,142
MONTEREY	17	14	0	3	248,247	4,330	6,585	237,332	16	125,755
NAPA	2	2	0	0	225	225	0	0	2	225
NEVADA	3	2	0	1	14,648	348	0	14,300	3	14,648
ORANGE	13	5	1	7	1,146,037	674	5,742	1,139,621	5	674
PLACER	2	2	0	0	170	170	0	0	1	120
PLUMAS	5	5	0	0	3,540	3,540	0	0	5	3,540
RIVERSIDE	35	17	4	14	1,584,461	14,749	24,316	1,545,396	21	283,264
SACRAMENTO	20	12	0	8	767,332	3,093	0	764,239	15	121,276
SAN BENITO	5	5	0	0	418	418	0	0	5	418

TABLE 1.3: Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water, by County and Population Served (cont.)

County	Number of Community Water Systems Grouped by Population				Population of Community Water Systems				Community Water Systems 100% Reliant on Groundwater	Population 100% Reliant on Groundwater
	Total	Population			Total	Population				
		<3,300	3,300-9,999	≥10,000		<3,300	3,300-9,999	≥10,000		
SAN BERNARDINO	58	26	8	24	1,836,570	29,045	49,558	1,757,967	37	757,204
SAN DIEGO	14	12	0	2	1,308,105	6,374	0	1,301,731	10	5,824
SAN JOAQUIN	26	19	1	6	496,733	6,015	3,640	487,078	19	152,135
SAN LUIS OBISPO	24	16	4	4	104,288	6,869	27,719	69,700	18	26,958
SAN MATEO	5	2	1	2	165,953	1,431	5,412	159,110	1	1,000
SANTA BARBARA	9	4	2	3	169,687	1,366	11,042	157,279	5	36,578
SANTA CLARA	9	7	0	2	125,242	2,446	34,600	88,196	8	37,046
SANTA CRUZ	6	2	1	3	167,348	1,495	83,849	82,004	4	13,146
SHASTA	1	0	0	1	85,703	0	0	85,703	0	0
SIERRA	1	1	0	0	225	225	0	0	1	225
SOLANO	4	2	2	0	17,588	934	16,654	0	4	17,588
SONOMA	17	13	2	2	86,242	1,635	15,525	69,082	17	86,242
STANISLAUS	20	14	3	3	338,102	2,390	18,554	317,158	19	126,102
SUTTER	7	5	1	1	21,730	4,055	7,475	10200	7	21,730
TEHAMA	3	3	0	0	1,609	1,609	0	0	3	1609
TULARE	41	34	4	3	205,246	18,208	21,322	165,716	40	203,342
TUOLUMNE	3	3	0	0	1,504	1,504	0	0	1	230
VENTURA	15	6	1	8	1,380,387	3,035	6,400	1,370,952	4	1,740
YOLO	3	2	0	1	58,063	2,063	0	56,000	3	58,063
YUBA	5	4	0	1	10,135	135	0	10,000	5	10,135
TOTALS	**680**	**425**	**66**	**189**	**20,957,663**	**206,614**	**539,701**	**20,211,348**	**507**	**4,091,572**

Notes: Population data from CDPH Permits, Inspections, Compliance, Monitoring, and Enforcement (PICME) System Information Database as reported in GeoTracker GAMA.

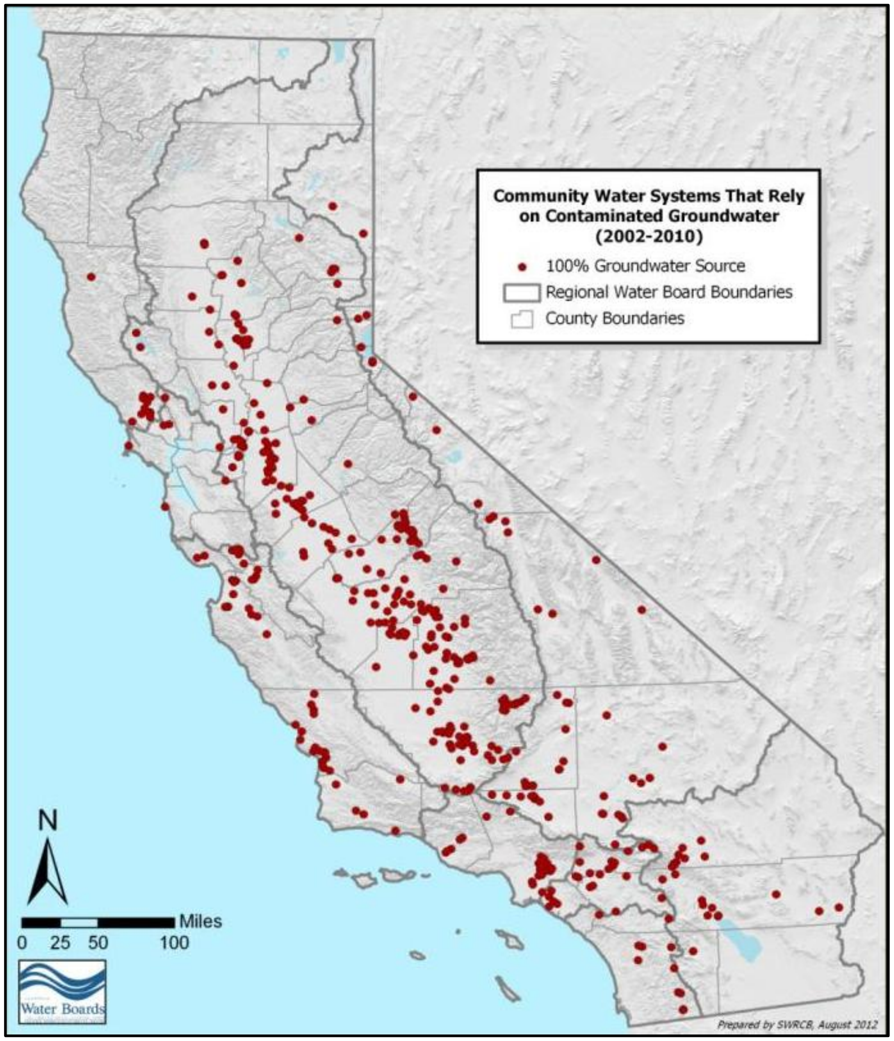

Figure 1.3: Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water: 100 Percent Reliant on Groundwater as a Primary Source of Drinking Water (506 systems) (Two or More Detections above an MCL in at Least One Active Well, 2002-2010)

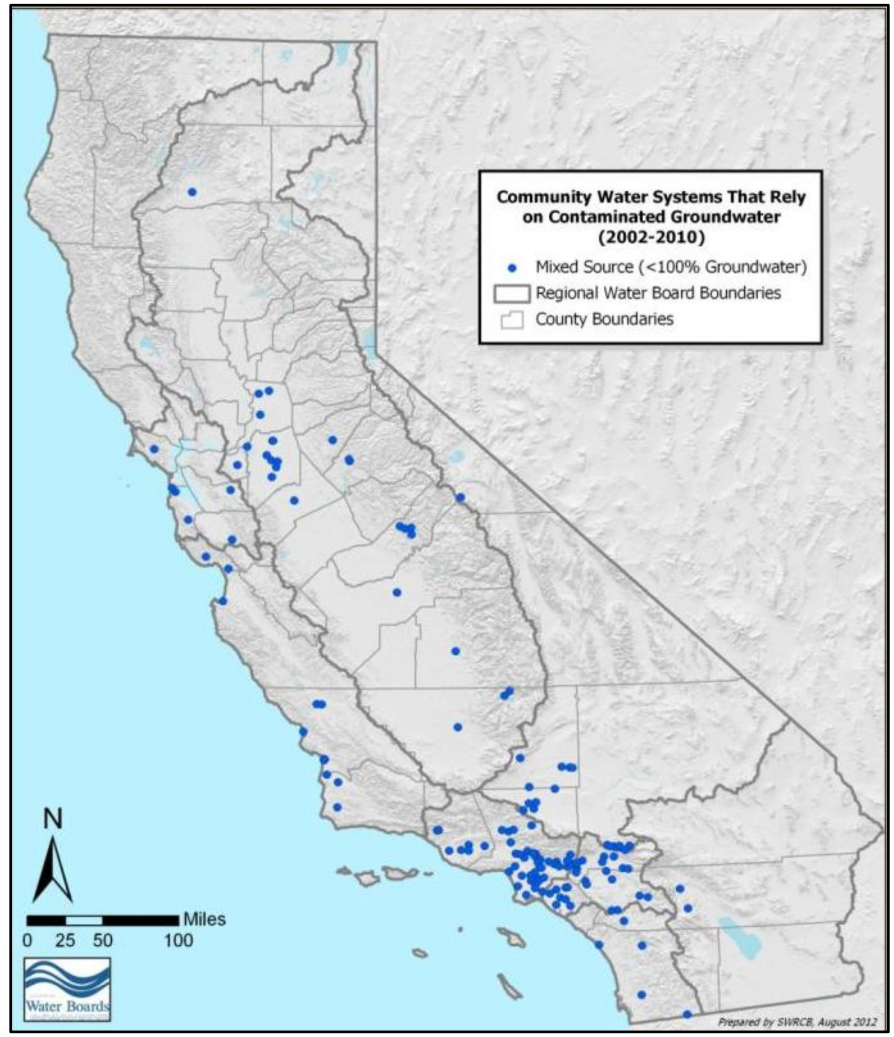

Figure 1.4: Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water: Use Surface Water for Part of Their Drinking Water (174 systems) (Two or More Detections above an MCL in at Least One Active Well, 2002-2010)

TABLE 1.4 Population Estimates for Drinking Water Systems

Category	Number of Systems or Wells	Population (Percent)
Background Statistics		
2011 Population of California	--	37,691,912[1]
Resident Population on Class "C" Community Water Systems (CWS)	--	36,000,000[2]
Population Estimates[3]		
Class "C" CWS	3,037 (100%)	40,630,685 (100% of population on CWS)[3]
Groundwater Reliant CWS[4]	2,586 (85% of total CWS)	30,386,688 (75% of population on CWS)
100% Groundwater Reliant CWS	2,180 (72% of total CWS)	6,132,797 (15% of population on CWS)
CWS that rely on a Contaminated Groundwater Source for Drinking Water	680 (22% of total CWS)	19,254,060 (47% of population on CWS)
100% Groundwater Reliant CWS that rely on a Contaminated Groundwater Source for Drinking Water	506 (17% of total CWS)	3,720,335 (9% of population on CWS)
Private Domestic Wells	200,000 to 600,000[5]	660,000 to 2 million[5]
Groundwater Systems not Regulated by CDPH (State and Local Small Systems)	Data Not Available[6]	Data Not Available[6]
CWS that Rely on a Contaminated Groundwater Source for Drinking Water that have Received an MCL Violation from CDPH, 2002-2010	265 (9% of total CWS)[7]	2,173,410 (5% of population on a CWS)[7]
CWS that Rely on a Contaminated Groundwater Source for Drinking Water that have Received an MCL Violation, 2010	116 (4% of total CWS)[7]	449,239 (1% of population on a CWS)[7]
Other Statistics		
Class "P" Non-Transient Non-Community Water Systems	1,470	372,963 (pct. NA)[8]
Class "N" Transient Non-Community Water Systems	3,077	797,188 (pct. NA)[8]

Notes:

1. 2011 estimate, US Census Bureau: http://quickfacts.census.gov/qfd/states/06000.html
2. Estimate provided by CDPH for the purposes of this report and represents permanent residents. See note 3 below.
3. Population estimates for Community Water Systems (CWS) are from CDPH PICME database. The PICME population estimates, provided to CDPH by the CWS, take in to account transient persons (i.e. visitors) within the water system boundary. Consequently, the estimate here is greater than the resident population estimate using US Census Bureau data.
4. A groundwater-reliant CWS has at least one active raw or active untreated well used for drinking water (as of Oct 2011).
5. Lower range estimate provided by CDPH, upper range based on 1990 census data for domestic wells (500,000), and adjusted based on 10% population increase per decade (growth from 2000 to 2010) http://quickfacts.census.gov/qfd/states/06000.html. Population estimates assume 3.3 persons per household.
6. The number of state small systems (5-14 service connections, or less than 25 people per year) is not available in a centralized dataset since these systems may be regulated at a county or local level.
7. Violation data provided by CDPH for the purposes of this report, available in the CDPH PICME database
8. Percentage not applicable. Class N and Class P water systems do not serve as permanent sources of drinking water – e.g., the entire population of California is served by either a CWS, by a private domestic well, or by another small, unregulated groundwater source. Class N and Class P water systems represent temporary or non-permanent sources of drinking water, the population of which overlaps with permanent drinking water sources (Class C water systems, private domestic well or other unregulated groundwater sources). Population data provided by CDPH, available in the CDPH PICME database.

1.6 Additional Information

Additional figures related to the distribution of community water systems that rely on a contaminated groundwater source for drinking water are included below. These graphs pertain to the distribution of community water systems with respect to the source of their water supply and the population of those community water systems.

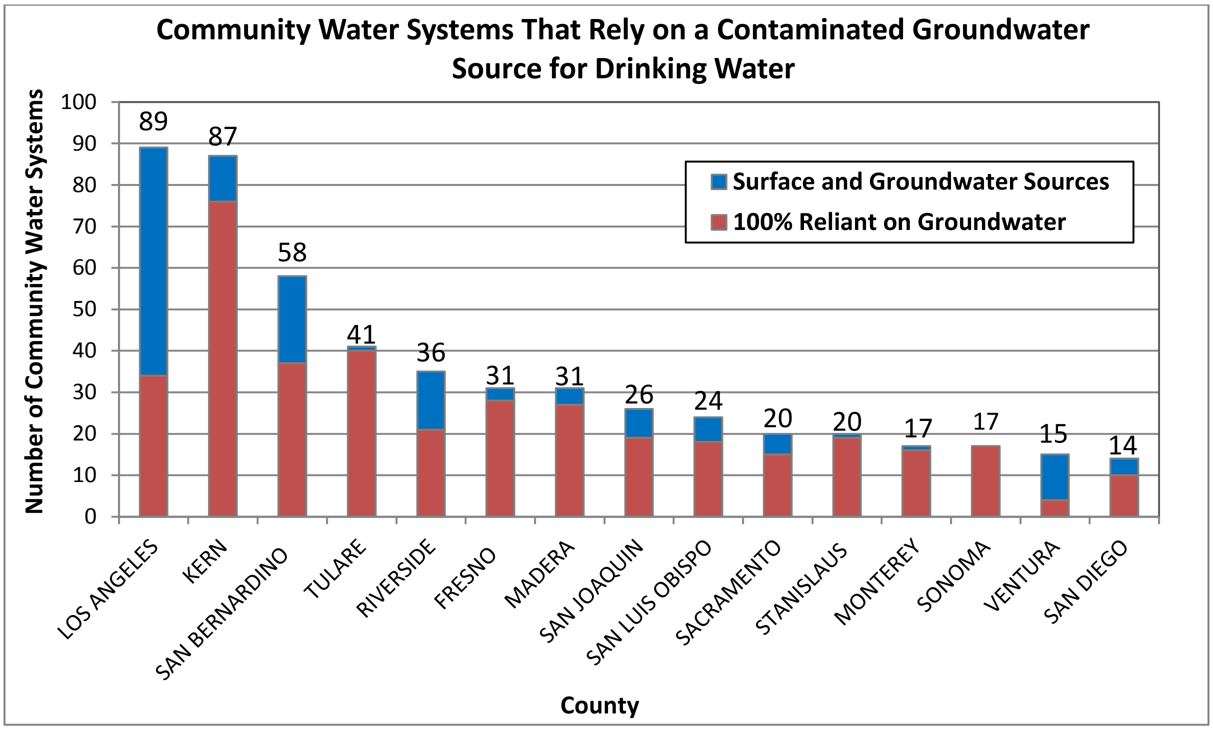

Figure 1.5: Top 15 Counties by Number of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

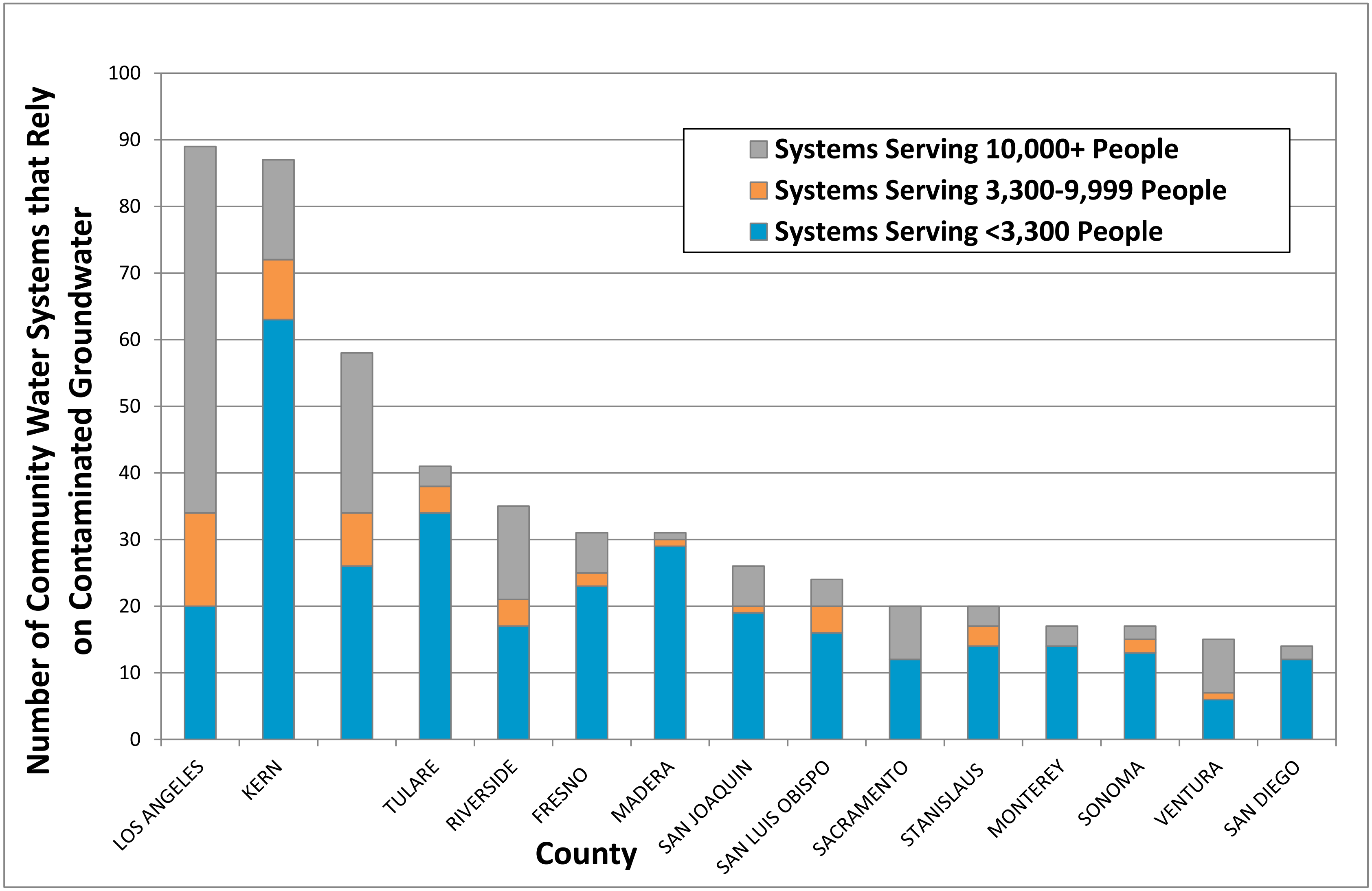

Figure 1.6: Top 15 Counties by Size and Number of Communities that Rely on a Contaminated Groundwater Source for Drinking Water

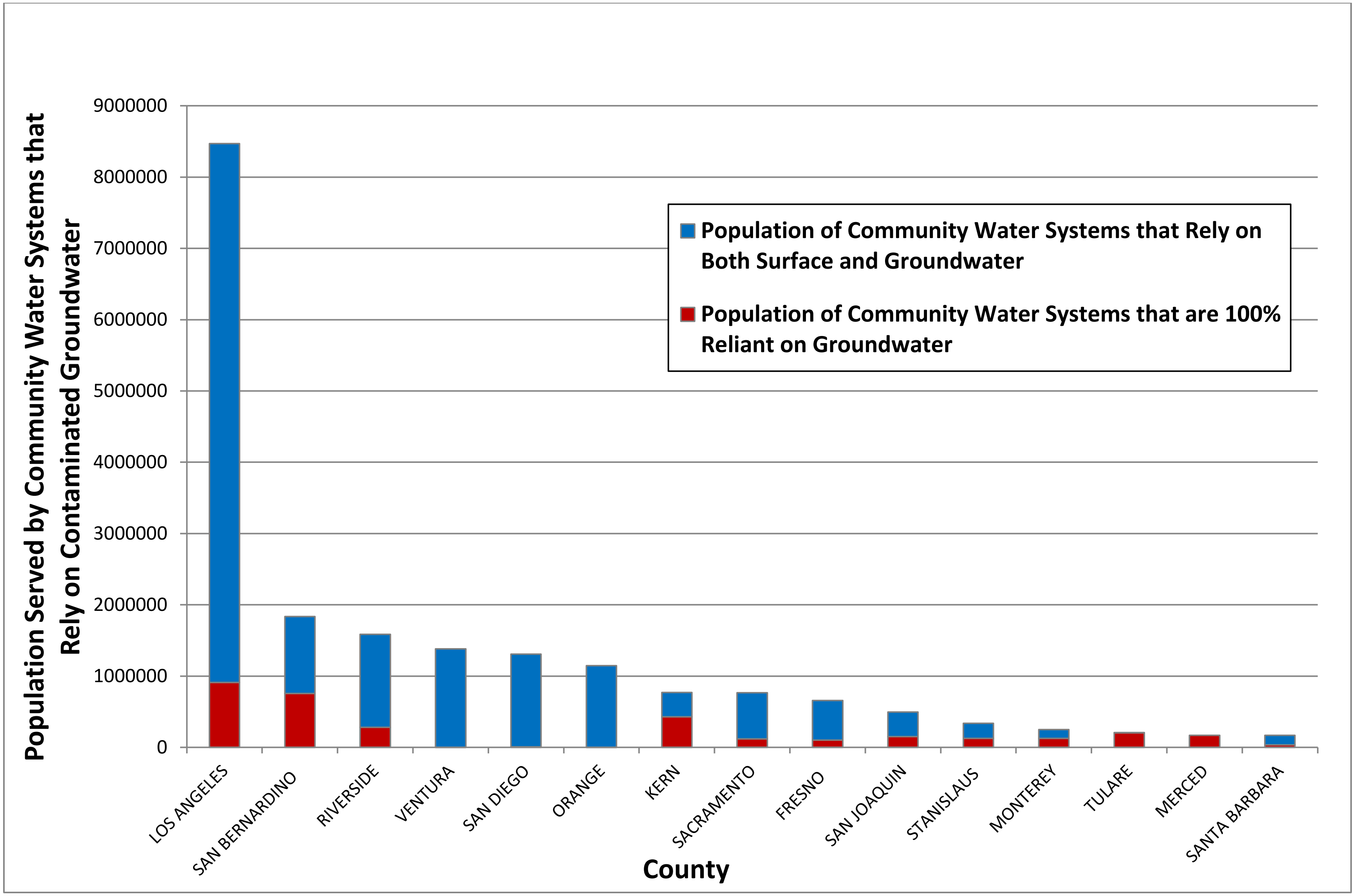

Figure 1.7: Top 15 Counties - Population Served by Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

APPENDIX 2 – PRINCIPAL CONTAMINANTS

Appendix 2: Principal Contaminants

This appendix summarizes the principal contaminants in the 680 community public water systems (community water systems) that rely on a contaminated groundwater source for drinking water. Additional information on principal contaminant levels in active community water system wells, including the number of detections above the Maximum Contaminant Level (MCL), date of most recent detection above the MCL, maximum concentration, and average concentration is included in Appendix 8 at the end of this report.

2.1 Principal Contaminants

Principal contaminants are defined as chemicals that were detected above a primary MCL, on two or more occasions, during the most recent CDPH compliance cycle (2002-2010). Thirty-one principal contaminants are identified and are listed in Table 2.2 by frequency of detection, along with the number of wells in which the contaminant was detected, and the number community water systems in which the contaminant was detected.

The ten most frequently detected principal contaminants in active community water system wells are shown in Table 2.1. A community water system well is considered active if it was being used to provide drinking water at the time that this report was being drafted in October 2011.

Table 2.1: Ten Most Frequently Detected Principal Contaminants

Principal Contaminant	Number of Wells	Number of Community Water Systems	Type of Contaminant
Arsenic	587	287	Naturally occurring
Nitrate	451	205	Anthropogenic nutrient[1]
Gross alpha activity	333	182	Naturally occurring
Perchlorate	179	57	Industrial/military use[1]
Tetrachloroethylene (PCE)	168	60	Solvent
Trichloroethylene (TCE)	159	44	Solvent
Uranium	157	89	Naturally occurring
1,2-dibromo-3-chlropropane (DBCP)	118	36	Legacy pesticide
Fluoride	79	41	Naturally occurring
Carbon tetrachloride	52	17	Solvent

Notes:
1. Also can be naturally occurring, but typically at levels below the MCL

The ten principal contaminants listed above account for over 90 percent of the total number of contaminated community water system wells identified in this report. Figures showing distribution of all 31 principal contaminants in community water systems that rely on a contaminated groundwater source for drinking water are included at the end of this appendix.

Principal contaminants were detected in 1,659 active community water system wells. Most (68 percent) of the wells detected only one principal contaminant (see Figure 2.1). Co-contaminants (more than one detected principal contaminant) were found in 32 percent of the wells. Naturally-occurring principal contaminants were detected in just over half of the wells; anthropogenic principal contaminants were detected in 42 percent of the wells (see Figure 2.2). Both naturally occurring and anthropogenic principal contaminants were detected in 6 percent of the wells. Naturally-occurring and anthropogenic contaminants are discussed in the following section.

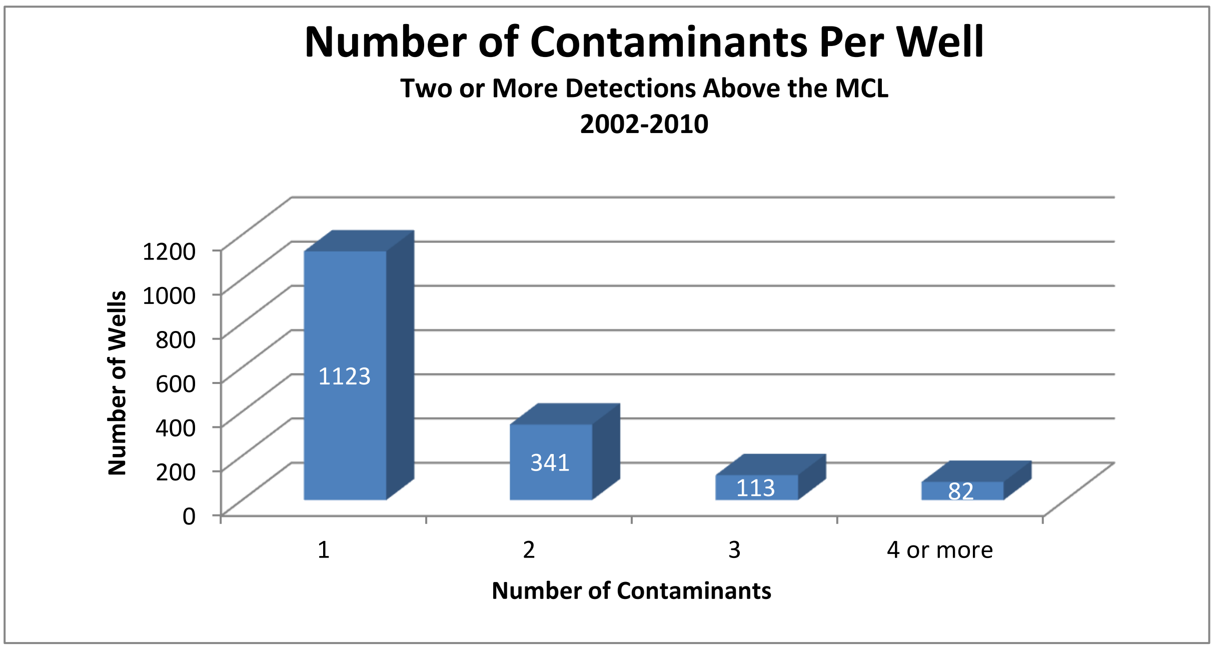

Figure 2.1: Number of Principal Contaminants Detected per Active Community Water System Well

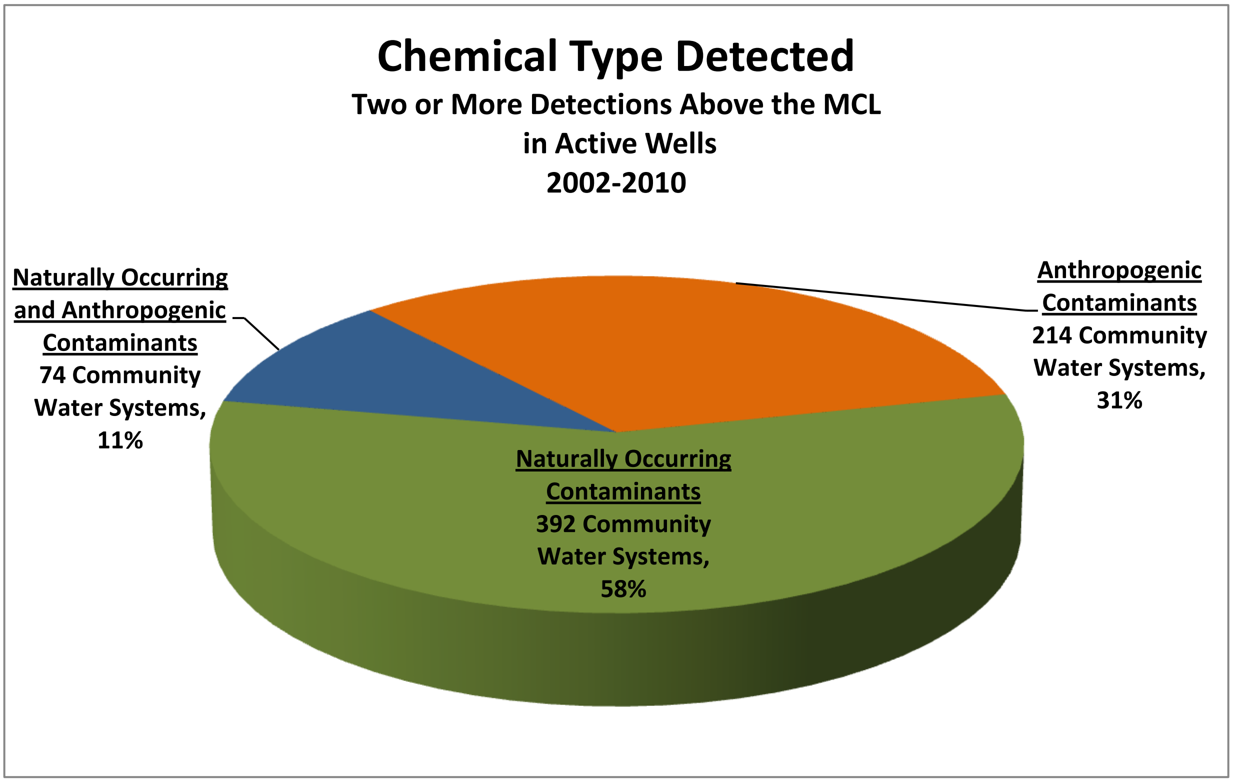

Figure 2.2: Type of Principal Contaminant Detected in Active Community Water System Wells

Table 2.2: Principal Contaminants Detected in Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

Principal Contaminant (PC)	Community Water Systems Where PC Has Been Detected[a]	Community Water System Wells With Identified PC[b]	Wells Sampled for PC[c]	% of Sampled Wells Above MCL[d]	MCL (µg/L)	Contaminant Type[e,f]
Arsenic	287	587	7,232	8.1	10	Inorganic
Nitrate (as NO_3)	205	451	8,167	5.5	45,000	Inorganic/ Nutrient
Gross alpha particle activity	182	333	7,405	4.5	15[h]	Radionuclide
Perchlorate	57	179	6,999	2.6	6	Inorganic
Tetrachloroethylene (PCE)	60	168	6,214	2.7	5	VOC[f]
Trichloroethylene (TCE)	44	159	6,217	2.6	5	VOC[f]
Uranium[g]	89	157	3,201	4.9	30[h]/20	Inorganic/ Radionuclide
1,2-Dibromo-3-chloropropane (DBCP)	36	118	4,330	2.7	0.2	VOC[f] / Legacy Pesticide
Fluoride (natural)	41	79	6,972	1.1	2,000	Inorganic
Carbon tetrachloride	17	52	6,209	0.8	0.5	VOC[f]
1,1-Dichloroethylene (1,1-DCE)	10	36	6,200	0.6	6	VOC[f]
1,2-Dichloroethane (1,2-DCA)	10	24	6,207	0.4	0.5	VOC[f]
cis-1,2-Dichloroethylene	9	12	6,199	0.2	6	VOC[f]
Aluminum	8	9	6,945	0.1	1,000	Inorganic
Selenium	6	9	6,900	0.1	50	Inorganic
Chromium, Total	6	7	6,761	0.1	50	Inorganic
Benzene	5	6	6,222	0.1	1	VOC[f]
Ethylene dibromide (EDB)	4	6	4,309	0.1	0.05	VOC[f] / Pesticide
Methyl tertiary butyl ether (MTBE)	4	5	7,108	<0.1	13	VOC[f]
Total Trihalomethanes	3	3	5,596	<0.1	80	Disinfection Byproduct
Barium	2	3	6,900	<0.1	1,000	Inorganic
Vinyl chloride	3	3	6,207	<0.1	0.5	VOC[f]
Antimony	2	2	6,882	<0.1	6	inorganic

Table 2.2: Principal Contaminants Detected in Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water (cont.)

Principal Contaminant (PC)	Community Water System Where PC Has Been Detected[a]	Community Water System Wells With Identified PC[b]	Wells Sampled for PC[c]	% of Sampled Wells >MCL[d]	MCL (µg/L)	Contaminant Type[e,f]
Bromate	1	1	9	11.1	10	Disinfection Byproduct
Nitrite (as N)	1	2	7,271	<0.1	1,000	Inorganic
1,1-Dichloroethane (1,1-DCA)	1	1	6,199	<0.1	5	VOC[f]
Asbestos	1	1	779	0.1	7	Inorganic
Cyanide	1	1	4,401	<0.1	150	VOC[f]
Di(2-ethylhexyl) phthalate (DEHP)	1	1	2,504	<0.1	4	VOC[f]
Nickel	1	1	6,906	<0.1	100	Inorganic
Trichlorofluoromethane (Freon 11)	1	1	6,208	<0.1	150	VOC[f]

Notes (gray shading indicates anthropogenic contaminant):

a. The number of community water systems in which a principal contaminant was detected, on two or more occasions, at a concentration above an MCL during the most recent CDPH compliance cycle (2002-2010).
b. Number of active community water system wells in which a principal contaminant was detected, on two or more occasions, at a concentration above an MCL during the most recent CDPH compliance cycle (2002-2010). A well is considered active if it was being used to provide drinking water to a community water system at the time that this report was being drafted (October 2011),
c. The total number of active community water system wells that were sampled two or more times for the listed principal contaminant during the most recent CDPH compliance cycle (2002-2010).
d. The percentage of active community water system wells sampled two or more times for the listed principal contaminant and have had two or more detections of a principal contaminant at a concentration above the MCL, during the most recent CDPH compliance cycle (2002-2010).
e. General category of contaminant.
f. VOC – Includes both volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC).
g. Includes both California MCL and USEPA MCL data.
h. In units of pCi/L, or picocuries per liter

2.2 Types of Contaminants

There are two types of contaminants that can be detected in groundwater: naturally occurring and anthropogenic. Distinguishing between naturally occurring and anthropogenic compounds is useful in addressing groundwater cleanup and alternative water supply options. For the remainder of this report, the naturally occurring contaminants are distinguished from those that are caused by human activities.

- Naturally Occurring Contaminants: Groundwater contains chemical constituents not from human activities. The types and concentrations of these chemical constituents depend on the geologic material through which the groundwater moves.

  Some naturally occurring chemicals can occur at high concentrations due to human activities. For example, nitrate can occur naturally at low concentrations in groundwater. However, nitrate concentrations greater than approximately 15 milligrams per liter (mg/L) as NO_3 are associated with agricultural activity (fertilizer, irrigation, feedlots) or sewage.

- Anthropogenic Contaminants: Groundwater can be contaminated as a result of human activities such as municipal and industrial wastewater disposal, industrial and commercial chemical use, spills, fuel releases from aboveground and underground storage tanks, pesticide and fertilizer application, and septic tank discharges. Anthropogenic principal contaminants as identified in this report include nitrate, perchlorate, PCE, TCE, DBCP and carbon tetrachloride.

Twenty-one of the 31 principal contaminants detected in community water system wells are anthropogenic in origin. Anthropogenic and naturally occurring principal contaminants are distinguished by shading for easy identification in Table 2.2, Figure 2.3, and Figure 2.4.

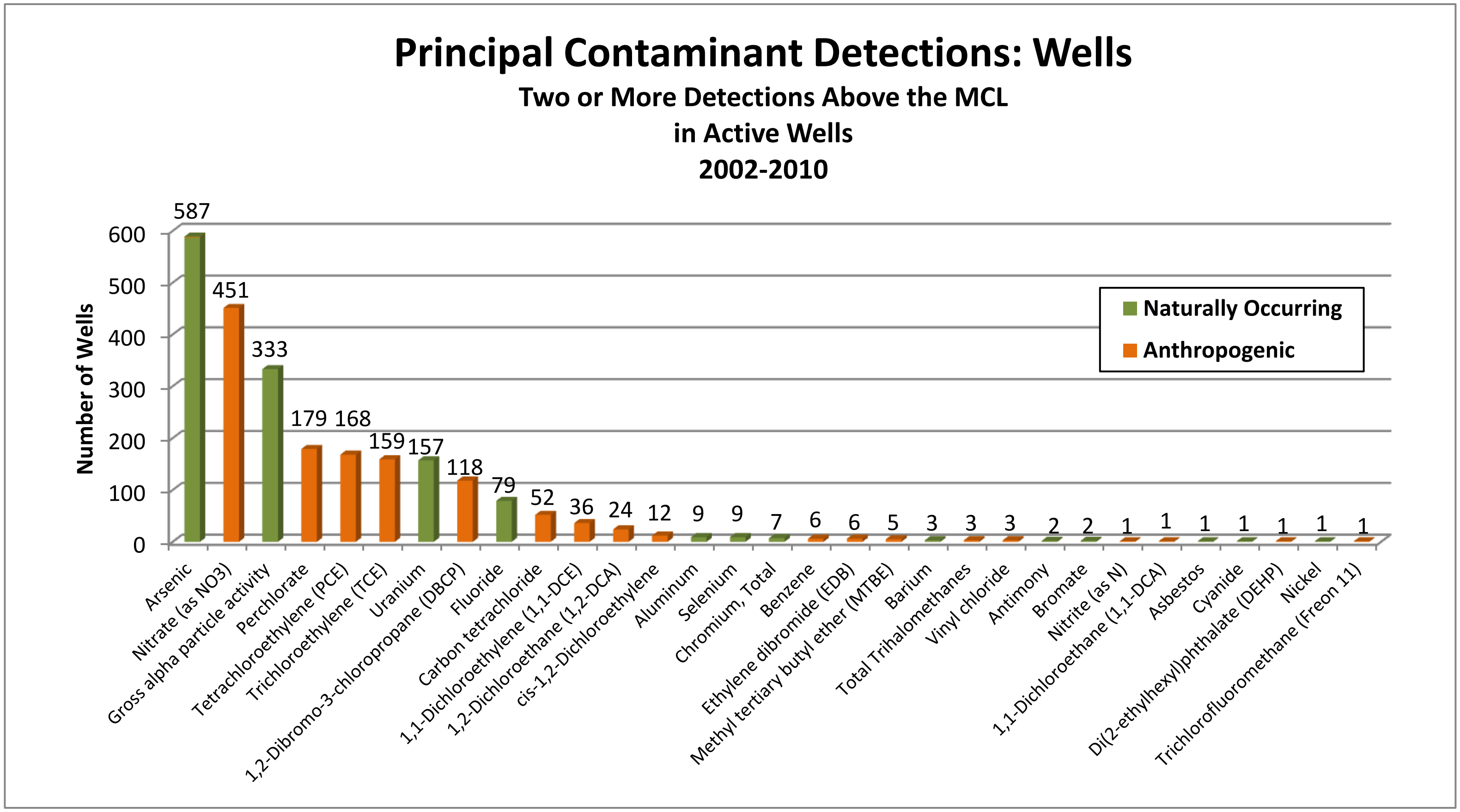

Figure 2.3: Number of Active Community Water System Wells in which a Principal Contaminant was Detected (on Two or More Occasions above the MCL, 2002-2010)

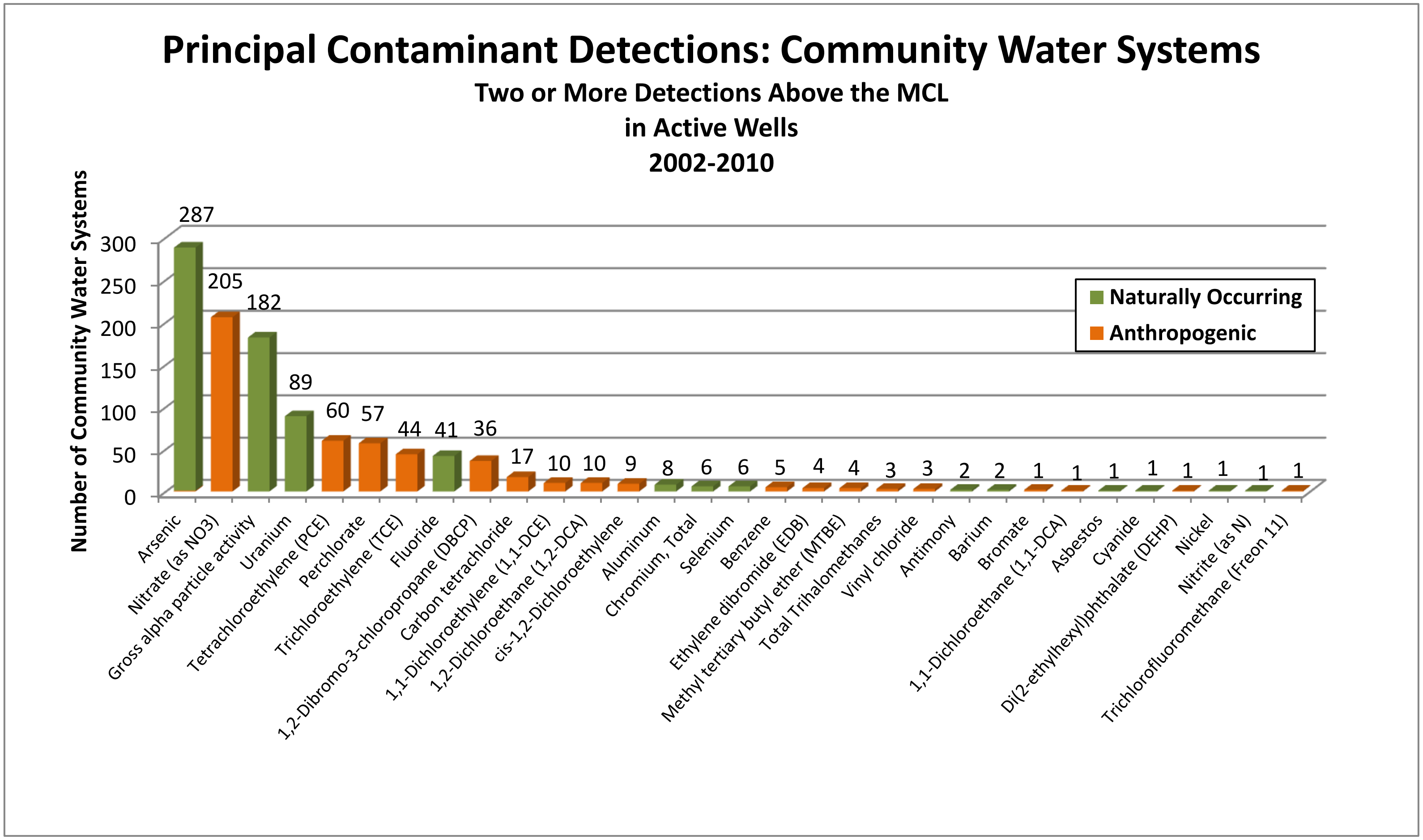

Figure 2.4: Number of Active Community Water Systems in which a Principal Contaminant was Detected (on Two or More Occasions above the MCL, 2002-2010)

2.3 Private Domestic Wells

A significant portion of California's population does not get its drinking water from public water supplies. Approximately 2 million Californians rely on groundwater from either a private domestic well or a smaller groundwater-reliant system that is not regulated by the state. Many of these well owners are unaware of the quality of their well water, since the state does not require them to test their water quality. Private domestic wells and small non-community water systems typically tap into shallow groundwater, which is more susceptible to contamination. However, the state does not regulate the quality, enforce drinking water standards, or require water quality monitoring from private domestic wells. As a result, private domestic well users may not know the quality of their drinking water, and the lack of domestic well water quality data is a significant data gap in terms of evaluating California's drinking water quality.

The State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Domestic Well Project was developed in order to address the lack of domestic well water quality data. The Domestic Well Project samples domestic wells for commonly detected chemicals in specific county focus areas across the state. Results are used by the GAMA Program to evaluate the quality of groundwater in these county focus areas. Since 2002, the Domestic Well Project has sampled 1,067 private domestic wells in five county focus areas (Yuba, El Dorado, Tehama, Tulare, and San Diego). In addition, Monterey County was sampled in the spring of 2011; however, the data were not final at the time of this report's preparation, and as a result were not used in this study.

Results from sampled domestic wells highlight the variability of groundwater quality throughout the state (see Table 2.3). For example, Tehama and Yuba counties had few domestic wells with nitrate concentrations above the MCL (less than 1 percent and 2 percent, respectively). However, 40 percent of the domestic wells sampled in Tulare County detected nitrate above the MCL. Some counties had unique constituents of concern. In San Diego County, radionuclides were detected above the MCL in roughly 35 percent of the domestic wells sampled. In Tehama County, arsenic was detected above the MCL in 13 percent of the domestic wells sampled. In general, approximately 10 percent of the domestic wells sampled had at least one constituent above a drinking water standard. Detailed results for each of the county focus areas are included on the Domestic Well Project website at:
http://www.waterboards.ca.gov/water_issues/programs/gama/domestic_well.shtml

To date, the GAMA Domestic Well Project has sampled only a small percentage of the estimated 200,000 to 600,000 private domestic wells in the state. Groundwater contamination can affect owners of domestic wells (e.g., nitrate in Tulare County), and this contamination represents a health risk to communities that rely on private domestic wells for their drinking water. The quality of drinking water supplied by domestic wells is largely unknown in California. Continued domestic well sampling will help identify local and regional groundwater quality issues that may affect well owners.

Table 2.3: Summary of Detections Above a Drinking Water Standard
GAMA Domestic Well Project – All County Focus Areas

Constituent of Concern	Drinking Water Standard	Yuba (2002) 128 Wells	El Dorado (2003-04) 398 Wells	Tehama (2005) 223 Wells	Tulare (2006) 181 Wells	San Diego (2008-09) 137 Wells	Total 1067 wells
Bacteria Indicators							
Total Coliform	Present[1]	31 (24 %)	111 (28%)	56 (25%)	60 (33%)	36 (26%)	294 (28%)
Fecal Coliform	Present[1]	4 (3%)	14 (4%)	3 (1%)	13 (7%)	NAS	34 (3%)
Major Ions & General Chemistry							
Nitrate	45 mg/L[1]	2 (2%)	7 (2%)	2 (<1%)	72 (40%)	25 (18%)	108 (10%)
Perchlorate	6 µg/L[1]	Not Tested	Not Tested	Not Tested	2 (6%)	4(3%)	6 (4%)
Chloride	500 mg/L[2]	NAS	NAS	NAS	NAS	3 (1%)	3 (<1%)
Fluoride	2 mg/L[1]	NAS	NAS	NAS	NAS	1 (<1%)	1 (<1%)
Sulfate	500 mg/L[2]	NAS	NAS	NAS	NAS	1 (<1%)	1 (<1%)
Total Dissolved Solids	1,000 mg/L[2]	2 (2%)	NAS	NAS	4 (2%)	21 (15%)	27 (3%)
Specific Conductance	1,600 µmhos/cm[2]	NAS	NAS	NAS	4 (2%)	19 (14%)	23 (2%)
Metals							
Aluminum	1,000 µg/L[1]	3 (2%)	1 (<1%)	NAS	NAS	NAS	4 (<3%)
Antimony	6 µg/L[1]	1 (1%)	2 (<1%)	NAS	NAS	NAS	3 (<1%)
Arsenic	10 µg/L[1]	7 (5%)	14 (4%)	28 (13%)	2 (1%)	3 (2%)	54 (5%)
Barium	1 mg/L[1]	NAS	NAS	NAS	NAS	1(<1%)	1 (<1%)
Beryllium	4 µg/L[1]	NAS	NAS	NAS	1 (<1%)	NAS	1 (<1%)
Boron	1 mg/L[3]	NAS	NAS	NAS	1 (<1%)	4(3%)	5 (<1%)
Cadmium	5 µg/L[1]	NAS	NAS	NAS	NAS	2 (1%)	2 (<1%)

Table 2.3: Summary of Detections Above a Drinking Water Standard
GAMA Domestic Well Project – All County Focus Areas (cont.)

Constituent of Concern	Drinking Water Standard	Yuba (2002) 128 Wells	El Dorado (2003-04) 398 Wells	Tehama (2005) 223 Wells	Tulare (2006) 181 Wells	San Diego (2008-09) 137 Wells	Total 1067 wells
Metals (continued)							
Chromium	50 µg/L[1]	NAS	NAS	1 (<1%)	2 (1%)	NAS	3 (<1%)
Iron	300 µg/L[2]	21 (17%)	80 (20%)	31 (14%)	2 (1%)	21 (15%)	155 (15%)
Lead	15 µg/L[3]	2 (2%)	3 (<1%)	2 (1%)	NAS	2 (1%)	9 (1%)
Manganese	50 µg/L[2]	39 (30%)	97 (24%)	19 (9%)	2 (1%)	45 (33%)	202 (19%)
Nickel	100 µg/L[1]	1 (<1%)	1 (<1%)	NAS	3 (2%)	NAS	5 (<1%)
Thallium	2 µg/L[1]	1 (<1%)	NAS	NAS	6 (3%)	NAS	7 (1%)
Vanadium	50 µg/L[3]	NAS	NAS	NAS	14 (8%)	2 (1%)	16 (1%)
Zinc	5,000 µg/L[2]	NAS	1 (<1%)	NAS	1 (<1%)	2 (1%)	4 (<1%)
Organics (Pesticides & VOCs)							
Volatile Organic Compounds	Varies by compound	2 (2%)	2 (<1%)	NAS	9 (5%)	1 (<1%)	14 (1%)
Radionuclides							
Gross Alpha	15 pCi/L[1]	Radionuclides not routinely sampled in these Focus Areas			3 of 13 wells tested	19 of 54 wells tested	22 (33%)
Radium 226+228	5 pCi/L[1]				1 of 13 wells tested	2 of 54 wells tested	3 (4%)
Uranium	20 pCi/L[1]				1 of 13 wells tested	16 of 54 wells tested	17 (25%)

Notes: California Department of Public Health (CDPH) Public Drinking Water Standards used for comparison purposes only. Domestic well water quality in California is not regulated.

NAS = None Above Standard. No samples were detected above a drinking water standard, VOCs = volatile organic compounds, (%) indicates percentage of wells tested with concentrations above a drinking water standard

Drinking Water Standards: 1 = CDPH Primary Maximum Contaminant Level (MCL); 2 = CDPH Secondary Maximum Contaminant Level (SMCL); 3 = CDPH Notification Level (NL)

µg/L = micrograms per liter; mg/L = milligrams per liter; µmhos/cm = micromhos per centimeter; pCi/L = picocuries per liter
Coliform are evaluated on a presence/absence criteria. No range can be determined.

Refer to each individual county summary of detections table for list of detected VOCs and pesticides and corresponding drinking water standards.
http://www.waterboards.ca.gov/water_issues/programs/gama/domestic_well.shtml

2.4 Maps Showing Distribution of Principal Contaminants

The distribution of naturally occurring principal contaminants, anthropogenic principal contaminants, and all 31 identified principal contaminants, are shown on the following pages. These maps reflect the condition of the raw groundwater quality used by community water systems that rely on groundwater for their drinking water supply during the most recent CDPH compliance cycle (2002-2010). The concentrations of the identified principal contaminants may differ significantly in shallow groundwater and in portions of the drinking water aquifer where wells have been destroyed or abandoned due to contamination.

2.5 Regional Patterns

Regional patterns can be inferred from the groundwater quality data used in this report. These patterns reflect the available data, and may not be representative of groundwater quality conditions across the state, particularly in areas or in portions of an aquifer that are not sampled or used by community water systems.

Active community water system wells with two or more detections above an MCL of naturally occurring contaminants are generally detected statewide (see Figure 2.5). Anthropogenic contaminants are also detected statewide; however, most contaminated wells are located in the Southern California Inland Empire, the east side of the San Joaquin Valley, the Salinas Valley and the Santa Maria Valley (see Figure 2.6). The regional distribution of the ten most frequently detected principal contaminants is discussed below.

Arsenic: A total of 587 active community water system wells have had two or more detections of arsenic above the MCL (see Table 2.1). These 587 wells are located in 287 community water systems throughout the state. The highest concentration (377 µg/L) was detected in Madera County. Wells that detect arsenic at the highest concentrations (more than 5 times the MCL) are located throughout the state (see Figure 2.7). Arsenic, in general, is a naturally occurring contaminant. California changed the arsenic MCL from 50 µg/L to 10 µg/L (equivalent to 10 micrograms per liter, µg/L) in 2008. Data used in this report represent an MCL of 10 µg/L.

Nitrate: A total of 451 active community water system wells have had two or more detections of nitrate above the MCL (see Table 2.1). These 451 wells are located in 205 community water systems. The highest concentration (720 µg/L) was detected in San Bernardino County. Most of the wells with the highest concentrations (more than three times the MCL) are located in the southeastern San Joaquin Valley, the Southern California Inland Empire area, and Ventura County (see Figure 18). Nitrate is considered an anthropogenic contaminant when concentrations exceed its MCL (45 µg/L).

Radionuclides (Gross Alpha): A total of 333 active community water system wells have had two or more detections of radionuclides (gross alpha) above the MCL (see Table 2.1). These 333 wells are located in 182 community water systems throughout the state. The highest concentration (920 µg/L) was detected in San Diego County. Most of the wells with the highest concentrations (more than three times the MCL, used as a benchmark) are located in the southeastern San Joaquin Valley, the Southern California Inland Empire, Ventura, and San Bonito areas (see Figure 2.9). Gross alpha radionuclides are a naturally occurring contaminant. Note: The gross alpha data evaluated in this report were not adjusted with respect to uranium or radon. The MCL for gross alpha is only used as a benchmark value and does not represent a compliance level.

Perchlorate: A total of 179 active community water system wells have had two or more detections of perchlorate above the MCL (see Table 2.1). These 179 wells are located in 57 community water systems, primarily in the Southern California Inland Empire area, San Bernardino County, and Tulare County (see Figure 2.10). The highest concentration (120 µg/L) was detected in San Bernardino County. Perchlorate is an anthropogenic contaminant when concentrations exceed the MCL.

Tetrachloroethylene (PCE): A total of 168 active community water system wells have had two or more detections of PCE above the MCL (see Table 2.1). These 168 wells are located in 60 community water systems across the state. The highest concentration (1,630 µg/L) was detected in Los Angeles County. Most of the wells with the highest concentrations (more than three times the MCL) are located in the Southern California Inland Empire, Sacramento County, and Butte County (see Figure 2.11). PCE is an anthropogenic contaminant.

Trichlororethylene (TCE): A total of 159 active community water system wells have had two or more detections of TCE above the MCL (see Table 2.1). These 159 wells are located in 44 community water systems across the state. The highest concentration (1,300 µg/L) was detected in Los Angeles County. Most of the wells with the highest concentrations (more than three times the MCL) are located in the Southern California Inland Empire and Fresno County (see Figure 2.12). TCE is an anthropogenic contaminant.

Uranium: A total of 157 active community water system wells have had two or more detections of uranium above the MCL (see Table 2.1). These 157 wells are located in 89 community water systems across the state. The highest concentration (1,000 µg/L) was detected in Madera County. Most of the wells with the highest concentrations (more than three times the MCL) are located in Madera, San Bernardino, and San Diego Counties (see Figure 2.13). Uranium is a naturally-occurring contaminant.

1,2-Dibromo-3-chloropropane (DBCP): A total of 118 active community water system wells have had two or more detections of DBCP above the MCL (see Table 2.1). These 118 wells are located in 36 community water systems across the state. The highest concentration (3.3 µg/L) was detected in Fresno County. Most of the wells with the highest concentrations (more than three times the MCL) are located in Fresno, San Joaquin, San Bernardino, and Stanislaus Counties (see Figure 2.14). DBCP is an anthropogenic contaminant.

Fluoride (natural): A total of 79 active community water system wells have had two or more detections of fluoride above the MCL (see Table 2.1). These 79 wells are located in 41 community water systems across the state. The highest concentration (29 µg/L) was detected in Kern County. Most of the wells with the highest concentrations (more than three times the MCL) are located in southern California, specifically in San Bernardino, Kern, and Riverside Counties (see Figure 2.15). Fluoride is a naturally-occurring contaminant.

Carbon Tetrachloride: A total of 52 active community water system wells have had two or more detections of carbon tetrachloride above the MCL (see Table 2.1). These 52 wells are located in 17 community water systems across the state. The highest concentration (27 µg/L) was detected in Madera County. Most of the wells with the highest concentrations (more than three times the MCL) are located in Los Angeles County (see Figure 2.16). Carbon tetrachloride is an anthropogenic contaminant.

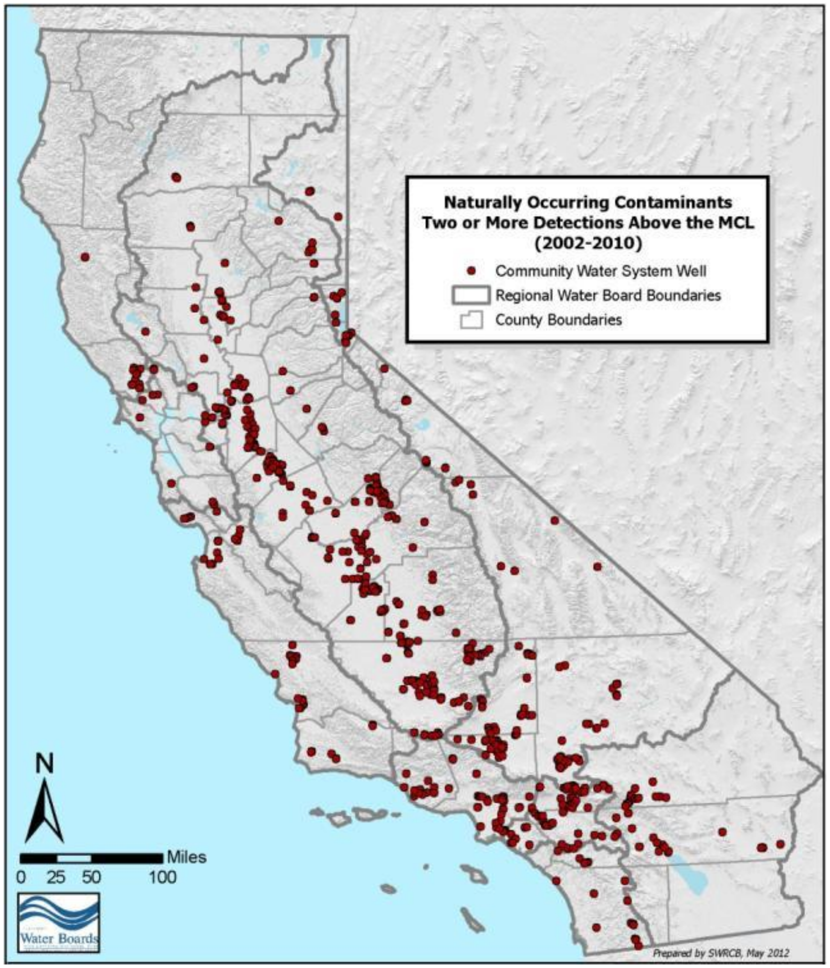

Figure 2.5: Naturally Occurring Principal Contaminants in Active Community Water System Wells (Two or More Detections above the MCL 2002-2010)

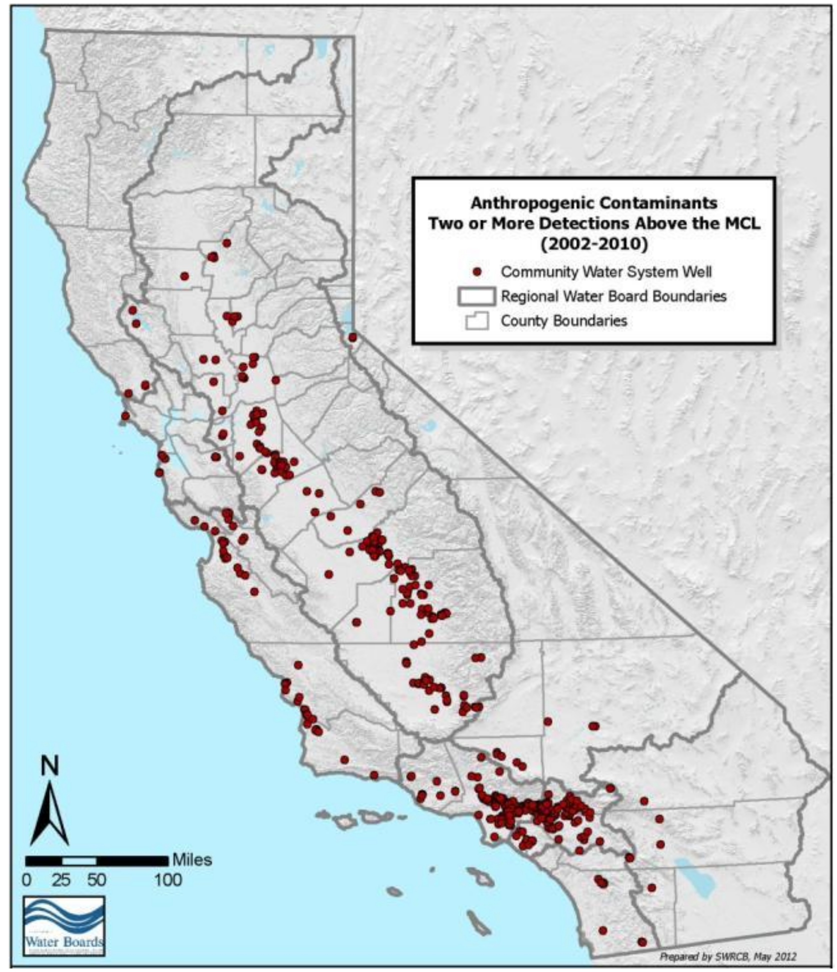

Figure 2.6: Anthropogenic Principal Contaminants in Active Community Water System Wells (Two or More Detections above the MCL 2002-2010)

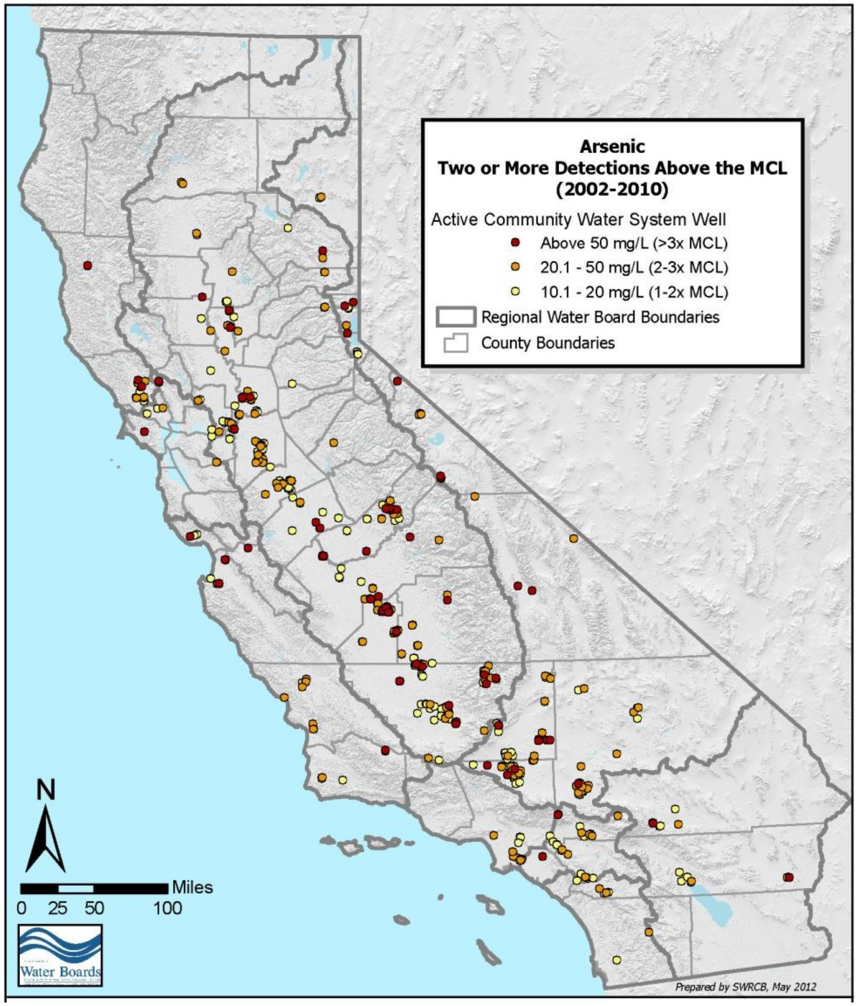

Figure 2.7: Arsenic in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

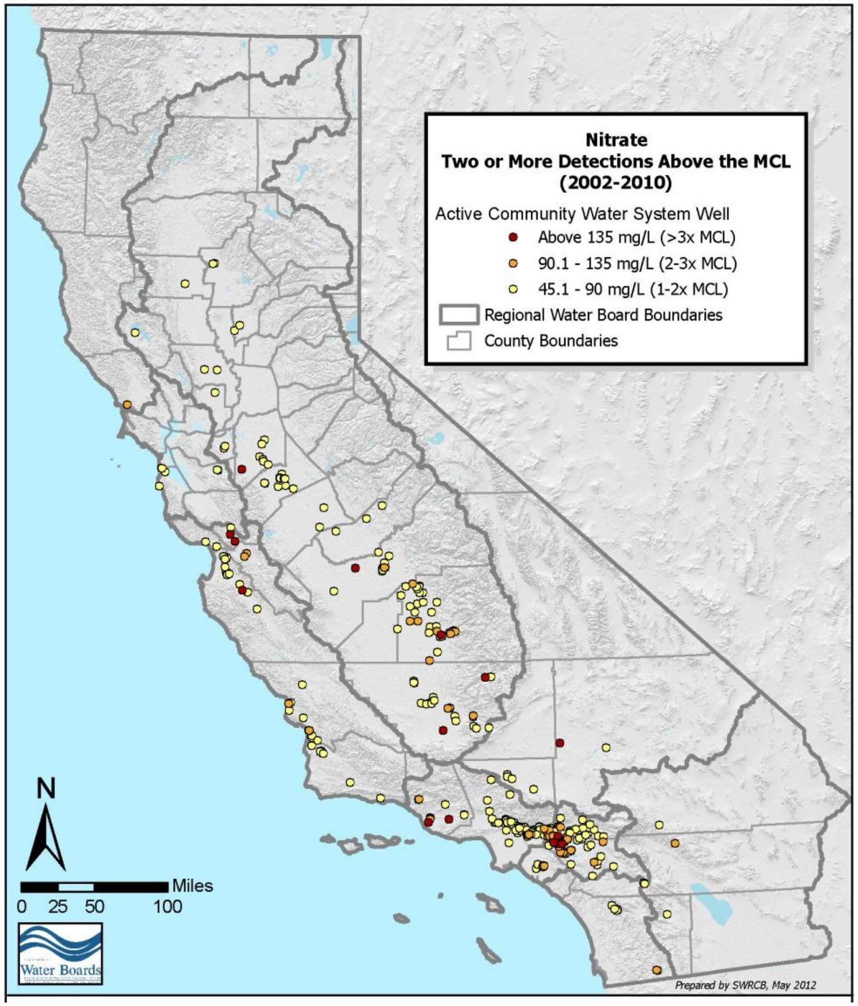

Figure 2.8: Nitrate in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

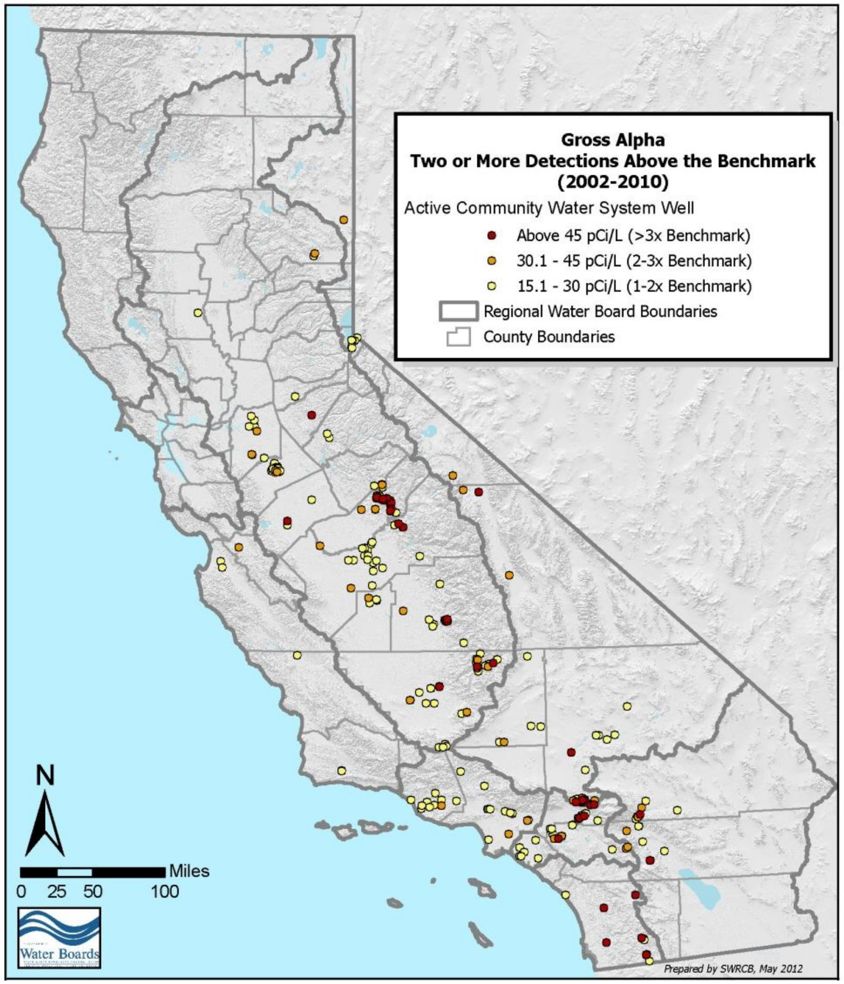

Figure 2.9: Radionuclides (Gross Alpha) in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

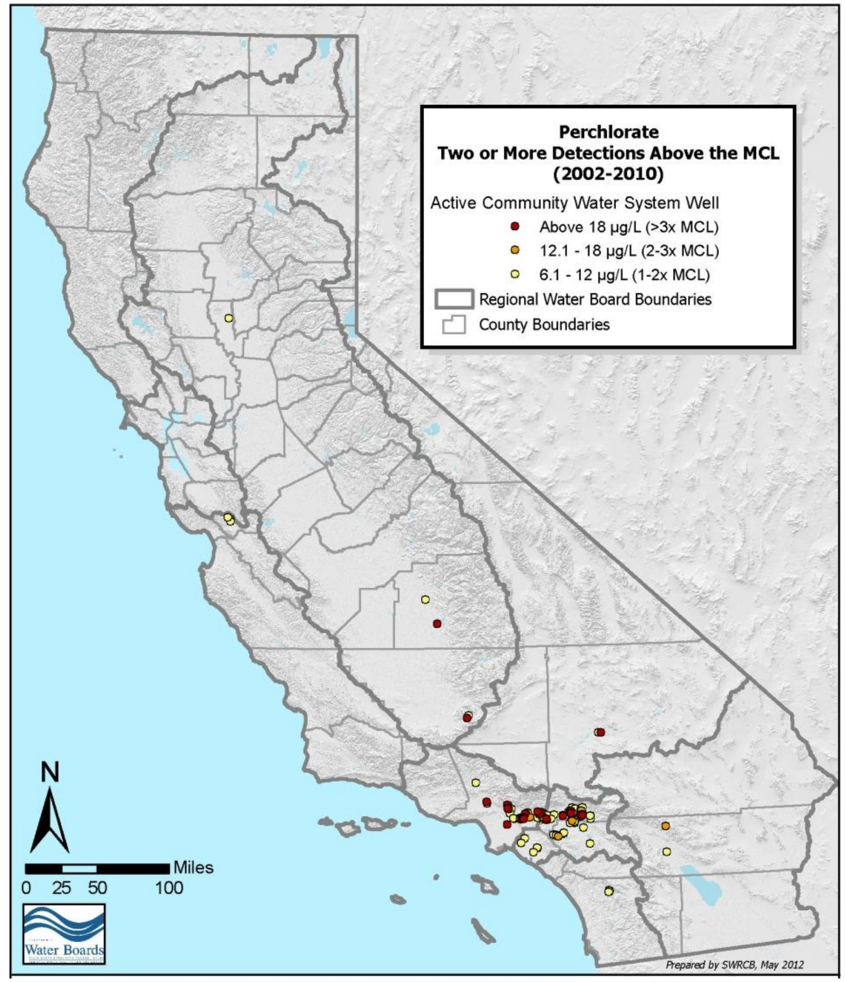

Figure 2.10: Perchlorate in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

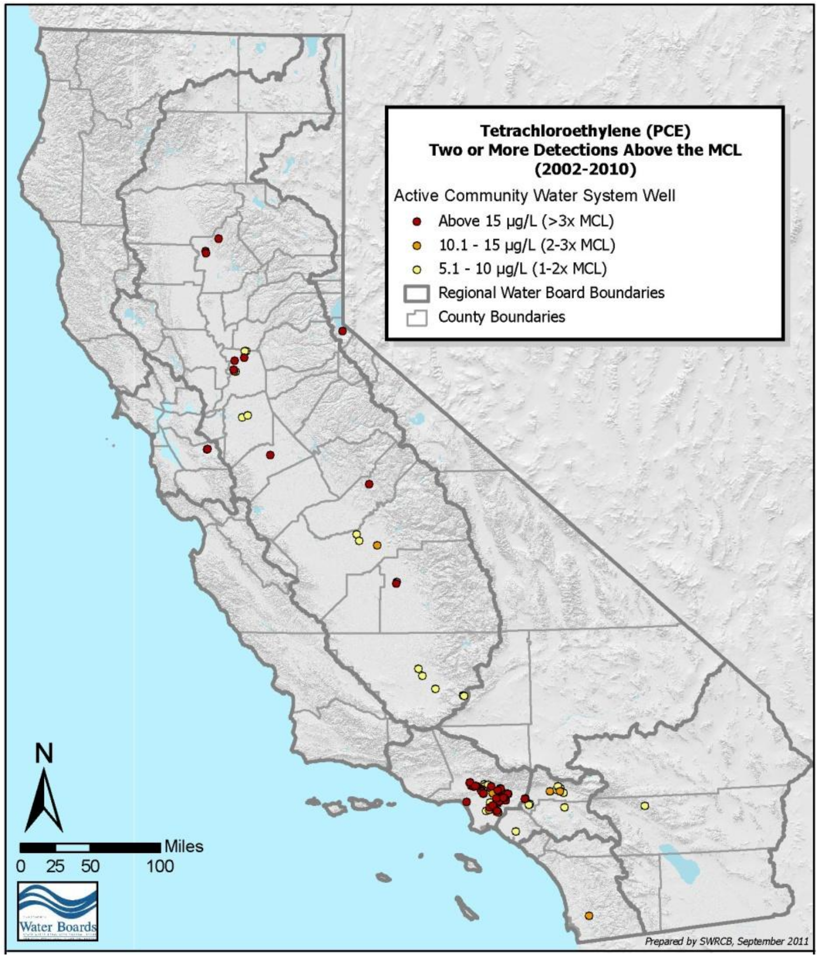

Figure 2.11: Tetrachloroethylene (PCE) in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

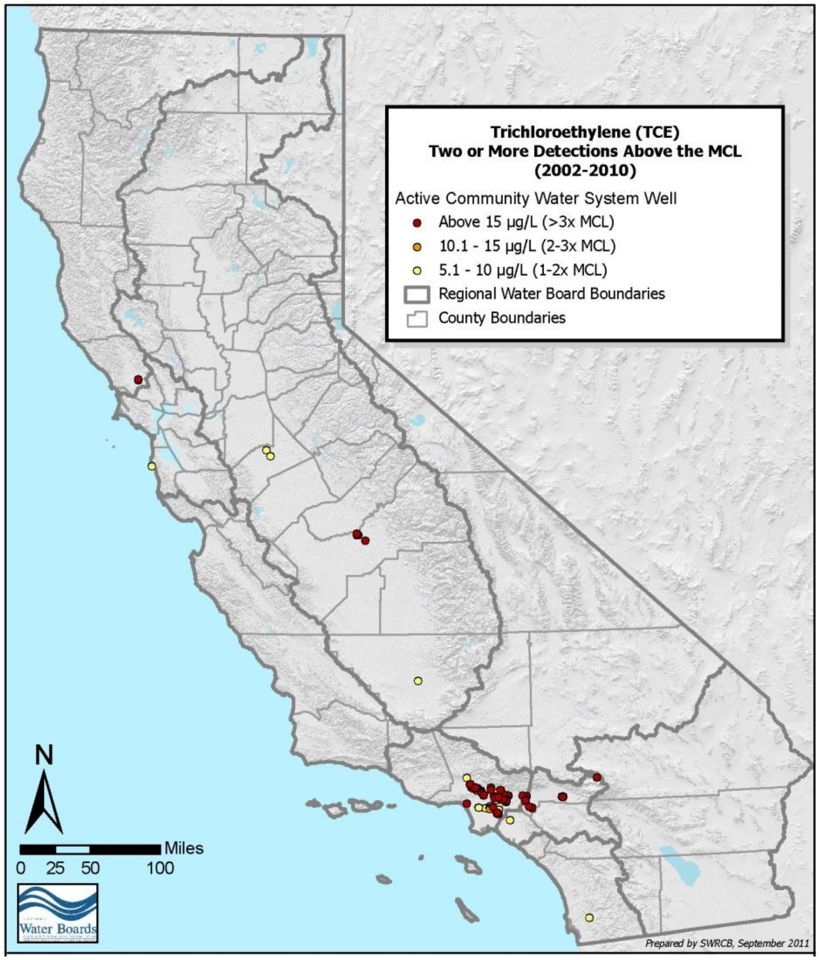

Figure 2.12: Trichloroethylene (TCE) in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

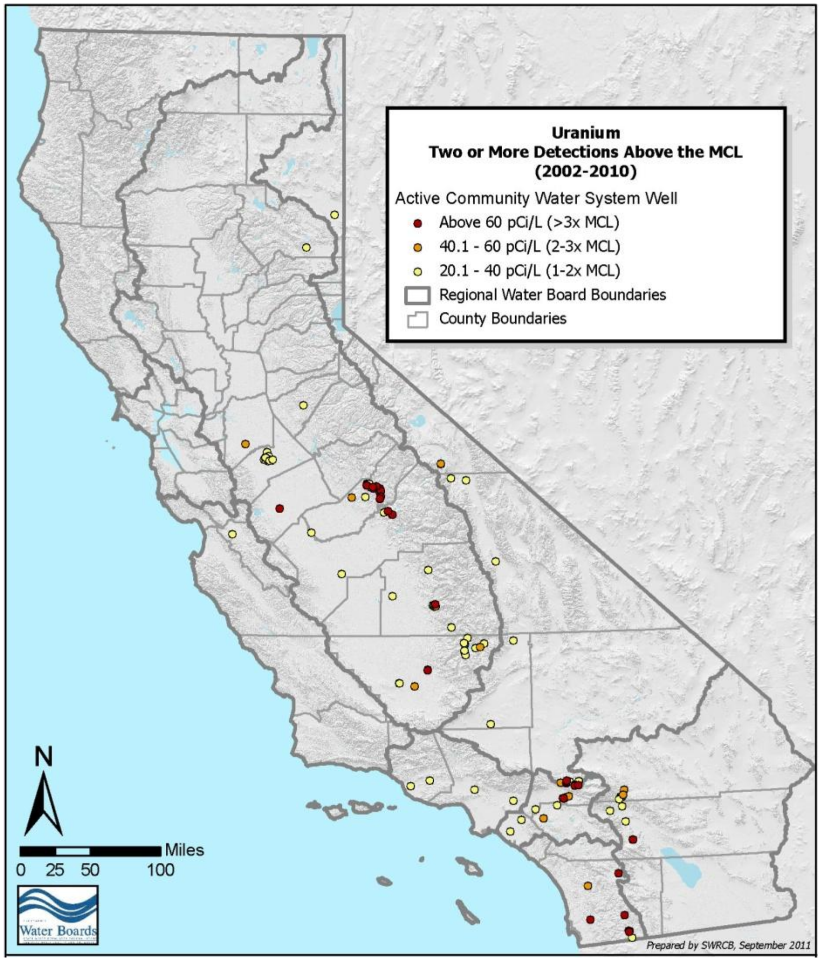

Figure 2.13: Uranium in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

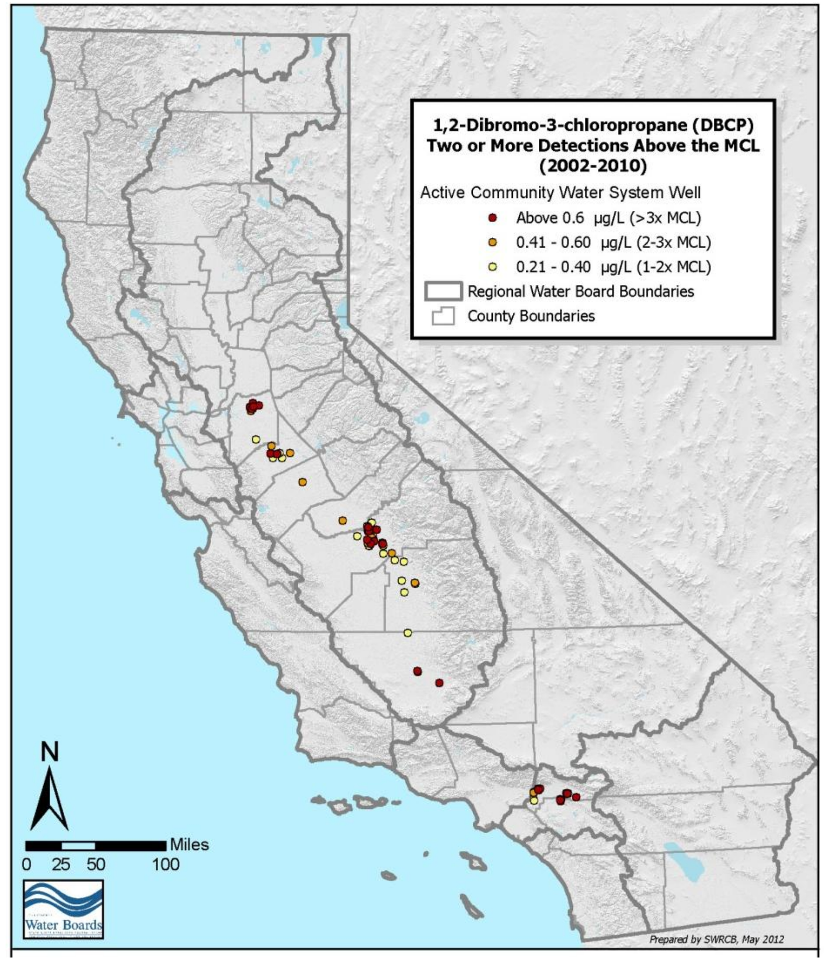

Figure 2.14: DBCP in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

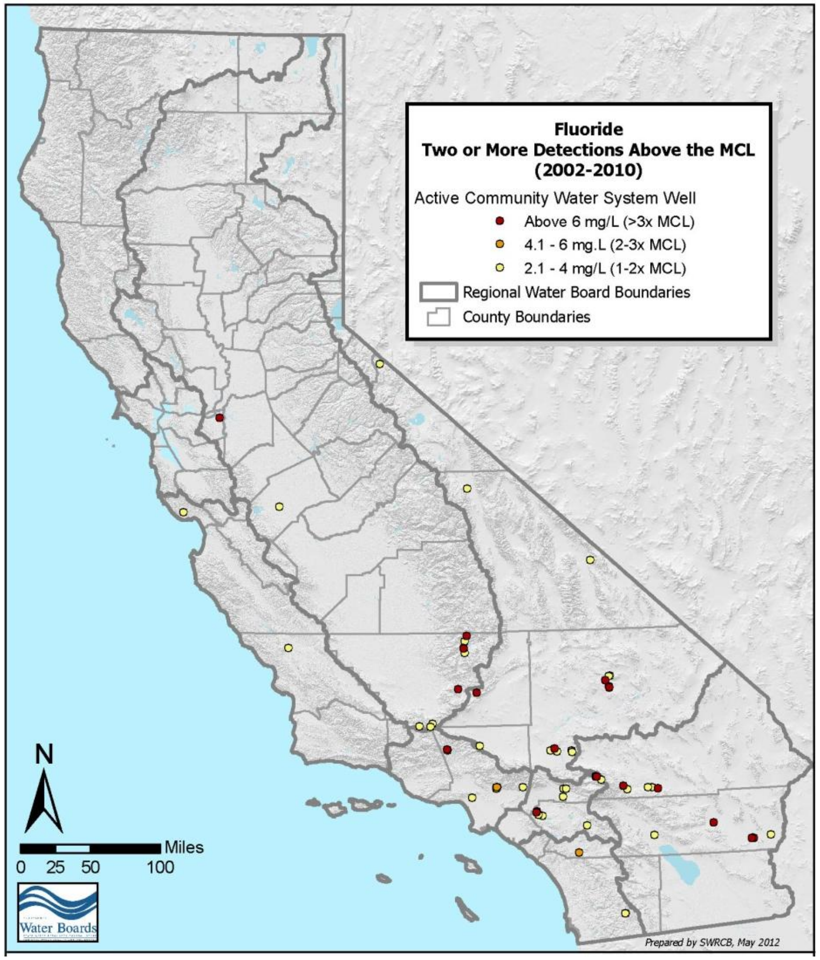

Figure 2.15: Fluoride (Naturally Occurring) in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

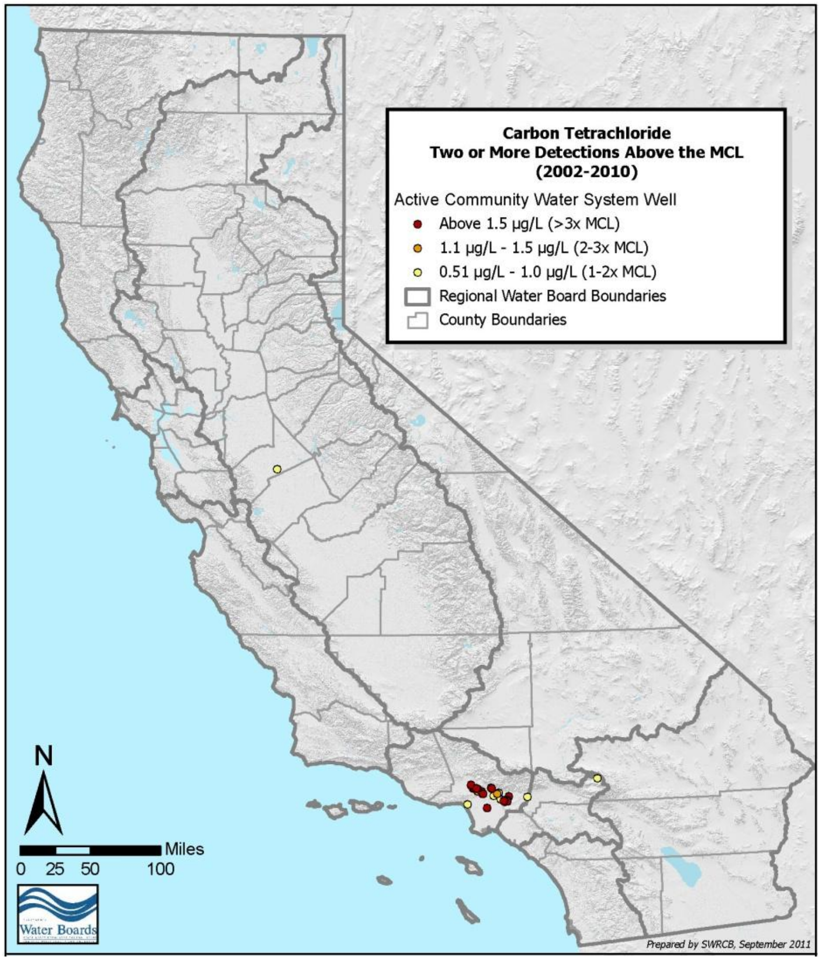

Figure 2.16: Carbon Tetrachloride in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

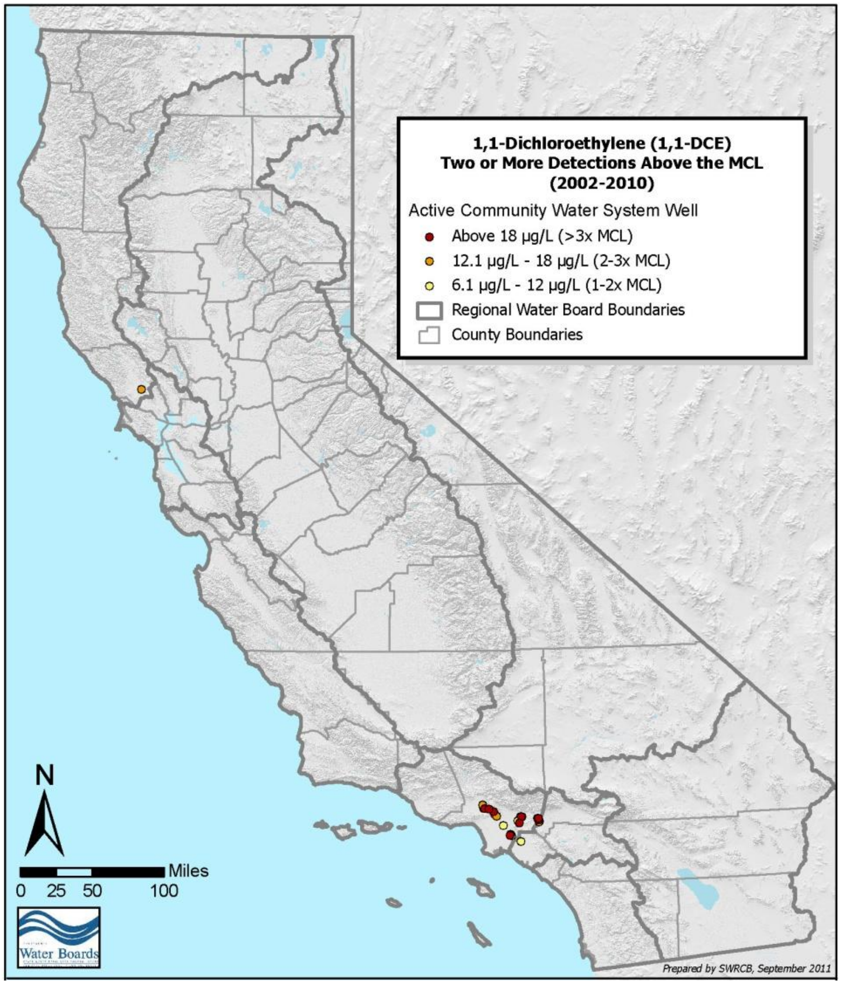

Figure 2.17: 1,1-Dichloroethylene in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

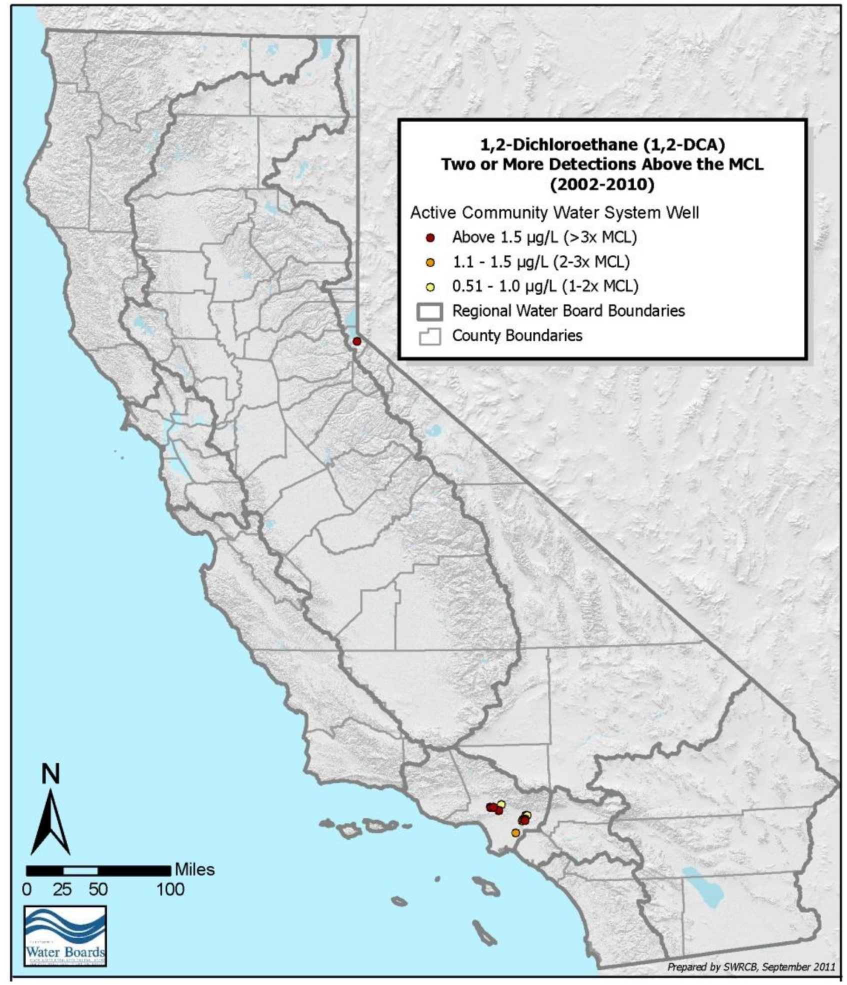

Figure 2.18: 1,2-Dichloroethane in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

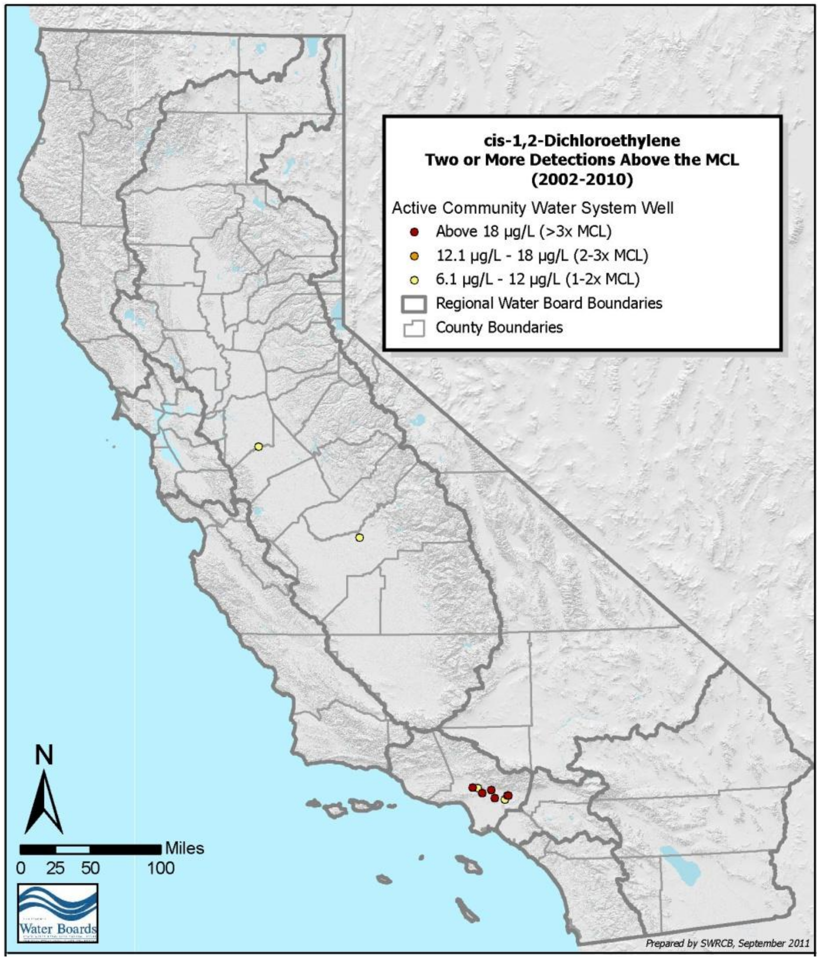

Figure 2.19: cis-1,2-Dichloroethylene in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

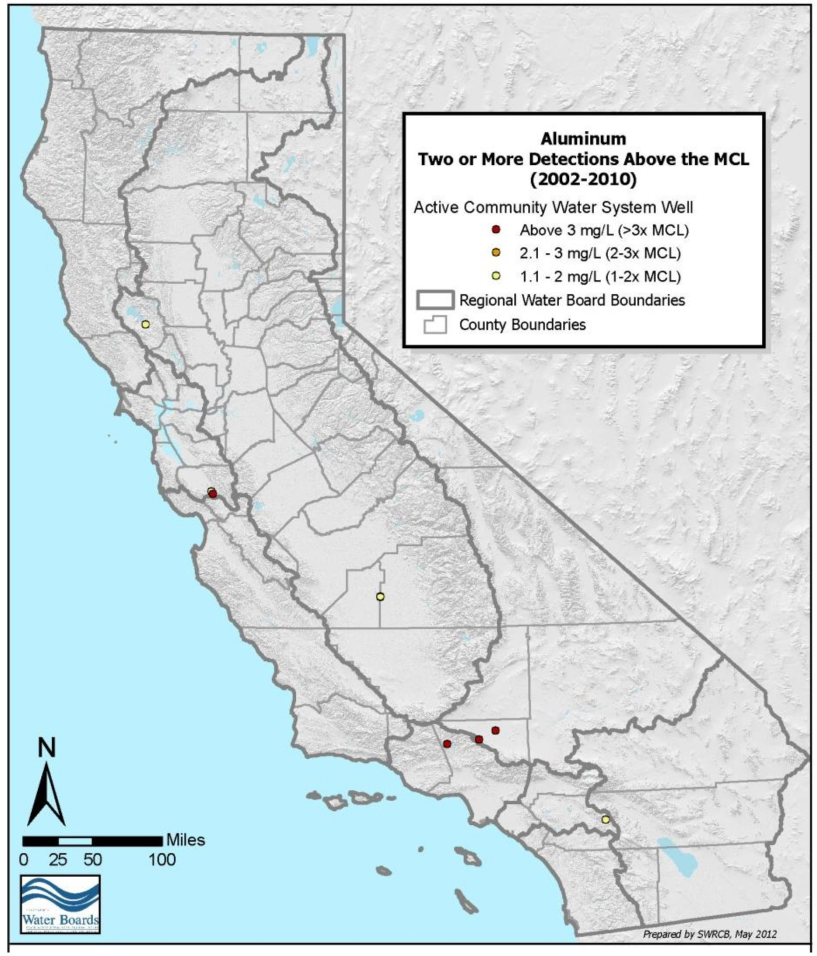

Figure 2.20: Aluminum in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

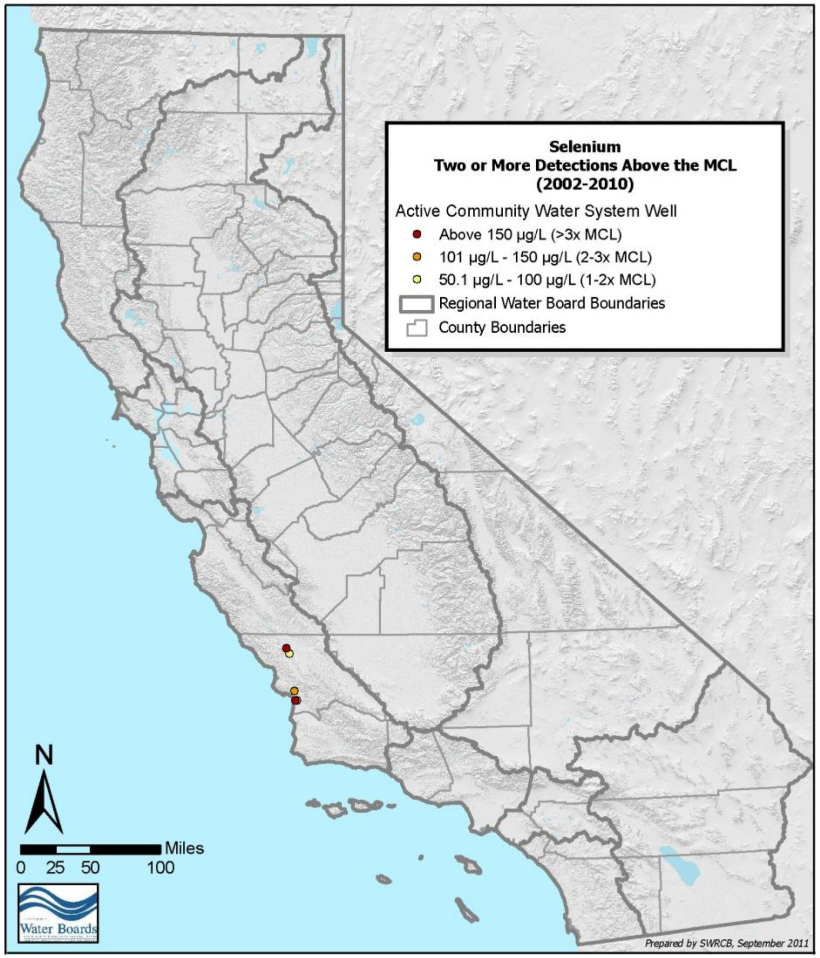

Figure 2.21: Selenium in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

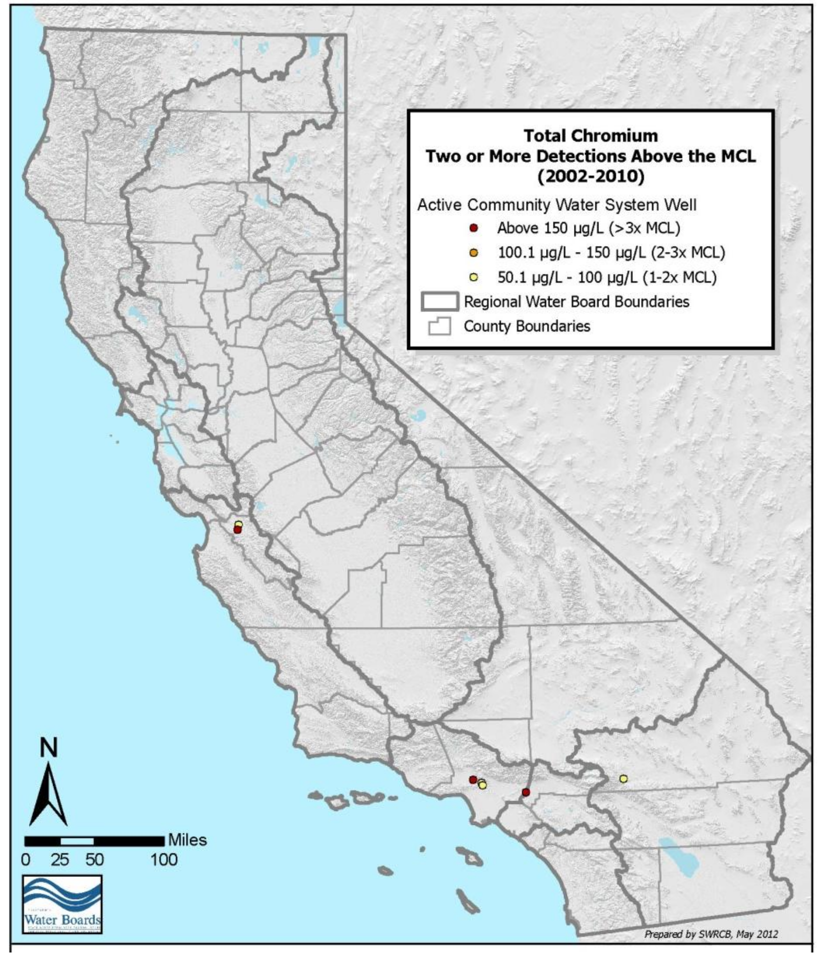

Figure 2.22: Total Chromium in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

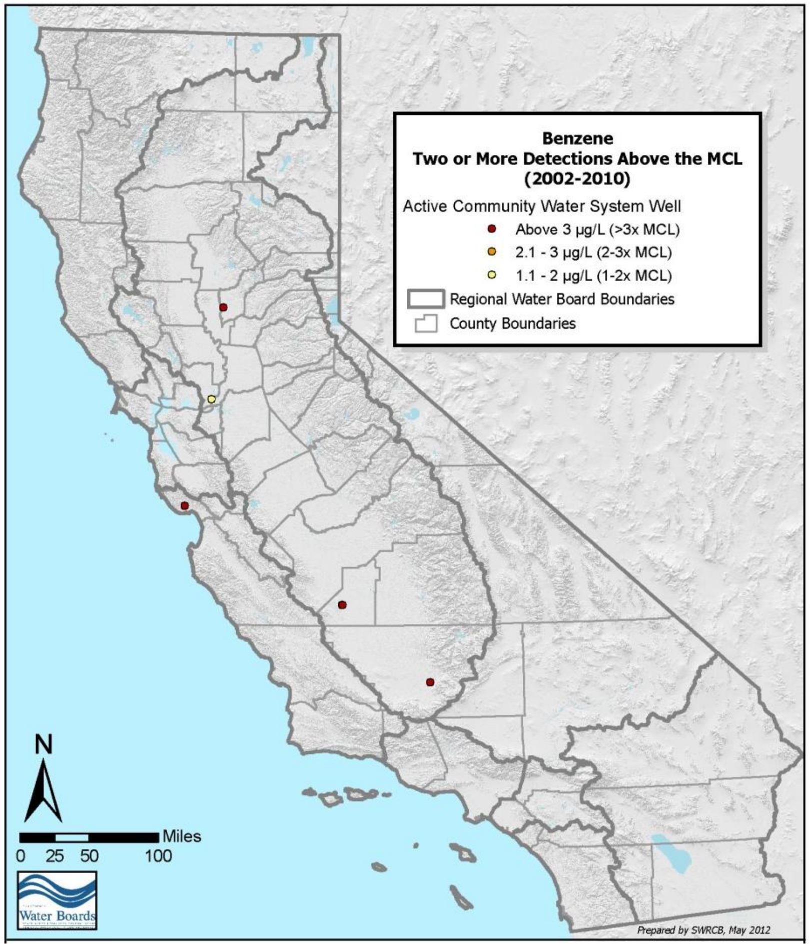

Figure 2.23: Benzene in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

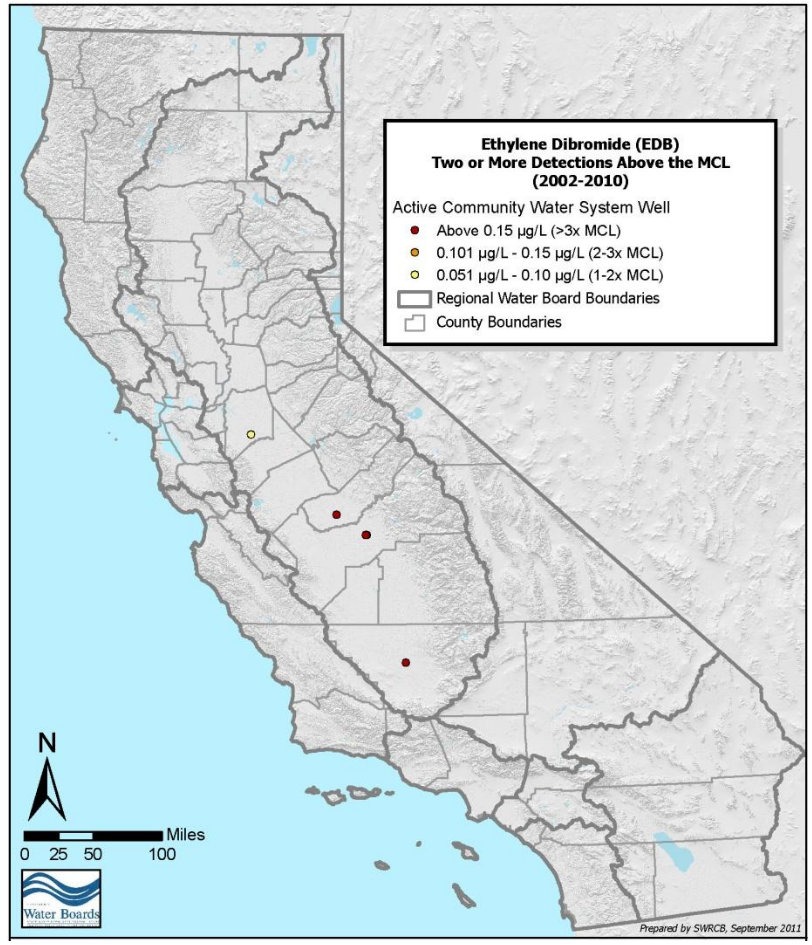

Figure 2.24: Ethylene Dibromide in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

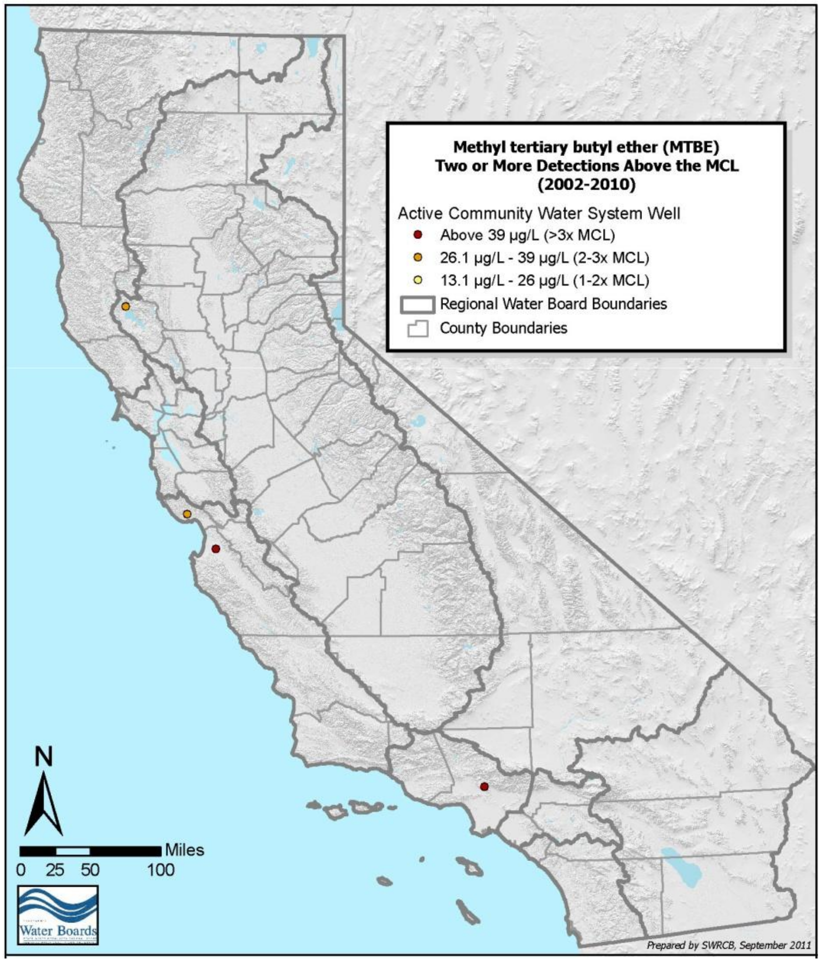

Figure 2.25: Methyl Tertiary Butyl Ether (MTBE) in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

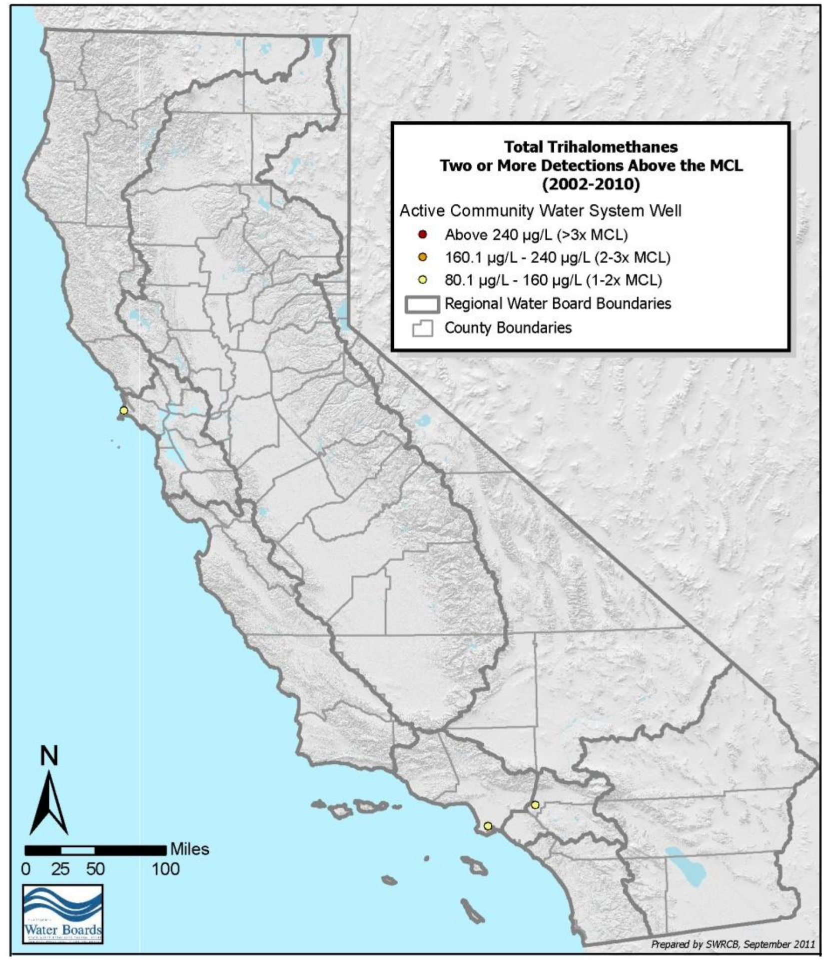

Figure 2.26: Total Trihalomethanes in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

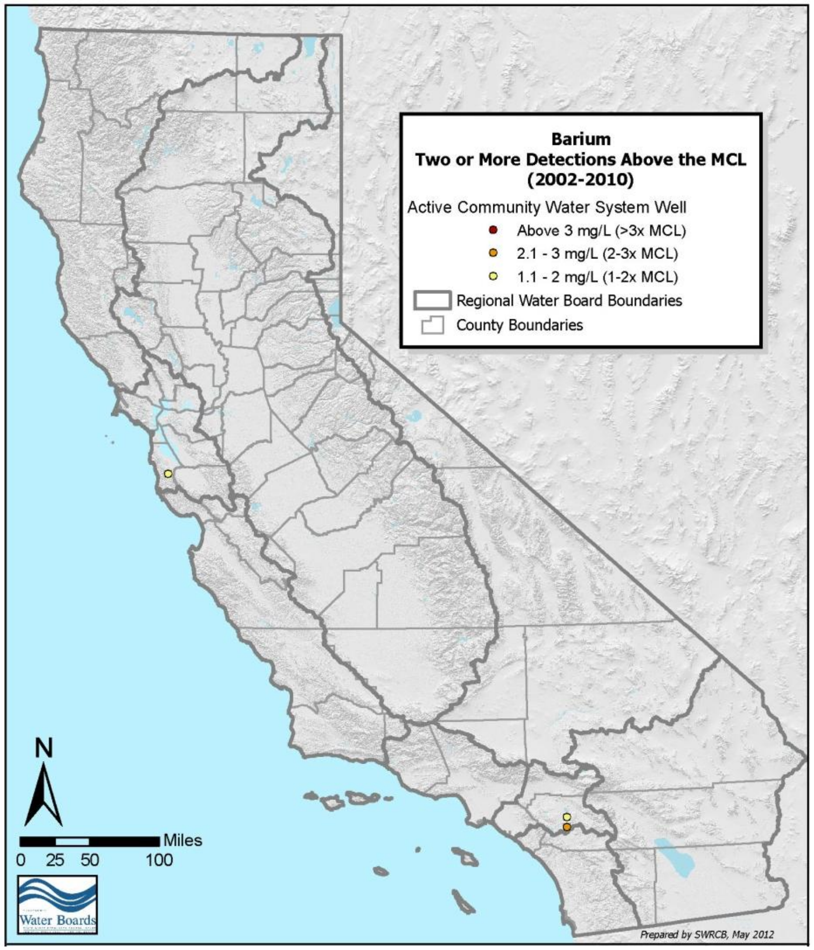

Figure 2.27: Barium in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

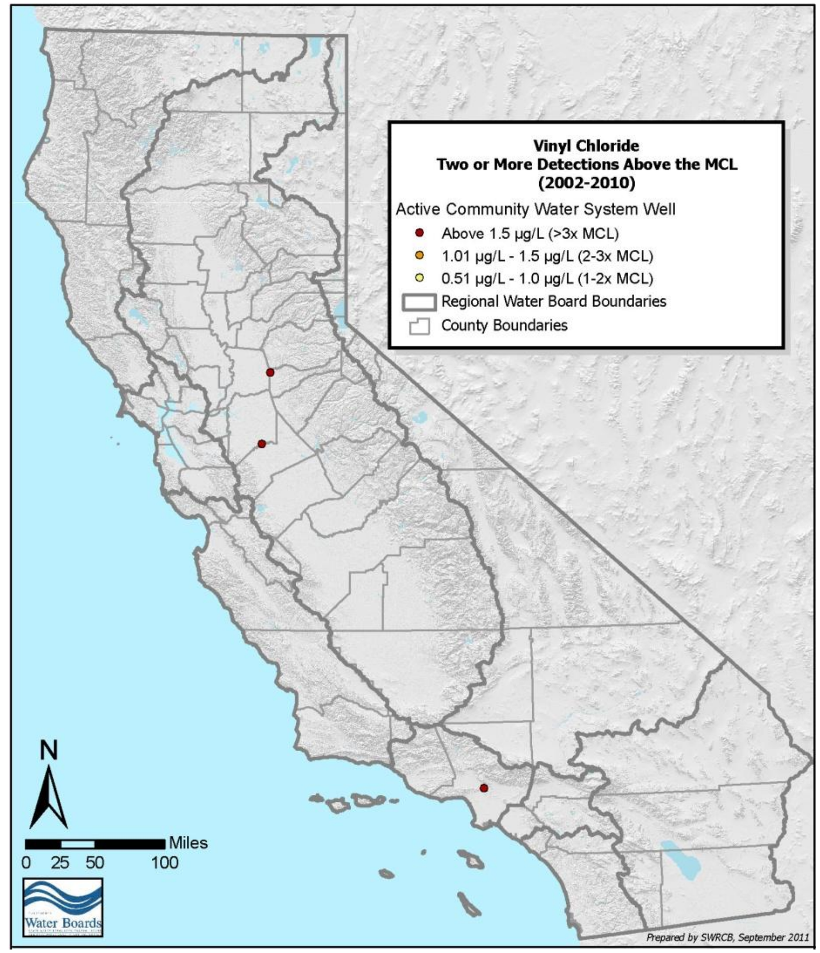

Figure 2.28: Vinyl Chloride in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

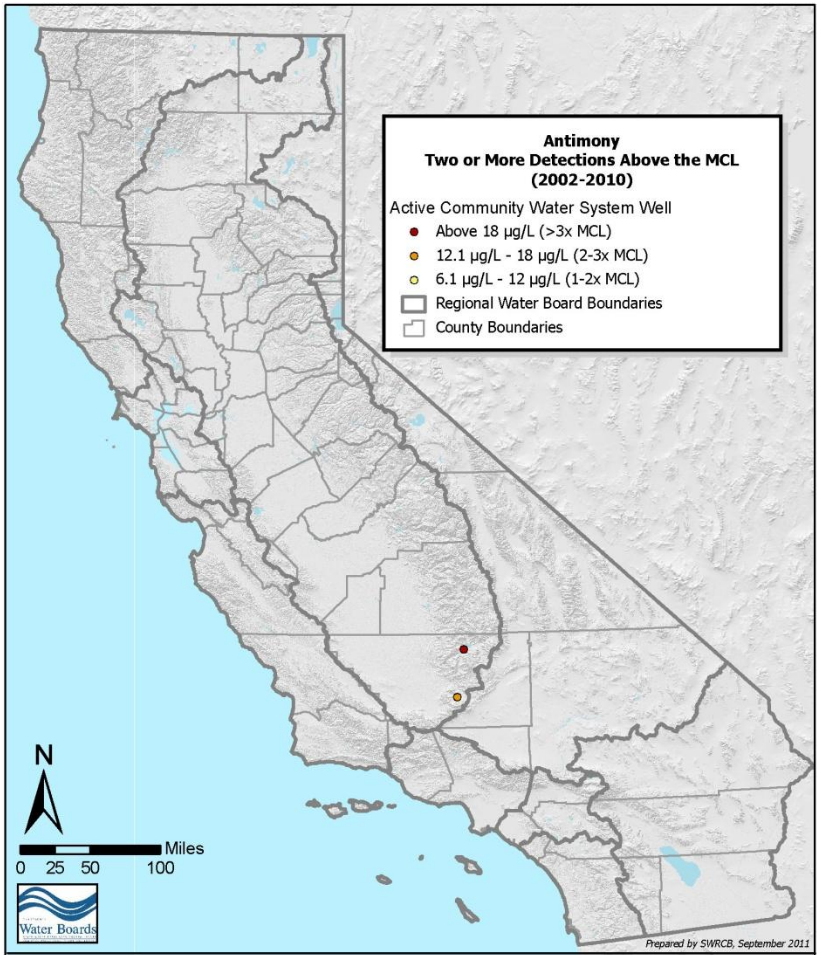

Figure 2.29: Antimony in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

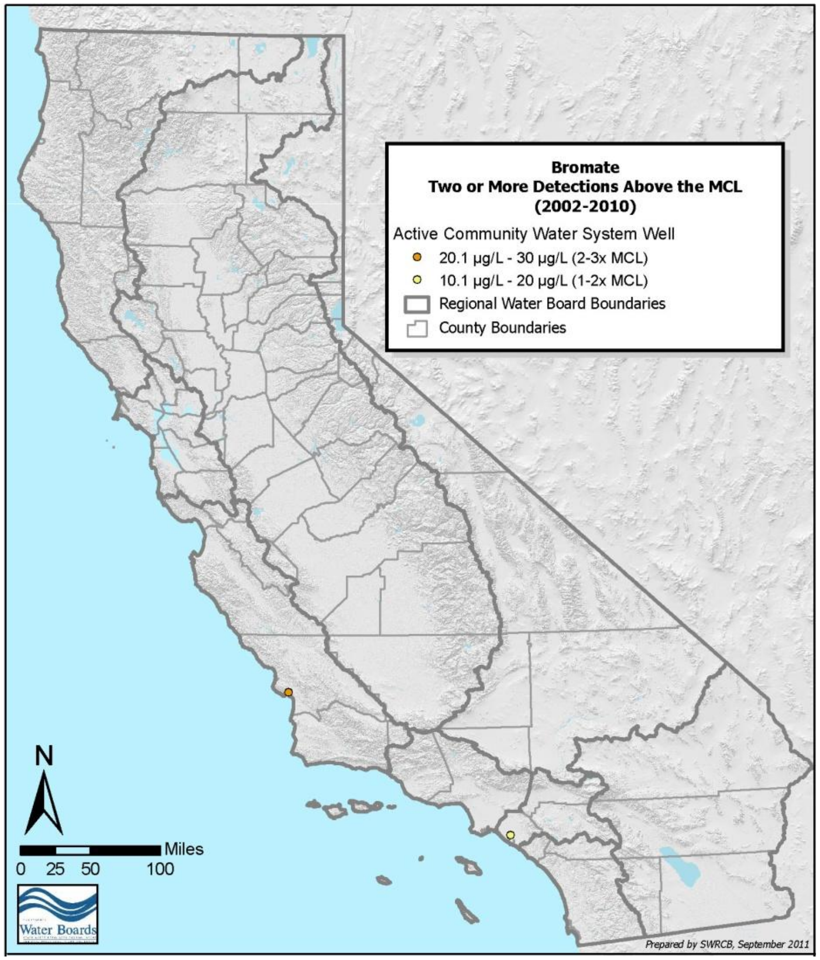

Figure 2.30: Bromate in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

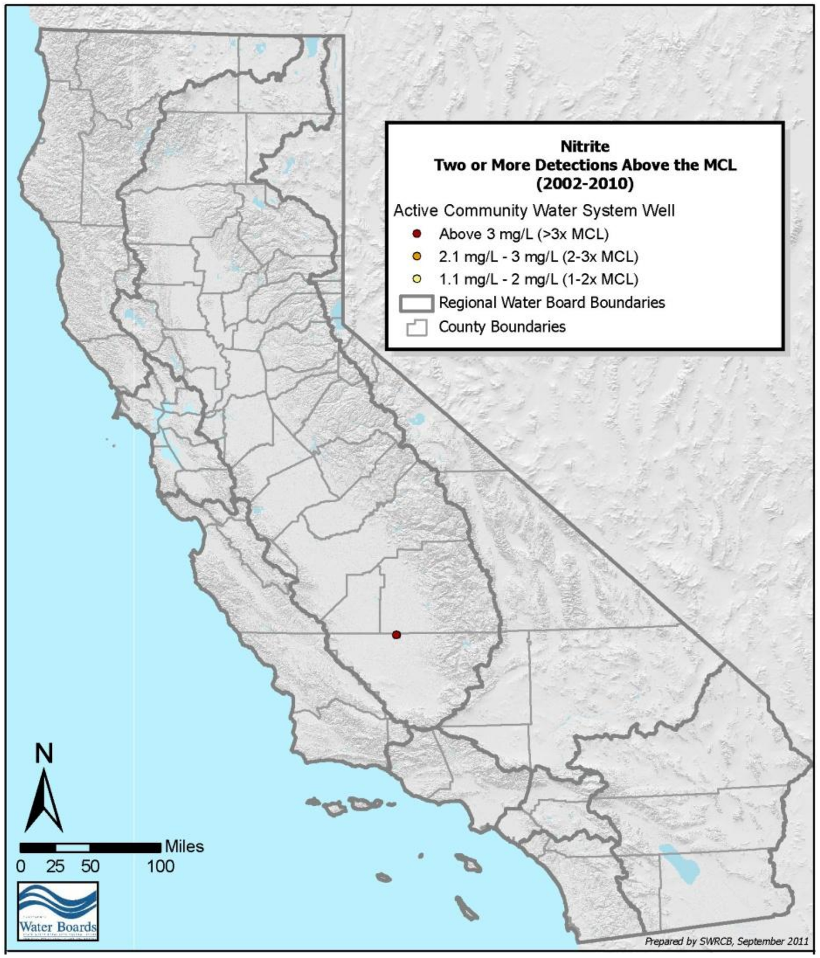

Figure 2.31: Nitrite (as N) in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

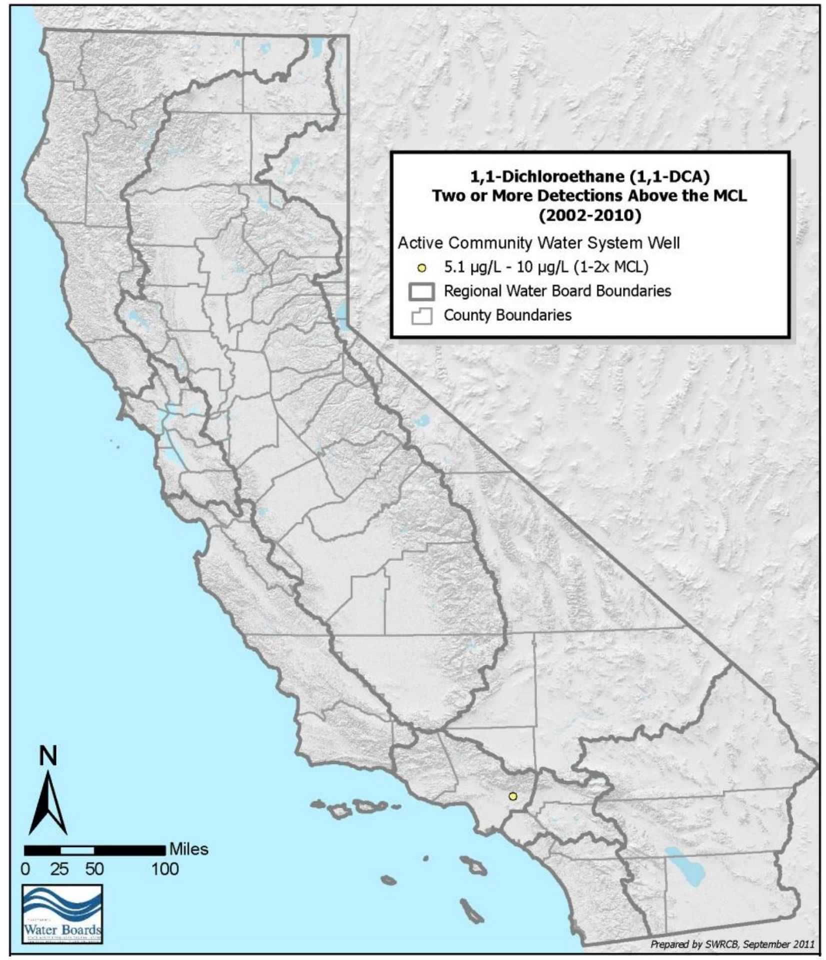

Figure 2.32: 1,1-Dichloroethane in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

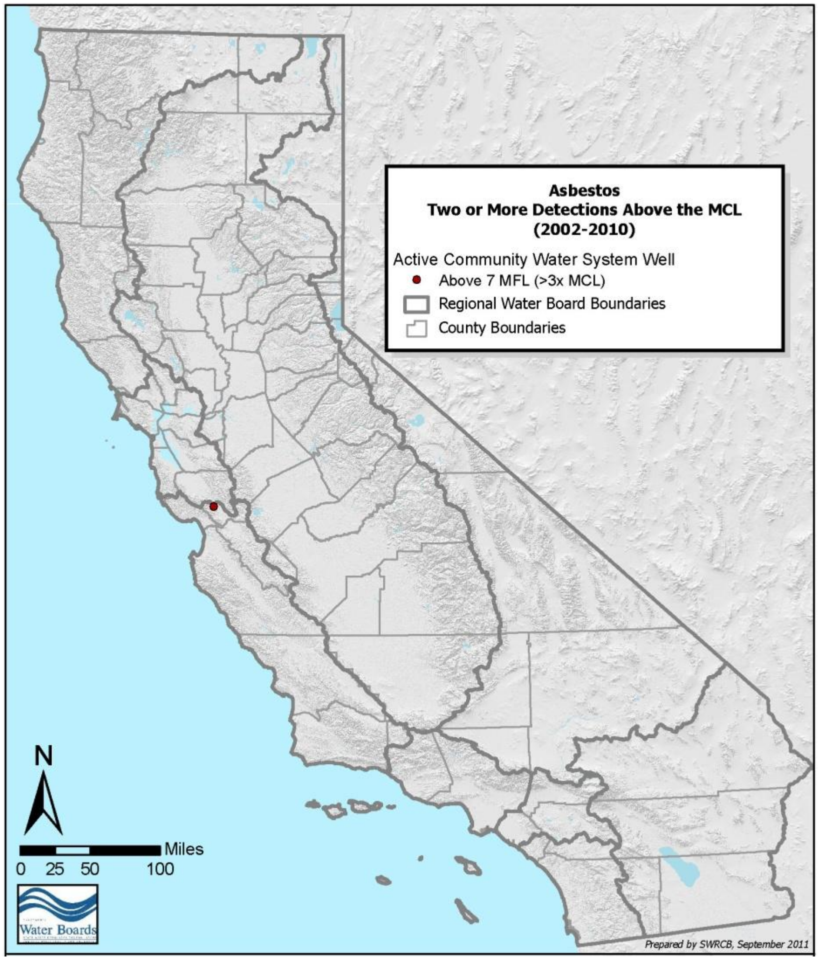

Figure 2.33: Asbestos in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

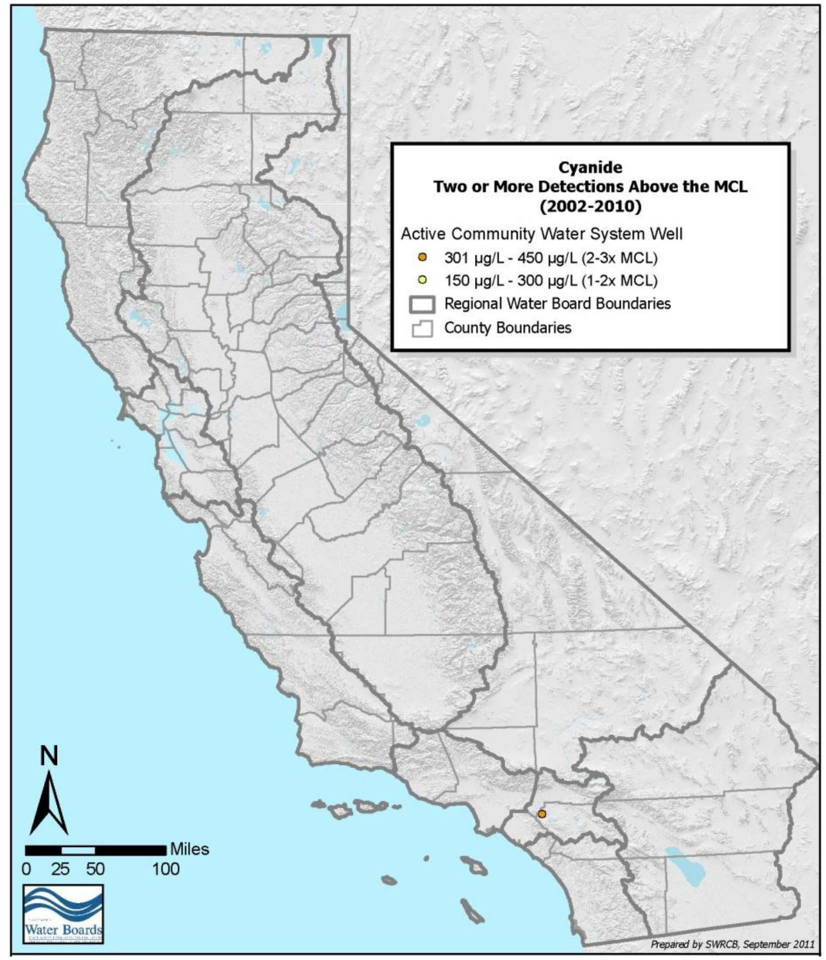

Figure 2.34: Cyanide in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

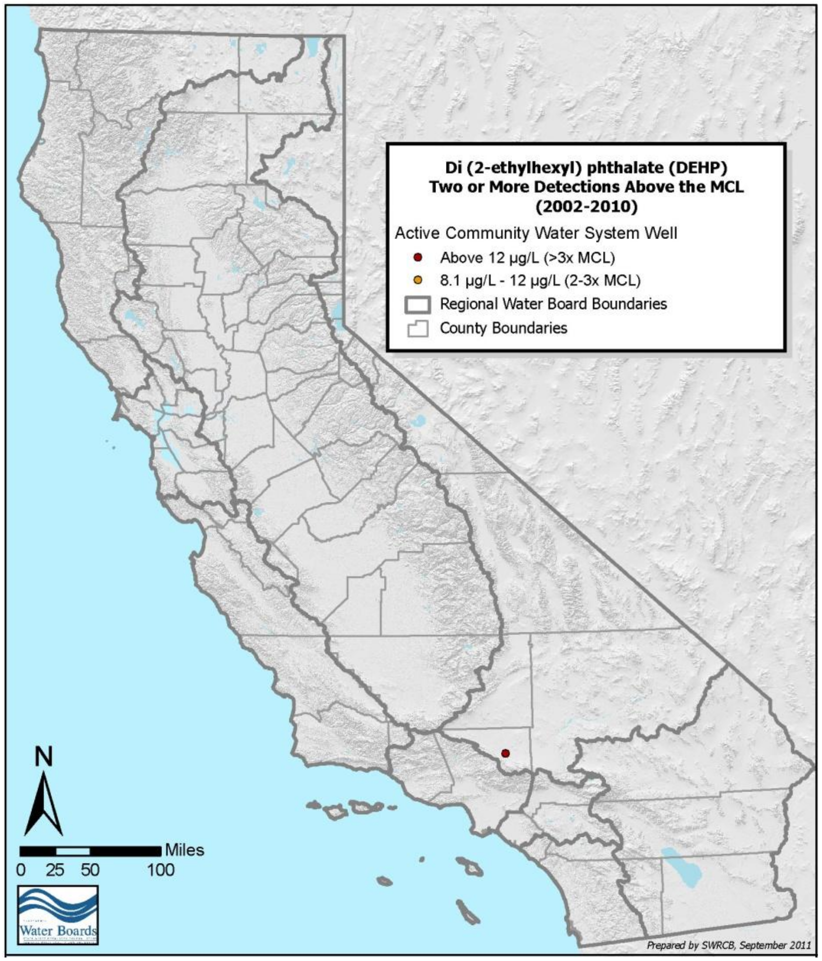

Figure 2.35: Di(2-ethylhexyl) phthalate (DEHP) in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

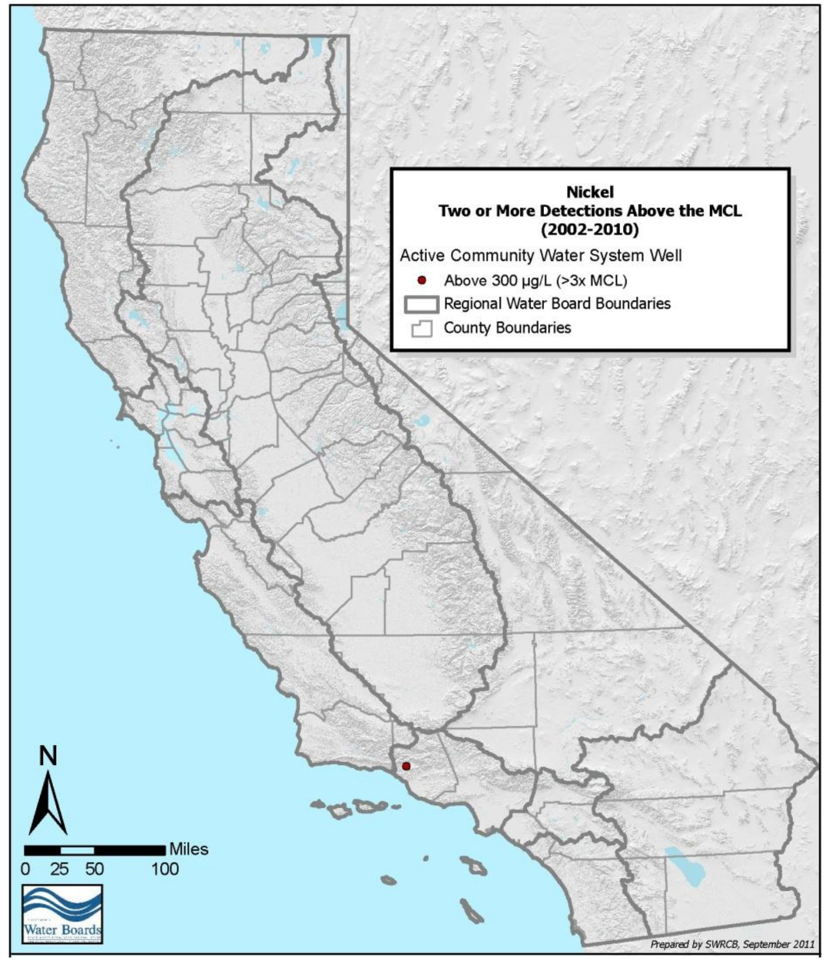

Figure 2.36: Nickel in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

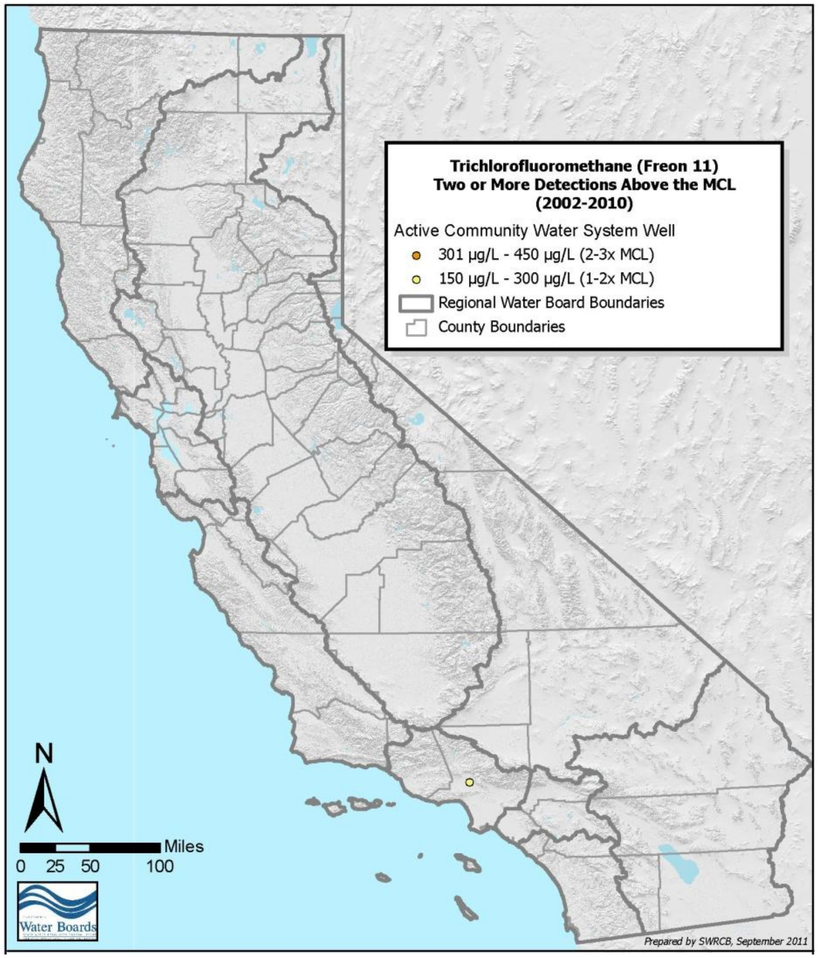

Figure 2.37: Trichlorofluoromethane (Freon 11) in Active Community Water System Wells, Two or More Detections above the MCL (Maximum Concentration Observed, 2002-2010)

APPENDIX 3 – CONSTITUENTS OF CONCERN

Appendix 3: Constituents of Concern

AB 2222 (Caballero, Chapter 670, Statutes of 2008) required that the State Water Board identify "constituents of concern" that are detected in communities that rely on a contaminated groundwater source for drinking water. This appendix outlines the definition used for a constituent of concern (COC), and lists the COCs that have been identified.

3.1 Definition of "Constituent of Concern"

COCs are defined as chemicals that were detected above a CDPH Notification Level (NL) two or more times during the most recent CDPH compliance cycle (2002-2010). NLs are health-based advisory levels established by CDPH for chemicals in drinking water that lack or do not yet have a Maximum Contaminant Level (MCL).

It is important to note that not every community public water system (community water system) collects samples for constituents with an NL, and as a result, the findings here may not capture the full distribution of these contaminants in California's groundwater. For example, 1,2,3-Trichloropropane (1,2,3-TCP) was sampled as part of CDPH's unregulated contaminants monitoring from 2000 through 2004. The Office of Environmental Health Hazard Assessment (OEHHA) established a public health goal (PHG) for 1,2,3-TCP in 2009, and CDPH is currently working toward establishing an MCL.

Hexavalent chromium (Cr-6) was also included as a COC, even though it does not have an NL. Chromium is a metallic chemical that is widely found in natural metal deposits, soils, and plants. Chromium generally occurs in the environment as trivalent chromium (Cr-3). However, under certain environmental conditions, Cr-3 will oxidize to Cr-6, which is a suspected human carcinogen. Groundwater can contain both naturally occurring and anthropogenic Cr-6. Naturally occurring Cr-6 may be associated with serpentinite-containing rock or chromium containing geologic formations, and can also indicate oxidation of natural Cr-3 from chrome-iron ore deposits. Anthropogenic sources of Cr-6 include discharges of dye and paint pigments, wood preservatives, metal-plating liquid wastes, and leaching from hazardous waste sites.

In July of 2011, OEHHA published a PHG of 0.02 micrograms per liter (µg/L) (or parts per billion, ppb) for Cr-6 in community water systems. Although a PHG has been established at 0.02 µg/L, the Cr-6 data in the CDPH database pre-dates the establishment of the PHG, and was predominantly measured using a Detection Limit for purposes of Reporting (DLR) of 1 µg/L. Therefore, Cr-6 was evaluated using the DLR of 1 µg/L in this report. CDPH is currently working toward establishing an MCL.

3.2 Findings: Constituents of Concern

Nine COCs were identified (see Table 3.1):

- Hexavalent Chromium (Cr-6) – detected in 1,378 wells; 314 community water systems
- 1,2,3-Trichloropropane (1,2,3-TCP) – detected in 251 wells; 64 community water systems
- Boron – detected in 137 wells; 62 community water systems
- Manganese – detected in 140 wells; 96 community water systems
- Vanadium – detected in 66 wells; 27 community water systems
- 1,4-Dioxane – detected in 41 wells; 18 community water systems
- N-Nitrosodimethylamine (NDMA) – detected in 22 wells; 10 community water systems
- Lead – detected in 9 wells; 8 community water systems
- Tertiary butyl alcohol (TBA) – detected in 1 well; 1 community water systems

The COC most frequently detected above an NL is 1,2,3-TCP. A total of 251 active community water system wells had two or more detections of 1,2,3-TCP above the NL of 0.005 µg/L. These 251 wells were found in 64 community water systems located throughout the state (see Table 3.1 and Figure 3.1), primarily within the San Joaquin Valley and the Southern California Inland Empire. The highest 1,2,3-TCP concentration (270 µg/L) was detected in Kern County.

The COC most frequently detected was Cr-6 (see Table 3.1). This COC was evaluated using the DLR of 1 µg/L. A total of 1,378 active community water system wells had two or more detections of Cr-6 above 1 µg/L (see Figure 3.2). These 1,378 wells were found in 314 community water systems located throughout the state. The highest Cr-6 concentration (407 µg/L) was detected in Los Angeles County. San Bernardino (249 wells), Los Angeles (184 wells), and Sacramento (165 wells) Counties had the greatest number of wells where Cr-6 was detected on two or more occasions above 1 µg/L.

TABLE 3.1: Constituents of Concern in Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

Constituent of Concern (COC)	Community Water Systems Where a COC Was Detected[a]	Community Water System Wells With Identified COC[b]	Community Water System Wells Sampled for COC[c]	% Total Wells Above NL[d]	NL (µg/L)	PHG (µg/L)	DLR (µg/L)	Contaminant Type[e]
Hexavalent Chromium (Cr-6)[g]	314	1,378	2,803	53	n/a	n/a	1	Inorganic
1,2,3-Trichloropropane (1,2,3-TCP)	64	251	5,964	4	0.005	0.0007	0.005	VOC[f]
Boron	62	137	4,387	3	1,000		100	Inorganic
Manganese	96	140	7,876	2	500		20	Inorganic
Vanadium	27	66	4,314	1.5	50		3	Inorganic
1,4-Dioxane	18	41	291	14	1		1	VOC[f]
N-Nitroso-dimethylamine (NDMA)	10	22	158	14	0.01	0.003		Disinfection Byproduct
Lead	8	9	7,168	0.1	15	0.2	5	Inorganic
Tertiary butyl alcohol (TBA)	1	1	4,000	<0.1	12		2	VOC[f]

Notes (gray shading indicates a naturally-occurring chemical):

a. The number of community water systems in which a contaminant was detected, on two or more occasions, at a concentration above an NL during the most recent CDPH compliance cycle (2002-2010).
b. Active community water system wells in which a COC was detected on at least two occasions at a concentration above a notification level (NL) during the most recent CDPH compliance cycle (2002-2010). A well is considered active if it was being used to provide drinking water to a community water system at the time that this report was being drafted (October 2011),
c. Total number of active community water system wells that were sampled two or more times for the constituent during the most recent CDPH compliance cycle (2002-2010).
d. Percentage of all active community water system wells, sampled two or more times for a COC, that have had two or more detections of a contaminant at a concentration above the NL, during the most recent CDPH compliance cycle (2002-2010).
e. General category of contaminant.
f. Includes both volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC).
g. Cr-6 was evaluated using the DLR of 1 µg/L. No Notification Level exists.

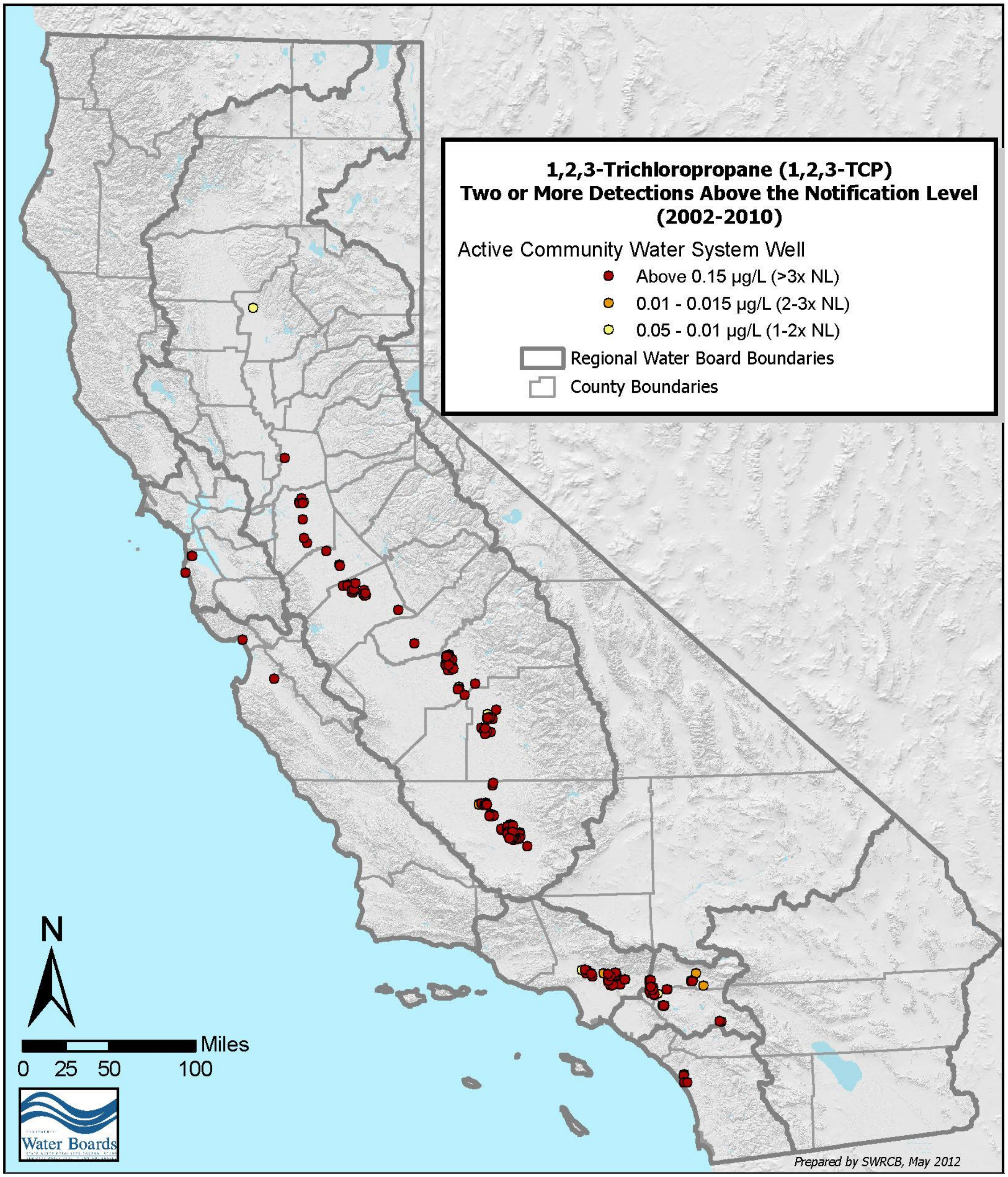

Figure 3.1: 1,2,3-Trichloropropane in Active Community Water System Wells (251) with Two or More Detections above the Notification Level of 0.005 µg/L (Maximum Concentration Observed, 2002-2010)

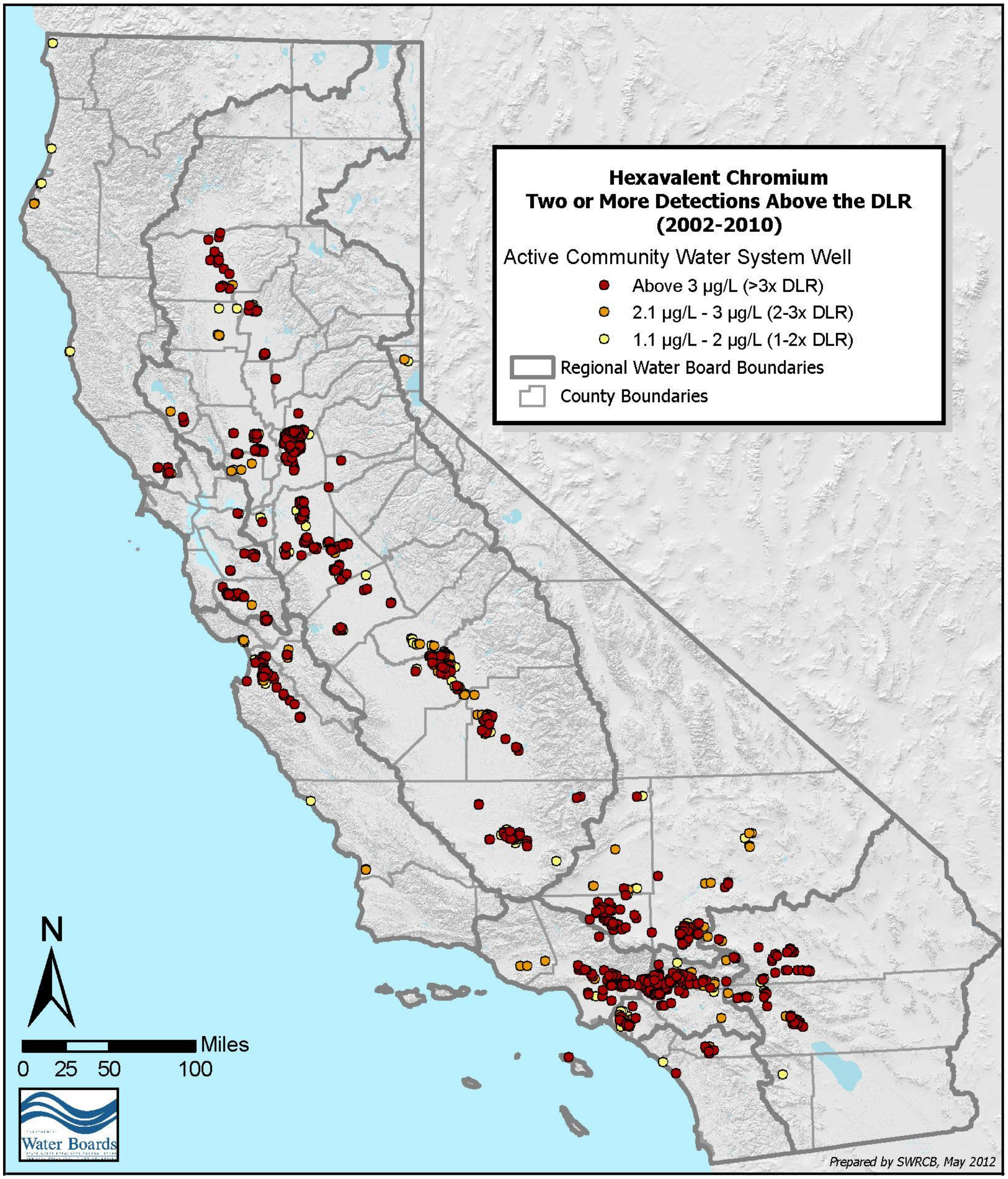

Figure 3.2: Hexavalent Chromium in Active Community Water System Wells (1,378) with Two or More Detections above the DLR of 1 µg/L (Maximum Concentration Observed, 2002-2010)

APPENDIX 4 – COMMUNITY WATER SYSTEMS THAT RELY ON A CONTAMINATED GROUNDWATER SOURCE AND HAVE A DRINKING WATER QUALITY VIOLATION

Appendix 4: Community Water Systems that Rely on a Contaminated Groundwater Source and Have a Drinking Water Quality Violation

Many community public water systems (community water systems) that rely on a contaminated groundwater source treat their water in order to ensure that safe drinking water is served to its customers. However, some community water systems cannot afford treatment, and may deliver unsafe drinking water directly to the public. AB 2222 (Caballero, Chapter 670, Statutes of 2008) required that the State Water Resources Control Board (State Water Board) identify potential solutions and funding sources to ensure the provision of safe drinking water to identified communities. Identifying community water systems that may have delivered unsafe drinking water highlights the areas that may be most in need of financial or other types of assistance.

This report is not to be used to assess public water system compliance. Although discussed in this report, compliance is determined by the California Department of Public Health (CDPH). The most recent public water system compliance reports can be found at: http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Publications.aspx

4.1 MCL Violations

CDPH is responsible for regulating the quality of drinking water delivered to consumers, and issues an "MCL Violation" when the concentrations of specific chemicals in drinking water supplied to consumers exceeds levels established in the California Health and Safety Code.

CDPH provided State Water Board staff with a list of community water systems that have received a Maximum Contaminant Level (MCL) violation within the most recent compliance cycle (2002-2010) using the Permits, Inspections, Compliance, Monitoring, and Enforcement (PICME) System information database. The list of systems with MCL violations was compared to the list of 680 community water systems that rely on contaminated groundwater. A total of 265 community water systems that rely on contaminated groundwater have had at least one MCL violation during the most recent CDPH compliance cycle (2002-2010). Table 4.1 shows the number of community water systems per county that rely on contaminated groundwater and have received a drinking water quality violation.

4.2 Locations of Community Water Systems that Rely on Contaminated Groundwater and have MCL Violations

The locations of the 265 community water systems that rely on a contaminated groundwater source for drinking water and have received a drinking water quality violation are shown on Figure 4.1. Most of the community water systems with MCL violations are located in the Southern California Inland Empire, the east side of the San Joaquin Valley, the Salinas Valley, and the Santa Maria Valley. The three counties with the most community water systems of this type are Kern, Tulare, and Madera (see Figure 4.2). Many of these community water systems are 100% reliant on groundwater for drinking and predominantly serve fewer than 200 people (see Figures 4.3 and 4.4). Arsenic, nitrate, gross alpha radioactivity, uranium, and fluoride were the top five principal contaminants for which MCL violations were issued (see Figure 4.5).

Table 4.1: Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water and have received a CDPH MCL Violation, 2002-2010 (by County and Population)

County	Number of Systems with MCL Violations Grouped by Population				Population Served by Systems with MCL Violations				Number of Systems with MCL Violations and 100% Reliant on Groundwater	Population Served by Systems with MCL Violations and 100% Reliant on Groundwater
	Total	Population			Total	Population				
		<3,300	3,300-9,999	≥10,000		<3,300	3,300-9,999	≥10,000		
BUTTE	1	0	1	0	6,403	0	6,403	0	1	6,403
COLUSA	3	3	0	0	1,038	1,038	0	0	3	1,038
CONTRA COSTA	2	2	0	0	75	75	0	0	2	75
EL DORADO	2	1	0	1	63,004	3,004	0	60,000	2	63,004
FRESNO	15	13	1	1	470,685	6,674	6,500	457,511	13	12,944
GLENN	1	1	0	0	40	40	0	0	1	40
INYO	5	5	0	0	670	670	0	0	5	670
KERN COUNTY	55	45	4	6	183,085	15,436	21,546	146,103	49	138,480
KINGS	8	6	0	2	84804	6,984	0	77,820	8	84,804
LAKE	1	1	0	0	45	45	0	0	1	45
LASSEN	2	1	0	1	12,450	1,500	0	10,950	2	12,450
LOS ANGELES	7	3	1	3	258,656	2,800	7,880	247,976	4	10,680
MADERA	22	21	1	0	14,115	10,115	4,000	0	20	11,165
MENDOCINO	1	1	0	0	1,301	1,301	0	0	1	1,301
MONO	1	1	0	0	300	300	0	0	1	300
MONTEREY	10	8	1	1	123,663	2,238	6,585	114,840	10	123,663
NEVADA	2	2	0	0	348	348	0	0	2	348
ORANGE	2	2	0	0	350	350	0	0	2	350
PLACER	1	1	0	0	50	50	0	0	0	0
PLUMAS	2	2	0	0	3,157	3,157	0	0	2	3,157
RIVERSIDE	9	4	1	5	252,074	3,033	3,335	245,706	2	508
SACRAMENTO	8	6	0	2	59,073	524	0	58,549	8	59,073
SAN BENITO	3	3	0	0	183	183	0	0	3	183
SAN BERNARDINO	10	6	1	3	120,101	5,955	8,646	105,500	8	48,821
SAN DIEGO	5	5	0	0	2,100	2,100	0	0	5	2,100
SAN JOAQUIN	9	7	0	2	80,968	2,090	0	78,878	8	68,541
SAN LUIS OBISPO	2	1	0	1	12,210	1,940	0	10,270	1	1,940

Table 4.1(cont.): Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water and have received a CDPH MCL Violation, 2002-2010 (by County and Population)

County	Number of Systems with MCL Violations Grouped by Population				Population Served by Systems with MCL Violations				Number of Systems with MCL Violations and 100% Reliant on Groundwater	Population Served by Systems with MCL Violations and 100% Reliant on Groundwater
	Total	Population			Total	Population				
		<3,300	3,300-9,999	≥10,000		<3,300	3,300-9,999	≥10,000		
SAN MATEO	1	0	1	0	5,412	0	5,412	0	0	0
SANTA BARBARA	2	2	0	0	940	940	0	0	2	940
SANTA CLARA	4	4	0	0	278	278	0	0	4	278
SANTA CRUZ	1	1	0	0	1,145	1,145	0	0	1	1,145
SHASTA	1	0	0	1	85,703	0	0	85,703	0	0
SIERRA	1	1	0	0	225	225	0	0	1	225
SONOMA	10	9	1	0	8,834	1,084	7,750	0	10	8,834
STANISLAUS	14	10	2	2	265,574	1,974	10,675	252,943	13	53,574
SUTTER	5	3	1	1	18,299	624	7,475	10,200	5	18,299
TEHAMA	2	2	0	0	1,553	1,553	0	0	2	1,553
TULARE	31	28	2	1	32,389	12,129	9,530	10,730	31	32,389
VENTURA	2	2	0	0	1,595	1,595	0	0	1	1,500
YOLO	2	2	0	0	2,063	2,063	0	0	2	2,063
TOTALS	**265**	**215**	**18**	**33**	**2,174,958**	**95,560**	**105,737**	**1,973,679**	**236**	**772,883**

Notes: Population data from CDPH Permits, Inspections, Compliance, Monitoring, and Enforcement (PICME) System Information Database as reported in GeoTracker GAMA.

AB 2222 (Caballero, Chapter 670, Statutes of 2008) identified 680 community water systems in California that rely on a contaminated groundwater source for drinking water; a principal contaminant was detected on two or more occasions above a maximum contaminant level (MCL) in a active supply well during the most recent CDPH compliance cycle (2002-2010). A well is considered active if it was being used to provide drinking water to a community water system at the time that this report was being drafted (October 2011),

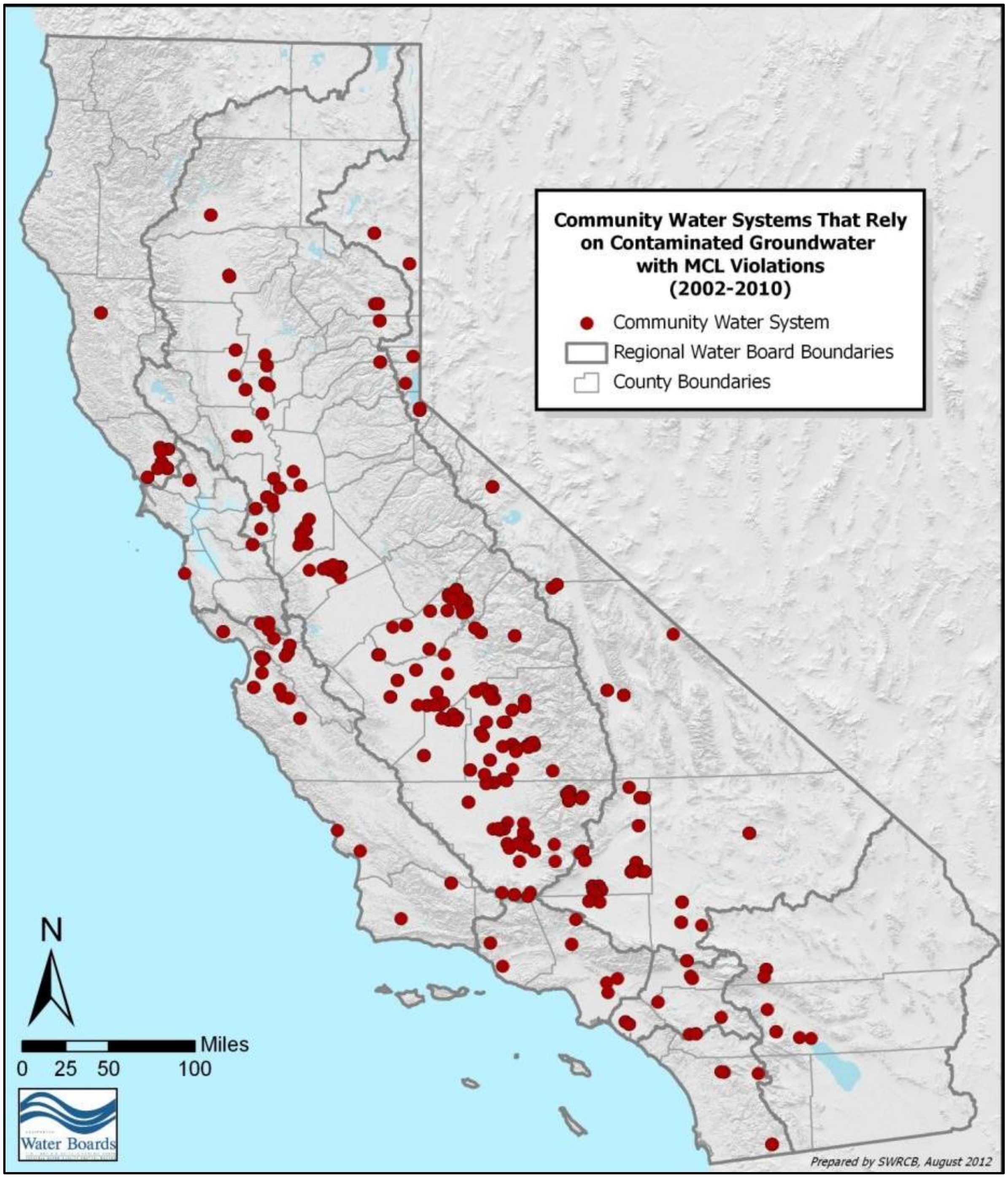

Figure 4.1: Location of 265 Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water <u>and</u> have Received a Notice of an MCL Violation (2002-2010)

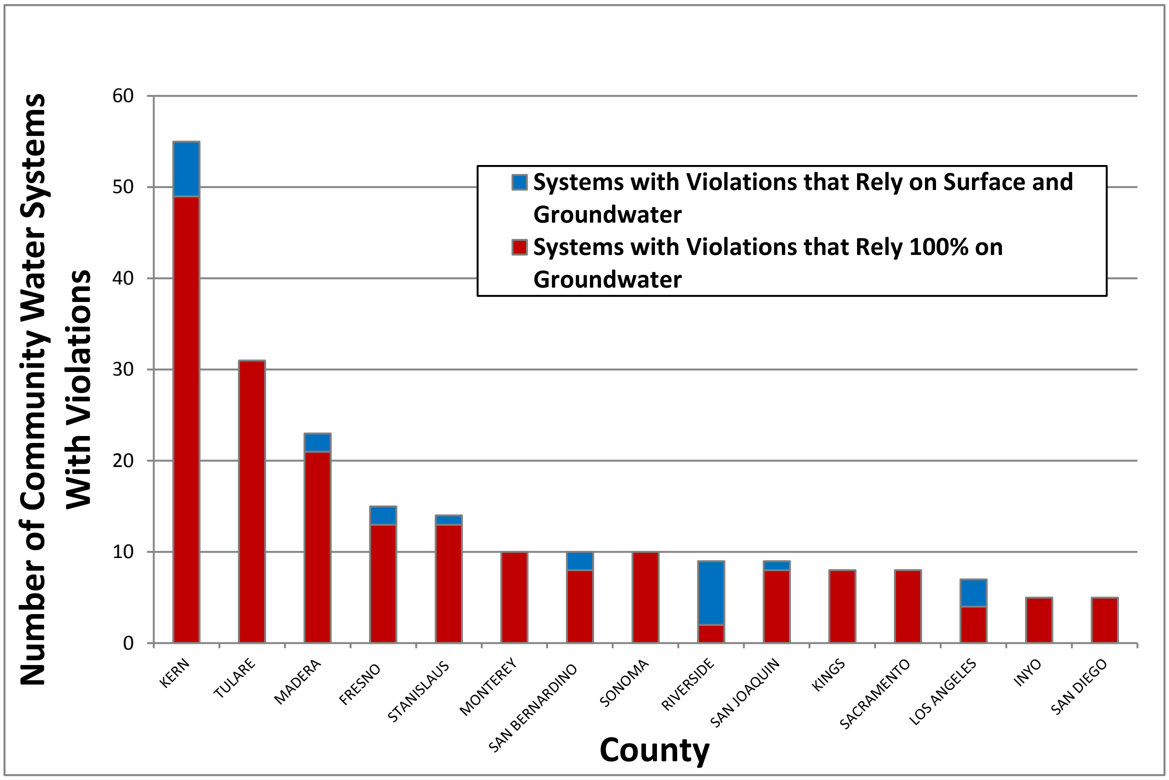

Figure 4.2: Top 15 Counties, Number of Community Water Systems that Rely on a Contaminated Groundwater Source and have Received a Notice of an MCL Violation – Groundwater Reliance (2002-2010)

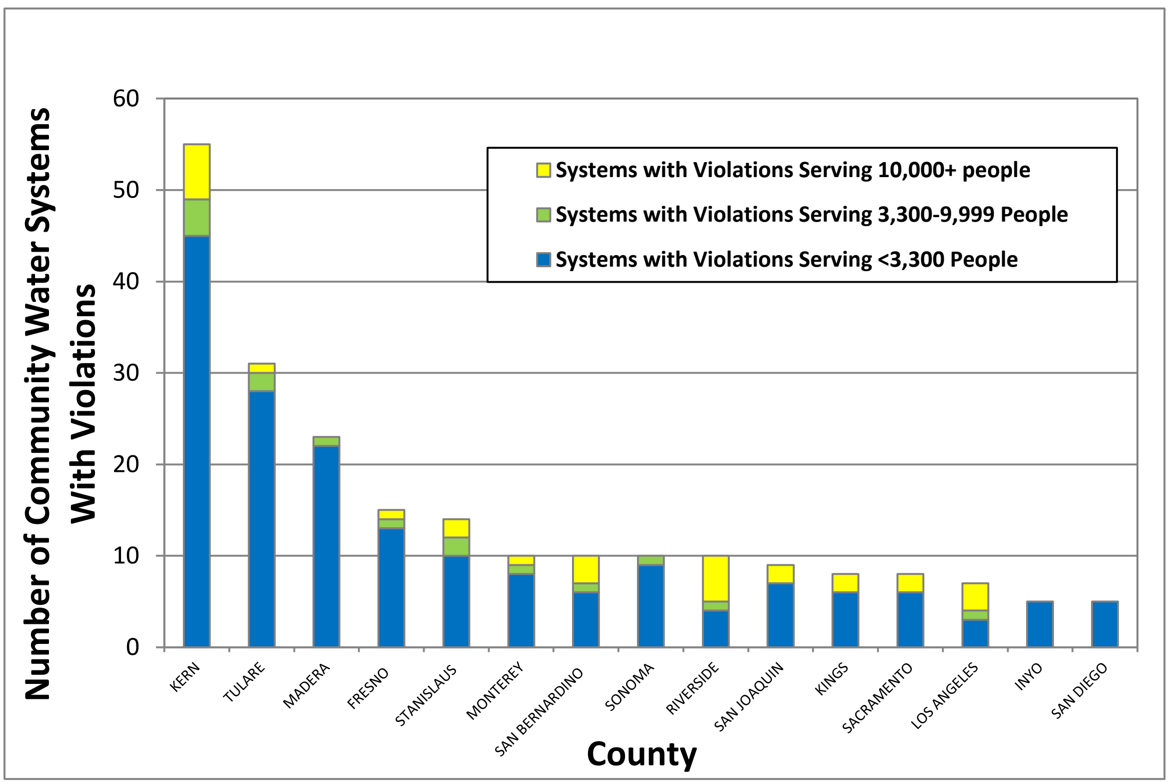

Figure 4.3: Top 15 Counties, Number of Community Water Systems that Rely on a Contaminated Groundwater Source and have Received a Notice of an MCL Violation-Population Served (2002-2010)

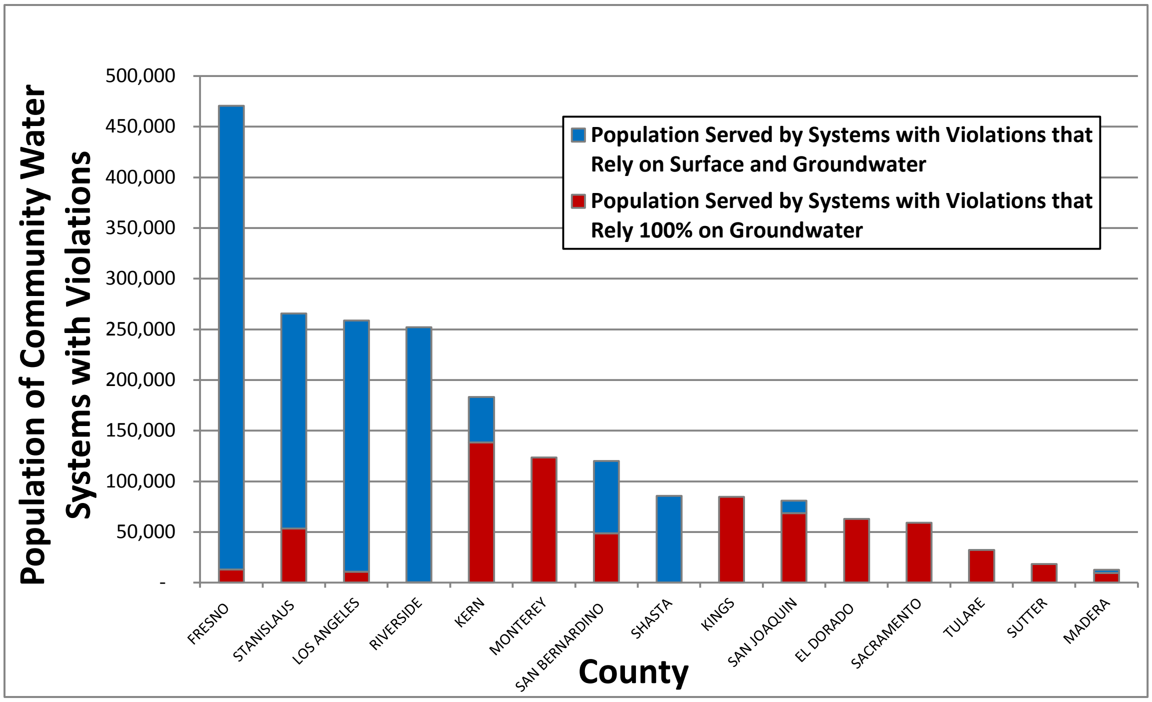

Figure 4.4: Top 15 Counties, Population of Community Water Systems that Rely on a Contaminated Groundwater Source and have Received a Notice of an MCL Violation (2002-2010)

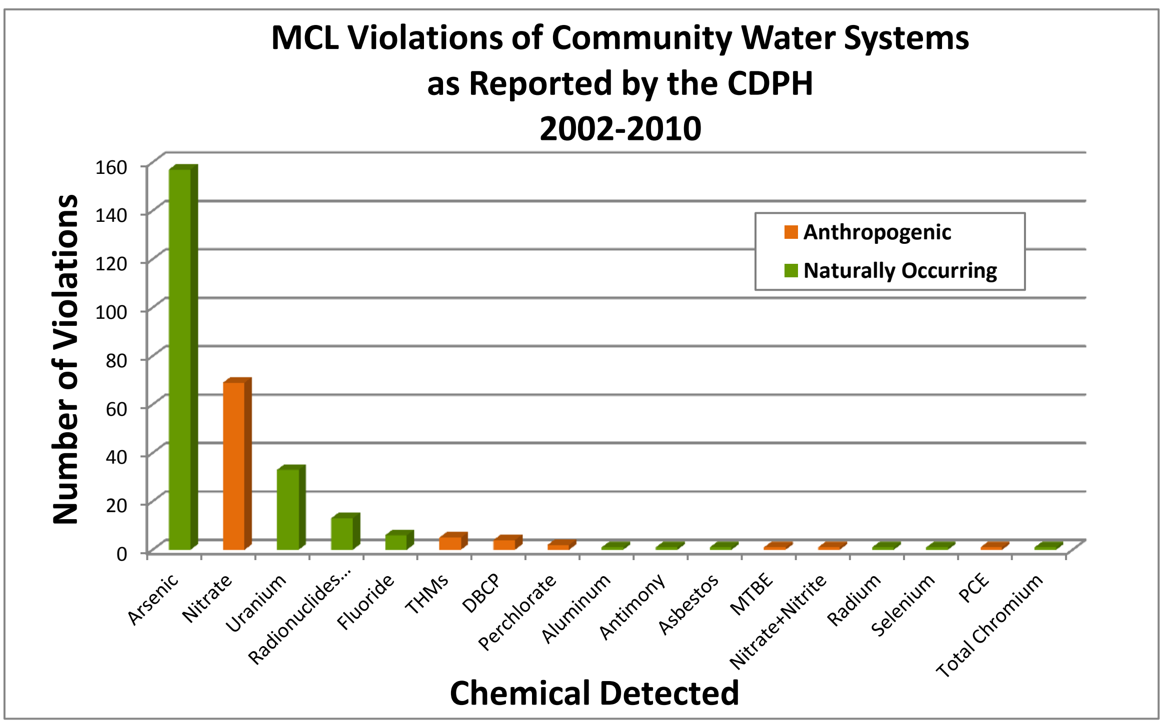

Figure 4.5: Number of Community Water Systems that Rely on a Contaminated Groundwater Source and have Received a Notice of an MCL Violation, by Principal Contaminant (2002-2010)

APPENDIX 5 – POTENTIAL SOLUTIONS TO CLEANUP, TREAT, OR PROVIDE ALTERNATIVE WATER SUPPLIES

APPENDIX 5: POTENTIAL SOLUTIONS TO CLEANUP, TREAT, OR PROVIDE ALTERNATIVE WATER SUPPLIES

This appendix summarizes potential solutions to cleanup, treat, or provide alternative water supplies for community public water systems (community water systems) that rely on a contaminated groundwater source for drinking water.

5.1 Overview of Solutions to Address Groundwater Contamination

Solutions to address groundwater contamination affecting drinking water supplies are well known and well established, and fall into three general broad categories:

1) Provide safe drinking water through treatment or use of an alternative supply
2) Cleanup contaminated groundwater
3) Implement a pollution prevention and source water protection program to prevent re-contamination

Each of these categories are discussed in greater detail below. A summary of typical activities used to address contamination problems, potential obstacles, and options for addressing those obstacles is included (see Table 5.1).

Table 5.1: Cleanup, Treat, or Provide Alternative Sources of Water Supply - Potential Obstacles and Options to Address Obstacles			
Goal	**Related Activities for Achieving Goal**	**Potential Obstacles**	**Options to Address Obstacles**
Provide Safe Drinking Water	Consolidation Self-supply New well Treatment Surface water	Costs Fund availability Location/environment, and availability of clean alternative groundwater or surface supplies Planning and infrastructure support may not be available Multiple contaminants in a well may affect treatment options	Highlight benefits of consolidation, provide seed money for consolidation efforts Make public funds available for meeting other existing public funding criteria Increase available funding
Groundwater Cleanup	Groundwater cleanup programs (USTCF, others)	Scale Cost Fund availability Naturally-occurring contaminants	Support programs that help clean up known groundwater contamination Support efforts to identify sources of groundwater contamination Focus on methods to provide clean drinking water
Pollution Prevention	Continue and support existing programs; Regulatory oversight Monitoring	Naturally-occurring contaminants Prevention too late	Continue to develop and strengthen existing regulatory efforts Expand regulation of emerging pollution sources For identified communities, focus on methods to provide clean drinking water

5.2 Background

When contamination is identified in a community water system's well, that system typically must take the following actions:

- Promptly issue a public notification to the customers that the water supply is contaminated. Such a notification is required when the water delivered to customers exceeds a Maximum Contaminant Level (MCL). The notification is required by both the State and Federal Safe Drinking Water Acts. The notification must continue as long as the water supplied to the public exceeds the MCL.

- Temporarily or permanently abandon the water well as a source of supply, especially if the well exceeds the MCL.

- Begin to develop a plan to provide water that meets the MCLs. This may require the community water system to provide treatment, develop a new source, or connect to another public water system.

For some sources, following cleanup of the contamination source, it may be possible to resume using the source as a supply of clean drinking water. However, the success of a groundwater cleanup effort is often dependent on whether the source of the contamination is a point source (e.g., leaking underground fuel tank) or nonpoint source (e.g., agricultural runoff). Other factors that can affect the success of groundwater cleanups include local land use, population density, distribution of the contaminant, and location of the contaminant source. Cleanup time varies.

When MCLs are exceeded, the California Department of Public Health (CDPH) works actively with community water system personnel to help them determine their options and explore solutions. For small communities, impacts to individual ratepayers may be high.

5.3 Provide Safe Drinking Water

Portions of California's groundwater contain high concentrations of naturally occurring contaminants or have become contaminated due to anthropogenic related activities. For these areas, pollution prevention and/or cleanup may be infeasible, take too long, or lack funding. In these areas, a practical solution to groundwater contamination is to focus on the provision of safe drinking water. The most common types of solutions include:

- Consolidation with a Neighboring Public Water System
- Alternative Sources (Bottled Water)
- Drill a New Well
- Treatment
- Switch to Surface Water Supply

These solutions, as well as associated obstacles and potential options to address those obstacles, are discussed further below.

5.3.1 Consolidation with a Neighboring Public Water System

Consolidation with a sufficient and safe neighboring community water system can be one of the most effective long-term solutions.

Consolidation refers to both the physical interconnection and the regionalization and restructuring of the two water systems. Full consolidation may take years to complete but initial activities could include development of operator agreements (contractual agreements, development of joint-powers agencies) that will lead to the eventual merging of the water systems. A regionalized approach could also result in the consolidation of other systems.

Consolidation of smaller community water systems increases the customer base, which makes treatment more affordable for a group of smaller systems, and may also increase management efficiency and oversight of system resources. A report funded by the US Environmental Protection Agency summarizing the benefits and drawbacks of consolidation made the following findings (Manning et al., 2005).

Potential Benefits:

- Can increase economies of scale, spreading capital, operation, and maintenance costs over a larger population thereby lowering the per customer base ratepayer costs.
- Greater access to capital. Borrowing is easier, so necessary improvements can be made, including improvements required to meet existing water quality health standards and testing requirements.
- With a fewer number of overall systems, it is easier for state or federal agencies to fund improvement efforts.
- State regulators can focus on fewer systems, and can spend time assisting a greater percentage of overall systems (and a greater percentage of the overall state population).
- Creating a more diverse customer base can lead to greater access to grant and public funding.
- Duplicated services can be reduced or eliminated, saving money in terms of costs associated with equipment, maintenance, billing, and other management issues.
- Can create a more reliable water source, and an affordable means of complying with state and federal regulations.
- Can access more skilled employees.

Potential Obstacles:

- Consolidation may result in loss of identity for a local community. However, loss of perceived independence or identity may not outweigh desire for clean, affordable drinking water.
- Systems that merge or acquire other systems may absorb those acquired systems' debts.
- May result in loss of jobs.
- Customers may be confused as to who provides their drinking water.
- Initial costs may be a barrier.
- Local political barriers can be significant.
- Management goals of multiple systems may conflict.

5.3.2 Alternative Sources (Bottled Water)

When a community water system cannot reliably provide a clean source of drinking water, residents may have to rely upon self-supplied alternative sources. In most cases, the self-supplied alternative source is bottled water, purchased at an additional cost by the consumer, used for cooking and consumption.

Use of bottled water as an alternative source effectively causes consumers to pay twice for their drinking water – for the contaminated water supplied by the community water system, and for the purchased bottled water. The costs associated with purchasing bottled water can be a significant financial hardship.

5.3.3 Drill a New Well

When contaminated groundwater is present, a community water system may be able to drill a new well into a portion of an aquifer that is not contaminated. When possible, drilling a new well offers a proven and reliable method of providing clean drinking water. However, costs associated with drilling a new well may be significant, and may prevent some smaller communities from pursuing this action.

There can be significant uncertainties related to a new well. Water quality can change following the transition to a new well. Contaminants can migrate through conduits and fractures or by improperly constructed wells, which can degrade the new well's water quality.

5.3.4 Treatment

Methods used to treat contaminated groundwater have been used in some locations for decades. Treatment can take several forms: blending, large-scale treatment systems, wellhead treatment systems, and point-of-use/point-of-entry (POU/POE) systems that are used in homes or residences.

Although treatment can be very effective in addressing groundwater contamination, there are often significant associated costs. Many of the 680 community water systems that rely on a contaminated groundwater source for drinking water (see Appendix 1) are already treating their groundwater, and likely are absorbing the treatment costs in the form of higher ratepayer fees. Costs associated with treatment include planning, construction of a treatment facility, infrastructure development, operation and maintenance (O&M) and waste disposal. Some communities cannot afford treatment costs. Funding options for communities that need assistance are addressed in Appendix 6.

5.3.5 Switch to Surface Water

Some community water systems may be able to address their contaminated groundwater issues through use of available surface water sources. However, there can be obstacles associated with surface water sources, including costs associated with planning, treatment, and availability (surface water purchases). Surface water treatment is significantly more complex than treatment of groundwater, and will result in much higher O&M costs and water rates. The distance from a surface water source may prohibit delivery of that water to a community. Water rights considerations may also limit the availability of some surface water sources.

5.3.6 Private Domestic Wells and Other Non-Community Systems

In addition to community water systems regulated by CDPH, there are other individuals and groups that rely on groundwater for domestic supply. Private domestic well users, state small systems, and local small systems rely on groundwater, and are not addressed by this report-- primarily due to a lack of data or access to data. In many cases, these systems and groundwater users do not know the quality of their groundwater, because they do not regularly test their water supply.

When contamination is detected in these types of communities, cleanup options are generally very limited. Groundwater cleanup efforts can be very costly and many private domestic well owners may not be able to afford a remediation system. Grants and interest free loans are typically not provided to these groundwater users.

Treatment systems may be a cost effective method of addressing groundwater contamination for very small systems (that serve less than 15 service connections or 25 persons regularly) and private well owners since they have no source of group funding as do the community water systems. These treatment options usually include POU/POE devices. The CDPH maintains a certification program for water treatment devices sold for residential use in California that make a health benefit claim, as required by the Health and Safety Code. A directory of certified water treatment devices can be found on the CDPH website at:
http://www.cdph.ca.gov/certlic/device/Pages/WTDDirectory.aspx.

Wellhead protection strategies are effective in reducing sources of contamination. These strategies include proper maintenance of a well, and enforcing land-use setbacks from the well. The State Water Resources Control Board (State Water Board) has published a guide for private well owners, available at:
http://www.waterboards.ca.gov/gama/docs/wellowner_guide.pdf (also available online in Spanish).

5.4 Cleanup Groundwater

Groundwater cleanup efforts can be very effective in preventing the spread of groundwater pollution and in lowering levels of contamination. There are thousands of groundwater cleanup and remediation sites across the state.

The State Water Board and Regional Water Quality Control Boards (Water Boards) manage and oversee cleanup activities at thousands of former underground storage tank (UST) sites where leaks have impacted groundwater. The State Water Board's GeoTracker Groundwater Ambient Monitoring and Assessment (GAMA) groundwater information system can be used to show the locations of active and past groundwater site cleanups managed by the Water Boards. The database shows that there are over 125,000 groundwater monitoring wells associated with several thousand groundwater cleanup sites throughout the state. The Department of Toxic Substances Control (DTSC) also oversees groundwater cleanup operations at former industrial facilities and other locations where industrial activities and other leaks have impacted local groundwater quality. Monitoring wells provide no cleanup of contamination. Continued oversight and remediation at these sites will result in cleaner groundwater for Californians.

The effectiveness of a groundwater cleanup effort is often dependent on several factors:

- Type of contaminant (naturally occurring or anthropogenic)
- Amount of contamination
- Geology and other site conditions
- Cleanup costs
- Available funding

In general, cleanup of naturally occurring groundwater contamination is not possible. Naturally occurring contaminants enter groundwater as a result of interaction between water and naturally occurring materials. Preventing naturally occurring contaminants from entering groundwater is not feasible.

Groundwater cleanup is expensive, which can be an obstacle for addressing contamination. Funding for large-scale cleanup efforts may not be available, and even small cleanup efforts can be prohibitively expensive. The current funding available through state and federal funding programs cannot address all of the groundwater contamination in California. Furthermore, some types of pollutants are not addressed by current programs that fund groundwater cleanup efforts (e.g., nitrate contamination from agriculture).

In summary:

- **Potential Solutions**: Continue to fund cleanup efforts as much as possible, where feasible. Continue oversight of existing cleanup activities. Continue monitoring efforts to detect new areas of groundwater contamination and to assess the effectiveness of cleanup actions.

- **Obstacles**: Costs associated with groundwater cleanup are high; there are insufficient funds to cleanup all identified contaminated groundwater.

5.5 Pollution Prevention

Pollution prevention is the most effective way to ensure sustainable safe drinking water. Numerous local, state, and federal agencies implement pollution prevention strategies, including:

- Water Boards
- Local Environmental Health Agencies (city and county level)
- County or Regional Special Districts
- Department of Toxic Substances Control
- California Department of Public Health
- California Department of Food and Agriculture
- Department of Pesticide Regulation
- United States Environmental Protection Agency

The State Water Board manages several pollution prevention and monitoring programs, including projects for non-point source pollutants, underground storage tanks, spill and cleanup sites, landfills, and other types of industrial activities. Comprehensive groundwater monitoring is a key component of pollution prevention, helping establish ambient water quality conditions and serving as an early-warning system for emerging contaminants and other pollutants. Continued oversight of existing and potential pollution sources will help to prevent future groundwater contamination.

Pollution prevention is not an effective solution for naturally occurring contaminants. These chemical constituents are found in groundwater not because of pollution, but simply due to natural geologic and environmental conditions (e.g., arsenic). In addition, pollution prevention is most effective where groundwater contamination has not yet occurred. This report has identified hundreds of community water systems where groundwater contamination has already occurred and is an issue for drinking water supplies. While pollution prevention may prevent increases in existing contamination levels, or may prevent contamination by a new principal contaminant, pollution prevention may not result in cleaner groundwater than what is already available. For these areas, pollution prevention may not be an effective solution to ensure safe drinking water.

In summary:

- **Potential Solutions**: Continue funding and support of pollution-prevention and monitoring programs, including those by the Water Boards, DTSC, CDPH, and local environmental health agencies. Continue oversight for identified sources of pollutants (USTs, industrial facilities, waste discharges, others), and strengthen oversight for new and emerging sources of contaminants (fertilizers, pesticides, non-point sources).

- **Obstacles**: Cannot prevent naturally occurring contaminants. Non-point source contaminants are often difficult to regulate and monitor. Groundwater is already contaminated in many areas, and pollution prevention is too late. Unknown contaminants and pollutant sources. Costs.

APPENDIX 6 – FUNDING OPTIONS

APPENDIX 6: FUNDING OPTIONS

This appendix addresses existing or potential future funding options to clean up or treat groundwater, or to provide alternative water supplies, to ensure the provision of safe drinking water to community public water systems (community water systems) that rely on a contaminated groundwater source for drinking water.

6.1 Community Water Systems that Rely on a Contaminated Groundwater Source that Have Received or are Actively Seeking Funding

The California Department of Public Health (CDPH) provided a list of community water systems that were receiving or actively seeking funds to address a water quality issue. The CDPH data was compared to the 680 communities that rely on a contaminated groundwater source for drinking water identified in this report (see Appendix 8). Information on which systems have actually received funding was not available.

As of October 2011, 166 systems (24 percent) were not receiving or actively seeking funding to address their water quality issues. Forty-two of the 166 systems that were not receiving or seeking funding have also received a notice of an MCL violation during the most recent CDPH compliance cycle (see Figure 6.2 and Table 6.1). Of these 42 systems, six are federal or state facilities that are not eligible for public funding from CDPH.

The six counties with the highest number of community water systems with MCL violations that were not receiving or actively seeking funding were Kern, Stanislaus, Fresno, Madera, San Bernardino, San Joaquin, and Tulare. The principal contaminants affecting these communities were arsenic, nitrate, radionuclides (gross alpha), and uranium (see Table 6.2).

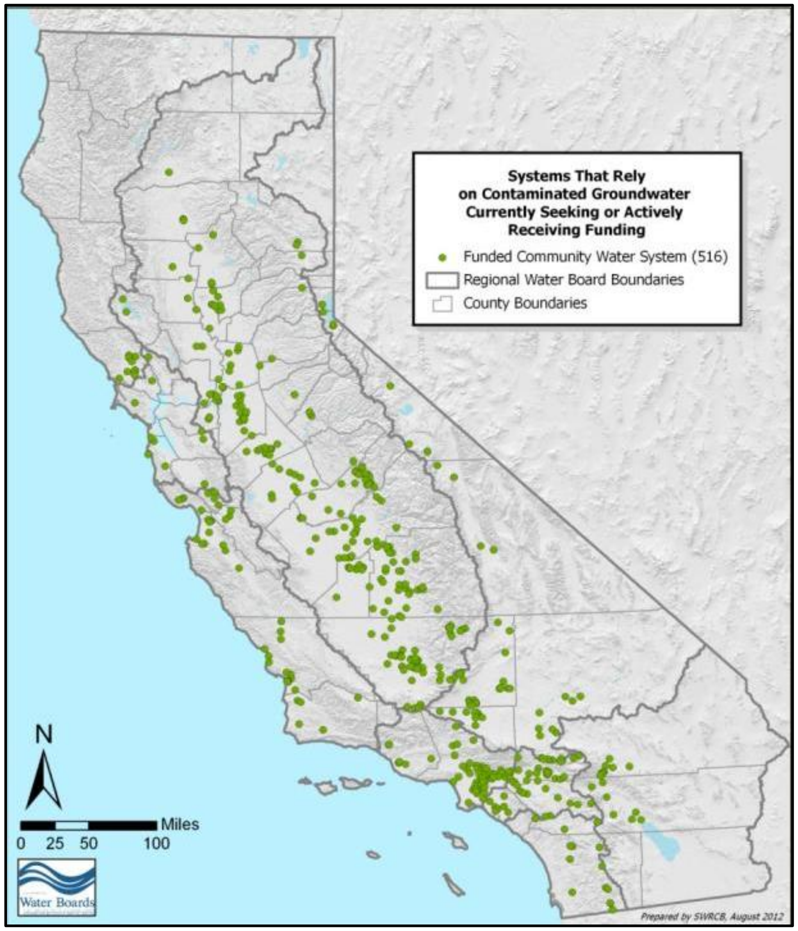

Figure 6.1: Identified Community Water Systems Receiving or Actively Seeking Funding to Address Identified Drinking Water Quality Issues (514 systems as of October 2011)

Source: Safe Drinking Water State Revolving Fund, Proposition 50 & 84, and American Recovery and Reinvestment Act of 2009 (ARRA) priority funding lists maintained by the California Department of Public Health

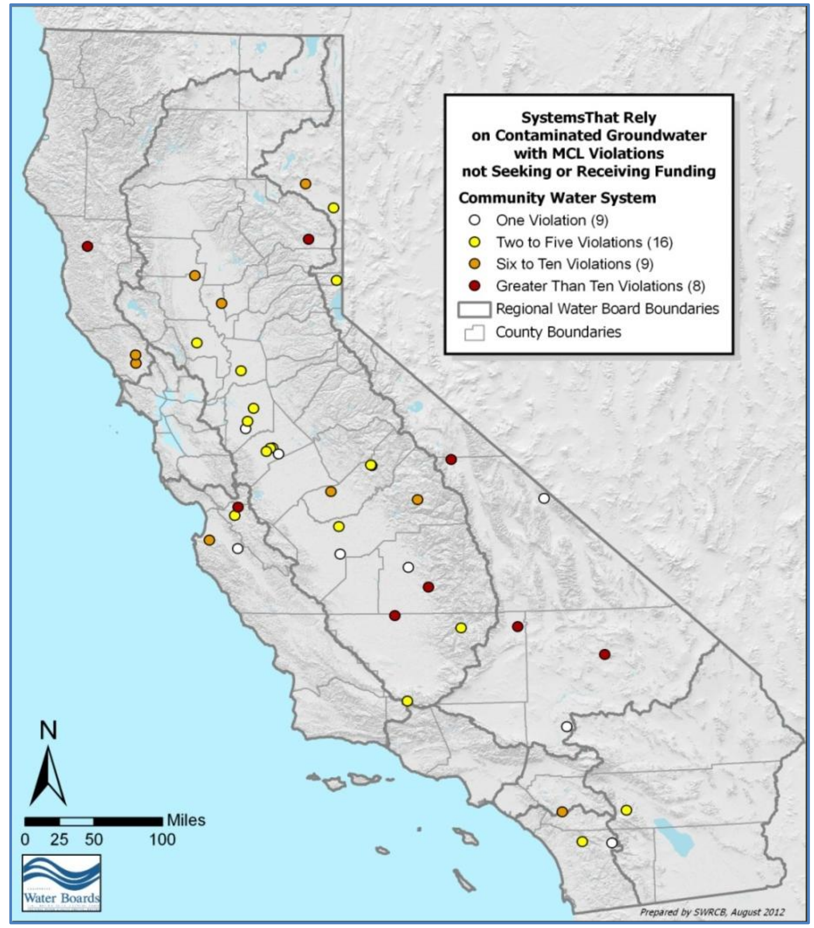

Figure 6.2: Identified Community Water Systems with MCL Violations (2002-2010) That are Not Receiving or Actively Seeking Funding to Address Identified Drinking Water Quality Issues (42 systems, as of October 2011)

Source: Safe Drinking Water State Revolving Fund, Proposition 50 & 84, and American Recovery and Reinvestment Act of 2009 (ARRA) priority funding lists maintained by the California Department of Public Health and the CDPH PICME Database

Table 6.1: Community Water Systems that Rely on a Contaminated Groundwater Source, with MCL Violations, NOT Receiving or Actively Seeking Funding to Address Identified Drinking Water Quality Issues

Public Water System Number	County	System Name	Chemical Violation	Number of Violations	Population Served
1000445	Fresno	LINDA VISTA FARMS	Uranium	1	61
1000472	Fresno	PG&E HELMS SUPPORT FACILITY	Arsenic	8	36
1000585	Fresno	MURRIETA/HERNANDEZ FARMS	Nitrate (as NO_3)	4	4
1400155	Inyo	CONTROL GORGE POWER PLANT	Arsenic	16	36
1410504	Inyo	NPS - DEATH VALLEY, GRAPEVINE RS	Arsenic	1	4
1510028	Kern	MIL POTRERO MWC	Arsenic	2	1,800
1510049	Kern	CWS - LAKELAND	Fluoride (natural), Radionuclides	2	683
1510802	Kern	KERN VALLEY STATE PRISON	Arsenic	13	6,546
1805004	Lassen	HIGH DESERT STATE PRISON	Arsenic	10	10,950
1810700	Lassen	SIERRA ARMY DEPOT-HERLONG	Uranium	3	1,500
2000524	Madera	SKY ACRES MUTUAL WATER CORP	Arsenic	1	90
2000688	Madera	ECCO	Arsenic	2	100
2010801	Madera	VALLEY STATE PRISON FOR WOMEN	Arsenic	8	4,000
2310011	Mendocino	LAYTONVILLE COUNTY WATER DISTRICT	Arsenic	13	1,301
2710021	Monterey	CAL AM WATER COMPANY - TORO	Arsenic	6	1,296
2710851	Monterey	SALINAS VALLEY STATE PRISON	Nitrate (as NO_3)	1	6,585
2910010	Nevada	TRUCKEE-DONNER PUD - HIRSCHDALE	Arsenic	2	48
3210003	Plumas	CITY OF PORTOLA	Arsenic	12	2,500
3310046	Riverside	FARM MUTUAL W.C. (THE)	Total Trihalomethanes	8	3,335
3410008	Sacramento	ELK GROVE WATER SERVICE	Arsenic	3	35,567
3500527	San Benito	VALENZUELA WATER SYSTEM	Nitrate (as NO_3)	2	55
3600012	San Bernardino	APPLE VALLEY VIEW MWC	Fluoride (natural)	1	200
3610705	San Bernardino	US ARMY FORT IRWIN	Arsenic	19	16,000

Table 6.1 (cont.): Community Water Systems that Rely on a Contaminated Groundwater Source, with MCL Violations, NOT Receiving or Actively Seeking Funding to Address Identified Drinking Water Quality Issues

Public Water System Number	County	System Name	Chemical Violation	Number of Violations	Population Served
3610854	San Bernardino	SEARLES VALLEY MINERALS OPERATIONS INC	Arsenic	12	2,100
3900653	San Joaquin	ISLANDER MARINA	Radionuclides	1	150
3910701	San Joaquin	DEFENSE DISTRIB. DEPOT, SHARPE SITE	Arsenic	3	1,650
4900676	Sonoma	SEQUOIA GARDENS MOBILE HOME PARK	Arsenic	7	300
4900723	Sonoma	SHAMROCK MOBILE HOME PARK	Arsenic	9	188
5000051	Stanislaus	MOBILE PLAZA PARK	Arsenic	2	125
5000077	Stanislaus	CERES WEST MHP	Arsenic	4	161
5000316	Stanislaus	CURTIS INVESTMENTS	Arsenic	1	42
5403110	Tulare	SIERRA MUTUAL WATER CO	Nitrate (as NO_3)	13	39
5700571	Yolo	MADISON SERVICE DIST	Nitrate (as NO_3)	2	876
600013	Colusa	PRINCETON WATER DISTRICT	Arsenic	7	356
3301588	Riverside	Royal Carrizo HOA	Uranium	4	25
3500810	San Benito	WHISPERING PINES INN	Arsenic	13	100
3700958	San Diego	LOS TULES MUTUAL WATER COMPANY	Radionuclides	1	140
3710012	San Diego	RANCHO PAUMA MUTUAL WC	Nitrate (as NO_3)	3	500
3900649	San Joaquin	GLENWOOD MOBILE HOME PARK	Nitrate (as NO_3)	3	100
5000389	Stanislaus	MONTEREY PARK TRACT COMMUNITY SERVICE DI	Arsenic, Nitrate (as NO_3)	5	186
5110003	Sutter	YUBA CITY GROUNDWATER-REGION 2-3	Arsenic	8	10,200
5410003	Tulare	EXETER, CITY OF	1,2-Dibromo-3-chloropropane (DBCP)	1	10,730

Source: Safe Drinking Water State Revolving Fund, Proposition 50 & 84, and American Recovery and Reinvestment Act of 2009 (ARRA) priority funding lists maintained by the CDPH. Violation data from the CDPH's Permits, Inspections, Compliance, Monitoring, and Enforcement (PICME) System Information database.

Table 6.2: Principal Contaminants in Community Water Systems that Rely on a Contaminated Groundwater Source, with MCL Violations, NOT Receiving or Actively Seeking Funding to Address Identified Drinking Water Quality Issues

Principal Contaminant	Number of Identified Community Water Systems with MCL Violations	County (Number of MCL Violations)
Arsenic	26	San Bernardino (31), Inyo (17), Sonoma (16), Kern (15), San Benito (13), Mendocino (13), Stanislaus (11), Plumas (12), Lassen (10), Madera (11), Sutter (8), Fresno (8), Monterey (6), Sacramento (3), San Joaquin (3), Nevada(2),
Nitrate	8	Tulare (13), Stanislaus (5), Fresno (4), San Diego (3), San Joaquin (3), San Benito (2), Yolo (2), Monterey (1)
Radionuclides	3	Kern (2), San Joaquin (1), San Diego (1)
Uranium	3	Riverside (4), Lassen (3), Fresno (1)
Fluoride (natural)	2	Kern (2), San Bernardino (1)
Total Trihalomethanes (THMs)	1	Riverside (8)
1,2-Dibromo-3-chloropropane (DBCP)	1	San Bernardino (1)

Note: Some community water systems have MCL violations for multiple contaminants. See Table 6.1
Source: Safe Drinking Water State Revolving Fund, Proposition 50 & 84, and American Recovery and Reinvestment Act of 2009 (ARRA) priority funding lists maintained by the CDPH. Violation data from the CDPH's Permits, Inspections, Compliance, Monitoring, and Enforcement (PICME) System Information database

6.2 Funding Sources and Needs

The identification of systems that are not receiving funding, despite known drinking water quality issues, will help CDPH, the State Water Resources Control Board (State Water Board), and other agencies prioritize available resources to help ensure that those communities serve safe drinking water. These funding sources are described in detail below. The known or anticipated needs of community water systems for infrastructure upgrades, repairs, and construction, are also discussed.

6.2.1 CDPH Funding Sources

CDPH administers and oversees several sources of funds to address drinking water quality issues. The total amount distributed from these sources can be substantial; for fiscal year 2010-2011, CDPH distributed approximately $375 million directly to community water systems in the form of grants and loans to address clean drinking water issues (see Table 6.3). This value includes approximately $190 million for disadvantaged communities (where the median household income was less than 80% of the state average), and approximately $75 million for small water systems with less than 3,300 people. The sources of these funds are summarized below:

1. **The Safe Drinking Water State Revolving Fund (SRF):** CDPH uses the resources of the SRF for low interest loans or grants to enable water systems to fund necessary infrastructure improvements. CDPH manages SRF resources to fund projects that ensure community water systems are able to provide an adequate, reliable supply of safe drinking water that conforms to federal and state drinking water standards. The funds are provided from the federal government, with 20 percent state matching. Interest and loan repayments are re-incorporated into the fund. Over the last three years (2009-2011), the SRF received an additional $160 million as part of the federal American Reinvestment and Recovery Act (ARRA).

   Current Status: Ongoing allocations of approximately $100 million to $150 million per year.

2. **Proposition 50 Bond Funding:** California voters passed Proposition 50 (The Water Security, Clean Drinking Water, Coastal and Beach Protection Act) in 2002. CDPH is responsible for portions of this act that deal with water security, safe drinking water, and treatment technology. It allocated approximately $500 million to CDPH for use as direct grants and loans to community water systems for infrastructure development, construction, and maintenance. Proposition 50 also allocated funds to other agencies including the State Water Board, and Department of Water Resources (DWR).

Current Status: Fully allocated, no longer accepting applications. Funds will likely be exhausted as of 2014.

3. **Proposition 84 Bond Funding:** California voters passed Proposition 84 (The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act) in 2006. It allocated approximately $250 million to CDPH for grants and loans to systems for drinking water planning and infrastructure. This $250 million allotment included $60 million specifically earmarked for use as grants to reduce or prevent contamination of groundwater that serves as a source of drinking water. Proposition 84 also allocated funds to DWR for use in Integrated Regional Watershed Management (IRWM) planning and development.

   Current Status: CDPH component is fully allocated, no longer accepting applications. Funds will likely be exhausted as of 2012.

TABLE 6.3: CDPH FUNDING SOURCES SUMMARY, FISCAL YEAR 2010-2011

CDPH Funding Source	Type of Project[1]	Number Funded	Amount[2]
Safe Drinking Water State Revolving Fund (SRF)	**All SRF Projects**	**26**	**$235,099,088**
	Planning Projects	2	$2,665,430
	Construction Projects	18	$232,433,658
	To Disadvantaged Communities[3]	19	$137,823,735
	To Schools and Universities	2	$244,500
	To Small Water Systems (<3,300 people)	10	$9,244,160
Proposition 50	**All Proposition 50 Projects**	**16**	**$87,179,658**
	Planning Projects	0[4]	0
	Construction Projects	16	$87,179,658
	To Disadvantaged Communities[3]	7	$7,022,608
	To Schools and Universities	0	0
	To Small Water Systems (<3,300 people)	6	$25,029,262
Proposition 84 (CDPH)	**All Proposition 84 Projects**	**50**	**$51,806,421**
	Planning Projects	NA[6]	NA[6]
	Construction Projects	NA[6]	NA[6]
	To Disadvantaged Communities[3]	47	$38,959,121
	To Schools and Universities	14	$4,930,703
	To Small Water Systems (<3,300 people)	NA[6]	NA[6]
	Groundwater-Specific Programs[5]	8	$39,344,348
TOTAL OF ALL CDPH SOURCES[1]	**SRF, PROPOSITION 50, & PROPOSITION 84**	**92**	**$374,085,167**

Notes:
1. Includes both surface water and groundwater projects
2. The sum of dollar amounts within each subcategory may not add up to listed total for all projects, because some types of projects overlap. For example, dollar amounts listed under "construction projects" may also be included in dollar amounts for "disadvantaged communities" and/or "small water systems."
3. CDPH defines "disadvantaged community" as having a median household income of less than 80% of the statewide median household income.
4. CDPH Proposition 50 funding does not fund planning projects
5. CDPH Proposition 84 funding included funds specifically designated for use in groundwater projects.
6. Specific counts and dollar amounts for this category are Not Available (NA).

6.2.2 Additional Sources of Current Funding

Other agencies, in addition to CDPH, have distributed money to community water systems over the past ten years. Both DWR and the State Water Board received bond funds to address water quality. In total, DWR and the State Water Board received approximately $1.7 billion to address water quality and water use over the last decade (see Table 6.4) through Proposition 50 and Proposition 84. However, these funds were not specifically allocated to community water systems to improve drinking water quality. State Water Board funds from Proposition 50 are fully allocated and/or spent; only the $1 billion allocated to DWR for IRWM planning and implementation will have funds remaining (approximately $774 million, as of October 2011).

In summary, while significant public funding has allowed extensive progress in maintaining and fixing California's drinking water infrastructure, the amount of remaining funds that are available for this purpose will decrease over the next few years as the Propositions 50 and 84 bond funds are exhausted. Only SRF allocations funded by CDPH and IRWM projects funded by DWR will continue to provide state grants and loans for drinking water quality infrastructure needs beyond 2012.

TABLE 6.4: SELECTED PUBLIC FUNDING SOURCES THAT MAY BE USED TO ADDRESS DRINKING WATER QUALITY ISSUES, 2002-2012

Funding Source	Type of Project	Total Starting Amount[1]	Status[2]
Proposition 50 (CDPH)	Public Water Systems/Community Water Systems	$50,000,000	Fully allocated beyond 2012
	Small systems: monitoring, treatment, infrastructure	$14,000,000	
	Grants for treatment and contaminant removal	$14,000,000	
	Grants for water quality monitoring	$14,000,000	
	Source water protection	$14,000,000	
	Colorado River Use Reduction	$260,000,000	
	Contaminant Treatment	$25,000,000	
	UV/Ozone to address MCL Violation	$25,000,000	
	CDPH Proposition 50 Total	**$508,000,000**	**Fully Allocated**
State Revolving Fund (CDPH)	**CDPH State Revolving Fund Annual Total**	**$150,000,000 (approx.)[3]**	**$150,000,000[3]**
Proposition 50 (DWR)	Projects consistent with an adopted Integrated Regional Water Management Plan	$250,000,000	Fully allocated beyond 2012
	DWR Proposition 50 Total	**$250,000,000**	**NA**
Proposition 50 (State Water Board)	Pollution prevention, reclamation, water quality improvement, blending and exchange projects, source protection, others	$100,000,000	Fully allocated beyond 2012
	Restore/protect surface and groundwater	$100,000,000	
	Projects consistent with an adopted Integrated Regional Water Management Plan	$250,000,000	
	State Water Board Proposition 50 Total	**$450,000,000**	**Fully Allocated**
American Reinvestment and Recovery Act (ARRA)	For deposit into the Safe Drinking Water State Revolving Fund	$160,000,000	Fully Allocated
	CDPH ARRA Total	**$160,000,000**	**Fully Allocated**
Proposition 84 (CDPH)	Emergency Clean Water Grants	$10,000,000	Fully allocated beyond 2012
	Small community Infrastructure and nitrate	$180,000,000	
	Grants to reduce or prevent contamination of groundwater that serves as a source of drinking water	$60,000,000	
	CDPH Proposition 84 Total	**$250,000,000**	**Fully Allocated**
Proposition 84 (DWR)	Integrated Regional Water Management Planning and Implementation	$1,000,000,000	<$774,000,000[4]
	DWR Proposition 84 Total	**$1,000,000,000**	**<$774,000,000[4]**

(notes for Table 6.4 are on next page)

Notes For table 6.4:

1. Total available funds based upon amounts allocated as found within the California Water Code and original Proposition language, except where as noted otherwise.
2. “Status” refers to the estimated status of funds remaining in each respective funding source.
3. SRF funds vary annually, based upon allocation from federal government, previous year’s expenditures, loan and interest repayment, and state matching funds. The value shown here is an approximation based upon previous SRF expenditures and CDPH 2011-2012 Intended Use Plan (CDPH, 2011).
4. As of October 2011. DWR IRWM funding is ongoing; this number will likely change.

6.2.3 Drinking Water Infrastructure Needs

Drinking water infrastructure needs – including water quality monitoring, treatment and contaminant removal, new wells, equipment, and operational needs – far exceed the amount of funds that are available. CDPH estimates of unmet need, based upon applications for financial assistance that is has received, are approximately $2 billion. However, after 2012, only CDPH's SRF and DWR's IRWM will be available for infrastructure and planning projects.

Every four years, the United States Environmental Protection Agency (USEPA) estimates the twenty-year capital improvement necessary for water systems to continue to provide safe drinking water to the public. The USEPA has estimated that the unmet need for transmission/distribution, source development, treatment, storage, and other infrastructure problems is $39 billion over the next twenty years (USEPA Needs Analysis, 2007, http://water.epa.gov/infrastructure/drinkingwater/dwns/upload/2009_03_26_needssurvey_2007_report_needssurvey_2007.pdf).
Of this total, $7.5 billion were estimated as costs associated with treatment.

In summary, the past decade has seen large investments in California's drinking water infrastructure. These investments have significantly improved the ability of communities to deliver safe drinking water that meets all public health standards. However, there is a remaining need. The SRF will address some of the unmet needs, but at the current rate of SRF distribution, it may take decades to address the known and expected drinking water quality issues.

6.3 Potential Funding Options

CDPH, DWR, and the State Water Board have historically provided the bulk of public funds available for drinking water infrastructure improvements. However, there are additional sources of revenue that have been used in the past, and that may be available in the future through legislative action. These additional sources are described below.

- HUD: Housing and Urban Development (HUD). The Community Development Block Grant (CDBG) program is a flexible program that provides communities with resources to address a wide range of development needs. Beginning in 1974, the CDBG program is one of the longest continuously run programs at HUD.

- New Bond Funding: A new bond initiative could provide an additional source of funds for drinking water infrastructure improvements. Bond funds would require legislation and approval by the voters.

- Funding from the Waste Discharge Permit Fund (WDPF): Appropriation would require legislative approval as a part of the state budget process. Additional fee revenue could be generated in a number of ways, including an increase in the current surcharge on the WDPF fee, or imposing a fee on those dischargers that could affect groundwater and are not paying a fee.

- Federal Funds: There are federal agencies that provide loans and grants to communities to address drinking water quality issues. HUD offers financial assistance to some communities. Other types of Federal funds would rely on an appropriation by Congress.

- Fee on Groundwater Use: Funds generated by assessing a new fee on groundwater use would require legislation that permits an assessment made on actual groundwater pumping or a tiered assessment on water purveyors that rely on groundwater.

- General Fund: General Fund appropriation would require an appropriation as part of the state budget process. General Fund is limited at this time and therefore an unlikely alternative.

6.4 MCL Violation and Current Funding Information for Community Water Systems That Rely on a Contaminated Groundwater Source for Drinking Water

This report identified 680 community water systems that rely on a contaminated groundwater source for drinking water where a principal contaminant was detected on two or more occasions above an MCL in an active supply well during the most recent CDPH compliance cycle (2002-2010).

Table 6.5 lists community water systems that rely on a contaminated groundwater source for drinking water and have been issued a CDPH MCL violation during the most recent CDPH compliance cycle (2002-2010). Available funding information provided by CDPH is also included (Source: Safe Drinking Water State Revolving Fund, Proposition 50 & 84, and American Recovery and Reinvestment Act of 2009 (ARRA) priority funding lists maintained by CDPH).

6.4.1 Definitions and Descriptions for Column Headings in Table 6.5

The following lists the column header descriptions for Table 6.5, which begins on the next page.

- **County** – County location of the community water system with the MCL violation, as provided by CDPH.
- **Public Water System Number** – The unique identification number assigned by CDPH to a community water system.
- **Public Water System Name** – The name of the community water system with an identified MCL violation.
- **Type of MCL Violation (2002-2010)** – The principal contaminant for which an MCL violation was issued by CDPH. Compliance data was supplied by CDPH for the most recent compliance cycle (2002-2010).
- **Funding Sources** – Lists community water systems that have applied for or are receiving funding from one or more of four sources, as identified by CDPH. These four sources are listed below. The list does not include information on the amount of funding a community has received, the purpose for which funding was provided or applied for, or information on funding that may have been received from other state agencies. Forty-two community water systems do not have known current funding sources.

    - Safe Drinking Water State Revolving Fund
    - Proposition 84 bond funding
    - Proposition 50 bond funding
    - Rural California Water Association

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations

County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
Butte	410004	CITY OF GRIDLEY	Arsenic	Yes	Yes		
Colusa	600008	COLUSA CO. W.D. #1 - GRIMES	Arsenic	Yes	Yes		
Colusa	600011	DEL ORO WATER CO.-WALNUT RANCH	Arsenic	Yes	Yes		
Colusa	600013	PRINCETON WATER DISTRICT	Arsenic				Yes
Contra Costa	706007	VILLA DE GUADALUPE	Nitrate	Yes	Yes		
Contra Costa	707615	DOUBLETREE RANCH WATER SYSTEM	Arsenic	Yes	Yes		
El Dorado	910002	SOUTH TAHOE PUD - MAIN	Arsenic	Yes	Yes		
El Dorado	910015	TAHOE KEYS WATER COMPANY	Tetrachloroethylene (PCE)	Yes			
Fresno	1000042	FCWWD #40/SHAVER SPRINGS	Gross Alpha, Arsenic, Uranium	Yes	Yes		
Fresno	1000053	LANARE COMMUNITY SERVICES DIST	Arsenic	Yes	Yes		
Fresno	1000056	MEADOW LAKES CLUB	Uranium	Yes	Yes		
Fresno	1000238	CAMDEN TRAILER PARK	Arsenic	Yes	Yes		
Fresno	1000359	FCSA #32/CANTUA CREEK	Total Trihalomethanes	Yes	Yes		
Fresno	1000366	SUNNYSIDE CONVALESCENT HOSP	Nitrate	Yes	Yes		
Fresno	1000369	ZONNEVELD DAIRY	Arsenic	Yes	Yes		
Fresno	1000445	LINDA VISTA FARMS	Uranium	No known current funding			
Fresno	1000472	PG&E HELMS SUPPORT FACILITY	Arsenic	No known current funding			
Fresno	1000585	MURRIETA/HERNANDEZ FARMS	Nitrate	No known current funding			
Fresno	1010005	FIREBAUGH CITY	Arsenic	Yes	Yes		
Fresno	1010007	FRESNO, CITY OF	1,2-Dibromo-3-chloropropane (DBCP)	Yes	Yes		
Fresno	1010028	RIVERDALE PUBLIC UTILITY DISTRICT	Arsenic	Yes	Yes		
Fresno	1010030	TRANQUILLITY IRRIGATION DIST	Arsenic	Yes	Yes		
Fresno	1010039	CARUTHERS COMM SERV DIST	Arsenic	Yes	Yes		
Inyo	1400006	Pine Creek Village	Uranium	Yes	Yes		
Inyo	1400036	Keeler Community Service District	Arsenic	Yes	Yes		
Inyo	1400037	Foothill Lone Pine Mobile Home Park, LLC	Arsenic, Uranium	Yes	Yes		
Inyo	1400155	Control Gorge Power Plant	Arsenic	No known current funding			

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations (cont.)							
County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
Inyo	1410504	NPS - DEATH VALLEY, GRAPEVINE RS	Arsenic	No known current funding			
Kern	1500096	OLD RIVER MUTUAL WATER COMPANY	Uranium	Yes	Yes		
Kern	1500290	EDGEMONT ACRES MUTUAL WATER COMPANY	Arsenic	Yes	Yes		
Kern	1500364	KRVWC - KERNVALE MUTUAL WATER CO	Arsenic	Yes	Yes		
Kern	1500373	SEVENTH STANDARD MUTUAL	Nitrate	Yes	Yes		
Kern	1500378	MAHER MUTUAL WATER COMPANY	Arsenic	Yes	Yes		
Kern	1500405	AERIAL ACRES WATER SYSTEM	Arsenic	Yes	Yes		
Kern	1500406	TRADEWIND WATER ASSOC.	Uranium	Yes	Yes		
Kern	1500424	LANDS OF PROMISE MUTUAL WATER ASSOCIATIO	Arsenic	Yes	Yes		
Kern	1500426	ROSE VILLA APARTMENTS	Arsenic	Yes	Yes		
Kern	1500436	HUNGRY GULCH WATER SYSTEM	Arsenic	Yes	Yes		
Kern	1500449	FOURTH STREET WATER SYSTEM	Arsenic	Yes	Yes		
Kern	1500455	WILLIAM FISHER MEMORIAL WATER COMPANY	Arsenic	Yes	Yes		
Kern	1500458	R.S. MUTUAL WATER COMPANY	Arsenic, Uranium	Yes	Yes		
Kern	1500461	FOUNTAIN TRAILER PARK WATER	Arsenic	Yes	Yes		
Kern	1500475	KRISTA MUTUAL WATER COMPANY	Fluoride	Yes	Yes		
Kern	1500493	EL ADOBE POA, INC.	Arsenic	Yes	Yes		
Kern	1500494	WILSON ROAD WATER COMMUNITY	Nitrate	Yes	Yes		
Kern	1500521	BOULDER CANYON WATER ASSOCIATION	Arsenic	Yes	Yes		
Kern	1500525	LAKEVIEW RANCHOS MUTUAL WATER	Arsenic	Yes	Yes		
Kern	1500540	PINON HILL WATER COMPANY	Arsenic	Yes	Yes		
Kern	1500544	ENOS LANE PUBLIC UTILITY DISTRICT	Nitrate	Yes	Yes		
Kern	1500561	ROUND MOUNTAIN WATER COMPANY	Uranium	Yes	Yes		
Kern	1500569	VALLEY VIEW ESTATES MUTUAL WATER CO	Nitrate	Yes	Yes		
Kern	1500571	LUCKY 18 ON ROSAMOND, LLC	Arsenic	Yes	Yes		
Kern	1500584	GOOSELAKE WATER COMPANY	Nitrate	Yes	Yes		
Kern	1500585	OASIS PROPERTY OWNERS ASSOCIATION	Arsenic	Yes	Yes		
Kern	1502017	WHEELER FARMS HEADQUARTERS	Nitrate		Yes		

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations (cont.)							
County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
Kern	1502232	ROSAMOND MOBILEHOME PARK	Uranium	Yes	Yes		
Kern	1502383	NORD ROAD WATER ASSOCIATION	Arsenic	Yes	Yes		
Kern	1502465	PANAMA ROAD PROPERTY OWNERS ASSOC	Arsenic	Yes	Yes		
Kern	1502569	FIRST MUTUAL WATER SYSTEM	Arsenic	Yes	Yes		
Kern	1502597	DEL SOL WATER CO-OP	Uranium	Yes	Yes		
Kern	1502622	GOSFORD ROAD WATER COMPANY	Arsenic	Yes	Yes		
Kern	1502670	FAIRVIEW WATER COMPANY, LLC	Perchlorate	Yes	Yes		
Kern	1502724	QUAIL VALLEY WATER DIST-EASTSIDE SYSTEM	Arsenic	Yes	Yes		
Kern	1503226	QUAIL VALLEY WATER DIST-WESTSIDE SYSTEM	Fluoride, Antimony	Yes	Yes		
Kern	1510001	ARVIN COMMUNITY SERVICES DIST	Arsenic, Nitrate	Yes	Yes		
Kern	1510002	BORON CSD	Arsenic	Yes	Yes		
Kern	1510005	DELANO, CITY OF	Arsenic	Yes	Yes		
Kern	1510006	EAST NILES CSD	Arsenic	Yes	Yes		
Kern	1510012	LAMONT PUBLIC UTILITY DIST	Arsenic	Yes	Yes		
Kern	1510014	MOJAVE PUD	Arsenic	Yes	Yes		
Kern	1510016	RAND COMMUNITIES CWD - RANDSBURG	Arsenic	Yes	Yes		
Kern	1510017	INDIAN WELLS VALLEY W.D.	Arsenic	Yes	Yes		
Kern	1510018	ROSAMOND CSD	Arsenic	Yes	Yes		
Kern	1510024	GREENFIELD COUNTY WD	Arsenic	Yes	Yes		
Kern	1510025	STALLION SPRINGS CSD	Nitrate	Yes	Yes		
Kern	1510027	DESERT LAKE COMM SERV DIST	Arsenic	Yes	Yes		
Kern	1510028	MIL POTRERO MWC	Arsenic	No known current funding			
Kern	1510046	LOST HILLS UTILITY DISTRICT	Arsenic	Yes	Yes		
Kern	1510049	CWS - LAKELAND	Fluoride, Radium	No known current funding			
Kern	1510051	LEBEC COUNTY WATER DISTRICT	Fluoride	Yes	Yes		
Kern	1510052	NORTH EDWARDS WD	Arsenic	Yes	Yes		
Kern	1510054	PINON PINES MWC	Fluoride, Arsenic	Yes	Yes		
Kern	1510802	KERN VALLEY STATE PRISON	Arsenic	No known current funding			
Kings	1600004	FOUR SEASONS MOBILE HOME PARK	Arsenic	Yes	Yes		

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations (cont.)

County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
Kings	1600010	LACEY COURTS MHP	Arsenic	Yes	Yes		
Kings	1600504	HAMBLIN MUTUAL WATER CO	Arsenic	Yes	Yes		
Kings	1610001	ARMONA COMMUNITY SERVICES DIST	Arsenic, Total Trihalomethanes	Yes	Yes		
Kings	1610003	HANFORD, CITY OF	Arsenic	Yes	Yes		
Kings	1610005	LEMOORE, CITY OF	Arsenic	Yes	Yes		
Kings	1610007	HOME GARDEN CSD	Arsenic	Yes	Yes		
Kings	1610009	KETTLEMAN CITY CSD	Arsenic	Yes	Yes		
Lake	1700536	SUNRISE SHORE MUTUAL WATER COMPANY	Aluminum	Yes	Yes		
Lassen	1805004	HIGH DESERT STATE PRISON	Arsenic	No known current funding			
Lassen	1810700	SIERRA ARMY DEPOT-HERLONG	Uranium	No known current funding			
Los Angeles	1910001	CITY OF ALHAMBRA	Nitrate	Yes	Yes		
Los Angeles	1910003	CITY OF ARCADIA	Nitrate	Yes	Yes		
Los Angeles	1910017	SANTA CLARITA WATER DIVISION F	Nitrate	Yes	Yes		
Los Angeles	1910066	LEISURE LAKE MOBILE ESTATES	Arsenic	Yes	Yes		
Los Angeles	1910153	SOUTH MONTEBELLO IRRIGATION DIST.	Arsenic	Yes	Yes		
Los Angeles	1910244	GREEN VALLEY CWD	Nitrate	Yes	Yes		
Los Angeles	1910246	LAND PROJECT MUTUAL WATER CO.	Arsenic	Yes	Yes		
Madera	2000293	MD#46 AHWAHNEE RESORTS	Gross Alpha, Arsenic	Yes	Yes		
Madera	2000501	BASS LAKE ANNEX #3	Uranium	Yes	Yes		
Madera	2000502	BASS LAKE HEIGHTS MUTUAL WATER	Arsenic	Yes	Yes		
Madera	2000506	SIERRA LINDA MUTUAL WATER CO	Gross Alpha, Arsenic, Uranium	Yes	Yes		
Madera	2000511	MD#85 VALETA MUTUAL WATER COMPANY	Nitrate	Yes	Yes		
Madera	2000512	EAST ACRES MUTUAL WATER COMPANY	Arsenic	Yes	Yes		
Madera	2000524	SKY ACRES MUTUAL WATER CORP	Arsenic	No known current funding			
Madera	2000526	PIKE RANCH MUTUAL WATER CO	Gross alpha, uranium	Yes	Yes		
Madera	2000527	YOSEMITE FORKS ESTATES MUTUAL WTR	Arsenic	Yes	Yes		
Madera	2000534	LEISURE ACRES MUTUAL WATER CO	Arsenic	Yes	Yes		

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations (cont.)							
County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
Madera	2000538	CEDAR VALLEY MUTUAL WATER CO	Arsenic	Yes	Yes		
Madera	2000550	MD#06 LAKE SHORE PARK	Gross Alpha, Arsenic, Uranium	Yes	Yes		
Madera	2000551	MD#07 MARINA VIEW HEIGHTS	Gross Alpha, Arsenic, Uranium	Yes	Yes		
Madera	2000552	MD#24 TEAFORD MEADOW LAKES	Arsenic	Yes	Yes		
Madera	2000561	MD#08 NORTH FORK WATER SYSTEM	Arsenic	Yes	Yes		
Madera	2000688	ECCO	Arsenic	No known current funding			
Madera	2000737	MD#42 STILL MEADOW	Gross Alpha, Arsenic, Uranium	Yes	Yes		
Madera	2000785	VALLEY TEEN RANCH	Arsenic	Yes	Yes		
Madera	2000828	SHADY OAKS MOBILE HOME PARK	Gross alpha, uranium	Yes	Yes		
Madera	2010003	BASS LAKE WATER COMPANY	Uranium	Yes	Yes		
Madera	2010007	HILLVIEW WC-OAKHURST/SIERRA LAKES	Arsenic, Uranium	Yes	Yes	Yes	
Madera	2010012	HILLVIEW WATER CO-RAYMOND	Nitrate	Yes	Yes	Yes	
Madera	2010801	VALLEY STATE PRISON FOR WOMEN	Arsenic	No known current funding			
Mendocino	2310011	LAYTONVILLE COUNTY WATER DISTRICT	Arsenic	No known current funding			
Mono	2610003	BRIDGEPORT PUD	Arsenic	Yes	Yes		
Monterey	2700665	OAK HEIGHTS W & R CO INC	Nitrate	Yes	Yes		
Monterey	2700702	PRUNEDALE MWC	Arsenic	Yes	Yes		
Monterey	2700738	SAN MIGUEL WS #01	Nitrate	Yes	Yes		
Monterey	2701036	APPLE AVE WS #03	Nitrate	Yes	Yes		
Monterey	2701063	RIVER RD WS #25	Nitrate	Yes	Yes		
Monterey	2701068	IVERSON & JACKS APTS WS	Nitrate	Yes	Yes		
Monterey	2701926	MORO RD WS #09	Arsenic, Nitrate	Yes	Yes		
Monterey	2710010	CWSC SALINAS	MTBE, Nitrate	Yes	Yes		
Monterey	2710021	CAL AM WATER COMPANY - TORO	Arsenic	No known current funding			
Monterey	2710851	SALINAS VALLEY STATE PRISON	Nitrate	No known current funding			
Nevada	2910010	TRUCKEE-DONNER PUD - HIRSCHDALE	Arsenic	No known current funding			
Nevada	2910011	PLAVADA COMMUNITY ASSOCIATION	Arsenic	Yes	Yes		
Orange	3000662	CATALINA STREET PUMP OWNERS	Uranium	Yes	Yes		
Orange	3000663	DIAMOND PARK MUTUAL WATER CO.	Nitrate	Yes	Yes		

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations (cont.)							
County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
Placer	3110032	LAKE FOREST UTILITY COMPANY	Arsenic	Yes	Yes	Yes	
Plumas	3200104	GRIZZLY LAKE RID-DELLEKER	Uranium	Yes	Yes		
Plumas	3210003	CITY OF PORTOLA	Arsenic	No known current funding			
Riverside	3301380	Saint Anthony Trailer Park	Arsenic	Yes	Yes		
Riverside	3301588	Royal Carrizo HOA	Uranium				Yes
Riverside	3301755	Sunbird Mobile Home Park	Arsenic	Yes	Yes		
Riverside	3310005	DESERT WATER AGENCY	Uranium	Yes	Yes	Yes	
Riverside	3310012	ELSINORE VALLEY MWD	Total Trihalomethanes	Yes	Yes	Yes	
Riverside	3310016	HEMET, CITY OF	Nitrate	Yes	Yes		
Riverside	3310025	NORCO, CITY OF	Arsenic	Yes	Yes		
Riverside	3310040	FERN VALLEY WD	Haloacetic Acids	Yes	Yes		
Riverside	3310046	FARM MUTUAL W.C. (THE)	Total Trihalomethanes	No known current funding			
Sacramento	3400130	GREGG WATER CO	Arsenic	Yes	Yes		
Sacramento	3400135	KORTHS PIRATES LAIR	Arsenic	Yes	Yes		
Sacramento	3400138	LOCKE WATER WORKS CO [SWS]	Arsenic	Yes	Yes		
Sacramento	3400164	VIEIRA S RESORT, INC	Arsenic	Yes	Yes		
Sacramento	3400332	OXBOW MARINA	Arsenic	Yes	Yes		
Sacramento	3400433	EDGEWATER MOBILE HOME PARK	Arsenic	Yes	Yes		
Sacramento	3410008	ELK GROVE WATER SERVICE	Arsenic				
Sacramento	3410011	GALT, CITY OF	Arsenic	Yes	Yes		
San Benito	3500526	ARNOLD PARK (O BANNON S MHP)	Total Chromium, Nitrate	Yes	Yes		
San Benito	3500527	VALENZUELA WATER SYSTEM	Nitrate	No known current funding			
San Benito	3500810	WHISPERING PINES INN	Arsenic				Yes
San Bernardino	3600012	Apple Valley View MWC	Fluoride	No known current funding			
San Bernardino	3600196	CSA 70 W-4	Arsenic	Yes	Yes		
San Bernardino	3600226	CSA 70F, Morongo Valley	Uranium	Yes	Yes		
San Bernardino	3610001	CITY OF ADELANTO	Arsenic	Yes	Yes		

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations (cont.)

County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
San Bernardino	3610007	BASELINE GARDENS MWC	Nitrate	Yes	Yes		
San Bernardino	3610051	VALLEY OF ENCHANTMENT MWC	Gross alpha	Yes	Yes		
San Bernardino	3610064	EAST VALLEY WATER DISTRICT	Gross alpha	Yes	Yes		
San Bernardino	3610112	HELENDALE COMMUNITY SERVICE DISTRICT	Arsenic	Yes	Yes		
San Bernardino	3610705	US ARMY FORT IRWIN	Arsenic	No known current funding			
San Bernardino	3610854	SEARLES VALLEY MINERALS OPERATIONS INC	Arsenic	No known current funding			
San Diego	3700923	LAKE MORENA OAK SHORES MW CO.	Nitrate, Nitrate + Nitrite, Uranium	Yes	Yes		
San Diego	3700924	LAKE MORENA VIEWS MW CO.	Uranium	Yes	Yes		
San Diego	3700938	YUIMA MUNICIPAL WATER DISTRICT IDA	Nitrate, Perchlorate	Yes	Yes		
San Diego	3700958	LOS TULES MUTUAL WATER COMPANY	Gross alpha		Yes		
San Diego	3710012	RANCHO PAUMA MUTUAL WC	Nitrate				Yes
San Joaquin	3900579	CENTURY MOBILE HOME PARK	Arsenic, Nitrate	Yes	Yes		
San Joaquin	3900649	GLENWOOD MOBILE HOME PARK	Nitrate				Yes
San Joaquin	3900653	ISLANDER MARINA	Gross alpha	No known current funding			
San Joaquin	3900711	SIDHU MOBILE PARK WATER SYSTEM	Arsenic	Yes	Yes		
San Joaquin	3900732	V & P TRAILER COURT WATER SYSTEM	Arsenic	Yes	Yes		
San Joaquin	3901213	AVALOS, SILVIA	Arsenic, Nitrate	Yes	Yes		
San Joaquin	3910005	MANTECA, CITY OF	Arsenic	Yes	Yes		
San Joaquin	3910015	CITY OF LATHROP	Arsenic	Yes	Yes		
San Joaquin	3910701	DEFENSE DISTRIB. DEPOT, SHARPE SITE	Arsenic	No known current funding			
San Luis Obispo	4010011	MORRO BAY WATER DEPARTMENT	Nitrate	Yes	Yes		
San Luis Obispo	4010023	GOLDEN STATE WATER COMPANY - EDNA	Selenium	Yes	Yes		
San Mateo	4110010	MONTARA WATER AND SANITARY DIST	Nitrate	Yes	Yes	Yes	
Santa Barbara	4200891	BOBCAT SPRINGS M WC OS	Arsenic	Yes	Yes		

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations (cont.)							
County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
Santa Barbara	4210009	CUYAMA COMMUNITY SERVICES DISTRICT	Arsenic	Yes	Yes		
Santa Clara	4300573	GREEN ACRES MUTUAL WATER	Asbestos	Yes	Yes		
Santa Clara	4300630	FOOTHILL MUTUAL WATER	Nitrate	Yes	Yes		
Santa Clara	4300943	FARMERS LABOR EXCHANGE	Nitrate	Yes	Yes		
Santa Clara	4300996	VALLEY VIEW RANCHES	Nitrate	Yes	Yes		
Santa Cruz	4410016	FOREST LAKES MWC	Arsenic	Yes	Yes		
Shasta	4510005	CITY OF REDDING	Arsenic	Yes	Yes		
Sierra	4600019	SIERRA CO. W.W.D #1 CALPINE	Arsenic	Yes	Yes		
Sonoma	4900568	VALLEY FORD WATER ASSOCIATION	Nitrate	Yes	Yes	Yes	
Sonoma	4900575	LOCH HAVEN MUTUAL WATER COMPANY	Arsenic	Yes	Yes		
Sonoma	4900643	MOUNT WESKE ESTATES MUTUAL WATER COMPANY	Arsenic	Yes	Yes		
Sonoma	4900676	SEQUOIA GARDENS MOBILE HOME PARK	Arsenic	No known current funding			
Sonoma	4900723	SHAMROCK MOBILE HOME PARK	Arsenic	No known current funding			
Sonoma	4900786	RANCHO SANTA ROSA MHP	Arsenic	Yes	Yes		
Sonoma	4900845	RANCHO DE SONOMA	Arsenic	Yes	Yes		
Sonoma	4900855	WEST FIELD COMMUNITY	Arsenic	Yes	Yes		
Sonoma	4901195	MOORLAND AVENUE APARTMENTS	Arsenic		Yes		
Sonoma	4910011	SEBASTOPOL, CITY OF	Arsenic	Yes	Yes		
Stanislaus	5000033	COBLES CORNER	Arsenic	Yes	Yes		
Stanislaus	5000051	MOBILE PLAZA PARK	Arsenic	No known current funding			
Stanislaus	5000077	CERES WEST MHP	Arsenic	No known current funding			
Stanislaus	5000080	COUNTRY WESTERN MOBILE HOME PARK	Arsenic	Yes	Yes		
Stanislaus	5000085	GREEN RUN MOBILE ESTATES	Arsenic	Yes	Yes		
Stanislaus	5000086	COUNTRYSIDE MOBILEHOME ESTATES - ADULT P	Arsenic	Yes			
Stanislaus	5000218	COUNTRY VILLA APTS	1,2-Dibromo-3-chloropropane (DBCP)	Yes	Yes		
Stanislaus	5000316	CURTIS INVESTMENTS	Arsenic	No known current funding			
Stanislaus	5000389	MONTEREY PARK TRACT COMMUNITY SERVICE DI	Arsenic				Yes
Stanislaus	5010008	HUGHSON, CITY OF	Arsenic	Yes	Yes		

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations (cont.)							
County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
Stanislaus	5010009	KEYES COMMUNITY SERVICES DIST.	Arsenic	Yes	Yes		
Stanislaus	5010010	MODESTO, CITY OF	Nitrate	Yes	Yes		
Stanislaus	5010028	CERES, CITY OF	Nitrate, Uranium	Yes	Yes		
Stanislaus	5010033	CITY OF MODESTO, DE GRAYSON	Nitrate	Yes	Yes		
Sutter	5100107	SUTTER CO. WWD#1 (ROBBINS)	Arsenic	Yes	Yes		
Sutter	5100109	WILDWOOD MUTUAL WATER COMPANY	Arsenic, Nitrate	Yes	Yes		
Sutter	5101006	COUNTRY VILLAGE SOUTH MHP	Nitrate		Yes		
Sutter	5110001	CITY OF LIVE OAK	Arsenic	Yes	Yes		
Sutter	5110003	YUBA CITY GROUNDWATER-REGION 2-3	Arsenic				Yes
Tehama	5201137	MILLSTREAM MOBILE HOME PARK	Arsenic	Yes	Yes		
Tehama	5210003	LOS MOLINOS COMM. SERVICES DIST.	Arsenic	Yes	Yes		
Tulare	5400523	EL MONTE VILLAGE M H P	Nitrate	Yes	Yes		
Tulare	5400542	DUCOR CSD	Nitrate	Yes	Yes	Yes	
Tulare	5400544	ALLENSWORTH C S D	Arsenic	Yes	Yes		
Tulare	5400550	SEVILLE WATER CO	Nitrate	Yes	Yes		
Tulare	5400567	TOOLEVILLE WATER COMPANY	Nitrate	Yes	Yes		
Tulare	5400616	LEMON COVE WATER CO	Nitrate	Yes	Yes		
Tulare	5400629	SEQUOIA RV RANCH	Arsenic	Yes	Yes		
Tulare	5400651	BEVERLY GRAND MUTUAL WATER	Nitrate	Yes	Yes		
Tulare	5400660	LAKE SUCCESS MOBILE LODGE	Nitrate	Yes	Yes		
Tulare	5400663	FAIRWAYS TRACT MUTUAL	Nitrate	Yes	Yes		
Tulare	5400665	DEL ORO RIVER ISLAND SERV TERR #1	Nitrate, Uranium	Yes	Yes		
Tulare	5400670	TRIPLE R MUTUAL WATER CO	Nitrate	Yes	Yes		
Tulare	5400735	RODRIGUEZ LABOR CAMP	Nitrate	Yes	Yes		
Tulare	5400754	SO KAWEAH MUTUAL WATER CO	Arsenic	Yes	Yes		
Tulare	5400792	WOODVILLE FARM LABOR CENTER	Nitrate	Yes	Yes		
Tulare	5400805	SOULTS MUTUAL WATER CO	Nitrate	Yes	Yes		
Tulare	5400966	WESTLAKE VILLAGE M H P	Nitrate	Yes	Yes		
Tulare	5401003	EAST OROSI CSD	Nitrate	Yes	Yes		
Tulare	5401038	AKIN WATER CO	Nitrate	Yes	Yes		
Tulare	5402047	GLEANINGS FOR THE HUNGRY	Nitrate	Yes	Yes		

Table 6.5 Known Funding Sources for Identified Community Water Systems with MCL Violations (cont.)							
County	Public Water System Number	Public Water System Name	Type of MCL Violation (2002-2010)	Funding Sources			
				Safe Drinking Water State Revolving Fund	Prop. 84	Prop. 50	Rural California Water Association
Tulare	5402048	DEL ORO RIVER ISLAND SERV TERR #2	Nitrate	Yes	Yes		
Tulare	5403043	YETTEM WATER SYSTEM	Nitrate		Yes		
Tulare	5403103	TRACT 327 MUTUAL WATER CO	Gross alpha, uranium	Yes	Yes		
Tulare	5403110	SIERRA MUTUAL WATER CO	Nitrate	No known current funding			
Tulare	5410001	CUTLER PUD	1,2-Dibromo-3-chloropropane (DBCP)	Yes	Yes		
Tulare	5410003	EXETER, CITY OF	1,2-Dibromo-3-chloropropane (DBCP)				Yes
Tulare	5410009	PIXLEY PUBLIC UTIL DIST	Arsenic	Yes	Yes		
Tulare	5410024	RICHGROVE COMMUNITY SERVICES DISTRICT	Arsenic	Yes	Yes		
Tulare	5410033	PRATT MUTUAL WATER CO	Arsenic	Yes	Yes		
Tulare	5410034	PINE FLAT WATER COMPANY	Uranium	Yes	Yes		
Tulare	5410050	ALPAUGH JOINT POWERS AUTHORITY	Arsenic		Yes		
Ventura	5601122	TICO MUTUAL WATER CO	Nitrate	Yes	Yes		
Ventura	5610035	RIO MANOR MUTUAL WATER CO	Uranium	Yes	Yes		
Yolo	5700571	MADISON SERVICE DIST	Nitrate	No known current funding			
Yolo	5710011	WILD WINGS GOLF COMMUNITY	Arsenic	Yes	Yes		

APPENDIX 7 – LIST OF REFERENCES

APPENDIX 1: LIST OF REFERENCES

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APPENDIX 8 – LIST OF COMMUNITY WATER SYSTEMS THAT RELY ON A CONTAMINATED GROUNDWATER SOURCE FOR DRINKING WATER

APPENDIX 8: List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

The following table lists groundwater sources (wells) used for the drinking water supply by community public water systems (community water systems), where a principal contaminant has been detected on two or more occasions, at a level greater than the Maximum Contaminant Level (MCL). The table lists all active raw and untreated groundwater sources used to supply drinking water to community (class "C") water systems during the most recent California Department of Public Health (CDPH) compliance cycle (2002-2010). A well is considered active if it was being used to provide drinking water to a community water system at the time that this report was being drafted (October 2011),

8.1 DEFINITIONS AND DESCRIPTIONS OF COLUMN HEADINGS

County – Identifies the primary county served by a community water system. The data were provided by CDPH from their www.drinc.ca.gov website.

Primary City – Identifies the primary city or cities served by a community water system. Some systems serve more than one city. The data were generated through several methods. When community water system service area boundaries were available to CDPH, service area boundaries were mapped using Geographic Information System (GIS) software. The intersection of the community water system boundary and city boundaries (or "census designated place," see below) was used by CDPH to identify the primary city served by a community water system. When community water system boundaries were not available to CDPH, the primary city was identified by the State Water Resources Control Board (State Water Board) through a map-based web search.

Some community water systems serve rural concentrations of people that are not legally incorporated and that lack separate municipal governments, but otherwise resemble incorporated places such as cities or towns. Such areas are referred to as "*Census-designated places*" by the United States Census Bureau. Census-designated places may not strictly reflect the local definition of where a community is located, but are the most accurate way of representing areas served by community water systems that deliver water to rural or unincorporated areas. Where community water system service area boundaries were shown to serve areas outside an incorporated area, the area served is referred to as a census designated place in the primary city column, and is denoted by the abbreviation "CDP" at the end of the identified city.

Public Water System Name – The name of the community water system that delivers water from the identified wells.

PWS (Public Water System) Number – The unique identification number assigned by CDPH to a community water system.

Source of PWS Supply – The primary source of a community water system's drinking water supply. There are four identified categories:

- 100% GW: 100 percent of the drinking water source is from groundwater.
- >50% GW Mixed: The community water system relies on both surface water and groundwater sources for its public drinking water supply, but more than 50 percent of that supply is groundwater. The relative percentage of groundwater was determined by querying the system on publicly available internet databases including CDPH's Drinking Water Watch website, part of drinc.ca.gov.
- Mixed <50% GW: The community water system relies on both surface water and groundwater sources for its public drinking water supply, but less than 50 percent of the supply comes from groundwater sources. The relative percentage of groundwater was determined by querying the system on publicly available internet databases including CDPH's Drinking Water Watch website, part of drinc.ca.gov.
- Undetermined: The community water system relies on both surface water and groundwater sources for its public drinking water supply, but the relative contribution from groundwater could not be determined based upon the available resources.

Population Served – The population served by a specific community water system, as reported by that system to CDPH.

System Wells – The number of groundwater public drinking water supply sources operated by a community water system. (In nearly all cases, a groundwater source is a well.)

Wells with Princ. Cont. – The number of groundwater sources with a principal contaminant detection above the MCL in two or more sampling events during the most recent CDPH compliance cycle (2002-2010). The contaminants were detected in raw groundwater, prior to any blending or treatment, and do not represent the quality of water that is ultimately delivered to the public.

Well Number – The PWS Number, extended to identify the specific well(s) in a community water system. The number preceding the dash is the system number and the number after the dash indicates the specific well. Together, this makes up the CDPH "well number."

Princ. Contaminant – Principal Contaminant; chemical detected on two or more sampling events during the most recent CDPH compliance cycle (2002-2010).

MCL – Maximum Contaminant Level

Most Recent Det. > MCL – The date of the most recent detection above the MCL for that source and principal contaminant.

Det. > MCL– The number of evaluated samples collected during the most recent CDPH compliance cycle (2002-2010) with a detection above the MCL.

Max Conc. – The maximum evaluated detection of the contaminant in the groundwater source during the most recent CDPH compliance cycle (2002-2010).

Avg. Conc. – The average evaluated detection of the contaminant in the groundwater source during the most recent CDPH compliance cycle (2002-2010).

Sampling Events– The number of samples collected and evaluated from the source during the most recent CDPH compliance cycle (2002-2010).

Table 8.1

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List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
ALAMEDA	Livermore	CALIFORNIA WATER SERVICE - LIVERMORE	110003	Mixed <50%GW	54496	12	5	0110003-009	Nitrate (as NO3)	45	mg/L	9/7/2010	147	56	45.8059519	147
								0110003-012	Nitrate (as NO3)	45	mg/L	10/21/2008	2	56	53	2
								0110003-013	Nitrate (as NO3)	45	mg/L	7/28/2010	132	62	47.5907143	130
								0110003-008	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	80	36	8.39082353	78
								0110003-010	Tetrachloroethylene (PCE)	5	ug/L	9/18/2008	2	8.1	1.37682927	2
AMADOR	Jackson	MELODY OAKS TRAILER PARK	300011	100% GW	40	1	1	0300011-001	Gross alpha particle activity	15	pCi/L	7/23/2010	3	30	12.46	10
AMADOR	Plymouth	HOPE FOUNDATION/ MORIAH HEIGHTS	300062	100% GW	30	2	1	0300062-002	Vinyl chloride	0.5	ug/L	11/29/2006	2	9.1	1.43	8
BUTTE	Chico	CAL-WATER SERVICE CO.-CHICO	410002	100% GW	100086	63	3	0410002-073	Nitrate (as NO3)	45	mg/L	7/7/2010	2	51.032	25.61	95
								0410002-021	Tetrachloroethylene (PCE)	5	ug/L	10/13/2010	100	16.38	11.90	101
								0410002-045	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	106	30.2	12.17	106
BUTTE	Gridley	CITY OF GRIDLEY	410004	100% GW	6403	6	2	0410004-002	Arsenic	10	ug/L	12/14/2004	6	16.6	12.55	8
								0410004-003	Arsenic	10	ug/L	7/17/2007	5	11.2	9.63	12
BUTTE	Butte Valley CDP	FOOTHILL MOBILE HOME PARK	400027	100% GW	180	2	1	0400027-001	Arsenic	10	ug/L	4/15/2009	2	21	10.36	8
BUTTE	Chico	HARMONY MOBILE HOME PARK	400037	100% GW	55	1	1	0400037-001	Nitrate (as NO3)	45	mg/L	7/3/2007	3	73	39.18	21
BUTTE	Forest Ranch CDP	FOREST RANCH MUTUAL WATER SYS	400004	100% GW	92	2	1	0400004-001	Tetrachloroethylene (PCE)	5	ug/L	2/22/2005	5	56	18.64	7
BUTTE	Gridley	RANCHO VILLA MOBILE ACRES	400058	100% GW	32	1	1	0400058-001	Arsenic	10	ug/L	10/27/2010	10	12.2	10.38	12
CALAVERAS	San Andreas	RITE OF PASSAGE/SIERRA RIDGE	500091	Mixed <50%GW	150	4	2	0500091-001	Gross alpha particle activity	15	pCi/L	11/26/2003	4	16	7.99214286	4
								0500091-002	Gross alpha particle activity	15	pCi/L	4/13/2010	3	46.81	16.1122222	3
								0500091-002	Uranium	20	pCi/L	6/22/2009	2	23.72	9.21142857	2
COLUSA	Grimes CDP	COLUSA CO. W.D. #1 - GRIMES	600008	100% GW	500	1	1	0600008-001	Arsenic	10	ug/L	10/11/2010	9	30.2	24.40	10
COLUSA	Princeton CDP	PRINCETON WATER DISTRICT	600013	100% GW	356	2	1	0600013-001	Arsenic	10	ug/L	3/17/2010	8	70	16.69	11
COLUSA	Walnut Ranch	DEL ORO WATER CO.- WALNUT RANCH	600011	100% GW	182	2	2	0600011-001	Arsenic	10	ug/L	11/24/2010	7	16	12.70	8
								0600011-002	Gross alpha particle activity	15	pCi/L	12/13/2005	4	19.2	19.20	4
CONTRA COSTA	Brentwood	CITY OF BRENTWOOD	710004	Mixed <50%GW	45892	9	1	0710004-010	Nitrate (as NO3)	45	mg/L	11/3/2010	29	49	41.0347826	28
CONTRA COSTA	Pittsburg	CITY OF PITTSBURG	710008	Mixed <50%GW	62000	2	1	0710008-005	Arsenic	10	ug/L	7/7/2010	2	14	11.5	2
CONTRA COSTA	Bethel Island CDP	SANDMOUND MUTUAL	707556	100% GW	160	2	1	0707556-002	Arsenic	10	ug/L	9/1/2009	2	15	9.50	4
CONTRA COSTA	Bethel Island CDP	SANTIAGO ISLAND VILLAGE	707574	100% GW	422	1	1	0707574-001	Fluoride	2	mg/L	7/8/2010	2	8	2.68	4
CONTRA COSTA	Brentwood	VILLA DE GUADALUPE	706007	100% GW	26	1	1	0706007-001	Nitrate (as NO3)	45	mg/L	2/3/2010	31	69	49.72	50
CONTRA COSTA	Concord	DOUBLETREE RANCH WATER SYSTEM	707615	100% GW	49	2	2	0707615-001	Arsenic	10	ug/L	9/2/2010	16	42	27.56	16
								0707615-002	Arsenic	10	ug/L	6/1/2009	9	23	19.00	9
CONTRA COSTA	Oakley	DELTA MUTUAL WATER COMPANY	707573	100% GW	180	2	1	0707573-002	Arsenic	10	ug/L	8/18/2010	2	11	9.65	6
EL DORADO	South Lake Tahoe	SOUTH TAHOE PUD - MAIN	910002	100% GW	60000	19	6	0910002-016	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	11/24/2010	37	3.4	1.70	38
								0910002-028	Arsenic	10	ug/L	9/5/2007	6	14.9	9.32	20
								0910002-050	Arsenic	10	ug/L	12/6/2006	14	17.9	9.69	27
								0910002-054	Arsenic	10	ug/L	2/9/2010	31	18	12.16	43
								0910002-006	Gross alpha particle activity	15	pCi/L	8/18/2010	7	25.03	16.34	11
								0910002-007	Gross alpha particle activity	15	pCi/L	7/21/2010	2	15.73	11.20	12
								0910002-050	Gross alpha particle activity	15	pCi/L	6/24/2009	3	21.18	13.08	12
								0910002-054	Gross alpha particle activity	15	pCi/L	7/21/2010	4	18.83	13.18	11
EL DORADO	Plymouth	GOLD BEACH PARK	900102	100% GW	100	1	1	0900102-004	Arsenic	10	ug/L	10/18/2010	8	20	14.52	9
EL DORADO	South Lake Tahoe city	TAHOE KEYS WATER COMPANY	910015	100% GW	3004	4	2	0910015-002	Gross alpha particle activity	15	pCi/L	7/10/2007	2	23.6	16.63	4
								0910015-003	Gross alpha particle activity	15	pCi/L	1/16/2007	2	25.4	17.53	4

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								0910015-002	Tetrachloroethylene (PCE)	5	ug/L	8/17/2010	6	19	9.39	8
FRESNO	Calwa CDP, Clovis city, Fort Washington CDP, Fresno city, Mayfair CDP, Old Fig Garden CDP, Sunnyside CDP	FRESNO, CITY OF	1010007	>50% GW Mixed	457511	253	47	1010007-010	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/3/2010	94	0.52	0.35	95
								1010007-035	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/5/2008	48	0.3	0.21	83
								1010007-036	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/4/2010	103	0.36	0.27	104
								1010007-090	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/8/2010	20	0.44	0.29	20
								1010007-091	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/8/2010	85	3.3	1.14	85
								1010007-093	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/2/2010	109	0.59	0.36	110
								1010007-113	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/13/2009	14	0.3	0.25	15
								1010007-130	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	7/3/2002	4	0.51	0.10	76
								1010007-189	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/4/2003	27	0.31	0.20	68
								1010007-219	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	2/5/2009	44	0.32	0.22	68
								1010007-223	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/5/2003	2	0.24	0.11	65
								1010007-236	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	7/18/2005	5	0.22	0.14	99
								1010007-264	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	4/8/2008	6	0.23	0.13	100
								1010007-293	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/5/2008	46	0.59	0.22	79
								1010007-297	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/14/2006	2	0.23	0.14	72
								1010007-310	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	5/9/2008	33	0.32	0.17	111
								1010007-312	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	5/12/2008	52	0.28	0.20	117
								1010007-319	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/4/2010	99	0.75	0.52	99
								1010007-324	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/24/2008	12	0.25	0.15	71
								1010007-325	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/7/2008	16	0.34	0.20	37
								1010007-339	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/2/2010	95	0.63	0.32	97
								1010007-340	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/8/2010	103	0.63	0.33	105
								1010007-349	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/9/2010	75	0.94	0.39	76
								1010007-359	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/13/2010	119	0.6	0.33	123
								1010007-380	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/12/2008	47	0.68	0.32	59
								1010007-392	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	12/3/2009	20	0.28	0.18	69
								1010007-699	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/9/2010	11	0.72	0.53	11
								1010007-064	cis-1,2-Dichloroethylene	6	ug/L	7/6/2005	2	6.4	3.14	60
								1010007-091	Ethylene dibromide (EDB)	0.05	ug/L	11/8/2010	83	0.46	0.17	85
								1010007-113	Ethylene dibromide (EDB)	0.05	ug/L	6/23/2010	15	0.24	0.15	15
								1010007-312	Ethylene dibromide (EDB)	0.05	ug/L	11/8/2010	106	0.84	0.09	117
								1010007-079	Gross alpha particle activity	15	pCi/L	1/4/2008	5	21.2	17.47	6
								1010007-156	Gross alpha particle activity	15	pCi/L	3/16/2007	2	23.5	18.40	3
								1010007-178	Gross alpha particle activity	15	pCi/L	5/25/2007	3	15.8	12.15	8
								1010007-213	Gross alpha particle activity	15	pCi/L	5/24/2007	5	25.3	18.26	7
								1010007-217	Gross alpha particle activity	15	pCi/L	9/18/2006	2	17.2	12.18	7
								1010007-263	Gross alpha particle activity	15	pCi/L	6/1/2007	3	20.6	15.57	6
								1010007-305	Gross alpha particle activity	15	pCi/L	6/12/2007	4	19.4	15.99	8
								1010007-349	Gross alpha particle activity	15	pCi/L	1/14/2008	2	22	20.30	2
								1010007-386	Gross alpha particle activity	15	pCi/L	5/22/2007	7	23.8	19.31	8
								1010007-090	Nitrate (as NO3)	45	mg/L	9/8/2010	26	48	44.07	58
								1010007-189	Nitrate (as NO3)	45	mg/L	8/7/2009	3	46	36.41	121
								1010007-281	Nitrate (as NO3)	45	mg/L	8/15/2002	3	47	22.59	145
								1010007-293	Nitrate (as NO3)	45	mg/L	4/16/2007	2	46	37.46	275
								1010007-297	Nitrate (as NO3)	45	mg/L	10/20/2010	3	58	36.02	54
								1010007-312	Nitrate (as NO3)	45	mg/L	8/27/2007	7	104	32.63	364
								1010007-349	Nitrate (as NO3)	45	mg/L	11/18/2010	250	67	57.42	252
								1010007-089	Tetrachloroethylene (PCE)	5	ug/L	3/2/2004	4	8.6	0.31	105
								1010007-394	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	36	7	5.26	50
								1010007-095	Trichloroethylene (TCE)	5	ug/L	11/9/2010	96	62	28.64	98
								1010007-099	Trichloroethylene (TCE)	5	ug/L	11/9/2010	184	56	30.64	184

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County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								1010007-102	Trichloroethylene (TCE)	5	ug/L	7/7/2008	2	40	2.15	128
								1010007-103	Trichloroethylene (TCE)	5	ug/L	11/9/2010	36	32	3.94	113
								1010007-204	Trichloroethylene (TCE)	5	ug/L	11/9/2010	109	36	19.53	111
								1010007-314	Trichloroethylene (TCE)	5	ug/L	6/3/2009	104	50	17.09	131
FRESNO	City of Fowler	ALICE MANOR	1000199	100% GW	46	1	1	1000199-001	Gross alpha particle activity	15	pCi/L	11/15/2010	3	19.7	16.83	4
FRESNO	Firebaugh city	FIREBAUGH CITY	1010005	100% GW	6500	7	4	1010005-007	Arsenic	10	ug/L	11/2/2010	35	76	51.00	36
								1010005-009	Arsenic	10	ug/L	10/12/2010	22	40	26.05	22
								1010005-010	Arsenic	10	ug/L	8/5/2008	2	52	6.83	34
								1010005-017	Arsenic	10	ug/L	10/12/2010	3	24	7.17	19
FRESNO	Fresno city	BAKMAN WATER COMPANY	1010001	100% GW	8751	11	2	1010001-009	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	4/21/2008	4	0.45	0.39	4
								1010001-010	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/23/2005	4	0.34	0.16	9
FRESNO	Kerman city	KERMAN, CITY OF	1010018	100% GW	13878	6	1	1010018-012	Gross alpha particle activity	15	pCi/L	3/26/2010	3	22.3	15.82	4
FRESNO	Malaga CDP	MALAGA COUNTY WATER DISTRICT	1010042	100% GW	900	4	1	1010042-004	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/12/2003	2	0.24	0.03	35
FRESNO	Parlier city	PARLIER, CITY OF	1010025	100% GW	12058	4	1	1010025-010	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	1/3/2008	2	0.3	0.16	18
FRESNO	Reedley city	REEDLEY, CITY OF	1010027	100% GW	26227	8	1	1010027-011	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	5/10/2007	67	0.56	0.41	67
FRESNO	Riverdale CDP	RIVERDALE PUBLIC UTILITY DISTRICT	1010028	100% GW	2416	2	2	1010028-004	Arsenic	10	ug/L	10/4/2010	20	68.6	37.77	20
								1010028-005	Arsenic	10	ug/L	10/4/2010	22	46.2	38.00	22
FRESNO	Sanger city	CITY OF SANGER	1010029	100% GW	25417	8	5	1010029-003	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/6/2010	55	0.43	0.27	60
								1010029-009	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/29/2010	115	0.6	0.16	118
								1010029-010	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	3/17/2009	68	0.63	0.15	101
								1010029-015	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/22/2010	55	0.5	0.28	60
								1010029-022	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/6/2010	16	0.71	0.56	16
								1010029-003	Tetrachloroethylene (PCE)	5	ug/L	7/17/2007	3	11	2.98	28
FRESNO	Tranquillity CDP	TRANQUILLITY IRRIGATION DIST	1010030	100% GW	820	2	2	1010030-002	Arsenic	10	ug/L	6/8/2010	12	16	13.05	13
								1010030-003	Arsenic	10	ug/L	9/16/2010	15	16.1	13.97	15
FRESNO	Cantua Creek	FCSA #32/CANTUA CREEK	1000359	Mixed <50%GW	230	1	1	1000359-003	Nitrate (as NO3)	45	mg/L	3/3/2009	4	65	43.9083333	4
FRESNO	Clovis city, Tarpey Village CDP	CLOVIS, CITY OF	1010003	Undetermined	98950	38	13	1010003-010	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/12/2008	31	0.34	0.18	66
								1010003-013	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	12/10/2003	5	0.49	0.14	63
								1010003-023	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/13/2010	37	0.77	0.49	37
								1010003-029	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/25/2007	6	0.29	0.12	39
								1010003-032	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/28/2004	6	0.3	0.12	86
								1010003-034	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/2/2010	12	0.28	0.18	42
								1010003-036	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	5/29/2003	4	0.36	0.14	80
								1010003-037	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/15/2010	37	0.86	0.54	37
								1010003-044	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	3/19/2007	21	0.3	0.18	49
								1010003-048	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	12/11/2003	3	0.43	0.11	67
								1010003-064	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/15/2010	33	2.7	0.79	33
								1010003-068	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	2/11/2004	5	0.31	0.10	55
FRESNO	Auberry CDP	MARY LOU MOBILE HOME PARK	1000265	100% GW	70	2	2	1000265-001	Gross alpha particle activity	15	pCi/L	11/19/2006	3	25	13.80	9
								1000265-002	Gross alpha particle activity	15	pCi/L	12/2/2009	3	24	14.29	7
								1000265-001	Uranium	30	ug/L	9/18/2007	7	33.8	22.24	5
FRESNO	Bowles CDP	MANNING GARDENS CONVALESCENT	1000324	100% GW	59	1	1	1000324-001	Gross alpha particle activity	15	pCi/L	5/14/2008	2	20	14.48	5
FRESNO	Caruthers CDP	CARUTHERS COMM SERV DIST	1010039	100% GW	2103	4	3	1010039-001	Arsenic	10	ug/L	10/11/2010	13	28	23.92	13
								1010039-004	Arsenic	10	ug/L	10/11/2010	13	22	20.08	13
								1010039-005	Arsenic	10	ug/L	10/11/2010	17	14.5	13.12	17
FRESNO	City of Fresno	RAU DAIRY	1009120	100% GW	80	1	1	1009120-001	Arsenic	10	ug/L	4/30/2010	2	14	8.67	3
FRESNO	City of Auberry	MEADOW LAKES CLUB	1000056	100% GW	85	2	1	1000056-004	Gross alpha particle activity	15	pCi/L	6/24/2009	9	67	23.56	12
								1000056-004	Uranium	20	pCi/L	7/27/2010	8	64	23.74	14
FRESNO	City of Auberry	PG&E HELMS SUPPORT FACILITY	1000472	100% GW	36	1	1	1000472-001	Arsenic	10	ug/L	7/7/2010	9	41	38.33	9
FRESNO	City of Dunlap	KINGS CANYON MOBILE HOME PARK	1000267	100% GW	200	3	1	1000267-004	Gross alpha particle activity	15	pCi/L	12/7/2009	2	20	14.19	3
FRESNO	City of Fresno	BAR 20 PARTNER	1000079	100% GW	60	1	1	1000079-022	Arsenic	10	ug/L	2/25/2010	2	14	11.07	3
FRESNO	Auberry CDP	FCWWD #40/SHAVER SPRINGS	1000042	100% GW	172	2	2	1000042-016	Arsenic	10	ug/L	6/10/2010	3	52	13.70	11
								1000042-002	Gross alpha particle activity	15	pCi/L	3/25/2010	11	197	39.20	13

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								1000042-016	Gross alpha particle activity	15	pCi/L	6/23/2010	15	97.8	30.93	16
								1000042-002	Uranium	20	pCi/L	12/30/2008	5	91.4	24.72	11
								1000042-016	Uranium	20	pCi/L	6/10/2010	8	67.3	25.45	12
FRESNO	City of Fresno	FCWWD #42/ALLUVIAL & FANCHER	1000078	100% GW	255	4	1	1000078-001	Nitrate (as NO3)	45	mg/L	4/8/2010	8	54	43.19	21
FRESNO	City of Fresno	CAMDEN TRAILER PARK	1000238	100% GW	90	1	1	1000238-023	Arsenic	10	ug/L	7/12/2010	5	35	31.90	5
FRESNO	City of Fresno	DOUBLE L MOBILE RANCH PARK	1000248	100% GW	80	1	1	1000248-001	Gross alpha particle activity	15	pCi/L	6/23/2010	3	24.5	21.83	3
FRESNO	City of Fresno	SUNNYSIDE CONVALESCENT HOSP	1000366	100% GW	116	1	1	1000366-001	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	1/26/2004	2	0.4	0.19	6
								1000366-001	Nitrate (as NO3)	45	mg/L	7/26/2010	2	50	31.11	9
FRESNO	City of Hanford	LINDA VISTA FARMS	1000445	100% GW	61	1	1	1000445-001	Gross alpha particle activity	15	pCi/L	10/13/2010	8	38.2	26.08	9
								1000445-001	Uranium	20	pCi/L	10/13/2010	5	30	21.51	9
FRESNO	City of Kerman	MURRIETA/HERNANDEZ FARMS	1000585	100% GW	4	1	1	1000585-001	Nitrate (as NO3)	45	mg/L	12/7/2009	2	350	340.00	2
FRESNO	City of Laton	ZONNEVELD DAIRY	1000369	100% GW	141	2	2	1000369-002	Arsenic	10	ug/L	9/22/2010	7	70	39.57	7
								1000369-023	Arsenic	10	ug/L	10/20/2010	9	27	23.56	9
								1000369-023	Gross alpha particle activity	15	pCi/L	11/10/2009	2	16.4	13.65	6
FRESNO	Lanare CDP	LANARE COMMUNITY SERVICES DIST	1000053	100% GW	400	2	1	1000053-001	Arsenic	10	ug/L	10/21/2010	2	31.9	28.20	2
FRESNO	Malaga CDP	MALAGA COUNTY WATER DISTRICT	1010042	100% GW	900	4	1	1010042-001	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/29/2010	4	0.4	0.32	4
FRESNO	Undetermined	WATERTEK-METROPOLITAN	1000057	100% GW	60	1	1	1000057-001	Gross alpha particle activity	15	pCi/L	6/20/2005	2	15.6	11.80	7
GLENN	City of Clovis	SHADY OAKS MOBILE HOME PARK	2000828	100% GW	40	2	2	2000828-001	Gross alpha particle activity	15	pCi/L	12/17/2008	2	337	123.20	3
								2000828-002	Gross alpha particle activity	15	pCi/L	12/17/2008	2	470	409.00	2
								2000828-001	Uranium	20	pCi/L	4/2/2010	2	224	63.12	5
								2000828-002	Uranium	20	pCi/L	4/2/2010	4	354	238.00	4
GLENN	City of Willows	WILLOW GLENN MOBILE H.P.	1100237	100% GW	150	2	1	1100237-001	Nitrate (as NO3)	45	mg/L	5/3/2010	6	48.3	36.31	36
INYO	City of Death Valley	NPS - DVNM - COW CR/NEVARES	1410503	100% GW	125	1	1	1410503-002	Fluoride	2	mg/L	11/3/2010	15	3.3	3.05	15
INYO	City of Death Valley	NPS - DEATH VALLEY, GRAPEVINE RS	1410504	100% GW	4	1	1	1410504-001	Arsenic	10	ug/L	6/9/2008	2	34	31.00	2
INYO	City of Keeler	Keeler Community Service District	1400036	100% GW	180	1	1	1400036-001	Arsenic	10	ug/L	10/4/2010	7	102	74.00	7
INYO	Dixon Lane-Meadow Creek CDP	Wilson Circle Mutual Water Company	1400135	100% GW	100	3	1	1400135-001	Gross alpha particle activity	15	pCi/L	10/15/2005	5	76.6	30.32	5
								1400135-001	Uranium	20	pCi/L	10/15/2005	4	32.8	32.80	4
INYO	Lone Pine CDP	Foothill Lone Pine Mobile Home Park, LLC	1400037	100% GW	100	1	1	1400037-001	Arsenic	10	ug/L	7/21/2010	26	120	53.63	27
								1400037-001	Gross alpha particle activity	15	pCi/L	7/21/2010	15	41.4	24.22	18
								1400037-001	Uranium	20	pCi/L	9/1/2009	11	36.1	24.33	18
INYO	Mesa CDP	Control Gorge Power Plant	1400155	100% GW	36	1	1	1400155-001	Arsenic	10	ug/L	2/17/2009	6	41	31.74	6
INYO	Round Valley CDP	Pine Creek Village	1400006	100% GW	350	2	1	1400006-002	Gross alpha particle activity	15	pCi/L	11/11/2010	10	31.2	19.59	13
								1400006-002	Uranium	20	pCi/L	8/18/2009	5	32.1	17.86	13
INYO	Wilkerson CDP	Sierra North Community Service District	1400109	100% GW	28	1	1	1400109-001	Fluoride	2	mg/L	3/18/2008	3	2.2	1.99	9
KERN COUNTY	Arvin city	ARVIN COMMUNITY SERVICES DIST	1510001	100% GW	11847	6	5	1510001-001	Arsenic	10	ug/L	7/14/2010	30	53	27.71	30
								1510001-005	Arsenic	10	ug/L	7/14/2010	21	56	29.53	22
								1510001-006	Arsenic	10	ug/L	7/14/2010	12	32	20.25	12
								1510001-009	Arsenic	10	ug/L	7/14/2010	17	53	23.45	19
								1510001-010	Arsenic	10	ug/L	10/7/2009	14	29	18.57	13
								1510001-009	Benzene	1	ug/L	8/20/2009	22	18	3.79	33
								1510001-010	Nitrate (as NO3)	45	mg/L	10/7/2009	12	58	36.56	40
								1510001-010	Tetrachloroethylene (PCE)	5	ug/L	6/13/2002	3	5.7	3.32	28

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KERN COUNTY	Bakersfield city	CWS - NORTH GARDEN	1510055	100% GW			1	1510055-005	Nitrate (as NO3)	45	mg/L	9/20/2010	66	53	42.99	174
KERN COUNTY	Bakersfield city, Greenacres CDP, Rosedale CDP	VAUGHN WC INC F	1510029	100% GW	28100	12	2	1510029-016	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/23/2010	98	1.53	0.61	103
								1510029-009	Arsenic	10	ug/L	9/8/2009	8	13	9.03	21
								1510029-009	Ethylene dibromide (EDB)	0.05	ug/L	2/13/2007	32	0.19	0.05	104
								1510029-016	Nitrate (as NO3)	45	mg/L	1/3/2005	2	50.7	33.16	104
KERN COUNTY	Bakersfield city, Greenfield CDP	GREENFIELD COUNTY WD	1510024	100% GW	6500	5	3	1510024-003	Arsenic	10	ug/L	2/3/2009	2	12	9.31	8
								1510024-004	Arsenic	10	ug/L	5/17/2010	9	13	10.53	10
								1510024-009	Arsenic	10	ug/L	7/26/2010	6	12	9.98	11
								1510024-003	Gross alpha particle activity	15	pCi/L	8/7/2007	2	17.9	13.71	6
KERN COUNTY	Bear Valley Springs CDP	BEAR VALLEY CSD F	1510038	100% GW	7534	23	3	1510038-033	Gross alpha particle activity	15	pCi/L	9/17/2007	5	28.4	17.13	7
								1510038-034	Gross alpha particle activity	15	pCi/L	12/16/2009	3	35	11.47	9
								1510038-040	Nitrate (as NO3)	45	mg/L	9/17/2007	5	62	39.17	19
KERN COUNTY	Bodfish CDP	CWS - UPPER BODFISH WATER SYSTEM	1510026	100% GW	784	2	2	1510026-004	Arsenic	10	ug/L	8/17/2010	8	20	12.94	11
								1510026-005	Arsenic	10	ug/L	8/17/2010	11	51.001	39.38	11
								1510026-005	Fluoride	2	mg/L	8/4/2010	12	2.5	2.29	13
								1510026-004	Gross alpha particle activity	15	pCi/L	8/17/2010	7	27	21.00	9
								1510026-004	Uranium	20	pCi/L	11/16/2009	6	32.037	20.97	13
KERN COUNTY	Bodfish CDP	CWS - LOWER BODFISH WATER SYSTEM	1510056	100% GW	1618	4	2	1510056-008	Arsenic	10	ug/L	10/13/2010	30	14.743	12.79	33
								1510056-022	Arsenic	10	ug/L	10/13/2010	9	17.714	9.28	27
KERN COUNTY	China Lake Acres CDP, Ridgecrest city	INDIAN WELLS VALLEY W.D.	1510017	100% GW	30000	10	4	1510017-014	Arsenic	10	ug/L	9/20/2005	7	20	12.60	8
								1510017-015	Arsenic	10	ug/L	5/18/2010	6	13	9.74	18
								1510017-017	Arsenic	10	ug/L	11/2/2010	20	25	14.94	20
								1510017-036	Arsenic	10	ug/L	11/2/2010	42	46	26.31	42
KERN COUNTY	City of Bakersfield	SOUTH KERN MUTUAL WATER COMPANY	1500344	100% GW	32	1	1	1500344-001	Gross alpha particle activity	15	pCi/L	3/6/2007	4	20.6	18.01	5
								1500344-001	Uranium	20	pCi/L	7/11/2006	2	25.9	22.42	3
KERN COUNTY	City of Bakersfield	SEVENTH STANDARD MUTUAL	1500373	100% GW	66	1	1	1500373-002	Nitrate (as NO3)	45	mg/L	4/23/2010	11	79	47.22	15
KERN COUNTY	City of Bakersfield	ENOS LANE PUBLIC UTILITY DISTRICT	1500544	100% GW	270	2	2	1500544-002	Arsenic	10	ug/L	5/11/2010	3	16	10.45	6
								1500544-001	Nitrate (as NO3)	45	mg/L	8/14/2007	3	55.4	27.26	18
KERN COUNTY	City of Bakersfield	ROUND MOUNTAIN WATER COMPANY	1500561	100% GW	50	2	1	1500561-002	Gross alpha particle activity	15	pCi/L	10/26/2010	4	27.1	19.42	6
								1500561-002	Uranium	20	pCi/L	10/26/2010	7	28.8	20.92	13
KERN COUNTY	City of Bakersfield	SAN JOAQUIN ESTATES MUTUAL	1500575	100% GW	165	1	1	1500575-001	Nitrate (as NO3)	45	mg/L	8/17/2010	17	89	49.34	25
KERN COUNTY	City of Bakersfield	OASIS PROPERTY OWNERS ASSOCIATION	1500585	100% GW	100	1	1	1500585-003	Arsenic	10	ug/L	7/21/2009	3	13	9.88	14
KERN COUNTY	City of Bakersfield	SON SHINE PROPERTIES	1500588	100% GW	500	1	1	1500588-002	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/12/2010	13	1.2	0.67	14
								1500588-002	Nitrate (as NO3)	45	mg/L	1/26/2010	4	62	30.94	35
KERN COUNTY	City of Delano	KERN VALLEY STATE PRISON	1510802	100% GW	6546	2	2	1510802-001	Arsenic	10	ug/L	10/5/2010	15	23	15.08	17
								1510802-002	Arsenic	10	ug/L	10/5/2010	18	24	20.83	18
								1510802-001	Nitrite (as N)	1000	mg/L	10/5/2010	8	7600	1027.85	23
								1510802-002	Nitrite (as N)	1000	mg/L	10/5/2010	17	1600	1081.72	24
KERN COUNTY	City of Lost Hills	LOST HILLS UTILITY DISTRICT	1510046	100% GW	2772	2	2	1510046-002	Arsenic	10	ug/L	4/24/2007	12	48	16.68	26
								1510046-003	Arsenic	10	ug/L	4/12/2010	22	51	29.89	23
KERN COUNTY	City of Rosamond	WILLIAM FISHER MEMORIAL WATER COMPANY	1500455	100% GW	51	1	1	1500455-003	Arsenic	10	ug/L	11/9/2010	14	20	16.52	15
KERN COUNTY	City of Taft	WEST KERN WATER DISTRICT	1510022	100% GW	16630	11	3	1510022-001	Arsenic	10	ug/L	10/6/2010	14	14	10.77	19
								1510022-004	Gross alpha particle activity	15	pCi/L	9/30/2009	6	30.3	15.36	13
								1510022-005	Gross alpha particle activity	15	pCi/L	5/13/2008	4	25.8	18.93	6
								1510022-004	Uranium	20	pCi/L	12/9/2008	3	28.8	15.17	13
								1510022-005	Uranium	20	pCi/L	4/20/2005	2	26	18.00	6
KERN COUNTY	City of Tehachapi	WILSON ROAD WATER COMMUNITY	1500494	100% GW	72	1	1	1500494-001	Nitrate (as NO3)	45	mg/L	8/9/2010	5	58	33.10	12

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KERN COUNTY	City of Tehachapi	PINON HILL WATER COMPANY	1500540	100% GW	80	1	1	1500540-001	Arsenic	10	ug/L	11/9/2010	15	15	12.48	18
KERN COUNTY	City of Tehachapi	FAIRVIEW WATER COMPANY, LLC	1502670	100% GW	100	2	1	1502670-001	Perchlorate	6	ug/L	5/7/2009	4	9.1	4.19	20
KERN COUNTY	Delano city	DELANO, CITY OF	1510005	100% GW	53855	11	9	1510005-004	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	7/13/2010	6	0.28	0.15	32
								1510005-004	Arsenic	10	ug/L	10/5/2010	17	19	13.72	18
								1510005-012	Arsenic	10	ug/L	10/5/2010	23	25	18.78	23
								1510005-016	Arsenic	10	ug/L	10/5/2010	20	25	15.96	23
								1510005-017	Arsenic	10	ug/L	4/13/2010	8	25	10.10	23
								1510005-018	Arsenic	10	ug/L	10/19/2010	19	37	21.15	20
								1510005-019	Arsenic	10	ug/L	10/21/2010	30	56	27.77	30
								1510005-020	Arsenic	10	ug/L	10/19/2010	40	54	33.80	40
								1510005-021	Arsenic	10	ug/L	10/5/2010	23	33	23.70	23
								1510005-031	Arsenic	10	ug/L	10/5/2010	24	28	19.13	24
KERN COUNTY	Frazier Park CDP	FRAZIER PARK PUD	1510007	100% GW	2348	5	1	1510007-004	Gross alpha particle activity	15	pCi/L	2/11/2010	4	23.1	12.94	7
KERN COUNTY	Fuller Acres CDP	FULLER ACRES MUTUAL WATER COMPANY	1500296	100% GW	640	2	1	1500296-002	Arsenic	10	ug/L	10/26/2005	2	13	8.64	5
KERN COUNTY	Golden Hills CDP, Lake Isabella CDP	GOLDEN HILLS CSD	1510045	100% GW	7434	12	3	1510045-011	Arsenic	10	ug/L	11/2/2010	9	21	11.64	11
								1510045-001	Tetrachloroethylene (PCE)	5	ug/L	8/4/2010	2	6.2	4.93	6
								1510045-006	Tetrachloroethylene (PCE)	5	ug/L	3/18/2010	2	6.4	2.81	14
KERN COUNTY	Inyokern CDP	CHINA LAKE NAVAL AIR WEAPONS STATION	1510703	100% GW	4500	14	1	1510703-018	Arsenic	10	ug/L	12/16/2009	2	12	11.50	2
KERN COUNTY	Keene CDP	VALLEY VIEW ESTATES MUTUAL WATER CO	1500569	100% GW	82	5	1	1500569-004	Nitrate (as NO3)	45	mg/L	7/3/2008	15	106	45.65	37
KERN COUNTY	Keene CDP, Tehachapi city	UNION PACIFIC RAILROAD COMPANY	1500371	100% GW	147	4	3	1500371-002	Fluoride	2	mg/L	4/27/2006	19	5.6	3.98	20
								1500371-010	Fluoride	2	mg/L	10/20/2009	6	5.5	2.13	14
								1500371-012	Fluoride	2	mg/L	12/17/2009	10	6.3	4.29	12
KERN COUNTY	Lake Isabella CDP	CWS - LAKELAND	1510049	100% GW	683	3	3	1510049-008	Antimony	6	ug/L	10/13/2010	23	22.3	17.06	23
								1510049-008	Arsenic	10	ug/L	10/13/2010	15	18	14.47	15
								1510049-003	Fluoride	2	mg/L	11/3/2010	26	3.47	3.31	26
								1510049-004	Fluoride	2	mg/L	10/19/2010	29	6.9	4.20	29
								1510049-008	Fluoride	2	mg/L	10/19/2010	29	6.6	6.18	29
								1510049-003	Gross alpha particle activity	15	pCi/L	7/8/2009	4	19.4	14.70	9
								1510049-004	Gross alpha particle activity	15	pCi/L	10/13/2010	17	32.7	18.88	24
								1510049-008	Gross alpha particle activity	15	pCi/L	10/13/2010	23	52.7	34.91	23
								1510049-003	Nitrate (as NO3)	45	mg/L	11/3/2010	68	220	80.68	67
								1510049-004	Uranium	20	pCi/L	1/12/2010	20	30	22.61	24
KERN COUNTY	Lamont CDP, Weedpatch CDP	LAMONT PUBLIC UTILITY DIST	1510012	100% GW	13296	7	2	1510012-006	Arsenic	10	ug/L	1/27/2010	7	50	12.47	18
								1510012-010	Arsenic	10	ug/L	5/12/2008	3	11	9.49	15
KERN COUNTY	Lebec CDP	KRISTA MUTUAL WATER COMPANY	1500475	100% GW	455	1	1	1500475-001	Fluoride	2	mg/L	7/1/2009	5	2.2	2.01	14
KERN COUNTY	McFarland city	CITY OF MCFARLAND	1510013	100% GW	12138	3	1	1510013-011	Arsenic	10	ug/L	8/11/2009	7	16	12.88	8
KERN COUNTY	Mountain Mesa CDP	MOUNTAIN MESA WC	1510042	100% GW	1126	3	2	1510042-001	Arsenic	10	ug/L	8/16/2010	24	20.912	14.78	25
								1510042-002	Arsenic	10	ug/L	8/16/2010	20	13	10.11	33
								1510042-001	Nitrate (as NO3)	45	mg/L	10/12/2010	31	55.135	40.95	71
KERN COUNTY	North Edwards CDP	NORTH EDWARDS WD	1510052	100% GW	650	2	1	1510052-002	Arsenic	10	ug/L	9/15/2010	16	42	35.31	15
								1510052-002	Gross alpha particle activity	15	pCi/L	5/25/2010	6	19	15.72	10
KERN COUNTY	Rosamond CDP	ROSAMOND MOBILEHOME PARK	1502232	100% GW	50	1	1	1502232-001	Gross alpha particle activity	15	pCi/L	10/18/2010	14	42.6	28.07	16
								1502232-001	Uranium	20	pCi/L	10/18/2010	15	33	29.73	15
KERN COUNTY	Rosedale CDP	MAHER MUTUAL WATER COMPANY	1500378	100% GW	150	1	1	1500378-001	Arsenic	10	ug/L	9/21/2010	8	24	21.25	8
KERN COUNTY	Rosedale CDP	BROCK MUTUAL WATER COMPANY	1500409	100% GW	500	2	1	1500409-002	Nitrate (as NO3)	45	mg/L	11/14/2008	2	63	28.16	22
KERN COUNTY	Rosedale CDP	GOOSELAKE WATER COMPANY	1500584	100% GW	80	1	1	1500584-001	Gross alpha particle activity	15	pCi/L	10/16/2009	3	26.9	15.75	6
								1500584-001	Nitrate (as NO3)	45	mg/L	12/19/2008	2	55	30.42	31
KERN COUNTY	Stallion Springs CDP	STALLION SPRINGS CSD	1510025	100% GW	4500	7	1	1510025-016	Nitrate (as NO3)	45	mg/L	3/26/2007	5	62	26.28	130
								1510025-016	Perchlorate	6	ug/L	5/20/2009	3	34	4.89	120

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KERN COUNTY	Tehachapi city	TEHACHAPI, CITY OF	1510020	100% GW	7218	6	2	1510020-001	Nitrate (as NO3)	45	mg/L	3/17/2010	2	47	39.31	31
								1510020-002	Nitrate (as NO3)	45	mg/L	11/29/2006	3	54	37.67	54
KERN COUNTY	Southlake	Southlake	1510039	100% GW	2957	4	1	1510039-008	Gross alpha particle activity	15	pCi/L	3/37/2009	4	24	16.50	6
KERN COUNTY	Wasco city	WASCO, CITY OF	1510021	100% GW	19448	8	3	1510021-007	Nitrate (as NO3)	45	mg/L	6/2/2010	4	62.8	39.99	41
								1510021-008	Nitrate (as NO3)	45	mg/L	12/11/2007	6	56	30.90	42
								1510021-009	Nitrate (as NO3)	45	mg/L	9/13/2005	10	58.8	26.49	100
KERN COUNTY	Weldon CDP	RAINBIRD VALLEY MUTUAL WATER COMPANY	1500393	100% GW	188	1	1	1500393-001	Gross alpha particle activity	15	pCi/L	11/20/2008	2	49.8	47.25	2
								1500393-001	Uranium	20	pCi/L	12/8/2009	6	60	45.67	6
KERN COUNTY	Weldon CDP	TRADEWIND WATER ASSOC.	1500406	100% GW	500	2	2	1500406-002	Gross alpha particle activity	15	pCi/L	5/20/2008	4	18.7	15.54	5
								1500406-003	Gross alpha particle activity	15	pCi/L	9/18/2008	4	21.5	19.10	4
								1500406-002	Uranium	20	pCi/L	9/18/2008	2	26.8	21.60	3
KERN COUNTY	Bakersfield city	BAKERSFIELD, CITY OF	1510031	100% GW	147999	59	5	1510031-038	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	1/7/2008	47	0.41	0.20	93
								1510031-005	Arsenic	10	ug/L	10/6/2010	3	10.746	7.56	19
								1510031-048	Arsenic	10	ug/L	10/14/2009	7	15	10.28	16
								1510031-102	Arsenic	10	ug/L	10/6/2010	2	14.835	4.06	14
								1510031-103	Arsenic	10	ug/L	12/5/2007	4	12.18	6.26	27
KERN COUNTY	Boron CDP	BORON CSD	1510002	>50% GW Mixed	2500	1	1	1510002-002	Arsenic	10	ug/L	10/6/2010	58	90	69.93	58
KERN COUNTY	Edwards AFB CDP	EDWARDS AFB - MAIN BASE	1510701	>50% GW Mixed	12733	8	6	1510701-010	Arsenic	10	ug/L	10/7/2008	10	18.2	10.10	26
								1510701-011	Arsenic	10	ug/L	4/20/2005	4	22.2	9.26	19
								1510701-013	Arsenic	10	ug/L	8/18/2010	10	13	9.90	22
								1510701-014	Arsenic	10	ug/L	10/18/2010	15	13.7	10.11	28
								1510701-015	Arsenic	10	ug/L	10/18/2010	10	16.9	10.48	21
								1510701-017	Arsenic	10	ug/L	8/18/2010	19	21	12.69	21
KERN COUNTY	Kernville CDP, Wofford Heights CDP	CAL WATER SERVICE CO-KERNVILLE SYSTEM	1510033	>50% GW Mixed	5029	13	7	1510033-012	Fluoride	2	mg/L	7/16/2008	8	2.9	0.91	40
								1510033-014	Fluoride	2	mg/L	10/19/2010	35	3.15	2.38	39
								1510033-017	Fluoride	2	mg/L	7/27/2010	35	6.79	5.62	32
								1510033-043	Fluoride	2	mg/L	8/3/2010	97	2.91	2.53	98
								1510033-008	Gross alpha particle activity	15	pCi/L	1/13/2009	4	25	11.54	13
								1510033-056	Gross alpha particle activity	15	pCi/L	6/20/2006	5	25.8	15.79	9
								1510033-008	Uranium	20	pCi/L	7/27/2010	5	36.274	12.93	15
								1510033-056	Uranium	20	pCi/L	10/14/2003	3	22.75	14.53	13
KERN COUNTY	Wofford Heights CDP	CWS-SPLIT MOUNTAIN WATER SYSTEM	1500407	>50% GW Mixed	501	2	1	1500407-007	Arsenic	10	ug/L	5/26/2004	2	27	7.49	12
KERN COUNTY	Edwards	EDGEMONT ACRES MUTUAL WATER COMPANY	1500290	Mixed <50%GW	400	2	2	1500290-001	Arsenic	10	ug/L	4/14/2009	4	220	190	4
								1500290-003	Arsenic	10	ug/L	4/5/2010	3	260	243.333333	3
KERN COUNTY	Mojave	MOJAVE PUD	1510014	Mixed <50%GW	4000	5	2	1510014-004	Arsenic	10	ug/L	9/1/2010	13	18	15	13
								1510014-015	Arsenic	10	ug/L	9/1/2010	13	15	11.18	13
KERN COUNTY	Oildale	OILDALE MWC	1510015	Mixed <50%GW	26000	6	2	1510015-009	Gross alpha particle activity	15	pCi/L	10/11/2010	8	25.4	14.7258333	8
								1510015-010	Gross alpha particle activity	15	pCi/L	9/21/2009	2	24.2	12.305	2
								1510015-010	Tetrachloroethylene (PCE)	5	ug/L	5/24/2010	3	5.3	3.6375	3
KERN COUNTY	Rosamond	ROSAMOND CSD	1510018	Mixed <50%GW	11605	3	1	1510018-009	Arsenic	10	ug/L	8/24/2010	10	12	10.0565217	10
KERN COUNTY	Desert Lake	DESERT LAKE COMM SERV DIST	1510027	Mixed <50%GW	600	1	1	1510027-002	Arsenic	10	ug/L	9/15/2010	11	88	46.5454545	11
								1510027-002	Gross alpha particle activity	15	pCi/L	5/25/2010	3	20.5	15.445	3
KERN COUNTY	Bakersfield city	CWS - BAKERSFIELD	1510003	Undetermined			3	1510003-100	Arsenic	10	ug/L	1/22/2007	2	12	6.29	31
								1510003-103	Arsenic	10	ug/L	9/20/2010	31	19.19	12.70	41
								1510003-114	Trichloroethylene (TCE)	5	ug/L	10/13/2010	28	9.8	4.28	75
KERN COUNTY	Bakersfield city	EAST NILES CSD	1510006	Undetermined	25500	7	5	1510006-005	Arsenic	10	ug/L	8/26/2009	11	45	24.55	11
								1510006-006	Arsenic	10	ug/L	9/2/2010	10	11	9.78	21
								1510006-010	Arsenic	10	ug/L	11/2/2010	21	47	31.43	21
								1510006-024	Arsenic	10	ug/L	2/9/2010	3	13	7.20	21
								1510006-029	Arsenic	10	ug/L	11/1/2010	45	78	23.44	49
KERN COUNTY	Bakersfield	QUAIL VALLEY WATER DIST-WESTSIDE SYSTEM	1503226	100% GW	60	2	1	1503226-001	Antimony	6	ug/L	9/27/2010	13	13	9.95	13
								1503226-001	Fluoride	2	mg/L	9/27/2010	12	29	7.85	13
KERN COUNTY	Arvin city	ARVIN COMMUNITY SERVICES DIST	1510001	100% GW	11847	6	1	1510001-016	Arsenic	10	ug/L	7/14/2010	6	15	12.63	8

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KERN COUNTY	Bakersfield	FOURTH STREET WATER SYSTEM	1500449	100% GW	25	2	2	1500449-001	Arsenic	10	ug/L	7/2/2010	6	18	14.50	6
								1500449-002	Arsenic	10	ug/L	7/2/2010	12	23	14.33	12
KERN COUNTY	Bakersfield city	CASA LOMA WATER CO, INC.	1510004	100% GW	600	3	1	1510004-003	Tetrachloroethylene (PCE)	5	ug/L	3/11/2002	2	9.1	2.37	26
KERN COUNTY	Bear Valley Springs CDP	BEAR VALLEY CSD F	1510038	100% GW	7534	23	2	1510038-031	Gross alpha particle activity	15	pCi/L	12/5/2007	6	30	18.99	8
								1510038-004	Nitrate (as NO3)	45	mg/L	6/1/2007	2	50.9	31.13	24
KERN COUNTY	City of Bakersfield	OLD RIVER MUTUAL WATER COMPANY	1500096	100% GW	60	1	1	1500096-001	Gross alpha particle activity	15	pCi/L	1/31/2008	2	19	17.40	2
								1500096-001	Uranium	20	pCi/L	10/29/2010	9	52	29.12	9
KERN COUNTY	City of Bakersfield	EL ADOBE POA, INC.	1500493	100% GW	200	2	2	1500493-001	Arsenic	10	ug/L	4/19/2010	3	21	9.13	10
								1500493-002	Arsenic	10	ug/L	10/12/2010	11	24	20.40	12
KERN COUNTY	City of Bakersfield	ROUND MOUNTAIN WATER COMPANY	1500561	100% GW	50	2	1	1500561-001	Gross alpha particle activity	15	pCi/L	10/26/2010	8	50.1	39.71	7
								1500561-001	Uranium	20	pCi/L	10/26/2010	21	64.4	36.09	21
KERN COUNTY	City of Bakersfield	WHEELER FARMS HEADQUARTERS	1502017	100% GW	25	1	1	1502017-001	Nitrate (as NO3)	45	mg/L	10/5/2010	35	160	122.19	36
KERN COUNTY	City of Bakersfield	PANAMA ROAD PROPERTY OWNERS ASSOC	1502465	100% GW	50	1	1	1502465-002	Arsenic	10	ug/L	3/19/2008	4	13	9.54	14
KERN COUNTY	City of Bakersfield	DEL SOL WATER CO-OP	1502597	100% GW	25	1	1	1502597-001	Gross alpha particle activity	15	pCi/L	12/6/2007	7	26.9	22.00	7
								1502597-001	Uranium	20	pCi/L	6/8/2010	4	24.8	19.80	11
KERN COUNTY	City of Bakersfield	GOSFORD ROAD WATER COMPANY	1502622	100% GW	52	2	1	1502622-001	Arsenic	10	ug/L	7/1/2010	10	14	12.16	11
KERN COUNTY	City of Bakersfield	EAST WILSON ROAD WATER COMPANY	1502699	100% GW	35	1	1	1502699-001	Nitrate (as NO3)	45	mg/L	10/12/2010	25	120	69.80	25
KERN COUNTY	City of Bakersfield	QUAIL VALLEY WATER DIST-EASTSIDE SYSTEM	1502724	100% GW	60	2	2	1502724-001	Arsenic	10	ug/L	9/27/2010	15	120	87.80	15
								1502724-002	Arsenic	10	ug/L	9/27/2010	11	70	56.45	11
KERN COUNTY	City of Frazier Park	PINON PINES MWC	1510054	100% GW	740	4	2	1510054-004	Arsenic	10	ug/L	11/1/2010	6	18	11.66	9
								1510054-006	Fluoride	2	mg/L	6/18/2010	20	3.9	3.23	20
KERN COUNTY	City of Randsburg	RAND COMMUNITIES CWD - RANDSBURG	1510016	100% GW	931	2	2	1510016-001	Arsenic	10	ug/L	10/4/2010	15	31	22.69	16
								1510016-002	Arsenic	10	ug/L	10/4/2010	8	50	13.48	17
KERN COUNTY	Inyokern CDP	CHINA LAKE NAVAL AIR WEAPONS STATION	1510703	100% GW	4500	14	1	1510703-009	Arsenic	10	ug/L	5/20/2009	3	40	31.33	3
KERN COUNTY	Keene CDP	VALLEY VIEW ESTATES MUTUAL WATER CO	1500569	100% GW	82	5	1	1500569-001	Nitrate (as NO3)	45	mg/L	4/13/2009	2	57.6	21.11	30
KERN COUNTY	Lake Isabella CDP	KRVWC - KERNVALE MUTUAL WATER CO	1500364	100% GW	26	1	1	1500364-001	Arsenic	10	ug/L	10/4/2010	11	32	23.75	11
								1500364-001	Gross alpha particle activity	15	pCi/L	7/9/2008	3	32.1	31.60	3
								1500364-001	Uranium	20	pCi/L	10/4/2010	12	37	30.91	13
KERN COUNTY	Lake Isabella CDP	HUNGRY GULCH WATER SYSTEM	1500436	100% GW	37	2	2	1500436-001	Arsenic	10	ug/L	11/10/2010	32	130	83.25	31
								1500436-002	Arsenic	10	ug/L	11/10/2010	29	190	79.21	29
								1500436-002	Gross alpha particle activity	15	pCi/L	8/30/2007	4	23.33	10.08	9
KERN COUNTY	Lake Isabella CDP	BOULDER CANYON WATER ASSOCIATION	1500521	100% GW	29	2	2	1500521-001	Arsenic	10	ug/L	11/10/2010	19	26	16.54	20
								1500521-002	Arsenic	10	ug/L	11/10/2010	19	30	19.82	21
KERN COUNTY	Lebec CDP	TEJON RANCH MAIN HEADQUARTERS	1500413	100% GW	53	1	1	1500413-001	Gross alpha particle activity	15	pCi/L	3/31/2010	2	18.6	14.80	3
KERN COUNTY	Lebec CDP	LEBEC COUNTY WATER DISTRICT	1510051	100% GW	830	3	3	1510051-003	Fluoride	2	mg/L	7/14/2010	7	2.3	2.12	9
								1510051-001	Gross alpha particle activity	15	pCi/L	12/11/2007	2	16.4	11.63	5
								1510051-003	Gross alpha particle activity	15	pCi/L	5/21/2008	4	21.8	16.89	5
KERN COUNTY	McFarland city	CITY OF MCFARLAND	1510013	100% GW	12138	3	2	1510013-014	Arsenic	10	ug/L	9/1/2009	2	11	9.20	5
KERN COUNTY	North Edwards CDP	AERIAL ACRES WATER SYSTEM	1500405	100% GW	120	2	2	1500405-001	Arsenic	10	ug/L	10/4/2010	13	27	23.69	13
								1500405-002	Arsenic	10	ug/L	10/4/2010	13	44	31.23	13
KERN COUNTY	North Edwards CDP	FOUNTAIN TRAILER PARK WATER	1500461	100% GW	68	1	1	1500461-001	Arsenic	10	ug/L	7/28/2010	8	230	101.88	8

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KERN COUNTY	North Edwards CDP	NORTH EDWARDS WD	1510052	100% GW	650	2	1	1510052-001	Arsenic	10	ug/L	9/15/2010	16	39	33.38	16
KERN COUNTY	Onyx CDP	CWS-ONYX WATER SYSTEM	1510043	100% GW	776	2	1	1510043-004	Gross alpha particle activity	15	pCi/L	1/28/2003	2	20.4	11.79	10
								1510043-004	Uranium	20	pCi/L	4/8/2003	2	22.4	15.58	10
KERN COUNTY	Pine Mountain Club CDP	MIL POTRERO MWC	1510028	100% GW	1800	7	1	1510028-007	Arsenic	10	ug/L	10/13/2010	4	28	15.80	6
KERN COUNTY	Rosamond CDP	LANDS OF PROMISE MUTUAL WATER ASSOCIATIO	1500424	100% GW	190	4	4	1500424-003	Arsenic	10	ug/L	7/20/2010	11	20	15.68	11
								1500424-004	Arsenic	10	ug/L	7/20/2010	16	20	15.94	16
								1500424-005	Arsenic	10	ug/L	7/20/2010	14	18	13.15	15
								1500424-006	Arsenic	10	ug/L	7/20/2010	15	18	15.00	15
KERN COUNTY	Rosamond CDP	ROSE VILLA APARTMENTS	1500426	100% GW	100	1	1	1500426-001	Arsenic	10	ug/L	4/8/2010	4	12	10.03	12
KERN COUNTY	Rosamond CDP	LUCKY 18 ON ROSAMOND, LLC	1500571	100% GW	73	2	2	1500571-001	Arsenic	10	ug/L	7/1/2010	10	24	19.70	10
								1500571-002	Arsenic	10	ug/L	7/1/2010	6	33	16.97	10
								1500571-002	Gross alpha particle activity	15	pCi/L	11/19/2007	2	19.7	13.22	4
KERN COUNTY	Rosamond CDP	DESERT BREEZE MOBILE HOME ESTATES	1502247	100% GW	95	1	1	1502247-001	Gross alpha particle activity	15	pCi/L	8/19/2008	3	18.2	15.98	4
KERN COUNTY	Rosamond CDP	FIRST MUTUAL WATER SYSTEM	1502569	100% GW	40	1	1	1502569-001	Arsenic	10	ug/L	11/9/2010	18	18	15.61	18
KERN COUNTY	Rosedale CDP	NORD ROAD WATER ASSOCIATION	1502383	100% GW	39	1	1	1502383-001	Arsenic	10	ug/L	10/15/2010	12	17	15.25	12
KERN COUNTY	Weldon CDP	LAKEVIEW RANCHOS MUTUAL WATER	1500525	100% GW	120	3	2	1500525-002	Arsenic	10	ug/L	11/10/2010	8	96	46.00	9
								1500525-003	Arsenic	10	ug/L	11/10/2010	9	23	17.50	10
								1500525-003	Gross alpha particle activity	15	pCi/L	1/27/2009	6	38.9	22.45	6
KERN COUNTY	Wofford Heights CDP	R.S. MUTUAL WATER COMPANY	1500458	100% GW	25	1	1	1500458-001	Arsenic	10	ug/L	9/3/2010	12	16	11.61	16
								1500458-001	Gross alpha particle activity	15	pCi/L	5/3/2010	7	41.1	27.91	8
								1500458-001	Uranium	20	pCi/L	9/3/2010	24	38	25.39	26
KINGS	City of Leemore	CHARDELLS	1600293	Undetermined			1	1600293-001	Arsenic	10	ug/L	11/3/2008				
KINGS	Armona CDP	ARMONA COMMUNITY SERVICES DIST	1610001	100% GW	3239	2	2	1610001-001	Arsenic	10	ug/L	5/26/2010	6	76	11.79	16
								1610001-007	Arsenic	10	ug/L	10/20/2010	11	114	22.50	19
								1610001-001	Gross alpha particle activity	15	pCi/L	6/10/2009	3	18.5	12.52	11
								1610001-007	Gross alpha particle activity	15	pCi/L	9/26/2007	3	23.7	11.84	12
KINGS	Corcoran city	CORCORAN, CITY OF	1610004	100% GW	25893	9	10	1610004-015	Aluminum	1000	ug/L	3/19/2008	2	1700	1260.00	3
								1610004-016	Aluminum	1000	ug/L	4/13/2009	3	1800	1245.00	4
								1610004-001	Arsenic	10	ug/L	1/30/2008	16	32	17.12	25
								1610004-002	Arsenic	10	ug/L	10/11/2010	35	26	22.37	35
								1610004-003	Arsenic	10	ug/L	10/11/2010	33	25	18.85	33
								1610004-010	Arsenic	10	ug/L	4/13/2009	10	55	28.00	11
								1610004-015	Arsenic	10	ug/L	10/11/2010	27	33	14.84	31
								1610004-016	Arsenic	10	ug/L	10/11/2010	18	20	12.22	31
								1610004-026	Arsenic	10	ug/L	10/11/2010	17	24	19.12	17
								1610004-027	Arsenic	10	ug/L	10/11/2010	17	24	16.59	17
								1610004-028	Arsenic	10	ug/L	7/26/2010	16	28	25.94	16
								1610004-001	Nitrate (as NO3)	45	mg/L	10/11/2010	28	88	35.30	76
KINGS	Home Garden CDP	HOME GARDEN CSD	1610007	100% GW	1750	3	1	1610007-002	Arsenic	10	ug/L	10/13/2010	35	53	22.92	37
KINGS	Kettleman City CDP	KETTLEMAN CITY CSD	1610009	100% GW	1499	2	2	1610009-002	Arsenic	10	ug/L	7/1/2010	12	15.1	12.26	15
								1610009-003	Arsenic	10	ug/L	7/1/2010	14	23.2	17.61	15
								1610009-002	Benzene	1	ug/L	10/6/2010	30	160	64.24	33
								1610009-003	Benzene	1	ug/L	10/6/2010	31	57	11.82	33
KINGS	Lemoore city	LEMOORE, CITY OF	1610005	100% GW	24500	12	6	1610005-003	Arsenic	10	ug/L	11/9/2010	31	22	18.69	32
								1610005-005	Arsenic	10	ug/L	11/9/2010	28	22	15.35	32
								1610005-009	Arsenic	10	ug/L	11/9/2010	33	28	24.30	33
								1610005-010	Arsenic	10	ug/L	3/28/2005	11	21	11.88	21
								1610005-007	Gross alpha particle activity	15	pCi/L	7/11/2008	3	18.29	14.06	7
								1610005-008	Gross alpha particle activity	15	pCi/L	11/19/2002	4	23.99	16.39	6
KINGS	City of Hanford	LACEY COURTS MHP	1600010	100% GW	66	1	1	1600010-001	Arsenic	10	ug/L	10/12/2010	10	26	24.80	10

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KINGS	City of Hanford	EL DORADO MOBILE PARK	1600002	100% GW	300	1	1	1600002-002	Gross alpha particle activity	15	pCi/L	12/5/2007	2	36	21.25	4
KINGS	City of Hanford	FOUR SEASONS MOBILE HOME PARK	1600004	100% GW	350	1	1	1600004-001	Arsenic	10	ug/L	7/13/2010	7	116	97.57	7
KINGS	City of Lemoore	LEMOORE MOBILE HOME PARK	1600031	100% GW	180	1	1	1600031-001	Gross alpha particle activity	15	pCi/L	7/9/2010	2	23.9	15.51	7
KINGS	City of Lemoore	HAMBLIN MUTUAL WATER CO	1600504	100% GW	80	1	1	1600504-001	Arsenic	10	ug/L	7/5/2007	5	50	37.30	5
KINGS	Hanford city	HANFORD, CITY OF	1610003	100% GW	53320	16	7	1610003-025	Arsenic	10	ug/L	3/4/2008	38	17	11.30	55
								1610003-026	Arsenic	10	ug/L	6/2/2004	24	21	11.25	51
								1610003-027	Arsenic	10	ug/L	11/2/2006	32	45	14.68	54
								1610003-028	Arsenic	10	ug/L	9/6/2007	52	35	20.27	58
								1610003-031	Arsenic	10	ug/L	3/2/2004	6	56	9.21	50
								1610003-033	Arsenic	10	ug/L	12/2/2002	2	69	8.83	50
								1610003-034	Arsenic	10	ug/L	12/1/2006	44	78	26.30	51
KINGS	Home Garden CDP	HOME GARDEN CSD	1610007	100% GW	1750	3	1	1610007-004	Arsenic	10	ug/L	8/9/2010	32	110	37.53	34
LAKE	City of Lakeport	CORINTHIAN BAY MUTUAL WATER COMPANY	1700549	100% GW	125	2	1	1700549-001	Nitrate (as NO3)	45	mg/L	3/27/2003	2	48	15.14	7
LAKE	City of Lower Lake	SUNRISE SHORE MUTUAL WATER COMPANY	1700536	100% GW	45	1	1	1700536-004	Aluminum	1000	ug/L	8/31/2010	3	1300	538.96	25
LAKE	Upper Lake CDP	CAL 20 VILLAGE	1700595	100% GW	150	2	1	1700595-001	Methyl tertiary butyl ether (MTBE)	13	ug/L	11/10/2010	26	27	14.03	40
LASSEN	Herlong CDP	SIERRA ARMY DEPOT-HERLONG	1810700	100% GW	1500	3	1	1810700-003	Gross alpha particle activity	15	pCi/L	1/13/2009	5	41.6	20.37	9
								1810700-003	Uranium	20	pCi/L	11/29/2007	3	23.8	23.68	3
LASSEN	Susanville city	HIGH DESERT STATE PRISON	1805004	100% GW	10950	7	4	1805004-003	Arsenic	10	ug/L	4/29/2008	5	15	8.85	17
								1805004-004	Arsenic	10	ug/L	12/22/2008	18	39	28.56	18
								1805004-005	Arsenic	10	ug/L	12/22/2008	17	19	16.53	17
								1805004-009	Arsenic	10	ug/L	11/25/2008	3	17	8.22	10
LOS ANGELES	Altadena CDP, Pasadena city	KINNELOA IRRIGATION DIST.	1910035	100% GW	1500	7	6	1910035-002	Fluoride	2	mg/L	1/20/2010	53	2.8	2.18	72
								1910035-003	Fluoride	2	mg/L	10/6/2009	8	2.5	1.85	77
								1910035-005	Fluoride	2	mg/L	10/19/2010	77	3.36	2.56	76
								1910035-007	Fluoride	2	mg/L	1/20/2010	26	2.93	2.16	36
								1910035-008	Fluoride	2	mg/L	10/19/2010	71	4.32	3.03	72
								1910035-015	Fluoride	2	mg/L	1/20/2010	32	2.56	1.95	73
LOS ANGELES	Anaheim city, Baldwin Park city, El Monte city, Industry city, North El Monte CDP	CALIFORNIA DOMESTIC WATER COMPANY	1910199	100% GW	1200	7	5	1910199-005	Carbon tetrachloride	0.5	ug/L	11/2/2010	83	4.3	1.14	140
								1910199-006	Carbon tetrachloride	0.5	ug/L	11/2/2010	115	1.9	0.79	139
								1910199-007	Carbon tetrachloride	0.5	ug/L	11/2/2010	130	5.4	2.39	139
								1910199-014	Carbon tetrachloride	0.5	ug/L	2/4/2008	97	4.2	1.87	98
								1910199-005	Nitrate (as NO3)	45	mg/L	5/7/2007	8	48	33.98	142
								1910199-005	Perchlorate	6	ug/L	12/6/2010	71	9.7	6.25	110
								1910199-014	Perchlorate	6	ug/L	12/6/2010	80	13	9.19	80
								1910199-005	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	42	19	4.47	140
								1910199-006	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	60	14.6	4.53	139
								1910199-007	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	85	19	8.14	140
								1910199-008	Tetrachloroethylene (PCE)	5	ug/L	2/2/2009	11	9.8	2.73	139
								1910199-005	Trichloroethylene (TCE)	5	ug/L	11/2/2010	57	29	7.16	140
								1910199-006	Trichloroethylene (TCE)	5	ug/L	11/2/2010	80	19	5.52	139
								1910199-007	Trichloroethylene (TCE)	5	ug/L	11/2/2010	126	27	12.02	140
								1910199-014	Trichloroethylene (TCE)	5	ug/L	2/4/2008	40	8.1	5.02	98
LOS ANGELES	Arcadia city, East Pasadena CDP, Pasadena city	EAST PASADENA WATER CO.	1910020	100% GW	9818	4	2	1910020-004	Carbon tetrachloride	0.5	ug/L	8/16/2004	7	0.97	0.22	93
								1910020-003	Gross alpha particle activity	15	pCi/L	12/22/2009	6	25	16.54	11
								1910020-004	Gross alpha particle activity	15	pCi/L	3/23/2009	4	23	13.91	11
								1910020-004	Nitrate (as NO3)	45	mg/L	12/22/2009	7	56	31.64	93
								1910020-003	Tetrachloroethylene (PCE)	5	ug/L	3/6/2002	2	7.1	3.05	102
								1910020-004	Tetrachloroethylene (PCE)	5	ug/L	2/16/2010	8	17	3.84	93
								1910020-004	Trichloroethylene (TCE)	5	ug/L	8/16/2004	6	9	1.54	92

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LOS ANGELES	Arcadia city, Sierra Madre city	SIERRA MADRE-CITY, WATER DEPT.	1910148	100% GW	10800	5	3	1910148-005	Tetrachloroethylene (PCE)	5	ug/L	5/24/2010	2	5.2	1.96	82
								1910148-006	Tetrachloroethylene (PCE)	5	ug/L	8/17/2004	2	9.4	1.89	81
								1910148-003	Trichloroethylene (TCE)	5	ug/L	12/10/2004	3	6.3	1.05	86
								1910148-005	Trichloroethylene (TCE)	5	ug/L	1/11/2005	4	6.1	1.86	86
								1910148-006	Trichloroethylene (TCE)	5	ug/L	10/5/2009	9	19	3.03	84
LOS ANGELES	Artesia city, Cerritos city, Hawaiian Gardens city, Lakewood city, Los Alamitos city	GSWC - ARTESIA	1910004	100% GW	35376	5	3	1910004-010	Arsenic	10	ug/L	12/8/2010	104	22	15.88	105
								1910004-014	Arsenic	10	ug/L	12/8/2010	99	30	21.32	100
								1910004-031	Arsenic	10	ug/L	12/20/2010	134	35	20.35	134
LOS ANGELES	Avocado Heights CDP, Baldwin Park city, El Monte city, Industry city, La Puente city, Montebello city, Rosemead city, South El Monte city, West Covina city, West Puente Valley CDP, West Whittier-Los Nietos CDP	SAN GABRIEL VALLEY WATER CO.-EL MONTE	1910039	100% GW	162074	35	18	1910039-018	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	12/1/2010	195	43	11.44	250
								1910039-112	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	7/8/2010	5	7.1	4.18	73
								1910039-023	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	8/5/2009	8	0.6	0.15	40
								1910039-026	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	11/9/2010	31	3	1.04	36
								1910039-027	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	11/9/2010	33	3.6	2.06	34
								1910039-112	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	11/9/2010	66	1.5	0.88	73
								1910039-114	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	11/9/2010	79	5.4	2.87	82
								1910039-115	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	11/9/2010	47	4.6	0.82	76
								1910039-023	Carbon tetrachloride	0.5	ug/L	5/7/2009	10	0.62	0.22	50
								1910039-026	Carbon tetrachloride	0.5	ug/L	2/6/2006	11	1.2	0.33	36
								1910039-027	Carbon tetrachloride	0.5	ug/L	11/9/2010	35	8.6	5.45	34
								1910039-069	Carbon tetrachloride	0.5	ug/L	11/1/2010	41	2.2	0.50	59
								1910039-077	Carbon tetrachloride	0.5	ug/L	11/9/2010	38	2.8	2.08	38
								1910039-112	Carbon tetrachloride	0.5	ug/L	11/9/2010	74	4.9	2.93	73
								1910039-113	Carbon tetrachloride	0.5	ug/L	11/9/2010	74	11	7.34	73
								1910039-114	Carbon tetrachloride	0.5	ug/L	11/9/2010	82	12	2.33	82
								1910039-115	Carbon tetrachloride	0.5	ug/L	11/9/2010	81	17	12.04	82
								1910039-112	cis-1,2-Dichloroethylene	6	ug/L	7/8/2010	4	6.5	3.88	73
								1910039-023	Nitrate (as NO3)	45	mg/L	11/9/2010	34	54	48.57	38
								1910039-026	Nitrate (as NO3)	45	mg/L	11/9/2010	33	98	71.83	34
								1910039-112	Nitrate (as NO3)	45	mg/L	11/9/2010	72	100	60.33	71
								1910039-114	Nitrate (as NO3)	45	mg/L	11/9/2010	65	110	52.32	78
								1910039-023	Perchlorate	6	ug/L	11/9/2010	38	15	10.37	39
								1910039-026	Perchlorate	6	ug/L	11/9/2010	36	44.2	28.48	36
								1910039-027	Perchlorate	6	ug/L	11/9/2010	33	88	58.30	33
								1910039-077	Perchlorate	6	ug/L	11/9/2010	36	10	7.67	39
								1910039-112	Perchlorate	6	ug/L	11/9/2010	74	40	31.16	74
								1910039-113	Perchlorate	6	ug/L	11/9/2010	33	9.9	5.01	74
								1910039-114	Perchlorate	6	ug/L	11/9/2010	78	83	58.83	81
								1910039-115	Perchlorate	6	ug/L	11/9/2010	75	86	20.95	81
								1910039-009	Tetrachloroethylene (PCE)	5	ug/L	11/10/2010	246	340	81.44	238
								1910039-010	Tetrachloroethylene (PCE)	5	ug/L	11/10/2010	252	170	44.67	247
								1910039-011	Tetrachloroethylene (PCE)	5	ug/L	11/10/2010	289	78	44.58	280
								1910039-012	Tetrachloroethylene (PCE)	5	ug/L	5/7/2009	78	140	4.08	309
								1910039-014	Tetrachloroethylene (PCE)	5	ug/L	5/1/2008	4	7.6	1.72	129
								1910039-018	Tetrachloroethylene (PCE)	5	ug/L	12/1/2010	217	26	8.41	250
								1910039-027	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	7	6.8	3.37	34
								1910039-029	Tetrachloroethylene (PCE)	5	ug/L	12/1/2010	114	35	8.32	129
								1910039-036	Tetrachloroethylene (PCE)	5	ug/L	11/17/2008	32	7	4.16	101

Table 8.1
List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								1910039-112	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	74	33	20.34	73
								1910039-113	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	37	7.9	4.43	73
								1910039-114	Tetrachloroethylene (PCE)	5	ug/L	6/2/2010	25	6.3	4.56	82
								1910039-018	Trichloroethylene (TCE)	5	ug/L	12/1/2010	157	21	6.90	250
								1910039-023	Trichloroethylene (TCE)	5	ug/L	5/7/2009	10	5.9	4.21	50
								1910039-026	Trichloroethylene (TCE)	5	ug/L	5/6/2010	32	21	9.93	36
								1910039-027	Trichloroethylene (TCE)	5	ug/L	11/9/2010	35	99	54.43	34
								1910039-029	Trichloroethylene (TCE)	5	ug/L	9/2/2010	4	8.2	2.56	129
								1910039-077	Trichloroethylene (TCE)	5	ug/L	11/9/2010	23	8.5	5.42	38
								1910039-112	Trichloroethylene (TCE)	5	ug/L	11/9/2010	74	81	41.08	73
								1910039-113	Trichloroethylene (TCE)	5	ug/L	11/9/2010	60	21	12.40	73
								1910039-114	Trichloroethylene (TCE)	5	ug/L	11/9/2010	80	70	43.59	82
								1910039-115	Trichloroethylene (TCE)	5	ug/L	11/9/2010	75	58	19.72	82
LOS ANGELES	Avocado Heights CDP, Industry city	CITY OF INDUSTRY WATERWORKS SYSTEMS	1910029	100% GW	7000	5	1	1910029-007	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	8/10/2004	2	0.68	0.04	30
								1910029-007	Perchlorate	6	ug/L	11/17/2009	10	10.6	6.26	25
LOS ANGELES	Baldwin Park city, West Covina city, West Puente Valley CDP	LA PUENTE VALLEY CWD	1910060	100% GW	7500	8	3	1910060-002	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	11/1/2010	190	4.7	2.41	189
								1910060-003	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	1/5/2009	198	3.9	1.34	214
								1910060-023	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	9/27/2010	53	2.1	1.12	50
								1910060-002	Carbon tetrachloride	0.5	ug/L	11/1/2010	191	8.5	4.47	189
								1910060-003	Carbon tetrachloride	0.5	ug/L	1/5/2009	191	8.5	1.42	214
								1910060-023	Carbon tetrachloride	0.5	ug/L	9/27/2010	53	2.2	1.17	50
								1910060-002	Perchlorate	6	ug/L	11/1/2010	181	87	52.48	181
								1910060-003	Perchlorate	6	ug/L	11/1/2010	211	74	36.15	209
								1910060-023	Perchlorate	6	ug/L	9/27/2010	48	48	29.85	48
								1910060-002	Trichloroethylene (TCE)	5	ug/L	11/1/2010	191	110	62.85	189
								1910060-003	Trichloroethylene (TCE)	5	ug/L	11/1/2010	207	67	23.64	214
								1910060-023	Trichloroethylene (TCE)	5	ug/L	9/27/2010	53	38	23.55	50
LOS ANGELES	Castaic CDP	PARADISE RANCH MHP	1910099	100% GW	185	4	4	1910099-010	Aluminum	1000	ug/L	5/3/2007	4	16000	4293.33	6
								1910099-009	Fluoride	2	mg/L	1/6/2010	15	7.2	2.50	31
								1910099-010	Fluoride	2	mg/L	11/5/2008	3	2.7	1.08	32
								1910099-011	Fluoride	2	mg/L	11/7/2007	2	6.4	1.10	31
								1910099-019	Fluoride	2	mg/L	11/3/2010	15	5.5	2.92	19
								1910099-010	Gross alpha particle activity	15	pCi/L	8/4/2010	3	19	13.02	7
LOS ANGELES	City of Lancaster	LAND PROJECT MUTUAL WATER CO.	1910246	100% GW	1500	4	3	1910246-001	Arsenic	10	ug/L	3/30/2009	9	15	12.56	9
								1910246-002	Arsenic	10	ug/L	8/23/2010	12	27	16.83	12
								1910246-004	Arsenic	10	ug/L	8/23/2010	7	13	10.45	16
LOS ANGELES	Downey city, Lynwood city, Paramount city, South Gate city	GSWC - HOLLYDALE	1910195	100% GW	5610	2	1	1910195-001	Arsenic	10	ug/L	2/5/2010	34	23	18.24	33
LOS ANGELES	East Pasadena CDP, East San Gabriel CDP, Temple City city	SUNNY SLOPE WATER CO.	1910157	100% GW	30555	4	1	1910157-012	Carbon tetrachloride	0.5	ug/L	11/1/2010	84	1.3	0.52	124
								1910157-012	Nitrate (as NO3)	45	mg/L	4/1/2002	4	51	36.49	130
								1910157-012	Tetrachloroethylene (PCE)	5	ug/L	2/2/2004	9	6.9	3.16	124
LOS ANGELES	El Monte city, South El Monte city	EL MONTE-CITY, WATER DEPT.	1910038	100% GW	22722	7	3	1910038-008	Carbon tetrachloride	0.5	ug/L	10/5/2010	22	0.81	0.25	104
								1910038-002	Tetrachloroethylene (PCE)	5	ug/L	7/13/2010	45	11	4.43	143
								1910038-008	Tetrachloroethylene (PCE)	5	ug/L	10/12/2010	139	24	11.53	139
								1910038-008	Trichloroethylene (TCE)	5	ug/L	10/12/2010	125	51	25.84	138
LOS ANGELES	Green Valley CDP	GREEN VALLEY CWD	1910244	100% GW	1000	8	1	1910244-009	Nitrate (as NO3)	45	mg/L	3/14/2007	10	72	31.74	43
LOS ANGELES	Lancaster city	LEISURE LAKE MOBILE ESTATES	1910066	100% GW	300	3	3	1910066-001	Arsenic	10	ug/L	6/30/2010	2	13	7.61	28
								1910066-002	Arsenic	10	ug/L	9/16/2010	16	22	12.56	16
								1910066-005	Arsenic	10	ug/L	9/16/2010	14	14	12.43	14
								1910092-001	Arsenic	10	ug/L	11/3/2010	36	17	13.44	36
								1910092-010	Arsenic	10	ug/L	11/2/2010	28	15	10.59	44
								1910092-013	Perchlorate	6	ug/L	8/15/2005	15	10	2.70	119

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								1910092-001	Tetrachloroethylene (PCE)	5	ug/L	11/3/2010	52	14	7.35	62
								1910092-002	Tetrachloroethylene (PCE)	5	ug/L	6/2/2010	104	64.1	23.84	103
								1910092-004	Tetrachloroethylene (PCE)	5	ug/L	11/3/2010	102	24	13.25	101
								1910092-006	Tetrachloroethylene (PCE)	5	ug/L	11/17/2010	233	43	25.74	226
								1910092-010	Tetrachloroethylene (PCE)	5	ug/L	11/30/2010	63	68	6.30	100
								1910092-011	Tetrachloroethylene (PCE)	5	ug/L	11/30/2010	111	22	10.33	115
								1910092-013	Tetrachloroethylene (PCE)	5	ug/L	11/30/2010	97	85	36.79	97
								1910092-038	Tetrachloroethylene (PCE)	5	ug/L	9/7/2010	65	128	83.44	65
								1910092-006	Trichloroethylene (TCE)	5	ug/L	9/9/2008	39	6.3	3.87	226
LOS ANGELES	Montebello city, Pico Rivera city	SOUTH MONTEBELLO IRRIGATION DIST.	1910153	100% GW	7880	4	1	1910153-003	Arsenic	10	ug/L	3/26/2009	7	17	5.27	95
LOS ANGELES	Pico Rivera city	CENTRAL BASIN MWD	1910253	100% GW	0	2	1	1910253-001	Tetrachloroethylene (PCE)	5	ug/L	1/12/2005	3	9.8	1.54	58
LOS ANGELES	Pico Rivera city, Whittier city	PICO WD	1910125	100% GW	24000	6	1	1910125-011	Tetrachloroethylene (PCE)	5	ug/L	5/28/2008	8	6.3	4.19	74
LOS ANGELES	Pico Rivera city, Whittier city	WHITTIER-CITY, WATER DEPT.	1910173	100% GW	48000	10	5	1910173-010	Tetrachloroethylene (PCE)	5	ug/L	9/17/2003	23	11	2.53	103
								1910173-013	Tetrachloroethylene (PCE)	5	ug/L	10/12/2010	64	11	5.60	98
								1910173-023	Tetrachloroethylene (PCE)	5	ug/L	10/7/2010	51	51	23.05	57
								1910173-024	Tetrachloroethylene (PCE)	5	ug/L	7/2/2008	21	12	3.71	56
								1910173-025	Tetrachloroethylene (PCE)	5	ug/L	6/2/2009	25	12	4.60	60
LOS ANGELES	Rosemead city	AMARILLO MUTUAL WATER COMPANY	1910002	100% GW	3134	3	1	1910002-002	Tetrachloroethylene (PCE)	5	ug/L	9/10/2002	2	5.7	3.49	39
LOS ANGELES	Sun Village CDP	LITTLEROCK CREEK IRRIGATION DIST.	1910064	100% GW	2900	5	1	1910064-008	Di(2-ethylhexyl)phthalate (DEHP)	4	ug/L	6/1/2005	2	22	6.47	5
LOS ANGELES	Alhambra city, Rosemead city, San Gabriel city, San Marino city	SAN GABRIEL COUNTY WD	1910144	100% GW	45000	5	2	1910144-005	Nitrate (as NO3)	45	mg/L	9/26/2003	9	51	33.91	323
								1910144-007	Nitrate (as NO3)	45	mg/L	3/12/2003	4	51	22.48	386
LOS ANGELES	Cerritos city, Lakewood city, Long Beach city	LAKEWOOD - CITY, WATER DEPT.	1910239	100% GW	79345	12	1	1910239-052	Arsenic	10	ug/L	8/24/2010	8	16.5	12.86	10
LOS ANGELES	East Los Angeles CDP, Lynwood city, South Gate city	SOUTH GATE-CITY, WATER DEPT.	1910152	100% GW	98434	7	1	1910152-008	Tetrachloroethylene (PCE)	5	ug/L	12/2/2010	86	12	7.51	88
LOS ANGELES	El Monte city, Monrovia city, North El Monte CDP, Rosemead city, Temple City city	GSWC-SOUTH ARCADIA	1910212	100% GW	24730	7	3	1910212-004	Tetrachloroethylene (PCE)	5	ug/L	10/12/2010	2	5.4	2.58	131
								1910212-002	Trichloroethylene (TCE)	5	ug/L	11/9/2010	65	21	8.83	66
								1910212-003	Trichloroethylene (TCE)	5	ug/L	11/9/2010	116	13	7.41	128
								1910212-004	Trichloroethylene (TCE)	5	ug/L	11/9/2010	107	12	6.87	131
LOS ANGELES	Hacienda Heights CDP, La Puente city, Valinda CDP, West Covina city, West Puente Valley CDP	SUBURBAN WATER SYSTEMS-SAN JOSE F	1910205	100% GW	134996	6	2	1910205-027	Nitrate (as NO3)	45	mg/L	11/8/2007	3	47	41.39	15
								1910205-027	Perchlorate	6	ug/L	12/27/2007	11	12	8.95	13
								1910205-045	Perchlorate	6	ug/L	11/22/2010	187	12	6.61	258
								1910205-045	Trichloroethylene (TCE)	5	ug/L	11/10/2010	10	7.8	1.75	101
LOS ANGELES	Monrovia city	MONROVIA-CITY, WATER DEPT.	1910090	100% GW	39147	5	3	1910090-002	Nitrate (as NO3)	45	mg/L	11/3/2009	30	66	36.68	129
								1910090-003	Nitrate (as NO3)	45	mg/L	1/28/2003	2	56	19.19	144
								1910090-002	Trichloroethylene (TCE)	5	ug/L	10/5/2010	115	16	6.78	153
								1910090-003	Trichloroethylene (TCE)	5	ug/L	2/2/2010	17	12	2.96	169
								1910090-008	Trichloroethylene (TCE)	5	ug/L	11/2/2010	51	19	4.33	160
LOS ANGELES	Acton CDP	LOS ANGELES CO WW DIST 37-ACTON	1910248	>50% GW Mixed	4317	3	1	1910248-001	Nitrate (as NO3)	45	mg/L	12/23/2004	3	45.9	33.56	99
LOS ANGELES	Alhambra city, East Pasadena CDP, El Monte city, Pasadena city, Rosemead city, San Gabriel city, San Marino city, Temple City city	CAL/AM WATER COMPANY - SAN MARINO	1910139	>50% GW Mixed	45000	12	2	1910139-006	Nitrate (as NO3)	45	mg/L	11/1/2010	111	54.445	43.98	214
								1910139-007	Nitrate (as NO3)	45	mg/L	11/1/2010	142	69.6	35.74	254
								1910139-007	Tetrachloroethylene (PCE)	5	ug/L	11/1/2010	44	9.9	3.87	79
LOS ANGELES	Alhambra city, Pasadena city, San Gabriel city, San Marino city	CITY OF ALHAMBRA	1910001	>50% GW Mixed	92158	11	5	1910001-011	cis-1,2-Dichloroethylene	6	ug/L	12/1/2010	21	36	27.17	21
								1910001-006	Nitrate (as NO3)	45	mg/L	11/15/2010	112	52	44.51	367
								1910001-007	Nitrate (as NO3)	45	mg/L	1/18/2010	16	76	42.20	59
								1910001-008	Nitrate (as NO3)	45	mg/L	10/19/2009	5	62	38.34	118

List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								1910001-012	Nitrate (as NO3)	45	mg/L	11/8/2010	9	60	25.39	115
								1910001-006	Trichloroethylene (TCE)	5	ug/L	6/22/2009	106	13	5.53	191
								1910001-007	Trichloroethylene (TCE)	5	ug/L	12/1/2010	52	16	8.77	55
								1910001-008	Trichloroethylene (TCE)	5	ug/L	11/2/2009	118	21	14.51	119
								1910001-011	Trichloroethylene (TCE)	5	ug/L	12/1/2010	22	39	27.73	22
LOS ANGELES	Alhambra city, San Gabriel city, San Marino city, South Pasadena city	CITY OF SOUTH PASADENA	1910154	>50% GW Mixed	25824	4	2	1910154-002	Carbon tetrachloride	0.5	ug/L	4/6/2010	20	0.82	0.36	112
								1910154-002	Nitrate (as NO3)	45	mg/L	11/8/2010	106	54.12	47.82	113
								1910154-002	Perchlorate	6	ug/L	2/24/2009	2	6.4	4.36	50
								1910154-002	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	51	11	5.08	112
								1910154-006	Tetrachloroethylene (PCE)	5	ug/L	9/5/2006	15	7.3	3.57	123
LOS ANGELES	Altadena CDP	LAS FLORES WATER CO.	1910061	>50% GW Mixed	4500	1	1	1910061-003	Nitrate (as NO3)	45	mg/L	12/26/2007	35	52	40.66	426
								1910061-003	Perchlorate	6	ug/L	10/18/2010	168	15	5.74	420
								1910061-003	Tetrachloroethylene (PCE)	5	ug/L	2/7/2005	127	18	3.61	422
LOS ANGELES	Arcadia city, East Pasadena CDP, Mayflower Village CDP, Monrovia city, Temple City city	CITY OF ARCADIA	1910003	>50% GW Mixed	44818	14	5	1910003-008	Nitrate (as NO3)	45	mg/L	3/11/2010	3	46	25.28	54
								1910003-009	Nitrate (as NO3)	45	mg/L	4/13/2010	8	53.2	34.96	41
								1910003-018	Nitrate (as NO3)	45	mg/L	11/9/2010	69	57	42.57	111
								1910003-011	Tetrachloroethylene (PCE)	5	ug/L	1/12/2010	12	7.4	3.76	97
								1910003-013	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	90	18.5	7.65	109
								1910003-018	Tetrachloroethylene (PCE)	5	ug/L	10/12/2010	5	7.7	1.98	39
								1910003-011	Trichloroethylene (TCE)	5	ug/L	9/16/2003	6	8.2	3.64	97
								1910003-013	Trichloroethylene (TCE)	5	ug/L	11/9/2010	91	16.6	7.44	109
LOS ANGELES	Azusa city, Vincent CDP, West Covina city	AZUSA LIGHT AND WATER	1910007	>50% GW Mixed	108000	12	1	1910007-010	Nitrate (as NO3)	45	mg/L	11/3/2010	79	66	57.55	65
								1910007-010	Perchlorate	6	ug/L	11/3/2010	53	12.6	9.30	46
LOS ANGELES	Bell city, Bell Gardens city, Cudahy city, Maywood city, South Gate city	GSWC - BELL, BELL GARDENS	1910011	>50% GW Mixed	24819	5	2	1910011-007	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	44	38	5.25	82
								1910011-012	Tetrachloroethylene (PCE)	5	ug/L	12/7/2010	34	25	7.00	64
								1910011-012	Trichloroethylene (TCE)	5	ug/L	9/8/2010	26	14	5.11	64
LOS ANGELES	Beverly Hills city, Culver City city, Los Angeles city	BEVERLY HILLS-CITY, WATER DEPT.	1910156	>50% GW Mixed	44290	5	2	1910156-013	Arsenic	10	ug/L	11/2/2010	26	29.5	19.71	28
								1910156-012	Fluoride	2	mg/L	12/17/2007	2	2.35	1.21	30
LOS ANGELES	Carson city, Long Beach city, Torrance city	CALIFORNIA WATER SERVICE CO. - DOMINGUEZ	1910033	>50% GW Mixed	143844	10	1	1910033-022	Total Trihalomethanes	80	ug/L	7/7/2009	2	91	10.55	65
LOS ANGELES	Castaic CDP, Santa Clarita city	VALENCIA WATER CO.	1910240	>50% GW Mixed	101000	22	1	1910240-005	Perchlorate	6	ug/L	4/12/2005	2	10	4.00	100
LOS ANGELES	Claremont city, Glendale city, La Canada Flintridge city, Pomona city	POMONA - CITY, WATER DEPT.	1910126	>50% GW Mixed	163408	33	24	1910126-003	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	9/7/2005	4	7.8	4.16	68
								1910126-007	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	10/13/2010	64	49	33.83	64
								1910126-014	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	8/4/2010	3	7.2	2.97	32
								1910126-023	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	11/4/2010	16	9	5.42	40
								1910126-040	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	11/3/2010	10	18	5.09	46
								1910126-041	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	11/4/2010	3	24	11.36	5
								1910126-050	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	12/1/2010	57	56.5	41.16	57
								1910126-011	Chromium, Total	50	ug/L	5/14/2008	14	170	58.04	36
								1910126-002	Nitrate (as NO3)	45	mg/L	12/1/2010	28	70	42.00	87
								1910126-003	Nitrate (as NO3)	45	mg/L	9/8/2010	57	96	67.23	60
								1910126-006	Nitrate (as NO3)	45	mg/L	6/9/2010	64	86	68.97	63
								1910126-007	Nitrate (as NO3)	45	mg/L	10/13/2010	63	85.3	63.63	64
								1910126-010	Nitrate (as NO3)	45	mg/L	12/1/2010	31	60	43.43	102
								1910126-011	Nitrate (as NO3)	45	mg/L	5/14/2008	38	86	75.02	36
								1910126-013	Nitrate (as NO3)	45	mg/L	4/4/2007	2	57.2	37.84	80
								1910126-014	Nitrate (as NO3)	45	mg/L	9/8/2010	78	84	63.53	78
								1910126-015	Nitrate (as NO3)	45	mg/L	5/28/2008	69	113	63.20	67
								1910126-016	Nitrate (as NO3)	45	mg/L	6/10/2010	69	87	71.80	68
								1910126-017	Nitrate (as NO3)	45	mg/L	6/4/2008	62	102	65.49	60
								1910126-018	Nitrate (as NO3)	45	mg/L	5/26/2010	40	82	71.76	38
								1910126-021	Nitrate (as NO3)	45	mg/L	12/1/2010	66	70	54.77	68
								1910126-023	Nitrate (as NO3)	45	mg/L	11/4/2010	84	75	60.67	82
								1910126-025	Nitrate (as NO3)	45	mg/L	11/4/2010	31	56	40.34	93
								1910126-026	Nitrate (as NO3)	45	mg/L	11/4/2010	104	107.7	73.37	102
								1910126-029	Nitrate (as NO3)	45	mg/L	11/7/2006	12	56	35.29	55
								1910126-040	Nitrate (as NO3)	45	mg/L	11/3/2010	45	131	52.29	51

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								1910126-041	Nitrate (as NO3)	45	mg/L	11/4/2010	5	59	54.40	5
								1910126-049	Nitrate (as NO3)	45	mg/L	12/1/2010	39	73	46.01	88
								1910126-050	Nitrate (as NO3)	45	mg/L	12/1/2010	59	77	54.72	59
								1910126-051	Nitrate (as NO3)	45	mg/L	11/8/2010	71	92	51.36	84
								1910126-052	Nitrate (as NO3)	45	mg/L	8/4/2010	96	82	65.60	94
								1910126-069	Nitrate (as NO3)	45	mg/L	11/2/2010	24	70	53.89	27
								1910126-002	Perchlorate	6	ug/L	12/1/2010	30	11	6.59	48
								1910126-003	Perchlorate	6	ug/L	9/8/2010	32	11	8.60	33
								1910126-006	Perchlorate	6	ug/L	6/9/2010	40	15	12.19	40
								1910126-007	Perchlorate	6	ug/L	10/13/2010	63	13	10.37	63
								1910126-010	Perchlorate	6	ug/L	12/1/2010	23	9.6	5.91	55
								1910126-011	Perchlorate	6	ug/L	5/14/2008	34	15	12.55	34
								1910126-014	Perchlorate	6	ug/L	9/8/2010	50	12	9.94	50
								1910126-015	Perchlorate	6	ug/L	5/28/2008	32	15	10.84	32
								1910126-016	Perchlorate	6	ug/L	6/10/2010	65	16	12.31	65
								1910126-017	Perchlorate	6	ug/L	6/4/2008	34	17	12.67	34
								1910126-018	Perchlorate	6	ug/L	5/26/2010	28	13	11.31	28
								1910126-023	Perchlorate	6	ug/L	11/4/2010	43	12	8.94	44
								1910126-025	Perchlorate	6	ug/L	11/4/2010	10	6.7	4.58	53
								1910126-026	Perchlorate	6	ug/L	11/4/2010	47	12	8.61	51
								1910126-040	Perchlorate	6	ug/L	11/3/2010	45	12	7.56	50
								1910126-049	Perchlorate	6	ug/L	12/1/2010	37	13	8.56	47
								1910126-050	Perchlorate	6	ug/L	12/1/2010	56	12	8.43	58
								1910126-051	Perchlorate	6	ug/L	3/18/2008	2	12	3.28	42
								1910126-052	Perchlorate	6	ug/L	8/4/2010	60	17	12.32	60
								1910126-014	Tetrachloroethylene (PCE)	5	ug/L	8/4/2010	50	13	5.92	75
								1910126-018	Tetrachloroethylene (PCE)	5	ug/L	5/9/2006	2	7.3	4.14	15
								1910126-023	Tetrachloroethylene (PCE)	5	ug/L	11/4/2010	79	19	11.09	79
								1910126-025	Tetrachloroethylene (PCE)	5	ug/L	6/4/2008	11	8.5	3.69	85
								1910126-040	Tetrachloroethylene (PCE)	5	ug/L	11/3/2010	50	20	9.06	50
								1910126-006	Trichloroethylene (TCE)	5	ug/L	10/1/2008	5	21.5	4.60	27
								1910126-007	Trichloroethylene (TCE)	5	ug/L	7/1/2008	19	7.8	4.59	64
								1910126-011	Trichloroethylene (TCE)	5	ug/L	5/14/2008	33	45.55	12.85	36
								1910126-014	Trichloroethylene (TCE)	5	ug/L	9/8/2010	39	15	5.95	75
								1910126-015	Trichloroethylene (TCE)	5	ug/L	6/5/2007	5	11.1	4.52	14
								1910126-016	Trichloroethylene (TCE)	5	ug/L	4/1/2009	2	9.9	2.99	18
								1910126-017	Trichloroethylene (TCE)	5	ug/L	6/5/2007	6	9.3	3.90	17
								1910126-018	Trichloroethylene (TCE)	5	ug/L	5/26/2010	14	17	10.34	15
								1910126-023	Trichloroethylene (TCE)	5	ug/L	11/4/2010	16	6.9	4.41	79
								1910126-025	Trichloroethylene (TCE)	5	ug/L	11/4/2010	70	13	5.83	85
								1910126-026	Trichloroethylene (TCE)	5	ug/L	9/9/2010	2	12	2.62	42
								1910126-049	Trichloroethylene (TCE)	5	ug/L	1/22/2007	2	9.7	2.09	39
								1910126-050	Trichloroethylene (TCE)	5	ug/L	9/5/2007	19	7.5	4.54	57
LOS ANGELES	Commerce city, East Los Angeles CDP, Montebello city	CALIFORNIA WATER SERVICE CO. - ELA F	1910036	>50% GW Mixed	149139	12	3	1910036-025	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	7/8/2010	3	6.6	3.06	145
								1910036-004	Perchlorate	6	ug/L	11/9/2009	164	19	7.23	256
								1910036-004	Tetrachloroethylene (PCE)	5	ug/L	9/10/2004	3	6.3	2.20	72
								1910036-025	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	39	9.4	4.56	145
								1910036-034	Trichloroethylene (TCE)	5	ug/L	5/4/2010	10	7.9	3.27	56
LOS ANGELES	Cudahy city, Huntington Park city, South Gate city, Walnut Park CDP	HUNTINGTON PARK-CITY, WATER DEPT.	1910049	>50% GW Mixed	18417	6	2	1910049-008	Carbon tetrachloride	0.5	ug/L	8/14/2009	145	5.4	1.07	160
								1910049-008	Nitrate (as NO3)	45	mg/L	8/16/2010	3	59	30.26	43
								1910049-006	Trichloroethylene (TCE)	5	ug/L	12/27/2007	5	9.5	1.45	150
LOS ANGELES	Glendale city, La Crescenta-Montrose CDP, Los Angeles city	CRESCENTA VALLEY CWD	1910028	>50% GW Mixed	38000	13	11	1910028-005	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	2/2/2010	2	0.57	0.16	10
								1910028-005	Methyl tertiary butyl ether (MTBE)	13	ug/L	3/9/2010	9	65	4.74	104
								1910028-007	Methyl tertiary butyl ether (MTBE)	13	ug/L	2/6/2007	21	50	8.47	97
								1910028-002	Nitrate (as NO3)	45	mg/L	11/2/2010	90	62	49.63	102
								1910028-005	Nitrate (as NO3)	45	mg/L	11/2/2010	104	73	60.39	104
								1910028-006	Nitrate (as NO3)	45	mg/L	5/3/2010	31	58	41.71	94
								1910028-007	Nitrate (as NO3)	45	mg/L	11/2/2010	102	62	50.04	105
								1910028-008	Nitrate (as NO3)	45	mg/L	9/3/2009	2	53	39.27	101
								1910028-009	Nitrate (as NO3)	45	mg/L	11/2/2010	75	59	48.99	89
								1910028-010	Nitrate (as NO3)	45	mg/L	11/2/2010	108	63	54.27	105
								1910028-011	Nitrate (as NO3)	45	mg/L	10/15/2010	58	63	47.33	103

List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

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								1910028-012	Nitrate (as NO3)	45	mg/L	11/2/2010	96	66	55.83	98
								1910028-013	Nitrate (as NO3)	45	mg/L	11/2/2010	63	60	46.17	100
								1910028-024	Nitrate (as NO3)	45	mg/L	2/3/2009	19	51	40.74	91
								1910028-013	Tetrachloroethylene (PCE)	5	ug/L	6/17/2008	3	6.7	3.68	48
LOS ANGELES	Lakewood city, Long Beach city	LONG BEACH-CITY, WATER DEPT.	1910065	>50% GW Mixed	490882	30	3	1910065-057	Arsenic	10	ug/L	8/26/2010	3	26	22.33	3
								1910065-058	Arsenic	10	ug/L	8/12/2010	3	16	14.67	3
								1910065-059	Arsenic	10	ug/L	8/12/2010	7	14	13.00	7
LOS ANGELES	Lancaster city, Quartz Hill CDP	PALM RANCH IRRIGATION DIST.	1910103	>50% GW Mixed	5528	4	3	1910103-004	Arsenic	10	ug/L	11/16/2010	87	71	36.91	89
								1910103-007	Arsenic	10	ug/L	11/16/2010	80	19	12.90	111
								1910103-002	Nitrate (as NO3)	45	mg/L	11/9/2010	6	49	42.84	119
LOS ANGELES	Leona Valley CDP	CALIFORNIAFWATER SERVICE CO-LEONA VALLEY	1910243	>50% GW Mixed	1216	3	1	1910243-006	Aluminum	1000	ug/L	5/3/2007	2	3900	135.31	44
								1910243-006	Fluoride	2	mg/L	11/16/2010	36	3.86	2.33	41
LOS ANGELES	Long Beach city	SIGNAL HILL - CITY, WATER DEPT.	1910149	>50% GW Mixed	11229	3	1	1910149-006	Arsenic	10	ug/L	10/4/2010	39	24	15.41	39
LOS ANGELES	Long Beach city, Paramount city, South Gate city	PARAMOUNT - CITY, WATER DEPT.	1910105	>50% GW Mixed	58087	3	1	1910105-015	Arsenic	10	ug/L	10/19/2010	36	20	13.92	40
LOS ANGELES	Los Angeles city, Pasadena city, Rosemead city, San Gabriel city, West Puente Valley CDP	GSWC-SOUTH SAN GABRIEL	1910223	>50% GW Mixed	16266	3	1	1910223-004	Perchlorate	6	ug/L	11/21/2005	9	8.1	2.27	107
								1910223-004	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	111	46	11.99	112
								1910223-004	Trichloroethylene (TCE)	5	ug/L	7/19/2005	8	6.8	2.05	112
LOS ANGELES	Los Angeles city, San Fernando city	SAN FERNANDO-CITY, WATER DEPT.	1910143	>50% GW Mixed	23564	3	1	1910143-003	Nitrate (as NO3)	45	mg/L	10/6/2010	4	63	37.13	66
LOS ANGELES	Pomona city	CALIF STATE POLYTECHNICAL UNIV - POMONA	1910022	>50% GW Mixed	24500	1	1	1910022-005	Nitrate (as NO3)	45	mg/L	11/2/2010	65	60	49.93	82
								1910022-005	Perchlorate	6	ug/L	3/2/2010	4	7.3	5.41	37
LOS ANGELES	Santa Clarita city	NEWHALL CWD-PINETREE	1910250	>50% GW Mixed	8818	3	1	1910250-001	Gross alpha particle activity	15	pCi/L	2/12/2009	2	20	9.53	7
LOS ANGELES	West Covina city	VALENCIA HEIGHTS WATER CO.	1910163	>50% GW Mixed	5500	5	4	1910163-001	Gross alpha particle activity	15	pCi/L	8/5/2009	22	33	17.07	36
								1910163-002	Gross alpha particle activity	15	pCi/L	11/1/2006	16	29	16.82	25
								1910163-005	Gross alpha particle activity	15	pCi/L	8/4/2010	2	23	9.55	39
								1910163-010	Gross alpha particle activity	15	pCi/L	10/19/2006	2	18	8.73	40
								1910163-010	Nitrate (as NO3)	45	mg/L	10/6/2010	32	84	41.77	117
								1910163-010	Perchlorate	6	ug/L	10/11/2010	28	15	5.16	65
								1910163-001	Uranium	20	pCi/L	8/5/2009	7	26	16.66	35
								1910163-002	Uranium	20	pCi/L	1/17/2006	5	23.9	16.37	24
LOS ANGELES	Lancaster	WHITE FENCE FARMS MWC NO.3	1900523	Mixed <50%GW	567	2	1	1900523-002	Nitrate (as NO3)	45	mg/L	7/29/2010	4	58	33.2066667	4
LOS ANGELES	Santa Clarita	SANTA CLARITA WATER DIVISION F	1910017	Mixed <50%GW	111000	16	1	1910017-015	Nitrate (as NO3)	45	mg/L	2/13/2008	3	46.9	30.0905747	3
LOS ANGELES	Claremont	GSWC - CLAREMONT	1910024	Mixed <50%GW	37016	17	2	1910024-007	Carbon tetrachloride	0.5	ug/L	12/13/2005	12	0.73	0.30638298	12
								1910024-017	Nitrate (as NO3)	45	mg/L	3/6/2003	7	47	35.34	7
								1910024-007	Trichloroethylene (TCE)	5	ug/L	11/9/2010	92	26	15.2357895	92
LOS ANGELES	Glendale	GLENDALE-CITY, WATER DEPT.	1910043	Mixed <50%GW	207157	14	11	1910043-026	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	8/1/2006	20	14	3.99242424	20
								1910043-027	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	11/9/2010	81	74	38.2592593	80
								1910043-029	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	11/9/2010	54	17	7.30555556	53
								1910043-030	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	11/9/2010	90	13	8.23940594	90
								1910043-026	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	7/5/2005	2	0.6	0.37070707	2
								1910043-027	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	11/9/2010	72	1.7	1.15679012	71
								1910043-025	Carbon tetrachloride	0.5	ug/L	11/9/2010	103	1.1	0.67464912	89
								1910043-026	Carbon tetrachloride	0.5	ug/L	10/12/2010	84	1.5	0.78383838	83
								1910043-027	Carbon tetrachloride	0.5	ug/L	11/9/2010	80	27	10.6850617	79
								1910043-030	Carbon tetrachloride	0.5	ug/L	11/9/2010	101	2.2	1.28009901	100
								1910043-031	Carbon tetrachloride	0.5	ug/L	11/9/2010	98	1.5	0.94969388	97
								1910043-032	Carbon tetrachloride	0.5	ug/L	11/9/2010	101	4.6	2.4660396	100
								1910043-027	Chromium, Total	50	ug/L	11/9/2010	30	87	49.6219512	30
								1910043-031	Chromium, Total	50	ug/L	5/19/2009	7	58	38.4210526	7
								1910043-029	cis-1,2-Dichloroethylene	6	ug/L	11/9/2010	89	26	12.9905556	88

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								1910043-030	cis-1,2-Dichloroethylene	6	ug/L	11/9/2010	100	26	15.3633663	99
								1910043-002	Nitrate (as NO3)	45	mg/L	11/1/2006	2	51	29.8037037	2
								1910043-003	Nitrate (as NO3)	45	mg/L	2/4/2009	39	51.8	43.1073394	39
								1910043-001	Tetrachloroethylene (PCE)	5	ug/L	10/3/2007	2	5.36	2.30508929	2
								1910043-025	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	114	251	160.219298	97
								1910043-026	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	99	180	94.720202	98
								1910043-027	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	79	28	12.4066667	78
								1910043-028	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	100	51	38.7089109	99
								1910043-029	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	75	13	6.40655556	75
								1910043-030	Tetrachloroethylene (PCE)	5	ug/L	7/18/2007	16	6.8	4.09732673	16
								1910043-031	Tetrachloroethylene (PCE)	5	ug/L	11/9/2010	98	26	16.3795918	97
								1910043-025	Trichloroethylene (TCE)	5	ug/L	11/9/2010	114	199	144.736842	97
								1910043-026	Trichloroethylene (TCE)	5	ug/L	11/9/2010	99	211	123.717172	98
								1910043-027	Trichloroethylene (TCE)	5	ug/L	11/9/2010	81	870	531.160494	80
								1910043-028	Trichloroethylene (TCE)	5	ug/L	11/9/2010	100	110	65.9712871	99
								1910043-029	Trichloroethylene (TCE)	5	ug/L	11/9/2010	90	160	78.54	89
								1910043-030	Trichloroethylene (TCE)	5	ug/L	11/9/2010	101	210	119.069307	100
								1910043-031	Trichloroethylene (TCE)	5	ug/L	11/9/2010	98	37	20.3061224	97
								1910043-030	Vinyl chloride	0.5	ug/L	4/18/2007	54	2	0.78188119	53
LOS ANGELES	Baldwin Hills	CAL/AM WATER COMPANY - BALDWIN HILLS	1910052	Mixed <50%GW	21678	4	1	1910052-008	Trichloroethylene (TCE)	5	ug/L	10/19/2010	6	8.5	3.4	6
LOS ANGELES	La Canada Flintridge	LA CANADA IRRIGATION DIST.	1910054	Mixed <50%GW	9300	3	2	1910054-002	Nitrate (as NO3)	45	mg/L	3/22/2010	7	54	39.9375	7
								1910054-003	Nitrate (as NO3)	45	mg/L	12/28/2009	2	50	34.5029412	2
LOS ANGELES	La Canada Flintridge	LINCOLN AVENUE WATER CO.	1910063	Mixed <50%GW	16000	2	2	1910063-002	Carbon tetrachloride	0.5	ug/L	11/2/2010	81	4	1.8043956	81
								1910063-003	Carbon tetrachloride	0.5	ug/L	8/6/2009	51	2.5	0.89909091	51
								1910063-002	Perchlorate	6	ug/L	11/16/2010	278	47	22.4612903	278
								1910063-003	Perchlorate	6	ug/L	8/18/2009	156	17	10.0492228	156
								1910063-003	Trichloroethylene (TCE)	5	ug/L	5/9/2006	7	17	3.95311688	7
LOS ANGELES	Los Angeles	LOS ANGELES-CITY, DEPT. OF WATER & POWER	1910067	Mixed <50%GW	4071873	71	47	1910067-062	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	10/5/2010	33	21.7	7.65681818	33
								1910067-095	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	1/24/2003	10	12.7	2.0905	10
								1910067-110	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	10/27/2010	23	17.8	4.39354167	22
								1910067-182	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	10/22/2009	4	6.99	1.75703448	4
								1910067-183	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	1/13/2009	13	12.9	2.84159302	13
								1910067-184	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	10/13/2010	31	14.6	5.24763158	31
								1910067-185	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	10/22/2009	24	15.8	4.04405814	23
								1910067-186	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	10/22/2009	9	8.52	2.31365854	8
								1910067-062	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	4/23/2008	6	0.75	0.05512121	6
								1910067-064	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	10/6/2005	11	0.71	0.15493182	11
								1910067-065	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	10/6/2005	20	1.52	0.87215385	20
								1910067-062	Carbon tetrachloride	0.5	ug/L	10/5/2010	62	2.71	1.17618182	61
								1910067-064	Carbon tetrachloride	0.5	ug/L	8/28/2008	4	1.34	0.07675	4
								1910067-065	Carbon tetrachloride	0.5	ug/L	9/15/2005	25	0.9	0.62646154	25
								1910067-067	Carbon tetrachloride	0.5	ug/L	10/5/2010	38	0.85	0.35390909	38
								1910067-068	Carbon tetrachloride	0.5	ug/L	10/5/2010	71	6.38	3.07233803	71
								1910067-141	Carbon tetrachloride	0.5	ug/L	12/29/2009	10	1.44	0.18688235	9
								1910067-182	Carbon tetrachloride	0.5	ug/L	10/22/2009	16	1.05	0.14051724	16
								1910067-183	Carbon tetrachloride	0.5	ug/L	1/13/2009	20	1.8	0.2512907	19
								1910067-184	Carbon tetrachloride	0.5	ug/L	5/21/2010	48	2.03	0.65784211	46
								1910067-185	Carbon tetrachloride	0.5	ug/L	10/22/2009	44	1.8	0.4795814	43
								1910067-186	Carbon tetrachloride	0.5	ug/L	10/22/2009	7	0.785	0.05497561	6
								1910067-062	Chromium, Total	50	ug/L	10/5/2010	36	392	117.044872	36
								1910067-062	cis-1,2-Dichloroethylene	6	ug/L	9/8/2010	26	23	6.80106061	26
								1910067-067	Gross alpha particle activity	15	pCi/L	1/27/2010	4	19.2	16.3666667	4
								1910067-068	Gross alpha particle activity	15	pCi/L	10/7/2009	4	20.5	17.1166667	4
								1910067-062	Nitrate (as NO3)	45	mg/L	5/20/2008	36	61.1	45.6004054	36
								1910067-064	Nitrate (as NO3)	45	mg/L	4/23/2008	16	52.7	39.7954902	16
								1910067-065	Nitrate (as NO3)	45	mg/L	10/6/2005	33	54	47.2810256	33
								1910067-067	Nitrate (as NO3)	45	mg/L	8/6/2009	4	48.3	35.2108451	4
								1910067-068	Nitrate (as NO3)	45	mg/L	5/25/2005	28	51.4	37.7536364	28
								1910067-110	Nitrate (as NO3)	45	mg/L	4/27/2005	2	46.5	38.3792308	2
								1910067-183	Nitrate (as NO3)	45	mg/L	2/28/2008	5	46.5	30.5816049	5

List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								1910067-184	Nitrate (as NO3)	45	mg/L	2/28/2008	11	53.1	37.1215068	11
								1910067-185	Nitrate (as NO3)	45	mg/L	2/28/2008	21	58.5	33.3537349	21
								1910067-186	Nitrate (as NO3)	45	mg/L	2/28/2008	12	53.1	30.3462338	12
								1910067-187	Nitrate (as NO3)	45	mg/L	1/30/2008	19	63.3	32.7079104	18
								1910067-188	Nitrate (as NO3)	45	mg/L	10/22/2009	3	53.1	26.8147541	3
								1910067-123	Perchlorate	6	ug/L	4/9/2002	2	6.5	3.23924051	2
								1910067-124	Perchlorate	6	ug/L	5/26/2006	6	7.2	4.08843373	6
								1910067-125	Perchlorate	6	ug/L	5/17/2002	2	6.6	3.41833333	2
								1910067-187	Perchlorate	6	ug/L	8/13/2002	6	11	4.20485714	6
								1910067-188	Perchlorate	6	ug/L	1/28/2009	31	21	6.54328571	31
								1910067-189	Perchlorate	6	ug/L	2/11/2005	12	11	4.37323944	12
								1910067-062	Tetrachloroethylene (PCE)	5	ug/L	10/5/2010	64	55.3	18.3836364	63
								1910067-063	Tetrachloroethylene (PCE)	5	ug/L	10/5/2010	55	37.1	7.14971014	54
								1910067-064	Tetrachloroethylene (PCE)	5	ug/L	8/28/2008	45	35	15.7357778	44
								1910067-065	Tetrachloroethylene (PCE)	5	ug/L	10/6/2005	26	46	36.2115385	26
								1910067-066	Tetrachloroethylene (PCE)	5	ug/L	10/5/2010	65	14.1	9.35545455	65
								1910067-067	Tetrachloroethylene (PCE)	5	ug/L	8/3/2010	54	14	6.5174697	53
								1910067-068	Tetrachloroethylene (PCE)	5	ug/L	10/5/2010	70	16.1	9.54126761	70
								1910067-084	Tetrachloroethylene (PCE)	5	ug/L	12/23/2009	6	6.02	2.26753488	6
								1910067-098	Tetrachloroethylene (PCE)	5	ug/L	9/25/2007	9	8.32	1.87506897	8
								1910067-104	Tetrachloroethylene (PCE)	5	ug/L	5/21/2009	4	11.5	1.34342029	4
								1910067-108	Tetrachloroethylene (PCE)	5	ug/L	8/19/2008	15	6.83	4.01783333	12
								1910067-110	Tetrachloroethylene (PCE)	5	ug/L	10/27/2010	70	21.7	12.1286111	67
								1910067-149	Tetrachloroethylene (PCE)	5	ug/L	1/28/2009	16	8.75	3.4798	16
								1910067-150	Tetrachloroethylene (PCE)	5	ug/L	5/12/2005	4	7.12	3.00087952	4
								1910067-180	Tetrachloroethylene (PCE)	5	ug/L	9/15/2009	11	18.2	2.12097143	11
								1910067-181	Tetrachloroethylene (PCE)	5	ug/L	10/22/2009	12	14.9	2.86702564	12
								1910067-182	Tetrachloroethylene (PCE)	5	ug/L	10/22/2009	24	15.7	3.90402299	23
								1910067-183	Tetrachloroethylene (PCE)	5	ug/L	10/13/2010	40	24.1	6.35589535	38
								1910067-184	Tetrachloroethylene (PCE)	5	ug/L	10/13/2010	26	31.7	6.97317105	26
								1910067-185	Tetrachloroethylene (PCE)	5	ug/L	10/22/2009	16	27.6	3.25547674	15
								1910067-186	Tetrachloroethylene (PCE)	5	ug/L	2/23/2008	11	8.77	2.09037805	10
								1910067-187	Tetrachloroethylene (PCE)	5	ug/L	6/2/2005	10	7.42	1.58062857	10
								1910067-031	Trichloroethylene (TCE)	5	ug/L	10/28/2010	29	15.7	5.14306452	29
								1910067-051	Trichloroethylene (TCE)	5	ug/L	7/26/2010	5	7.77	2.687	4
								1910067-060	Trichloroethylene (TCE)	5	ug/L	4/6/2010	10	9.01	3.42714035	10
								1910067-062	Trichloroethylene (TCE)	5	ug/L	10/5/2010	65	1300	414.030303	64
								1910067-063	Trichloroethylene (TCE)	5	ug/L	10/5/2010	69	915	48.9431884	68
								1910067-064	Trichloroethylene (TCE)	5	ug/L	8/28/2008	45	65	34.9288889	44
								1910067-065	Trichloroethylene (TCE)	5	ug/L	10/6/2005	26	53	36.9461538	26
								1910067-066	Trichloroethylene (TCE)	5	ug/L	10/5/2010	65	25.5	13.9933333	65
								1910067-067	Trichloroethylene (TCE)	5	ug/L	10/5/2010	65	242	97.7075758	64
								1910067-068	Trichloroethylene (TCE)	5	ug/L	10/5/2010	71	86.3	31.3266197	71
								1910067-084	Trichloroethylene (TCE)	5	ug/L	10/21/2010	29	29.8	10.8773953	29
								1910067-087	Trichloroethylene (TCE)	5	ug/L	9/24/2009	16	9.96	2.96341667	16
								1910067-095	Trichloroethylene (TCE)	5	ug/L	4/22/2010	9	8.85	1.99736047	9
								1910067-097	Trichloroethylene (TCE)	5	ug/L	3/11/2010	4	10.1	1.28939189	4
								1910067-098	Trichloroethylene (TCE)	5	ug/L	9/25/2007	11	8.87	2.35474138	10
								1910067-104	Trichloroethylene (TCE)	5	ug/L	2/18/2010	15	33	3.46678261	15
								1910067-105	Trichloroethylene (TCE)	5	ug/L	10/16/2007	4	8.1	0.92859091	4
								1910067-106	Trichloroethylene (TCE)	5	ug/L	3/3/2010	5	7.8	1.39655128	5
								1910067-108	Trichloroethylene (TCE)	5	ug/L	11/25/2008	31	8.36	5.15833333	28
								1910067-110	Trichloroethylene (TCE)	5	ug/L	10/27/2010	69	19.2	11.2758333	66
								1910067-118	Trichloroethylene (TCE)	5	ug/L	9/9/2009	23	52.6	8.96221429	23
								1910067-119	Trichloroethylene (TCE)	5	ug/L	10/19/2010	22	17	4.12357895	21
								1910067-120	Trichloroethylene (TCE)	5	ug/L	6/10/2008	8	7.5	1.47196875	6
								1910067-127	Trichloroethylene (TCE)	5	ug/L	10/19/2010	59	48.7	11.344427	59
								1910067-128	Trichloroethylene (TCE)	5	ug/L	9/9/2009	20	49.9	7.60209722	20
								1910067-129	Trichloroethylene (TCE)	5	ug/L	9/17/2009	10	18	1.50658696	10
								1910067-130	Trichloroethylene (TCE)	5	ug/L	9/17/2009	13	42	3.66790244	13
								1910067-131	Trichloroethylene (TCE)	5	ug/L	3/3/2010	30	41.7	7.04245455	29
								1910067-132	Trichloroethylene (TCE)	5	ug/L	8/5/2009	27	40	5.96296667	25

Table 8.1
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								1910067-141	Trichloroethylene (TCE)	5	ug/L	11/26/2009	9	10.6	3.37147059	8
								1910067-149	Trichloroethylene (TCE)	5	ug/L	11/26/2009	11	19.4	4.32701667	11
								1910067-150	Trichloroethylene (TCE)	5	ug/L	11/26/2009	59	15.5	8.00168675	57
								1910067-152	Trichloroethylene (TCE)	5	ug/L	8/10/2005	30	14	5.17284932	30
								1910067-179	Trichloroethylene (TCE)	5	ug/L	7/16/2009	3	10.5	0.82174627	3
								1910067-180	Trichloroethylene (TCE)	5	ug/L	9/15/2009	21	25.1	3.47167143	21
								1910067-181	Trichloroethylene (TCE)	5	ug/L	10/22/2009	35	22.5	5.55916667	34
								1910067-182	Trichloroethylene (TCE)	5	ug/L	10/22/2009	57	29.2	9.39311494	54
								1910067-183	Trichloroethylene (TCE)	5	ug/L	10/13/2010	59	46.4	12.9370814	56
								1910067-184	Trichloroethylene (TCE)	5	ug/L	10/13/2010	67	45.2	15.1295132	65
								1910067-185	Trichloroethylene (TCE)	5	ug/L	10/13/2010	60	37.5	10.0430581	58
								1910067-186	Trichloroethylene (TCE)	5	ug/L	10/22/2009	50	21.5	7.37303659	48
								1910067-187	Trichloroethylene (TCE)	5	ug/L	10/22/2009	43	13.7	5.65214286	43
								1910067-188	Trichloroethylene (TCE)	5	ug/L	10/22/2009	43	20.1	7.97690278	43
								1910067-189	Trichloroethylene (TCE)	5	ug/L	8/11/2009	32	11.1	4.2931625	31
								1910067-189	Trichlorofluoromethane (Freon 11)	150	ug/L	1/28/2009	2	244	32.096625	2
								1910067-067	Uranium	20	pCi/L	8/25/2004	2	21.6	15.8669048	2
LOS ANGELES	Los Angeles	LOS ANGELES CO WW DIST 4 & 34-LANCASTER	1910070	Mixed <50%GW	146709	55	19	1910070-002	Arsenic	10	ug/L	10/17/2005	31	19.2	7.47597403	30
								1910070-025	Arsenic	10	ug/L	11/3/2010	4	12.6	6.4	4
								1910070-032	Arsenic	10	ug/L	6/14/2005	2	15.9	8.5325	2
								1910070-037	Arsenic	10	ug/L	8/9/2007	4	15.4	4.90608696	4
								1910070-038	Arsenic	10	ug/L	3/4/2010	4	10.5	9.05466667	4
								1910070-039	Arsenic	10	ug/L	7/6/2010	79	16.4	9.77882353	78
								1910070-043	Arsenic	10	ug/L	12/8/2008	3	13.1	7.65666667	3
								1910070-044	Arsenic	10	ug/L	10/12/2005	2	14.5	6.7	2
								1910070-046	Arsenic	10	ug/L	1/13/2009	2	17.1	10.0625	2
								1910070-053	Arsenic	10	ug/L	6/4/2009	6	16.6	4.68315789	6
								1910070-058	Arsenic	10	ug/L	8/4/2010	6	12.9	8.24368421	6
								1910070-062	Arsenic	10	ug/L	1/26/2007	16	22.4	9.44925	15
								1910070-063	Arsenic	10	ug/L	1/26/2007	22	26.1	8.64035088	22
								1910070-066	Arsenic	10	ug/L	7/14/2010	8	43	23.2815385	7
								1910070-067	Arsenic	10	ug/L	10/25/2005	6	15.6	8.96357143	5
								1910070-068	Arsenic	10	ug/L	8/2/2005	4	16.5	8.42071429	4
								1910070-069	Arsenic	10	ug/L	11/22/2005	5	14.9	7.03470588	4
								1910070-070	Arsenic	10	ug/L	9/29/2005	11	23.1	15.3153846	10
								1910070-071	Arsenic	10	ug/L	8/2/2005	8	15.9	9.76375	8
LOS ANGELES	Lynwood	LYNWOOD-CITY, WATER DEPT.	1910079	Mixed <50%GW	71061	5	1	1910079-011	Tetrachloroethylene (PCE)	5	ug/L	10/27/2008	7	6.7	3.96444444	7
LOS ANGELES	Manhattan Beach	MANHATTAN BEACH-CITY, WATER DEPT.	1910083	Mixed <50%GW	33852	2	1	1910083-006	Gross alpha particle activity	15	pCi/L	2/16/2006	2	29.7	6.7225	2
LOS ANGELES	Pasadena	PASADENA-CITY, WATER DEPT.	1910124	Mixed <50%GW	169000	11	7	1910124-006	cis-1,2-Dichloroethylene	6	ug/L	9/3/2010	8	20.7	3.61189542	8
								1910124-006	Gross alpha particle activity	15	pCi/L	5/6/2003	2	17.95	11.945	2
								1910124-047	Gross alpha particle activity	15	pCi/L	5/6/2003	2	21.56	13.35	2
								1910124-006	Nitrate (as NO3)	45	mg/L	9/1/2010	5	50.5	37.8750365	5
								1910124-014	Nitrate (as NO3)	45	mg/L	8/18/2010	2	46.4	33.2232787	2
								1910124-018	Nitrate (as NO3)	45	mg/L	11/2/2010	50	57.9	43.899469	49
								1910124-006	Perchlorate	6	ug/L	11/2/2010	134	25.3	10.7923704	133
								1910124-010	Perchlorate	6	ug/L	2/16/2005	26	12.5	3.04043689	26
								1910124-014	Perchlorate	6	ug/L	8/18/2010	5	7.94	2.25508197	5
								1910124-018	Perchlorate	6	ug/L	11/2/2010	112	31.6	12.7452679	112
								1910124-020	Perchlorate	6	ug/L	11/24/2009	9	9.75	2.6803125	9
								1910124-028	Perchlorate	6	ug/L	11/23/2010	155	17.7	6.46917476	154
								1910124-006	Tetrachloroethylene (PCE)	5	ug/L	9/3/2010	9	12.9	3.08986928	9
								1910124-006	Trichloroethylene (TCE)	5	ug/L	11/2/2010	117	26.2	6.25405229	117
LOS ANGELES	Covina	COVINA IRRIGATING CO.	1910128	Mixed <50%GW	0	3	1	1910128-002	Nitrate (as NO3)	45	mg/L	4/22/2010	3	49	25.6630769	3
								1910128-002	Perchlorate	6	ug/L	4/22/2010	3	6.4	3.64193548	3

Table 8.1

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List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
LOS ANGELES	Quartz Hill	QUARTZ HILL WATER DIST.	1910130	Mixed <50%GW	17000	8	1	1910130-015	Nitrate (as NO3)	45	mg/L	5/1/2007	2	46	41.8571429	2
LOS ANGELES	San Dimas	GSWC-SAN DIMAS	1910142	Mixed <50%GW	53199	8	5	1910142-003	Nitrate (as NO3)	45	mg/L	10/22/2004	22	62	30.7838144	20
								1910142-004	Nitrate (as NO3)	45	mg/L	2/28/2005	16	73	32.0495575	16
								1910142-005	Nitrate (as NO3)	45	mg/L	11/15/2010	58	120	65.4682353	57
								1910142-009	Nitrate (as NO3)	45	mg/L	6/8/2007	2	47	28.112	2
								1910142-004	Perchlorate	6	ug/L	9/14/2010	8	13	3.16741573	8
								1910142-005	Perchlorate	6	ug/L	11/15/2010	66	20	9.96626506	64
								1910142-013	Perchlorate	6	ug/L	11/6/2003	3	8	1.41896552	2
LOS ANGELES	Santa Monica	SANTA MONICA-CITY, WATER DIVISION	1910146	Mixed <50%GW	84184	5	2	1910146-017	Carbon tetrachloride	0.5	ug/L	10/21/2010	17	0.8	0.43846154	16
								1910146-015	Tetrachloroethylene (PCE)	5	ug/L	10/21/2010	80	22.2	13.59625	75
								1910146-017	Tetrachloroethylene (PCE)	5	ug/L	10/21/2010	39	30	18.1794872	36
								1910146-015	Trichloroethylene (TCE)	5	ug/L	10/21/2010	76	35	17.485	71
								1910146-017	Trichloroethylene (TCE)	5	ug/L	10/21/2010	39	71	38.0717949	36
LOS ANGELES	La Canada Flintridge	VALLEY WATER CO.	1910166	Mixed <50%GW	9900	4	4	1910166-002	Nitrate (as NO3)	45	mg/L	9/9/2010	19	64	34.7661017	19
								1910166-003	Nitrate (as NO3)	45	mg/L	9/9/2010	21	72	31.8383111	21
								1910166-004	Nitrate (as NO3)	45	mg/L	8/3/2010	29	70.4	46.6695	29
								1910166-005	Nitrate (as NO3)	45	mg/L	7/7/2010	21	62	34.8399286	21
								1910166-003	Tetrachloroethylene (PCE)	5	ug/L	7/7/2010	5	9	2.49318182	5
								1910166-004	Tetrachloroethylene (PCE)	5	ug/L	7/1/2002	3	6	2.07567568	3
LOS ANGELES	Burbank	BURBANK-CITY, WATER DEPT.	1910179	Mixed <50%GW	108082	9	8	1910179-026	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	7/7/2010	7	25	2.9212766	7
								1910179-027	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	1/5/2010	2	25	2.6174359	2
								1910179-004	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	2/9/2007	2	2.5	0.20959184	2
								1910179-029	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	7/10/2003	6	10	0.6278	6
								1910179-004	Carbon tetrachloride	0.5	ug/L	11/2/2010	43	2.5	0.61530612	43
								1910179-024	Carbon tetrachloride	0.5	ug/L	11/2/2010	28	10	0.69210526	28
								1910179-025	Carbon tetrachloride	0.5	ug/L	10/5/2010	23	1	0.28854167	23
								1910179-026	Carbon tetrachloride	0.5	ug/L	11/2/2010	28	25	0.85659574	28
								1910179-027	Carbon tetrachloride	0.5	ug/L	11/2/2010	45	25	1.61128205	45
								1910179-028	Carbon tetrachloride	0.5	ug/L	10/5/2010	26	5	0.47	26
								1910179-029	Carbon tetrachloride	0.5	ug/L	11/2/2010	41	10	0.7845	41
								1910179-023	cis-1,2-Dichloroethylene	6	ug/L	1/6/2009	3	7.6	1.50053763	3
								1910179-004	Gross alpha particle activity	15	pCi/L	8/19/2004	2	16.4	14.18	2
								1910179-026	Gross alpha particle activity	15	pCi/L	12/13/2004	3	16.1	13.54	3
								1910179-027	Gross alpha particle activity	15	pCi/L	4/17/2007	4	16.57	14.6116667	4
								1910179-023	Nitrate (as NO3)	45	mg/L	12/11/2007	4	50	37.1934066	4
								1910179-024	Nitrate (as NO3)	45	mg/L	7/7/2010	5	49	40.9363736	5
								1910179-026	Nitrate (as NO3)	45	mg/L	1/5/2010	34	54.8	43.5032609	34
								1910179-027	Nitrate (as NO3)	45	mg/L	6/2/2003	15	50.4	41.6078947	15
								1910179-004	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	98	495	104.866327	97
								1910179-023	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	92	461	90.8430108	91
								1910179-024	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	95	739	344.263158	94
								1910179-025	Tetrachloroethylene (PCE)	5	ug/L	10/5/2010	88	544	193.839583	87
								1910179-026	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	94	1630	526.675532	93
								1910179-027	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	78	840	217.752564	77
								1910179-028	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	90	550	205.86	89
								1910179-029	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	100	633	255.92	99
								1910179-004	Trichloroethylene (TCE)	5	ug/L	11/2/2010	98	179	39.1408163	97
								1910179-023	Trichloroethylene (TCE)	5	ug/L	11/2/2010	92	388	148.354839	91
								1910179-024	Trichloroethylene (TCE)	5	ug/L	11/2/2010	95	691	294.221053	94
								1910179-025	Trichloroethylene (TCE)	5	ug/L	10/5/2010	83	410	163.667708	82
								1910179-026	Trichloroethylene (TCE)	5	ug/L	11/2/2010	94	486	176.534043	93
								1910179-027	Trichloroethylene (TCE)	5	ug/L	11/2/2010	77	370	134.744872	76
								1910179-028	Trichloroethylene (TCE)	5	ug/L	11/2/2010	90	189	72.7977778	89
								1910179-029	Trichloroethylene (TCE)	5	ug/L	11/2/2010	100	168	61.252	99

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LOS ANGELES	Burbank	LOS ANGELES CWWD 40, R24, 27,33-PEARBLSM	1910203	Mixed <50%GW	9731	5	1	1910203-019	Nitrate (as NO3)	45	mg/L	8/18/2010	21	56.6	37.494	21
LOS ANGELES	Santa Fe Springs	SANTA FE SPRINGS - CITY, WATER DEPT.	1910245	Mixed <50%GW	17438	2	1	1910245-004	Trichloroethylene (TCE)	5	ug/L	12/17/2009	2	6.3	1.78235294	2
LOS ANGELES	Baldwin Park city, Irwindale city, San Dimas city, West Covina city	VALLEY COUNTY WATER DIST.	1910009	Undetermined	73196	10	7	1910009-034	1,1-Dichloroethane (1,1-DCA)	5	ug/L	2/6/2006	2	5.6	1.00	32
								1910009-001	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	10/26/2004	7	8.7	0.96	106
								1910009-002	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	9/22/2004	3	10	0.93	102
								1910009-007	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	10/20/2010	41	43	24.11	42
								1910009-033	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	1/20/2009	19	106	26.12	29
								1910009-034	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	3/11/2009	20	49	14.16	32
								1910009-001	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	10/26/2004	10	1.4	0.30	104
								1910009-002	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	10/26/2004	11	1.2	0.30	102
								1910009-007	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	8/30/2010	36	1.1	0.69	42
								1910009-033	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	2/1/2006	2	0.7	0.24	29
								1910009-007	Carbon tetrachloride	0.5	ug/L	10/20/2010	42	2.7	1.52	42
								1910009-001	cis-1,2-Dichloroethylene	6	ug/L	10/26/2004	11	16	1.41	104
								1910009-002	cis-1,2-Dichloroethylene	6	ug/L	10/26/2004	9	14	1.29	102
								1910009-007	cis-1,2-Dichloroethylene	6	ug/L	10/20/2010	42	25	15.89	42
								1910009-033	Nitrate (as NO3)	45	mg/L	9/15/2010	39	86	73.45	37
								1910009-034	Nitrate (as NO3)	45	mg/L	12/16/2009	41	80	60.72	41
								1910009-007	Perchlorate	6	ug/L	10/20/2010	38	33	15.64	38
								1910009-033	Perchlorate	6	ug/L	9/15/2010	28	13	9.66	28
								1910009-034	Perchlorate	6	ug/L	12/16/2009	30	17	11.84	30
								1910009-001	Tetrachloroethylene (PCE)	5	ug/L	9/28/2009	26	110	10.09	106
								1910009-002	Tetrachloroethylene (PCE)	5	ug/L	9/28/2009	39	94	10.47	104
								1910009-005	Tetrachloroethylene (PCE)	5	ug/L	4/27/2010	10	14	1.96	100
								1910009-006	Tetrachloroethylene (PCE)	5	ug/L	3/22/2010	9	16	1.41	107
								1910009-007	Tetrachloroethylene (PCE)	5	ug/L	10/20/2010	42	760	364.12	42
								1910009-033	Tetrachloroethylene (PCE)	5	ug/L	1/20/2009	20	35	12.70	29
								1910009-034	Tetrachloroethylene (PCE)	5	ug/L	11/18/2009	30	32	15.03	32
								1910009-001	Trichloroethylene (TCE)	5	ug/L	10/26/2004	19	36	3.68	106
								1910009-002	Trichloroethylene (TCE)	5	ug/L	10/26/2004	19	42	3.97	104
								1910009-007	Trichloroethylene (TCE)	5	ug/L	10/20/2010	42	218	127.93	42
								1910009-033	Trichloroethylene (TCE)	5	ug/L	12/9/2008	19	30	9.24	29
								1910009-034	Trichloroethylene (TCE)	5	ug/L	3/11/2009	21	20	9.03	32
LOS ANGELES	Azusa city, Glendora city, Vincent CDP	GLENDORA-CITY, WATER DEPT.	1910044	Undetermined	53000	9	2	1910044-008	Nitrate (as NO3)	45	mg/L	5/31/2005	2	46.7	32.38	251
								1910044-009	Nitrate (as NO3)	45	mg/L	11/2/2010	53	52	40.92	341
LOS ANGELES	Bell city, Commerce city, Maywood city	MAYWOOD MUTUAL WATER CO. #3	1910086	Undetermined	9500	3	1	1910086-003	Trichloroethylene (TCE)	5	ug/L	10/12/2010	3	5.3	2.85	40
LOS ANGELES	Claremont city, La Verne city, Pomona city	LA VERNE, CITY WD	1910062	Undetermined	34051	9	8	1910062-008	Nitrate (as NO3)	45	mg/L	6/23/2010	37	81	56.90	49
								1910062-009	Nitrate (as NO3)	45	mg/L	11/3/2010	55	81	60.50	59
								1910062-010	Nitrate (as NO3)	45	mg/L	11/3/2010	56	110	91.72	57
								1910062-012	Nitrate (as NO3)	45	mg/L	11/3/2010	91	120	99.11	91
								1910062-016	Nitrate (as NO3)	45	mg/L	11/10/2010	67	100	93.60	67
								1910062-018	Nitrate (as NO3)	45	mg/L	8/11/2010	40	100	93.75	40
								1910062-032	Nitrate (as NO3)	45	mg/L	11/3/2010	65	120	87.67	64
								1910062-008	Perchlorate	6	ug/L	2/17/2010	30	11	5.66	48
								1910062-009	Perchlorate	6	ug/L	2/4/2009	5	7.3	2.91	57
								1910062-010	Perchlorate	6	ug/L	10/6/2010	48	21	10.69	51
								1910062-012	Perchlorate	6	ug/L	11/3/2010	56	18	14.09	56
								1910062-016	Perchlorate	6	ug/L	11/10/2010	56	18	13.70	56

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								1910062-018	Perchlorate	6	ug/L	8/11/2010	31	24	19.19	31
								1910062-032	Perchlorate	6	ug/L	11/3/2010	38	15	8.12	45
								1910062-039	Perchlorate	6	ug/L	10/6/2010	9	10	3.96	65
								1910062-012	Trichloroethylene (TCE)	5	ug/L	11/3/2010	47	18	12.76	46
								1910062-016	Trichloroethylene (TCE)	5	ug/L	11/10/2010	41	33	15.92	41
LOS ANGELES	Commerce city	COMMERCE-CITY, WATER DEPT.	1910050	Undetermined	1341	3	1	1910050-005	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	41	28	8.92	51
								1910050-005	Trichloroethylene (TCE)	5	ug/L	11/2/2010	36	22	8.67	51
LOS ANGELES	Downey city, Norwalk city, Santa Fe Springs city	GSWC - NORWALK	1910098	Undetermined	31786	8	7	1910098-001	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	4/7/2009	5	7.7	2.73	51
								1910098-002	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	9/8/2010	38	64	17.26	54
								1910098-003	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	4/7/2009	55	33	10.98	86
								1910098-004	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	11/2/2010	46	32	10.48	63
								1910098-007	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	12/7/2010	8	10	2.64	58
								1910098-007	1,2-Dichloroethane (1,2-DCA)	0.5	ug/L	12/7/2010	13	1.2	0.55	28
								1910098-001	Tetrachloroethylene (PCE)	5	ug/L	4/7/2009	19	13	4.53	56
								1910098-004	Tetrachloroethylene (PCE)	5	ug/L	11/2/2010	2	8.4	1.57	30
								1910098-007	Tetrachloroethylene (PCE)	5	ug/L	12/7/2010	46	24	11.00	50
								1910098-008	Tetrachloroethylene (PCE)	5	ug/L	11/3/2009	14	14	9.18	18
								1910098-009	Tetrachloroethylene (PCE)	5	ug/L	12/7/2010	98	20	8.79	110
								1910098-001	Trichloroethylene (TCE)	5	ug/L	4/7/2009	73	18	10.52	88
								1910098-004	Trichloroethylene (TCE)	5	ug/L	11/2/2010	5	11	1.77	30
								1910098-007	Trichloroethylene (TCE)	5	ug/L	12/7/2010	38	21	9.95	50
								1910098-008	Trichloroethylene (TCE)	5	ug/L	11/3/2009	13	18	8.89	18
								1910098-009	Trichloroethylene (TCE)	5	ug/L	12/7/2010	98	17	7.19	110
LOS ANGELES	Lancaster city	WHITE FENCE FARMS MUTUAL WATER CO.	1910249	Undetermined	1760	2	1	1910249-009	Nitrate (as NO3)	45	mg/L	11/2/2010	35	59	53.06	35
LOS ANGELES	City of Lancaster	LANCASTER PARK MOBILE HOME PARK	1900038	100% GW	53	1	1	1900038-001	Arsenic	10	ug/L	10/6/2009	2	18	16.50	2
LOS ANGELES	City of Lancaster	METTLER VALLEY MUTUAL	1900100	100% GW	200	2	1	1900100-001	Arsenic	10	ug/L	10/25/2010	12	15	13.57	12
LOS ANGELES	City of Lancaster	MITCHELL S AVENUE E MOBILE HOME PARK	1900785	100% GW	35	1	1	1900785-001	Arsenic	10	ug/L	2/8/2010	8	24	20.26	7
LOS ANGELES	City of Lancaster	WINTERHAVEN MOBILE ESTATES	1900961	100% GW	27	1	1	1900961-001	Arsenic	10	ug/L	9/20/2010	13	69	49.08	13
LOS ANGELES	Lancaster city	AVERYDALE MWC	1910023	100% GW	1500	3	2	1910023-001	Aluminum	1000	ug/L	8/15/2008	2	3700	2333.33	3
								1910023-004	Arsenic	10	ug/L	11/19/2005	3	22	9.03	7
LOS ANGELES	Undetermined	SMITH S VILLAGE MOBILE HOME PARK	1900520	100% GW	75	1	1	1900520-001	Arsenic	10	ug/L	9/27/2010	34	62.2	46.05	32
LOS ANGELES	City of San Dimas	SAN DIMAS CANYON IMPROVMENT ASSOCIATION	1900064	>50% GW Mixed	125	1	1	1900064-001	Fluoride	2	mg/L	6/19/2002	2	2.44	2.16	3
LOS ANGELES	Pomona city	POMONA - CITY, WATER DEPT.	1910126	>50% GW Mixed	163408	33	1	1910126-053	Arsenic	10	ug/L	10/12/2005	4	18	6.31	28
LOS ANGELES	Downey city, South Gate city	DOWNEY - CITY, WATER DEPT.	1910034	>50% GW Mixed	113000	21	2	1910034-018	Gross alpha particle activity	15	pCi/L	5/14/2002	2	32.3	9.78	8

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LOS ANGELES	El Monte city	ADAMS RANCH MUTUAL	1900009	Undetermined	300	1	1	1900009-003	Tetrachloroethylene (PCE)	5	ug/L	9/9/2010	4	6.2	3.17	31
								1900009-003	Trichloroethylene (TCE)	5	ug/L	11/11/2010	26	18.5	9.04	29
MADERA	Ahwahnee CDP	HILLVIEW WATER CO-GOLDSIDE-HIL	2010014	100% GW	927	8	1	2010014-010	Gross alpha particle activity	15	pCi/L	12/27/2007	3	30.5	19.47	6
								2010014-010	Uranium	30	ug/L	1/18/2008	6	54	35.68	4
MADERA	Chowchilla city	VALLEY STATE PRISON FOR WOMEN	2010801	100% GW	4000	2	2	2010801-001	Arsenic	10	ug/L	6/24/2010	8	14	10.88	13
								2010801-002	Arsenic	10	ug/L	6/24/2010	10	14	10.03	15
MADERA	Raymond	HILLVIEW WATER CO-RAYMOND	2010012	100% GW	243	5	4	2010012-002	Arsenic	10	ug/L	6/28/2005	2	12	12.00	2
								2010012-007	Arsenic	10	ug/L	6/28/2005	2	14.4	14.20	2
								2010012-010	Gross alpha particle activity	15	pCi/L	8/25/2008	2	44	42.15	2
								2010012-006	Nitrate (as NO3)	45	mg/L	9/20/2010	12	63.3	39.82	46
								2010012-010	Uranium	20	pCi/L	8/20/2009	3	45	41.90	3
MADERA	Madera city	MADERA-CITY	2010002	100% GW	58178	19	1	2010002-022	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	7/27/2010	19	0.45	0.05	125
								2010002-022	Ethylene dibromide (EDB)	0.05	ug/L	9/14/2010	150	0.75	0.11	126
MADERA	Oakhurst CDP	HILLVIEW WC-OAKHURST/SIERRA LAKES	2010007	100% GW	3006	18	8	2010007-001	Arsenic	10	ug/L	3/18/2009	2	13	7.77	7
								2010007-009	Arsenic	10	ug/L	8/27/2008	4	25	17.10	4
								2010007-010	Arsenic	10	ug/L	8/27/2008	4	149	56.88	4
								2010007-024	Arsenic	10	ug/L	12/22/2009	3	17.8	8.43	10
								2010007-030	Arsenic	10	ug/L	9/22/2010	5	12.4	10.49	9
								2010007-032	Arsenic	10	ug/L	6/23/2010	4	50.6	35.83	4
								2010007-033	Arsenic	10	ug/L	8/27/2008	3	21.3	17.50	3
								2010007-034	Arsenic	10	ug/L	8/27/2008	2	33.5	31.20	2
								2010007-010	Gross alpha particle activity	15	pCi/L	8/27/2008	2	52.7	50.10	2
								2010007-032	Gross alpha particle activity	15	pCi/L	9/16/2008	4	48	31.25	4
								2010007-033	Gross alpha particle activity	15	pCi/L	9/16/2008	3	18	15.75	4
								2010007-034	Gross alpha particle activity	15	pCi/L	9/16/2008	3	148	83.07	3
								2010007-010	Uranium	20	pCi/L	7/26/2010	63	578	66.46	63
								2010007-032	Uranium	20	pCi/L	6/23/2010	10	202	92.07	12
MADERA	Bass Lake	BASS LAKE WATER COMPANY	2010003	Mixed <50%GW	2800	3	1	2010003-001	Gross alpha particle activity	15	pCi/L	3/20/2008	25	166	100.6292	24
								2010003-001	Uranium	20	pCi/L	7/6/2010	37	1000	153.53	35
								2010003-001	Uranium	30	ug/L	10/4/2010	56	1600	301.37931	27
MADERA	Ahwahnee CDP	MD#46 AHWAHNEE RESORTS	2000293	100% GW	300	6	5	2000293-003	Arsenic	10	ug/L	5/11/2010	8	14	10.99	11
								2000293-001	Gross alpha particle activity	15	pCi/L	8/17/2010	6	29	18.98	8
								2000293-004	Gross alpha particle activity	15	pCi/L	8/17/2010	8	32	25.89	7
								2000293-005	Gross alpha particle activity	15	pCi/L	8/17/2010	4	44	18.20	8
								2000293-006	Gross alpha particle activity	15	pCi/L	8/17/2010	6	27	19.08	8
								2000293-001	Uranium	20	pCi/L	2/9/2010	2	27.3	18.30	7
								2000293-004	Uranium	20	pCi/L	8/17/2010	7	33	29.40	6
								2000293-005	Uranium	20	pCi/L	2/9/2010	2	39.2	20.31	7
								2000293-006	Uranium	20	pCi/L	8/17/2010	4	24	20.54	7
MADERA	Ahwahnee CDP	PIKE RANCH MUTUAL WATER CO	2000526	100% GW	75	1	1	2000526-002	Gross alpha particle activity	15	pCi/L	7/1/2010	16	244	100.02	16
								2000526-002	Uranium	20	pCi/L	7/1/2010	7	191	87.03	8
MADERA	City of Firebaugh	EAST ACRES MUTUAL WATER COMPANY	2000512	100% GW	250	2	2	2000512-001	Arsenic	10	ug/L	9/15/2010	9	34	22.72	10
								2000512-003	Arsenic	10	ug/L	9/15/2010	5	25	12.63	10
MADERA	City of Firebaugh	MAHAL APARTMENTS	2000800	100% GW	50	1	1	2000800-001	Gross alpha particle activity	15	pCi/L	2/16/2010	4	31	23.24	5
								2000800-001	Uranium	30	ug/L	10/8/2007	6	35.3	31.40	4
MADERA	Bonadelle Ranchos - Madera Ranchos	VALLEY TEEN RANCH	2000785	100% GW	50	1	1	2000785-002	Arsenic	10	ug/L	8/24/2010	11	146	74.31	12
MADERA	City of Madera	MD#85 VALETA MUTUAL WATER COMPANY	2000511	100% GW	45	1	1	2000511-001	Nitrate (as NO3)	45	mg/L	5/4/2009	14	58.5	36.66	39
MADERA	City of Madera	LEISURE ACRES MUTUAL WATER COMPANY	2000534	100% GW	45	1	1	2000534-001	Arsenic	10	ug/L	6/29/2009	3	14.9	9.73	10
MADERA	City of Madera	CEDAR VALLEY MUTUAL WATER CO	2000538	100% GW	137	1	1	2000538-001	Arsenic	10	ug/L	1/5/2010	11	37.4	19.04	12
MADERA	City of Madera	MD#06 LAKE SHORE	2000550	100% GW	130	3	2	2000550-001	Arsenic	10	ug/L	9/15/2010	20	301	84.65	21

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		PARK						2000550-002	Arsenic	10	ug/L	9/15/2010	22	377	92.36	23
								2000550-001	Gross alpha particle activity	15	pCi/L	1/13/2010	6	476	183.38	6
								2000550-002	Gross alpha particle activity	15	pCi/L	1/13/2010	9	549	122.77	9
								2000550-001	Uranium	20	pCi/L	1/13/2010	2	102	75.50	2
								2000550-002	Uranium	20	pCi/L	1/13/2010	3	157	109.67	3
MADERA	City of Madera	MD#07 MARINA VIEW HEIGHTS	2000551	100% GW	200	2	2	2000551-002	Arsenic	10	ug/L	7/21/2010	11	18.4	12.41	14
								2000551-001	Gross alpha particle activity	15	pCi/L	1/13/2010	6	317	132.00	7
								2000551-002	Gross alpha particle activity	15	pCi/L	1/13/2010	6	161	72.42	6
								2000551-001	Uranium	30	ug/L	11/29/2007	10	407	207.90	5
								2000551-002	Uranium	20	pCi/L	1/13/2010	2	57	52.50	2
MADERA	City of Madera	MD#08 NORTH FORK WATER SYSTEM	2000561	100% GW	264	1	1	2000561-001	Arsenic	10	ug/L	1/13/2010	11	15.4	12.84	11
MADERA	City of Madera	MAMMOTH POOL MOBILE HOME PARK	2000589	100% GW	60	4	3	2000589-001	Gross alpha particle activity	15	pCi/L	8/11/2008	2	26	17.48	4
								2000589-003	Gross alpha particle activity	15	pCi/L	8/11/2008	2	18	13.80	4
								2000589-004	Gross alpha particle activity	15	pCi/L	8/11/2008	2	19	13.82	5
MADERA	City of Madera	MD#42 STILL MEADOW	2000737	100% GW	100	2	2	2000737-001	Arsenic	10	ug/L	1/12/2010	12	21.7	17.66	12
								2000737-002	Arsenic	10	ug/L	1/12/2010	12	28.7	22.57	12
								2000737-001	Gross alpha particle activity	15	pCi/L	8/17/2010	15	44	28.27	15
								2000737-002	Gross alpha particle activity	15	pCi/L	2/25/2008	2	16.3	12.41	8
								2000737-001	Uranium	20	pCi/L	8/17/2010	8	37.7	30.10	9
MADERA	City of North Fork	BASS LAKE ANNEX #3	2000501	100% GW	42	1	1	2000501-004	Gross alpha particle activity	15	pCi/L	3/25/2009	4	80.5	33.86	7
								2000501-004	Uranium	20	ug/L	6/2/2010	6	112	45.80	9
MADERA	City of North Fork	SIERRA LINDA MUTUAL WATER CO	2000506	100% GW	180	3	2	2000506-002	Arsenic	10	ug/L	9/19/2010	9	34.5	28.66	10
								2000506-006	Arsenic	10	ug/L	3/14/2010	2	11.6	8.97	6
								2000506-002	Gross alpha particle activity	15	pCi/L	3/14/2010	5	121	75.78	6
								2000506-006	Gross alpha particle activity	15	pCi/L	6/6/2010	4	423	237.75	4
								2000506-002	Uranium	20	ug/L	3/14/2010	2	102	76.40	2
								2000506-006	Uranium	20	pCi/L	6/6/2010	4	410	240.38	4
MADERA	City of North Fork	TWO TWENTY FOUR MOBILE HOME PK	2000592	100% GW	30	1	1	2000592-001	Gross alpha particle activity	15	pCi/L	8/20/2010	4	377	128.40	5
								2000592-001	Uranium	20	pCi/L	8/20/2010	2	393	309.00	2
MADERA	Oakhurst CDP	BASS LAKE HEIGHTS MUTUAL WATER	2000502	100% GW	250	3	3	2000502-001	Arsenic	10	ug/L	6/10/2010	7	31	21.51	7
								2000502-002	Arsenic	10	ug/L	6/10/2010	8	30	19.28	9
								2000502-003	Arsenic	10	ug/L	6/10/2010	6	21	19.18	6
MADERA	Oakhurst CDP	SKY ACRES MUTUAL WATER CORP	2000524	100% GW	90	3	1	2000524-003	Arsenic	10	ug/L	5/6/2010	2	14.9	8.96	5
MADERA	Oakhurst CDP	YOSEMITE FORKS ESTATES MUTUAL WTR	2000527	100% GW	110	4	1	2000527-001	Arsenic	10	ug/L	3/12/2010	3	18	17.00	3
MADERA	Oakhurst CDP	SUGAR PINE HOMEOWNERS ASSOC	2000533	100% GW	120	2	1	2000533-001	Gross alpha particle activity	15	pCi/L	6/12/2007	2	18	13.38	8
MADERA	Oakhurst CDP	ECCO	2000688	100% GW	100	3	1	2000688-006	Arsenic	10	ug/L	8/3/2010	4	17	14.36	5
MADERA	Oakhurst CDP	HILLVIEW WC-OAKHURST/SIERRA LAKES	2010007	100% GW	3006	18	3	2010007-007	Arsenic	10	ug/L	8/27/2008	4	21.9	17.48	4
								2010007-012	Arsenic	10	ug/L	8/27/2008	4	92.4	40.35	4
								2010007-012	Gross alpha particle activity	15	pCi/L	7/23/2007	2	48.5	38.75	2
								2010007-017	Tetrachloroethylene (PCE)	5	ug/L	10/18/2010	3	18	12.88	3
MADERA	Ahwahnee CDP	MD#43 MIAMI CREEK KNOLLS	2000557	>50% GW Mixed	100	3	1	2000557-003	Nitrate (as NO3)	45	mg/L	5/15/2007	2	67.7	38.48	9
MADERA	City of Madera	MD#24 TEAFORD MEADOW LAKES	2000552	>50% GW Mixed	150	3	1	2000552-002	Arsenic	10	ug/L	9/15/2010	3	46.7	10.87	11
MADERA	Oakhurst CDP	OAKHURST MOBILE HOME ESTATES	2000593	>50% GW Mixed	114	3	1	2000593-001	Gross alpha particle activity	15	pCi/L	11/18/2009	7	28.5	16.20	11
								2000593-001	Uranium	20	pCi/L	11/18/2009	6	30	13.43	12
MARIN	City of Novato	NPS PRNS - BEACHES	2110502	100% GW	55	1	1	2110502-001	Total Trihalomethanes	80	ug/L	5/9/2006	2	117	67.33	3
MARIN	Nicasio CDP	NICASIO VALLEY RANCH MUTUAL	2100579	>50% GW Mixed	51	2	1	2100579-001	Arsenic	10	ug/L	12/30/2009	6	81	32.89	11
MARIPOSA	City of Mariposa	PONDEROSA BASIN MUTUAL WTR CO	2210002	100% GW	665	6	1	2210002-008	Gross alpha particle activity	15	pCi/L	9/2/2008	2	20	12.10	4
MARIPOSA	Fish Camp CDP	FISHCAMP MUTUAL WATER COMPANY	2210903	100% GW	200	4	2	2210903-002	Gross alpha particle activity	15	pCi/L	9/21/2004	3	24.8	11.18	8
								2210903-003	Gross alpha particle activity	15	pCi/L	9/14/2010	7	31.2	20.83	8

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MENDOCINO	Laytonville CDP	LAYTONVILLE COUNTY WATER DISTRICT	2310011	100% GW	1301	2	2	2310011-001	Arsenic	10	ug/L	2/4/2010	85	68	55.45	84
								2310011-006	Arsenic	10	ug/L	3/4/2010	20	73	61.90	20
MERCED	City of Merced	MCHA Los Banos Center - CLOSED	2400108	100% GW	270	1	1	2400108-001	Arsenic	10	ug/L	7/24/2008	6	16.4	13.95	6
								2400108-001	Fluoride	2	mg/L	1/30/2003	3	2.4	1.01	5
								2400108-001	Gross alpha particle activity	15	pCi/L	4/17/2008	5	58.3	30.20	5
								2400108-001	Uranium	30	ug/L	4/17/2008	6	85.6	67.67	3
MERCED	Atwater city	ATWATER, CITY OF	2410001	100% GW	28100	10	1	2410001-009	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/26/2009	20	0.55	0.18	61
MERCED	Franklin CDP	MEADOWBROOK WC	2410008	100% GW	4400	3	1	2410008-010	Gross alpha particle activity	15	pCi/L	9/16/2008	2	16	12.20	5
MERCED	Hilmar-Irwin CDP	HILMAR COUNTY WATER DISTRICT	2410012	100% GW	4850	3	1	2410012-006	Arsenic	10	ug/L	10/21/2010	27	16.6	11.47	34
MERCED	Livingston city	LIVINGSTON-CITY	2410004	100% GW	13940	8	2	2410004-013	Arsenic	10	ug/L	7/14/2009	2	11	8.45	4
								2410004-025	Arsenic	10	ug/L	11/2/2010	7	36	31.14	7
MERCED	Los Banos city	LOS BANOS-CITY	2410005	100% GW	36198	12	1	2410005-007	Gross alpha particle activity	15	pCi/L	11/2/2005	2	15.4	12.54	7
MERCED	Merced city	MERCED, CITY OF	2410009	100% GW	80095	23	3	2410009-023	Arsenic	10	ug/L	9/30/2010	27	12	9.32	92
								2410009-013	Nitrate (as NO3)	45	mg/L	11/12/2010	41	54	40.91	130
								2410009-014	Nitrate (as NO3)	45	mg/L	11/12/2010	16	62	40.15	41
MERCED	City of Merced	John Latorraca Correction Center	2400172	100% GW	800	3	3	2400172-001	Arsenic	10	ug/L	1/22/2009	7	45.7	24.53	7
								2400172-002	Arsenic	10	ug/L	1/22/2009	7	23	16.97	7
								2400172-012	Arsenic	10	ug/L	11/6/2007	7	52	44.30	7
MERCED	El Nido CDP	El Nido Mobile Home Park	2400053	100% GW	250	2	3	2400053-003	Arsenic	10	ug/L	9/2/2010	20	70	41.95	26
								2400053-013	Arsenic	10	ug/L	5/27/2010	7	65.7	55.96	7
								2400053-014	Arsenic	10	ug/L	10/28/2010	45	65	36.51	44
								2400053-003	Nitrate (as NO3)	45	mg/L	3/29/2004	2	46.6	23.78	6
MERCED	Le Grand CDP	LE GRAND COMM SERVICES DIST	2410011	100% GW	1700	3	1	2410011-005	Arsenic	10	ug/L	3/25/2010	5	16.1	10.38	10
MONO	Bridgeport CDP	BRIDGEPORT PUD	2610003	100% GW	300	3	3	2610003-002	Arsenic	10	ug/L	1/5/2010	5	35	25.27	6
								2610003-003	Arsenic	10	ug/L	1/5/2010	6	28	14.64	6
								2610003-004	Arsenic	10	ug/L	1/5/2010	5	28	25.00	5
MONO	Coleville CDP	USMC HOUSING - COLEVILLE	2610701	100% GW	367	3	3	2610701-001	Arsenic	10	ug/L	3/2/2010	21	43	32.24	20
								2610701-004	Arsenic	10	ug/L	3/2/2010	21	33	28.43	20
								2610701-005	Arsenic	10	ug/L	3/21/2010	9	96	84.10	10
								2610701-005	Fluoride	2	mg/L	3/21/2010	9	3	2.51	9
MONO	Mammoth Lakes town	MAMMOTH CWD	2610001	>50% GW Mixed	8214	9	7	2610001-007	Arsenic	10	ug/L	11/2/2010	90	150	38.11	92
								2610001-009	Arsenic	10	ug/L	11/2/2010	71	37	17.06	73
								2610001-015	Arsenic	10	ug/L	11/2/2010	53	18	12.21	72
								2610001-016	Arsenic	10	ug/L	11/2/2010	52	49	22.67	54
								2610001-017	Arsenic	10	ug/L	10/13/2010	61	88	27.15	61
								2610001-018	Arsenic	10	ug/L	9/22/2009	17	33	10.36	48
								2610001-019	Arsenic	10	ug/L	11/2/2010	65	170	93.49	65
MONO	Crowley Lake CDP	CROWLEY LAKE MUT. WATER DIST.	2600546	100% GW	250	2	1	2600546-001	Gross alpha particle activity	15	pCi/L	10/6/2008	6	22.5	18.38	6
								2600546-001	Uranium	20	pCi/L	4/4/2005	4	27.4	22.05	6
MONO	Crowley Lake CDP	MOUNTAIN MEADOWS MWC	2600620	100% GW	225	4	3	2600620-001	Gross alpha particle activity	15	pCi/L	7/24/2009	4	30.4	25.06	5
								2600620-004	Gross alpha particle activity	15	pCi/L	7/24/2009	3	42.3	38.47	3
								2600620-001	Uranium	20	pCi/L	8/25/2010	6	41	28.83	7
								2600620-003	Uranium	20	pCi/L	8/25/2010	2	40.4	12.28	7
								2600620-004	Uranium	20	pCi/L	5/26/2010	5	40.5	29.13	6
MONTEREY	Ambler Park CDP	CAL AM WATER COMPANY - AMBLER PARK	2710006	100% GW	960	3	3	2710006-004	Arsenic	10	ug/L	10/4/2010	49	20	11.90	67
								2710006-005	Arsenic	10	ug/L	11/1/2010	100	50	26.11	99
								2710006-006	Arsenic	10	ug/L	11/1/2010	67	113	35.40	67
MONTEREY	Toro CDP	CAL AM WATER COMPANY - TORO	2710021	100% GW	1296	2	2	2710021-003	Arsenic	10	ug/L	11/1/2010	20	22	13.71	24
								2710021-004	Arsenic	10	ug/L	11/1/2010	23	17	14.26	23
MONTEREY	Salinas city	CWSC SALINAS	2710010	100% GW	114840	32	7	2710010-028	Gross alpha particle activity	15	pCi/L	5/28/2009	4	20	10.13	23
								2710010-010	Methyl tertiary butyl ether (MTBE)	13	ug/L	11/18/2010	172	284.96	23.00	312
								2710010-006	Nitrate (as NO3)	45	mg/L	7/13/2010	55	58	44.65	120
								2710010-018	Nitrate (as NO3)	45	mg/L	11/2/2010	9	70	40.86	124
								2710010-019	Nitrate (as NO3)	45	mg/L	11/2/2010	81	88.367	58.86	93
								2710010-029	Nitrate (as NO3)	45	mg/L	9/13/2010	11	53.834	32.22	46

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								2710010-039	Nitrate (as NO3)	45	mg/L	11/17/2010	92	72.37	57.51	91
MONTEREY	Soledad city	SALINAS VALLEY STATE PRISON	2710851	100% GW	6585	2	2	2710851-002	Nitrate (as NO3)	45	mg/L	10/12/2010	15	59	39.95	101
								2710851-004	Nitrate (as NO3)	45	mg/L	11/2/2010	24	72	52.49	36
MONTEREY	Spreckels CDP	TASCO SPRECKELS WATER COMPANY	2710023	100% GW	660	2	1	2710023-005	Gross alpha particle activity	15	pCi/L	12/17/2008	3	27.2	15.19	6
MONTEREY	Carmel Valley Village CDP, Del Monte Forest CDP, Sand City city, Seaside city	CAL AM WATER COMPANY - MONTEREY	2710004	>50% GW Mixed	122492	25	1	2710004-050	Arsenic	10	ug/L	9/14/2010	18	18	12.84	19
MONTEREY	City of Salinas	CORRAL DE TIERRA ESTATES WC	2700536	100% GW	45	1	1	2700536-004	Arsenic	10	ug/L	3/2/2009	9	86	68.44	9
MONTEREY	City of Salinas	LAGUNA SECA WC	2700612	100% GW	162	1	1	2700612-003	Arsenic	10	ug/L	8/8/2006	4	14	11.40	5
MONTEREY	City of Salinas	IVERSON & JACKS APTS WS	2701068	100% GW	150	1	1	2701068-001	Nitrate (as NO3)	45	mg/L	5/25/2010	3	82	69.33	3
MONTEREY	Gonzales city	RIVER RD WS #25	2701063	100% GW	65	1	1	2701063-001	Nitrate (as NO3)	45	mg/L	1/25/2010	3	167	110.33	3
MONTEREY	Greenfield city	APPLE AVE WS #03	2701036	100% GW	60	1	1	2701036-001	Nitrate (as NO3)	45	mg/L	6/6/2005	5	50	44.18	11
MONTEREY	Prunedale CDP	COLONIAL OAKS WC	2700534	100% GW	198	4	2	2700534-003	Nitrate (as NO3)	45	mg/L	5/3/2010	6	51	44.33	18
								2700534-004	Nitrate (as NO3)	45	mg/L	8/5/2010	8	66	45.72	18
MONTEREY	Prunedale CDP	MORO COJO MWA	2700656	100% GW	67	2	1	2700656-007	Nitrate (as NO3)	45	mg/L	7/20/2010	4	54	48.17	6
MONTEREY	Prunedale CDP	OAK HEIGHTS W & R CO INC	2700665	100% GW	105	3	1	2700665-003	Nitrate (as NO3)	45	mg/L	1/15/2008	8	80	39.32	19
MONTEREY	Prunedale CDP	PRUNEDALE MWC	2700702	100% GW	252	4	4	2700702-001	Arsenic	10	ug/L	12/10/2004	2	12	8.02	9
								2700702-002	Arsenic	10	ug/L	12/28/2009	8	19	15.50	8
								2700702-003	Arsenic	10	ug/L	12/26/2009	8	62	49.38	8
								2700702-004	Arsenic	10	ug/L	12/26/2009	7	68	53.71	7
MONTEREY	Prunedale CDP	SAN MIGUEL WS #01	2700738	100% GW	100	2	2	2700738-001	Nitrate (as NO3)	45	mg/L	9/8/2010	5	59	42.64	11
								2700738-002	Nitrate (as NO3)	45	mg/L	9/8/2010	4	56	41.30	10
MONTEREY	Prunedale CDP	MORO RD WS #09	2701926	100% GW	210	3	2	2701926-003	Arsenic	10	ug/L	7/1/2010	8	25	10.32	16
								2701926-002	Nitrate (as NO3)	45	mg/L	4/1/2010	6	48	45.00	8
NAPA	City of Calistoga	CALISTOGA FARM WORKER CENTER	2800039	100% GW	25	1	1	2800039-001	Arsenic	10	ug/L	12/1/2010	20	120	88.95	21
NAPA	City of Calistoga	TUCKER ACRES MUTUAL WATER CO.	2800516	100% GW	200	1	1	2800516-002	Arsenic	10	ug/L	3/31/2009	3	27	13.88	9
NEVADA	City of Truckee	TRUCKEE-DONNER PUD - HIRSCHDALE	2910010	100% GW	48	1	1	2910010-001	Arsenic	10	ug/L	11/4/2010	37	100	43.24	37
NEVADA	Truckee town	TRUCKEE-DONNER PUD, MAIN	2910003	100% GW	14300	12	3	2910003-005	Arsenic	10	ug/L	9/9/2009	7	53	17.35	16
				100% GW				2910003-007	Arsenic	10	ug/L	6/15/2009	2	16	11.20	6
				100% GW				2910003-012	Arsenic	10	ug/L	4/27/2005	2	13	11.60	3
NEVADA	Kingvale CDP	PLAVADA COMMUNITY ASSOCIATION	2910011	100% GW	300	3	2	2910011-006	Arsenic	10	ug/L	9/20/2010	12	28.6	16.88	12
								2910011-007	Arsenic	10	ug/L	9/20/2010	11	41.5	32.68	11
ORANGE	Anaheim city, Fullerton city	CITY OF FULLERTON	3010010	>50% GW Mixed	137367	11	1	3010010-012	Trichloroethylene (TCE)	5	ug/L	2/3/2004	12	6.7	3.36	67
ORANGE	Garden Grove city, Newport Beach city, Orange city, Placentia city, Santa Ana city, Tustin city	CITY OF SANTA ANA	3010038	>50% GW Mixed	353428	20	1	3010038-019	Nitrate (as NO3)	45	mg/L	9/17/2003	3	48.05	29.86	106
ORANGE	Irvine city, Lake Forest city, Orange city, Santa Ana city, Tustin city	IRVINE RANCH WATER DISTRICT	3010092	>50% GW Mixed	316000	27	2	3010092-058	Gross alpha particle activity	15	pCi/L	5/12/2008	2	17.8	11.83	13
								3010092-015	Perchlorate	6	ug/L	1/14/2010	8	7.9	1.90	37
								3010092-015	Tetrachloroethylene (PCE)	5	ug/L	2/12/2003	2	5.5	1.49	47
ORANGE	North Tustin CDP, Orange city, Tustin city	CITY OF TUSTIN	3010046	>50% GW Mixed	62100	12	5	3010046-002	Nitrate (as NO3)	45	mg/L	8/6/2003	2	47.92	35.15	33
								3010046-008	Nitrate (as NO3)	45	mg/L	5/19/2010	33	76.4	59.92	34
								3010046-009	Nitrate (as NO3)	45	mg/L	11/17/2010	32	98.04	76.68	32
								3010046-017	Nitrate (as NO3)	45	mg/L	2/21/2007	6	50.85	34.02	32
								3010046-022	Nitrate (as NO3)	45	mg/L	11/17/2010	32	80.8	58.99	35
								3010046-009	Perchlorate	6	ug/L	11/17/2010	26	10.6	7.10	35

Table 8.1

291112 Part 3

List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								3010046-022	Perchlorate	6	ug/L	2/11/2010	13	8	4.40	37
ORANGE	West Orange	GOLDEN STATE WC - WEST ORANGE	3010022	Mixed <50%GW	108995	20	1	3010022-022	Perchlorate	6	ug/L	8/4/2004	5	7.9	5.12941176	5
ORANGE	Yorba Linda	YORBA LINDA WATER DISTRICT	3010037	Mixed <50%GW	77513	10	1	3010037-001	Arsenic	10	ug/L	9/1/2010	32	83	11.7859649	29
ORANGE	Yorba Linda	GOLDEN STATE WC - YORBA LINDA	3010070	Mixed <50%GW	5742	2	1	3010070-003	Gross alpha particle activity	15	pCi/L	1/25/2010	17	26.8	23.3647059	17
								3010070-003	Uranium	20	pCi/L	1/25/2010	88	29	23.5248936	86
								3010070-003	Uranium	30	pCi/L	6/7/2010	114	43	32.5373134	67
ORANGE	Fountain Valley city, Newport Beach city	CITY OF NEWPORT BEACH	3010023	Undetermined	84218	4	1	3010023-005	Gross alpha particle activity	15	pCi/L	2/28/2007	3	15.7	13.25	14
ORANGE	Fullerton city	PAGE AVENUE MUTUAL WATER COMPANY	3000585	100% GW	104	1	1	3000585-001	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	5/3/2010	3	6.3	3.03	44
								3000585-001	Perchlorate	6	ug/L	10/1/2007	5	9.1	4.21	35
ORANGE	Huntington Beach city	LIBERTY PARK WATER ASSOCIATION	3000618	100% GW	100	1	1	3000618-001	Gross alpha particle activity	15	pCi/L	3/14/2003	5	18.7	13.08	15
ORANGE	Santa Ana city	CATALINA STREET PUMP OWNERS	3000662	100% GW	150	1	1	3000662-001	Gross alpha particle activity	15	pCi/L	4/5/2010	25	26.8	22.26	26
								3000662-001	Uranium	20	pCi/L	4/5/2010	24	25.8	21.70	26
ORANGE	Santa Ana city	DIAMOND PARK MUTUAL WATER CO.	3000663	100% GW	200	1	1	3000663-001	Nitrate (as NO3)	45	mg/L	10/4/2010	19	49.9	39.17	61
ORANGE	Stanton city	HYNES ESTATES MUTUAL WATER CO.	3000519	100% GW	120	2	1	3000519-001	Gross alpha particle activity	15	pCi/L	10/5/2009	7	17.8	14.98	17
PLACER	Tahoma CDP	TAHOMA MEADOWS MUTUAL WATER COMPANY	3100033	100% GW	120	1	1	3100033-001	Arsenic	10	ug/L	10/5/2010	24	246	37.95	19
PLACER	Lake Forest	LAKE FOREST UTILITY COMPANY	3110032	Mixed <50%GW	50	1	1	3110032-004	Arsenic	10	ug/L	3/19/2007	2	21	14.3333333	2
PLUMAS	Crescent Mills CDP	IVCSD - Crescent Mills	3200510	100% GW	258	2	1	3200510-001	Arsenic	10	ug/L	2/2/2010	2	12	6.60	6
PLUMAS	Beckwourth CDP, Portola city	CITY OF PORTOLA	3210003	100% GW	2500	4	2	3210003-005	Arsenic	10	ug/L	7/6/2010	12	31	13.89	20
								3210003-006	Arsenic	10	ug/L	7/6/2010	6	25	8.27	20
PLUMAS	Delleker CDP	GRIZZLY LAKE RID-DELLEKER	3200104	100% GW	657	3	2	3200104-002	Gross alpha particle activity	15	pCi/L	1/4/2010	8	32	17.45	13
								3200104-003	Gross alpha particle activity	15	pCi/L	4/13/2010	8	39.3	18.75	12
								3200104-002	Uranium	20	pCi/L	7/27/2010	4	36.9	16.64	17
								3200104-003	Uranium	20	pCi/L	1/4/2010	7	31.4	16.38	16
PLUMAS	Gold Mountain CDP	GOLD MOUNTAIN CSD	3205003	100% GW	100	2	1	3205003-002	Gross alpha particle activity	15	pCi/L	2/2/2009	5	23	20.52	5
PLUMAS	Undetermined	GRIZZLY RANCH CSD	3205006	100% GW	25	2	1	3205006-001	Arsenic	10	ug/L	9/14/2010	21	83	43.32	22
RIVERSIDE	City of Lake Elsinore	Ortega Oaks RV Park&Campground	3301482	100% GW	25	2	1	3301482-001	Arsenic	10	ug/L	9/29/2010	5	14	13.40	5
RIVERSIDE	Blythe city	CHUCKAWALLA VALLEY/IRONWOOD STATE PRISON	3310802	100% GW	7370	6	4	3310802-001	Arsenic	10	ug/L	11/2/2010	45	39	33.91	44
								3310802-002	Arsenic	10	ug/L	11/9/2010	36	38	34.33	36
								3310802-003	Arsenic	10	ug/L	7/20/2010	4	51	30.40	5
								3310802-006	Arsenic	10	ug/L	12/7/2010	29	39	35.03	29
								3310802-001	Fluoride	2	mg/L	11/2/2010	42	10.8	8.56	41
								3310802-002	Fluoride	2	mg/L	11/9/2010	36	14.2	7.99	36
								3310802-003	Fluoride	2	mg/L	7/20/2010	4	9.3	8.33	4
								3310802-006	Fluoride	2	mg/L	12/7/2010	29	11	7.81	29
RIVERSIDE	City of Redlands	Fisherman s Retreat	3301267	100% GW	100	3	1	3301267-001	Nitrate (as NO3)	45	mg/L	6/22/2009	2	130	50.80	5
RIVERSIDE	City of Riverside	Boe Del Heights Mutual Water	3301046	100% GW	250	1	1	3301046-001	Gross alpha particle activity	15	pCi/L	8/27/2007	2	15.6	13.36	5
RIVERSIDE	City of Riverside	CHINO BASIN DESALTER AUTH. - DESALTER 2	3310083	100% GW	0	11	8	3310083-002	Nitrate (as NO3)	45	mg/L	11/1/2010	51	100	84.41	51
								3310083-003	Nitrate (as NO3)	45	mg/L	11/1/2010	58	94	70.59	58
								3310083-004	Nitrate (as NO3)	45	mg/L	11/1/2010	46	90	78.76	46
								3310083-005	Nitrate (as NO3)	45	mg/L	11/1/2010	33	98	86.59	34
								3310083-007	Nitrate (as NO3)	45	mg/L	11/1/2010	47	150	114.64	47

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County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								3310083-008	Nitrate (as NO3)	45	mg/L	5/4/2010	43	86	75.21	43
								3310083-009	Nitrate (as NO3)	45	mg/L	8/4/2010	47	97	73.53	49
								3310083-010	Nitrate (as NO3)	45	mg/L	11/1/2010	41	260	189.51	41
RIVERSIDE	Corona city, Home Gardens CDP	HOME GARDENS COUNTY WD	3310018	100% GW	3033	2	1	3310018-005	Arsenic	10	ug/L	10/4/2010	12	39	32.42	12
								3310018-005	Fluoride	2	mg/L	10/11/2010	91	3.7	2.72	93
								3310018-005	Gross alpha particle activity	15	pCi/L	10/4/2010	6	48	36.83	6
								3310018-005	Uranium	20	pCi/L	10/4/2010	11	42	28.54	13
RIVERSIDE	Desert Hot Springs city	MISSION SPRINGS WD	3310008	100% GW	29802	12	2	3310008-014	Gross alpha particle activity	15	pCi/L	9/8/2010	9	22	15.21	17
								3310008-026	Gross alpha particle activity	15	pCi/L	9/8/2010	7	24	17.00	9
								3310008-014	Uranium	20	pCi/L	9/2/2009	4	23	18.43	17
RIVERSIDE	Glen Avon CDP, Mira Loma CDP, Pedley CDP, Rubidoux CDP	JURUPA COMMUNITY SD	3310021	100% GW	87846	22	8	3310021-016	Nitrate (as NO3)	45	mg/L	11/4/2010	95	87	49.92	172
								3310021-017	Nitrate (as NO3)	45	mg/L	11/4/2010	101	97	72.38	103
								3310021-018	Nitrate (as NO3)	45	mg/L	11/4/2010	102	81	46.64	200
								3310021-020	Nitrate (as NO3)	45	mg/L	9/9/2010	111	72	43.23	196
								3310021-021	Nitrate (as NO3)	45	mg/L	8/12/2010	26	53	38.88	180
								3310021-022	Nitrate (as NO3)	45	mg/L	9/9/2010	114	130	93.91	115
								3310021-023	Nitrate (as NO3)	45	mg/L	8/12/2010	48	52	39.54	260
								3310021-024	Nitrate (as NO3)	45	mg/L	5/31/2006	20	57	40.71	242
RIVERSIDE	Idyllwild-Pine Cove CDP	IDYLLWILD WATER DISTRICT	3310019	100% GW	2500	26	1	3310019-004	Gross alpha particle activity	15	pCi/L	10/14/2010	17	36.3	17.32	24
RIVERSIDE	Indio city	LA QUINTA RIDGE MOBILE ESTATES	3301372	100% GW	350	2	1	3301372-002	Perchlorate	6	ug/L	6/12/2008	4	9	7.23	4
RIVERSIDE	Mecca CDP	COACHELLA VWD: I.D. NO. 10	3310063	100% GW	7638	3	3	3310063-002	Arsenic	10	ug/L	11/17/2010	90	36	22.84	87
								3310063-005	Arsenic	10	ug/L	11/17/2010	40	17	11.28	56
								3310063-007	Arsenic	10	ug/L	11/2/2010	28	18	15.36	28
RIVERSIDE	Mesa Verde CDP	RIVERSIDE CSA #122-MESA VERDE	3310028	100% GW	1000	3	2	3310028-003	Fluoride	2	mg/L	9/20/2005	2	2.82	2.47	3
RIVERSIDE	Riverside city	WESTERN MWD (ARLINGTON)	3310075	100% GW	0	7	5	3310075-001	Gross alpha particle activity	15	pCi/L	1/26/2010	6	18.8	14.64	12
								3310075-002	Gross alpha particle activity	15	pCi/L	1/27/2010	5	16.7	13.08	14
								3310075-003	Gross alpha particle activity	15	pCi/L	1/27/2010	5	20.7	13.61	13
								3310075-004	Gross alpha particle activity	15	pCi/L	1/28/2010	2	37	14.14	13
								3310075-005	Gross alpha particle activity	15	pCi/L	1/26/2010	3	16.8	13.03	13
								3310075-001	Nitrate (as NO3)	45	mg/L	11/3/2010	101	86	73.00	101
								3310075-002	Nitrate (as NO3)	45	mg/L	11/3/2010	110	98	81.16	109
								3310075-003	Nitrate (as NO3)	45	mg/L	11/3/2010	107	100	89.69	106
								3310075-004	Nitrate (as NO3)	45	mg/L	11/3/2010	109	102	86.31	108
								3310075-005	Nitrate (as NO3)	45	mg/L	11/3/2010	108	82	67.48	107
								3310075-001	Perchlorate	6	ug/L	11/3/2010	20	8	5.52	68
								3310075-002	Perchlorate	6	ug/L	11/3/2010	42	9.5	6.32	69
								3310075-003	Perchlorate	6	ug/L	11/3/2010	34	8.2	6.07	66
								3310075-004	Perchlorate	6	ug/L	8/11/2009	5	7.2	5.03	66
RIVERSIDE	Rubidoux CDP	RUBIDOUX COMMUNITY SD	3310044	100% GW	26177	7	3	3310044-002	Nitrate (as NO3)	45	mg/L	11/23/2010	419	60	51.51	430
								3310044-004	Nitrate (as NO3)	45	mg/L	11/1/2010	100	66	52.93	102
								3310044-006	Nitrate (as NO3)	45	mg/L	10/13/2010	76	63	53.33	75
								3310044-002	Perchlorate	6	ug/L	11/2/2010	93	12	8.80	94
								3310044-004	Perchlorate	6	ug/L	11/10/2010	51	11	8.45	53
								3310044-006	Perchlorate	6	ug/L	8/18/2010	34	14	8.00	36
RIVERSIDE	Whitewater CDP	WEST PALM SPRINGS VILLAGE	3310078	100% GW	628	2	1	3310078-001	Gross alpha particle activity	15	pCi/L	3/1/2010	12	37	25.84	14
								3310078-001	Uranium	20	pCi/L	3/1/2010	29	37	30.65	23
RIVERSIDE	Cathedral City city, Palm Springs city	DESERT WATER AGENCY	3310005	>50% GW Mixed	71656	32	1	3310005-008	Gross alpha particle activity	15	pCi/L	6/9/2010	8	28.9	18.87	11
								3310005-008	Uranium	20	pCi/L	9/17/2008	2	24	18.06	11
RIVERSIDE	Colton city, Grand Terrace city, Highgrove CDP, Highland city, Home Gardens CDP, Rialto city, Riverside city, San Bernardino city	RIVERSIDE, CITY OF	3310031	>50% GW Mixed	291398	59	34	3310031-015	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/30/2010	108	1.58	0.38	128
								3310031-036	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	1/29/2010	21	0.76	0.50	23
								3310031-038	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/17/2003	5	0.31	0.10	54
								3310031-040	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	7/11/2002	4	0.48	0.04	90
								3310031-067	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/30/2010	95	1.7	0.56	97
								3310031-074	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/26/2010	78	1.3	0.67	81
								3310031-080	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/3/2009	50	0.44	0.27	66
								3310031-093	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/16/2010	98	1.8	0.71	100
								3310031-111	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	4/29/2004	3	0.26	0.10	31
								3310031-167	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	7/27/2010	4	0.23	0.20	10

List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

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								3310031-024	Arsenic	10	ug/L	3/13/2006	3	11	7.91	31
								3310031-015	Gross alpha particle activity	15	pCi/L	5/14/2009	3	28.9	11.86	27
								3310031-027	Gross alpha particle activity	15	pCi/L	6/11/2010	34	46.5	28.65	35
								3310031-028	Gross alpha particle activity	15	pCi/L	8/10/2010	36	41.5	21.74	43
								3310031-029	Gross alpha particle activity	15	pCi/L	5/14/2009	2	16	9.07	25
								3310031-031	Gross alpha particle activity	15	pCi/L	9/10/2010	34	44	24.11	39
								3310031-032	Gross alpha particle activity	15	pCi/L	9/16/2010	39	48.1	25.03	42
								3310031-033	Gross alpha particle activity	15	pCi/L	6/17/2010	13	34.2	26.52	13
								3310031-034	Gross alpha particle activity	15	pCi/L	8/20/2010	16	32.9	17.38	25
								3310031-037	Gross alpha particle activity	15	pCi/L	8/24/2005	2	25	7.67	22
								3310031-074	Gross alpha particle activity	15	pCi/L	6/18/2010	14	24	14.99	35
								3310031-081	Gross alpha particle activity	15	pCi/L	9/16/2010	25	39	20.75	35
								3310031-154	Gross alpha particle activity	15	pCi/L	9/17/2010	16	46.9	23.37	21
								3310031-164	Gross alpha particle activity	15	pCi/L	8/4/2010	16	26	18.11	23
								3310031-015	Nitrate (as NO3)	45	mg/L	1/7/2009	2	66	42.02	100
								3310031-029	Nitrate (as NO3)	45	mg/L	5/14/2009	17	60	45.38	31
								3310031-030	Nitrate (as NO3)	45	mg/L	10/27/2010	34	61	50.68	38
								3310031-038	Nitrate (as NO3)	45	mg/L	8/13/2009	6	47	43.71	41
								3310031-074	Nitrate (as NO3)	45	mg/L	8/26/2010	64	76	64.74	68
								3310031-085	Nitrate (as NO3)	45	mg/L	11/18/2010	26	55	50.38	29
								3310031-093	Nitrate (as NO3)	45	mg/L	5/26/2004	11	59	37.26	86
								3310031-027	Perchlorate	6	ug/L	12/16/2009	20	60	6.94	49
								3310031-028	Perchlorate	6	ug/L	8/10/2010	37	22	6.77	56
								3310031-029	Perchlorate	6	ug/L	8/4/2010	32	13	8.64	34
								3310031-030	Perchlorate	6	ug/L	10/27/2010	40	14	9.94	43
								3310031-031	Perchlorate	6	ug/L	9/10/2010	42	17	8.80	47
								3310031-032	Perchlorate	6	ug/L	9/16/2010	53	55	24.03	53
								3310031-034	Perchlorate	6	ug/L	5/8/2008	17	10	6.28	36
								3310031-036	Perchlorate	6	ug/L	7/8/2010	40	73	56.55	42
								3310031-037	Perchlorate	6	ug/L	5/25/2005	2	63	4.34	38
								3310031-038	Perchlorate	6	ug/L	8/10/2010	44	22	13.45	44
								3310031-044	Perchlorate	6	ug/L	9/15/2010	7	8.9	6.09	15
								3310031-045	Perchlorate	6	ug/L	6/23/2010	9	7.4	4.90	32
								3310031-051	Perchlorate	6	ug/L	3/30/2006	5	7.4	5.03	25
								3310031-052	Perchlorate	6	ug/L	4/12/2006	5	7.3	4.86	25
								3310031-067	Perchlorate	6	ug/L	4/24/2008	3	8.3	4.19	54
								3310031-074	Perchlorate	6	ug/L	11/8/2007	6	8	5.01	53
								3310031-077	Perchlorate	6	ug/L	5/21/2010	15	7.7	4.73	46
								3310031-080	Perchlorate	6	ug/L	11/18/2010	41	45	22.95	41
								3310031-081	Perchlorate	6	ug/L	5/20/2010	10	13	4.80	44
								3310031-085	Perchlorate	6	ug/L	11/18/2010	52	16	11.41	52
								3310031-093	Perchlorate	6	ug/L	7/7/2004	4	7.6	4.42	57
								3310031-100	Perchlorate	6	ug/L	2/20/2008	10	8.2	5.69	30
								3310031-111	Perchlorate	6	ug/L	10/27/2010	54	45	16.75	55
								3310031-154	Perchlorate	6	ug/L	9/17/2010	11	53	13.86	13
								3310031-164	Perchlorate	6	ug/L	8/4/2010	23	14	11.42	23
								3310031-165	Perchlorate	6	ug/L	8/12/2010	13	15	10.57	13
								3310031-167	Perchlorate	6	ug/L	11/18/2010	13	31	26.85	13
								3310031-027	Trichloroethylene (TCE)	5	ug/L	11/13/2003	13	8.7	3.39	44
								3310031-031	Trichloroethylene (TCE)	5	ug/L	9/10/2010	36	33	10.46	44
								3310031-032	Trichloroethylene (TCE)	5	ug/L	9/16/2010	41	19	8.28	48
								3310031-036	Trichloroethylene (TCE)	5	ug/L	7/8/2010	29	18	12.41	32
								3310031-081	Trichloroethylene (TCE)	5	ug/L	5/11/2006	37	11	5.20	71
								3310031-154	Trichloroethylene (TCE)	5	ug/L	6/25/2010	3	11	4.25	10
								3310031-027	Uranium	20	pCi/L	6/11/2010	35	54	39.98	35
								3310031-028	Uranium	20	pCi/L	8/10/2010	38	54.3	32.84	42
								3310031-031	Uranium	20	pCi/L	9/10/2010	38	67	34.31	38
								3310031-032	Uranium	20	pCi/L	9/16/2010	40	50.9	36.02	41
								3310031-033	Uranium	20	pCi/L	6/17/2010	12	43	34.77	13
								3310031-034	Uranium	20	pCi/L	8/20/2010	20	37	26.10	23
								3310031-037	Uranium	20	pCi/L	11/6/2008	2	30.2	10.54	21
								3310031-074	Uranium	20	pCi/L	8/26/2010	30	25	21.03	35

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County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								3310031-081	Uranium	20	pCi/L	9/16/2010	30	46	29.75	34
								3310031-154	Uranium	20	pCi/L	9/17/2010	20	52	35.10	21
								3310031-164	Uranium	20	pCi/L	8/4/2010	20	34	28.29	21
RIVERSIDE	Corona city, El Cerrito CDP, Temescal Valley CDP	CORONA, CITY OF	3310037	>50% GW Mixed	149928	25	17	3310037-028	Fluoride	2	mg/L	6/16/2010	20	3.4	2.12	26
								3310037-021	Gross alpha particle activity	15	pCi/L	7/22/2009	2	30.4	13.97	8
								3310037-025	Gross alpha particle activity	15	pCi/L	1/28/2010	2	28	14.78	5
								3310037-031	Gross alpha particle activity	15	pCi/L	12/11/2003	2	16.53	10.86	9
								3310037-011	Nitrate (as NO3)	45	mg/L	2/17/2010	145	81	57.47	165
								3310037-013	Nitrate (as NO3)	45	mg/L	11/17/2010	161	120	95.39	164
								3310037-014	Nitrate (as NO3)	45	mg/L	11/17/2010	169	110	71.65	172
								3310037-015	Nitrate (as NO3)	45	mg/L	8/7/2002	14	98	20.65	169
								3310037-021	Nitrate (as NO3)	45	mg/L	11/17/2010	176	92.1	64.56	184
								3310037-023	Nitrate (as NO3)	45	mg/L	6/18/2008	2	55	13.04	183
								3310037-024	Nitrate (as NO3)	45	mg/L	11/17/2010	127	84	52.70	175
								3310037-025	Nitrate (as NO3)	45	mg/L	3/22/2006	2	80	22.37	75
								3310037-026	Nitrate (as NO3)	45	mg/L	4/9/2008	2	71	10.28	134
								3310037-027	Nitrate (as NO3)	45	mg/L	11/17/2010	169	100	67.43	169
								3310037-029	Nitrate (as NO3)	45	mg/L	11/17/2010	180	100	70.02	179
								3310037-030	Nitrate (as NO3)	45	mg/L	10/20/2010	75	86	48.86	161
								3310037-031	Nitrate (as NO3)	45	mg/L	11/17/2010	131	75	52.45	152
								3310037-032	Nitrate (as NO3)	45	mg/L	11/17/2010	153	78	56.20	155
								3310037-033	Nitrate (as NO3)	45	mg/L	7/20/2005	16	64	28.43	160
								3310037-038	Nitrate (as NO3)	45	mg/L	3/17/2010	84	70	48.11	133
								3310037-011	Perchlorate	6	ug/L	9/12/2008	17	11.4	6.76	29
								3310037-013	Perchlorate	6	ug/L	9/1/2010	26	14	11.08	26
								3310037-014	Perchlorate	6	ug/L	9/1/2010	31	11	8.61	32
								3310037-015	Perchlorate	6	ug/L	3/17/2006	2	9.4	3.35	31
								3310037-021	Perchlorate	6	ug/L	6/10/2009	10	9	5.61	30
								3310037-024	Perchlorate	6	ug/L	9/1/2010	9	11	5.44	32
								3310037-025	Perchlorate	6	ug/L	12/6/2005	2	8.1	3.98	10
								3310037-027	Perchlorate	6	ug/L	3/3/2010	13	9.4	5.92	31
								3310037-029	Perchlorate	6	ug/L	9/1/2010	28	11	7.99	32
								3310037-030	Perchlorate	6	ug/L	12/11/2003	4	6.9	4.79	30
								3310037-031	Perchlorate	6	ug/L	6/18/2008	5	8.02	4.97	31
								3310037-032	Perchlorate	6	ug/L	6/18/2008	13	7.93	5.74	30
								3310037-038	Perchlorate	6	ug/L	3/14/2008	2	6.74	4.52	25
RIVERSIDE	East Hemet CDP, Hemet city, San Jacinto city, Valle Vista CDP	LAKE HEMET MWD	3310022	>50% GW Mixed	50001	14	1	3310022-029	Gross alpha particle activity	15	pCi/L	7/20/2004	4	19	10.76	21
RIVERSIDE	Hemet city, San Jacinto city	HEMET, CITY OF	3310016	>50% GW Mixed	20395	13	2	3310016-013	Fluoride	2	mg/L	9/1/2010	3	2.4	1.69	7
								3310016-004	Nitrate (as NO3)	45	mg/L	8/27/2008	2	79	30.59	67
RIVERSIDE	Moreno Valley city	BOX SPRINGS MUTUAL WC	3310004	>50% GW Mixed	3000	1	1	3310004-002	Nitrate (as NO3)	45	mg/L	10/21/2010	15	47	43.10	109
RIVERSIDE	Moreno Valley, San Jacinto, Hemet, Menifee, Murrieta, Temecula, Perris	EASTERN MUNICIPAL WD	3310009	Mixed <50%GW	446700	35	6	3310009-077	Barium	1000	ug/L	8/24/2009	2	2100	923.333333	2
								3310009-088	Barium	1000	ug/L	8/7/2008	2	1100	1100	2
								3310009-042	Nitrate (as NO3)	45	mg/L	11/29/2010	410	73	61.895122	407
								3310009-060	Nitrate (as NO3)	45	mg/L	11/22/2010	309	126	97.3624595	307
								3310009-074	Nitrate (as NO3)	45	mg/L	8/2/2010	4	51	38.5076923	3
								3310009-076	Nitrate (as NO3)	45	mg/L	8/2/2010	6	94	55.375	5
								3310009-088	Nitrate (as NO3)	45	mg/L	8/7/2008	3	53	47.8	3
								3310009-042	Perchlorate	6	ug/L	9/7/2010	11	7.8	5.45806452	11
								3310009-060	Perchlorate	6	ug/L	10/12/2010	27	13	9.45806452	27
								3310009-088	Perchlorate	6	ug/L	5/19/2010	6	7.4	5.375	6
								3310009-042	Tetrachloroethylene (PCE)	5	ug/L	10/11/2010	2	5.4	2.54	2
								3310009-060	Tetrachloroethylene (PCE)	5	ug/L	10/12/2010	23	9.4	5.97096774	23
RIVERSIDE	Lake Elsinore, Canyon Lake, Horsethief Canyon, Temescal,	ELSINORE VALLEY MWD	3310012	Mixed <50%GW	126495	10	5	3310012-004	Arsenic	10	ug/L	9/9/2008	4	16	7.15	4
								3310012-007	Arsenic	10	ug/L	8/5/2008	6	14	10.18	6
								3310012-021	Arsenic	10	ug/L	8/17/2010	23	42	27.826087	23
								3310012-022	Arsenic	10	ug/L	8/17/2010	19	27	19.9772727	19
								3310012-031	Arsenic	10	ug/L	6/8/2010	23	13	11.0142857	23
RIVERSIDE	Norco	NORCO, CITY OF	3310025	Mixed <50%GW	27160	4	5	3310025-012	Arsenic	10	ug/L	6/14/2010	4	21	6.23965517	4
								3310025-013	Arsenic	10	ug/L	9/10/2010	102	28	10.0393782	94

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								3310025-016	Arsenic	10	ug/L	5/5/2008	7	14	6.42037037	7
								3310025-016	Cyanide	150	ug/L	3/19/2007	4	450	38.3333333	4
								3310025-012	Fluoride	2	mg/L	9/27/2010	146	4.1	2.64807882	145
								3310025-013	Fluoride	2	mg/L	9/10/2010	81	2.8	1.71349727	80
								3310025-016	Fluoride	2	mg/L	5/3/2010	114	7.4	3.00389222	113
								3310025-013	Gross alpha particle activity	15	pCi/L	1/12/2009	4	19	9.9	4
								3310025-011	Nitrate (as NO3)	45	mg/L	4/3/2006	58	82	58.1323529	58
								3310025-012	Nitrate (as NO3)	45	mg/L	7/12/2010	14	73	10.9412017	14
								3310025-015	Nitrate (as NO3)	45	mg/L	7/24/2006	3	62	14.8362998	3
RIVERSIDE	Temecula, Murrieta	RANCHO CALIFORNIA WATER DISTRICT	3310038	Mixed <50%GW	102604	43	5	3310038-012	Arsenic	10	ug/L	9/1/2010	30	24	12.4607143	30
								3310038-029	Arsenic	10	ug/L	10/19/2010	4	12	7.85	4
								3310038-031	Arsenic	10	ug/L	11/4/2010	42	27	19.2093023	42
								3310038-045	Arsenic	10	ug/L	6/23/2010	4	12	8.72222222	4
								3310038-031	Fluoride	2	mg/L	11/4/2010	34	5.4	3.50243902	34
RIVERSIDE	Temecula, Murrieta	FARM MUTUAL W.C. (THE)	3310046	Mixed <50%GW	3335	1	1	3310046-002	Arsenic	10	ug/L	11/2/2010	16	16	11.275	16
RIVERSIDE	Homeland CDP, Lakeview CDP, Nuevo CDP	NUEVO WATER COMPANY	3310026	Undetermined	6000	3	1	3310026-002	Nitrate (as NO3)	45	mg/L	3/7/2007	61	83	50.99	111
RIVERSIDE	Idyllwild-Pine Cove CDP	FERN VALLEY WD	3310040	Undetermined	2500	10	2	3310040-021	Aluminum	1000	ug/L	9/12/2005	2	1700	466.63	8
								3310040-010	Gross alpha particle activity	15	pCi/L	8/27/2010	3	37.7	12.39	11
RIVERSIDE	Anza CDP	Ramona Water Company	3301529	100% GW	250	7	2	3301529-002	Nitrate (as NO3)	45	mg/L	10/28/2010	3	50	36.57	14
								3301529-005	Nitrate (as NO3)	45	mg/L	8/25/2010	7	62	49.89	9
RIVERSIDE	City of Riverside	Sunbird Mobile Home Park	3301755	100% GW	258	1	1	3301755-001	Arsenic	10	ug/L	10/25/2010	13	20	13.62	17
RIVERSIDE	Desert Center CDP	CSA #51	3301381	100% GW	350	1	1	3301381-001	Fluoride	2	mg/L	4/26/2010	5	7.8	7.50	5
RIVERSIDE	Glen Avon CDP, Mira Loma CDP, Pedley CDP, Rubidoux CDP	JURUPA COMMUNITY SD	3310021	100% GW	87846	22	1	3310021-034	Nitrate (as NO3)	45	mg/L	10/5/2009	8	50	29.38	302
RIVERSIDE	Mecca CDP	Saint Anthony Trailer Park	3301380	100% GW	250	1	1	3301380-001	Arsenic	10	ug/L	2/8/2010	6	23	18.89	7
RIVERSIDE	Thermal CDP	Desert View Trailer Park	3301209	100% GW	50	1	1	3301209-001	Fluoride	2	mg/L	9/3/2009	2	2.6	2.22	5
RIVERSIDE	Wildomar city	County Water of Riverside	3302093	100% GW	180	1	1	3302093-001	Nitrate (as NO3)	45	mg/L	9/3/2010	10	86	69.00	10
RIVERSIDE	City of Anza	Royal Carrizo HOA	3301588	>50% GW Mixed	25	2	2	3301588-001	Gross alpha particle activity	15	pCi/L	8/18/2008	14	47.2	22.50	18
								3301588-004	Gross alpha particle activity	15	pCi/L	2/22/2008	2	47.7	28.38	3
								3301588-001	Uranium	20	pCi/L	9/16/2010	16	61	22.88	25
								3301588-004	Uranium	20	pCi/L	11/18/2010	7	45.1	27.08	11
SACRAMENTO	Elk Grove city	ELK GROVE WATER SERVICE	3410008	100% GW	35567	17	1	3410008-013	Arsenic	10	ug/L	7/17/2008	7	16	9.53	16
SACRAMENTO	Fruitridge Pocket CDP, Lemon Hill CDP, Parkway CDP, Sacramento city	FRUITRIDGE VISTA WATER COMPANY	3410023	100% GW	15000	17	1	3410023-002	Tetrachloroethylene (PCE)	5	ug/L	10/17/2006	14	21	9.48	22
SACRAMENTO	Galt city	GALT, CITY OF	3410011	100% GW	22982	10	5	3410011-013	Arsenic	10	ug/L	4/20/2010	10	15	12.45	11
								3410011-018	Arsenic	10	ug/L	7/15/2010	11	21	13.98	14
								3410011-019	Arsenic	10	ug/L	8/18/2009	3	16	8.63	9
								3410011-021	Arsenic	10	ug/L	7/15/2010	11	18	15.09	11
								3410011-024	Arsenic	10	ug/L	7/15/2010	13	15	13.46	13
SACRAMENTO	Isleton city	CALAM - ISLETON	3410012	100% GW	1287	2	1	3410012-004	Arsenic	10	ug/L	7/30/2009	4	29	26.00	4
SACRAMENTO	Walnut Grove CDP	CALAM - WALNUT GROVE	3410047	100% GW	657	2	2	3410047-001	Arsenic	10	ug/L	11/12/2009	9	17	14.40	10
								3410047-003	Arsenic	10	ug/L	8/27/2009	3	12	10.40	5
								3410013-016	Tetrachloroethylene (PCE)	5	ug/L	8/9/2010	24	6.2	4.23	96
								3410013-022	Tetrachloroethylene (PCE)	5	ug/L	11/17/2010	41	6.7	4.71	91
SACRAMENTO	Elk Grove city, Vineyard CDP	SCWA - LAGUNA/VINEYARD	3410029	>50% GW Mixed	153701	52	9	3410029-001	Arsenic	10	ug/L	5/10/2007	4	16	12.75	4
								3410029-005	Arsenic	10	ug/L	3/28/2007	5	21	19.60	5
								3410029-006	Arsenic	10	ug/L	11/19/2007	2	17	10.43	7
								3410029-010	Arsenic	10	ug/L	3/28/2007	4	23	20.75	4
								3410029-012	Arsenic	10	ug/L	11/22/2006	6	13	9.17	9
								3410029-024	Arsenic	10	ug/L	10/21/2010	30	57	41.28	32
								3410029-025	Arsenic	10	ug/L	11/3/2010	17	28	10.38	56

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								3410029-028	Arsenic	10	ug/L	10/21/2010	24	47	21.81	35
								3410029-038	Arsenic	10	ug/L	10/21/2010	32	17	12.99	35
SACRAMENTO	Carmichael	CARMICHAEL WATER DISTRICT	3410004	Mixed <50%GW	40000	6	1	3410004-020	Tetrachloroethylene (PCE)	5	ug/L	4/16/2009	2	27	1.56451613	2
SACRAMENTO	Sacramento	CITY OF SACRAMENTO MAIN	3410020	Mixed <50%GW	407018	33	1	3410020-025	Tetrachloroethylene (PCE)	5	ug/L	12/15/2009	5	33	31	5
SACRAMENTO	Florin CDP, Parkway CDP	CALAM - PARKWAY	3410017	Undetermined	45187	18	2	3410017-006	Arsenic	10	ug/L	8/5/2009	8	21	17.13	8
								3410017-012	Tetrachloroethylene (PCE)	5	ug/L	8/26/2008	36	13.2	5.64	95
SACRAMENTO	City of Granite Bay	EDGEWATER MOBILE HOME PARK	3400433	100% GW	29	1	1	3400433-001	Arsenic	10	ug/L	10/13/2010	13	39	30.74	15
SACRAMENTO	City of Isleton	KORTHS PIRATES LAIR	3400135	100% GW	40	1	1	3400135-001	Arsenic	10	ug/L	8/9/2010	38	45	38.74	38
SACRAMENTO	City of Isleton	VIEIRA S RESORT, INC	3400164	100% GW	150	3	3	3400164-001	Arsenic	10	ug/L	12/9/2010	11	31	21.08	12
								3400164-002	Arsenic	10	ug/L	12/9/2010	10	32	24.43	12
								3400164-003	Arsenic	10	ug/L	12/9/2010	10	31	22.92	12
SACRAMENTO	City of Isleton	SPINDRIFT MARINA	3400169	100% GW	100	1	1	3400169-001	Arsenic	10	ug/L	9/27/2007	3	26	11.21	8
SACRAMENTO	City of Isleton	OXBOW MARINA	3400332	100% GW	200	2	2	3400332-001	Arsenic	10	ug/L	9/13/2010	20	37	27.40	20
								3400332-002	Arsenic	10	ug/L	12/14/2009	5	26	25.20	5
SACRAMENTO	Courtland CDP	GREGG WATER CO	3400130	100% GW	40	1	1	3400130-001	Arsenic	10	ug/L	11/19/2010	8	12	8.68	13
SACRAMENTO	Elk Grove city	ELK GROVE WATER SERVICE	3410008	100% GW	35567	17	5	3410008-005	Arsenic	10	ug/L	9/22/2007	4	43	29.00	4
								3410008-006	Arsenic	10	ug/L	9/25/2007	4	19	15.00	4
								3410008-007	Arsenic	10	ug/L	5/21/2007	3	31	23.65	4
								3410008-009	Arsenic	10	ug/L	3/17/2008	3	19	9.21	8
								3410008-010	Arsenic	10	ug/L	9/22/2007	4	52	36.25	4
SACRAMENTO	Walnut Grove CDP	MSA: EAST WALNUT GROVE WATER SYSTEM (W10	3400106	100% GW	300	2	1	3400106-001	Arsenic	10	ug/L	2/19/2008	5	18	15.40	5
SACRAMENTO	Walnut Grove CDP	LOCKE WATER WORKS CO [SWS]	3400138	100% GW	65	1	1	3400138-001	Arsenic	10	ug/L	12/9/2010	8	32	15.72	16
SACRAMENTO	Walnut Grove CDP	RANCHO MARINA	3400149	100% GW	75	1	1	3400149-001	Arsenic	10	ug/L	9/9/2010	5	59	25.81	8
SACRAMENTO	City of Isleton	WILLOW BERM MARINA	3400167	>50% GW Mixed	150	1	1	3400167-001	Arsenic	10	ug/L	7/12/2010	46	57	45.38	47
SACRAMENTO	Florin CDP, Parkway CDP	CALAM - PARKWAY	3410017	Undetermined	45187	18	1	3410017-003	Tetrachloroethylene (PCE)	5	ug/L	7/25/2002	4	6.3	1.00	106
SAN BENITO	City of Carmel Valley	WHISPERING PINES INN	3500810	100% GW	100	1	1	3500810-001	Arsenic	10	ug/L	11/2/2010	72	210	167.88	70
SAN BENITO	City of Hollister	ARNOLD PARK (O BANNON S MHP)	3500526	100% GW	28	1	1	3500526-001	Chromium, Total	50	ug/L	6/17/2008	9	75	45.57	21
								3500526-001	Nitrate (as NO3)	45	mg/L	6/17/2008	77	110	68.75	97
SAN BENITO	City of Oakland	VALENZUELA WATER SYSTEM	3500527	100% GW	55	1	1	3500527-001	Nitrate (as NO3)	45	mg/L	11/10/2010	36	126	49.34	59
SAN BENITO	Ridgemark	ASHFORD HIGHLANDS MWC	3500900	100% GW	85	2	1	3500900-001	Chromium, Total	50	ug/L	11/9/2010	2	477	98.67	6
SAN BENITO	City of Gilroy	HOLLISTER RANCH ESTATES	3500904	100% GW	150	2	1	3500904-002	Gross alpha particle activity	15	pCi/L	1/18/2010	8	39.6	20.95	13
								3500904-002	Uranium	20	pCi/L	1/18/2010	3	27.1	12.71	11
SAN BERNARDINO	Adelanto city, Victorville city	CITY OF ADELANTO	3610001	100% GW	19500	18	3	3610001-003	Arsenic	10	ug/L	4/12/2005	2	28.5	25.70	2
								3610001-007	Arsenic	10	ug/L	2/12/2009	2	32	30.80	2
								3610001-018	Arsenic	10	ug/L	3/12/2009	2	23.8	18.40	2
								3610001-003	Fluoride	2	mg/L	10/7/2010	67	7.5	6.14	67
								3610001-007	Fluoride	2	mg/L	11/2/2010	40	2.5	2.22	47
								3610001-018	Fluoride	2	mg/L	8/5/2008	34	3.03	2.23	61
SAN BERNARDINO	Apple Valley town	GOLDEN STATE WATER CO - APPLE VLY NORTH	3610105	100% GW	2257	2	1	3610105-003	Gross alpha particle activity	15	pCi/L	11/16/2005	2	19.2	9.91	15
SAN BERNARDINO	Apple Valley town, Mountain View Acres CDP, Victorville city	VICTORVILLE WATER DISTRICT	3610052	100% GW	120000	37	22	3610052-012	Arsenic	10	ug/L	10/25/2010	10	22	11.71	19
								3610052-022	Arsenic	10	ug/L	4/5/2004	2	11	8.28	10
								3610052-024	Arsenic	10	ug/L	1/13/2005	4	11	7.68	36
								3610052-025	Arsenic	10	ug/L	10/26/2010	34	17	12.07	37
								3610052-026	Arsenic	10	ug/L	10/1/2007	29	16	9.61	44
								3610052-027	Arsenic	10	ug/L	10/25/2010	9	21	10.24	28

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								3610052-031	Arsenic	10	ug/L	2/23/2010	7	13	9.33	34
								3610052-032	Arsenic	10	ug/L	1/21/2009	7	12	7.89	29
								3610052-033	Arsenic	10	ug/L	4/28/2010	12	14	10.77	19
								3610052-034	Arsenic	10	ug/L	7/7/2010	39	19	10.70	62
								3610052-038	Arsenic	10	ug/L	10/25/2010	13	28	17.26	14
								3610052-039	Arsenic	10	ug/L	4/19/2010	5	22	12.18	13
								3610052-044	Arsenic	10	ug/L	4/13/2004	6	12	7.87	36
								3610052-046	Arsenic	10	ug/L	7/13/2010	18	19.8	12.08	26
								3610052-047	Arsenic	10	ug/L	10/15/2009	19	19	12.78	24
								3610052-048	Arsenic	10	ug/L	10/19/2007	2	20	8.59	28
								3610052-049	Arsenic	10	ug/L	10/20/2010	24	22	16.53	25
								3610052-050	Arsenic	10	ug/L	1/29/2008	5	18.4	8.21	30
								3610052-051	Arsenic	10	ug/L	10/27/2010	21	16	11.76	27
								3610052-052	Arsenic	10	ug/L	10/26/2010	14	24	12.00	24
								3610052-057	Arsenic	10	ug/L	7/27/2010	6	19	11.99	7
								3610052-028	Fluoride	2	mg/L	1/25/2006	5	2.64	0.36	580
SAN BERNARDINO	Barstow city, Lenwood CDP	GOLDEN STATE WATER CO - BARSTOW	3610043	100% GW	25772	19	3	3610043-024	Gross alpha particle activity	15	pCi/L	11/16/2005	2	19.4	10.08	15
								3610043-025	Gross alpha particle activity	15	pCi/L	8/1/2009	2	17.7	8.38	17
								3610043-025	Nitrate (as NO3)	45	mg/L	1/4/2005	7	65	22.15	143
								3610043-024	Perchlorate	6	ug/L	11/20/2010	2	120	37.33	6
								3610043-025	Perchlorate	6	ug/L	11/20/2010	2	9.4	2.83	26
SAN BERNARDINO	Big Bear City CDP	BIG BEAR CITY CSD	3610008	100% GW	6000	14	5	3610008-012	Carbon tetrachloride	0.5	ug/L	11/3/2010	41	1	0.76	42
								3610008-005	Fluoride	2	mg/L	11/17/2010	341	7.3	3.41	427
								3610008-007	Fluoride	2	mg/L	11/17/2010	372	12	4.55	438
								3610008-008	Fluoride	2	mg/L	11/17/2010	423	5.3	2.66	440
								3610008-010	Fluoride	2	mg/L	10/8/2008	48	5.8	1.40	415
								3610008-007	Trichloroethylene (TCE)	5	ug/L	10/13/2010	41	29	16.07	41
SAN BERNARDINO	Big Bear City CDP, Big Bear Lake city	DWP - BIG BEAR LAKE/MOONRIDGE	3610044	100% GW	6869	39	1	3610044-036	Arsenic	10	ug/L	10/13/2005	2	22	20.00	2
SAN BERNARDINO	Chino city, Eastvale CDP, Ontario city	CHINO BASIN DESALTER AUTH. - DESALTER 1	3610075	100% GW	0	14	14	3610075-001	Arsenic	10	ug/L	4/20/2010	8	14	10.72	21
								3610075-002	Arsenic	10	ug/L	7/6/2010	8	13	10.42	21
								3610075-005	Gross alpha particle activity	15	pCi/L	7/9/2008	2	16.5	11.69	13
								3610075-008	Gross alpha particle activity	15	pCi/L	10/1/2008	7	21.6	14.62	14
								3610075-009	Gross alpha particle activity	15	pCi/L	7/13/2010	10	21.7	16.62	13
								3610075-010	Gross alpha particle activity	15	pCi/L	7/13/2010	4	22.3	12.71	13
								3610075-011	Gross alpha particle activity	15	pCi/L	7/13/2010	2	17.1	9.12	12
								3610075-003	Nitrate (as NO3)	45	mg/L	5/11/2010	2	68	26.43	94
								3610075-004	Nitrate (as NO3)	45	mg/L	10/12/2010	103	443	114.85	105
								3610075-005	Nitrate (as NO3)	45	mg/L	10/12/2010	99	302	249.66	101
								3610075-006	Nitrate (as NO3)	45	mg/L	10/12/2010	88	370	214.61	90
								3610075-007	Nitrate (as NO3)	45	mg/L	10/12/2010	102	364	196.47	104
								3610075-008	Nitrate (as NO3)	45	mg/L	10/12/2010	93	500	282.35	94
								3610075-009	Nitrate (as NO3)	45	mg/L	10/12/2010	102	400	264.50	104
								3610075-010	Nitrate (as NO3)	45	mg/L	10/12/2010	96	290	157.18	98
								3610075-011	Nitrate (as NO3)	45	mg/L	10/12/2010	101	195	132.63	102
								3610075-013	Nitrate (as NO3)	45	mg/L	10/12/2010	55	170	148.79	56
								3610075-014	Nitrate (as NO3)	45	mg/L	10/12/2010	59	207	164.44	59
								3610075-015	Nitrate (as NO3)	45	mg/L	10/12/2010	56	240	194.82	57
								3610075-002	Trichloroethylene (TCE)	5	ug/L	11/9/2005	22	16	3.89	92
								3610075-003	Trichloroethylene (TCE)	5	ug/L	11/10/2010	70	55	27.45	79
								3610075-008	Uranium	20	pCi/L	10/1/2008	2	22.6	15.80	10
SAN BERNARDINO	Chino city, Upland city	CALIFORNIA INSTITUTION FOR MEN	3610850	100% GW	12065	7	7	3610850-001	Nitrate (as NO3)	45	mg/L	8/4/2010	154	78.7	54.95	167
								3610850-002	Nitrate (as NO3)	45	mg/L	12/1/2010	169	110	56.99	176
								3610850-003	Nitrate (as NO3)	45	mg/L	12/1/2010	46	75	44.27	97
								3610850-004	Nitrate (as NO3)	45	mg/L	5/5/2010	7	60	31.81	163
								3610850-007	Nitrate (as NO3)	45	mg/L	6/2/2010	75	57.3	44.43	132
								3610850-008	Nitrate (as NO3)	45	mg/L	12/1/2010	139	720	96.20	144
								3610850-013	Nitrate (as NO3)	45	mg/L	12/1/2010	116	76	51.33	118
								3610850-001	Tetrachloroethylene (PCE)	5	ug/L	9/2/2009	6	8.2	2.24	148
								3610850-003	Tetrachloroethylene (PCE)	5	ug/L	8/13/2002	2	8.3	0.63	54
								3610850-004	Tetrachloroethylene (PCE)	5	ug/L	7/16/2008	53	8.4	4.54	135
								3610850-007	Tetrachloroethylene (PCE)	5	ug/L	5/16/2006	3	5.37	2.55	98

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								3610850-004	Trichloroethylene (TCE)	5	ug/L	12/31/2002	2	99.8	0.91	119
SAN BERNARDINO	City of Arrowbear Lake	ARROWBEAR PARK CWD	3610110	100% GW	580	4	4	3610110-001	Gross alpha particle activity	15	pCi/L	10/27/2010	115	140	77.51	116
								3610110-003	Gross alpha particle activity	15	pCi/L	11/4/2010	114	146	63.47	114
								3610110-004	Gross alpha particle activity	15	pCi/L	11/10/2010	110	180	88.59	110
								3610110-006	Gross alpha particle activity	15	pCi/L	10/20/2010	109	170	79.33	109
								3610110-001	Uranium	20	pCi/L	9/1/2010	26	120	78.87	27
								3610110-003	Uranium	20	pCi/L	11/4/2010	30	90	67.50	30
								3610110-004	Uranium	20	pCi/L	3/3/2010	20	150	95.90	21
								3610110-006	Uranium	20	pCi/L	6/2/2010	25	99	73.38	25
SAN BERNARDINO	Colton city, Grand Terrace city, San Bernardino city	RIVERSIDE HIGHLAND WATER CO	3610057	100% GW	14500	6	1	3610057-009	Nitrate (as NO3)	45	mg/L	1/8/2009	2	51	30.96	23
SAN BERNARDINO	Colton city, San Bernardino city	CITY OF COLTON	3610014	100% GW	51350	16	2	3610014-025	Arsenic	10	ug/L	9/1/2010	7	27	15.17	12
								3610014-012	Perchlorate	6	ug/L	11/10/2010	8	10	3.91	20
SAN BERNARDINO	Crestline City	CDF-PILOT ROCK CONSERVATION CAMP	3610801	100% GW	85	3	1	3610801-002	Gross alpha particle activity	15	pCi/L	5/22/2008	3	25.3	19.10	4
SAN BERNARDINO	Fort Irwin CDP	US ARMY FORT IRWIN	3610705	100% GW	16000	7	6	3610705-001	Arsenic	10	ug/L	12/13/2009	6	11	9.07	19
								3610705-009	Arsenic	10	ug/L	2/18/2010	18	38	33.22	18
								3610705-012	Arsenic	10	ug/L	2/18/2010	5	34	28.40	5
								3610705-015	Arsenic	10	ug/L	2/18/2010	21	18	16.76	21
								3610705-001	Fluoride	2	mg/L	2/18/2010	19	7.8	7.21	19
								3610705-002	Fluoride	2	mg/L	2/18/2010	19	15	8.70	19
								3610705-003	Fluoride	2	mg/L	2/18/2010	5	4.4	3.50	6
								3610705-009	Fluoride	2	mg/L	2/18/2010	18	12	9.31	18
								3610705-012	Fluoride	2	mg/L	2/18/2010	4	2.5	2.26	5
								3610705-015	Fluoride	2	mg/L	2/18/2010	21	3.9	3.33	21
								3610705-002	Gross alpha particle activity	15	pCi/L	3/21/2008	4	25	15.65	10
SAN BERNARDINO	Highland city, Homestead Valley CDP, Yucaipa city, Yucca Valley town	HI DESERT WD	3610073	100% GW	21268	13	5	3610073-020	Arsenic	10	ug/L	9/2/2010	20	17	11.12	28
								3610073-022	Arsenic	10	ug/L	4/7/2010	18	15	9.53	35
								3610073-016	Fluoride	2	mg/L	2/19/2003	2	2.3	1.50	25
								3610073-008	Nitrate (as NO3)	45	mg/L	9/25/2002	7	53	21.91	164
								3610073-021	Nitrate (as NO3)	45	mg/L	3/31/2004	21	56	26.01	172
SAN BERNARDINO	Homestead Valley CDP	BIGHORN - DESERT VIEW WATER AGENCY	3610009	100% GW	2575	8	2	3610009-003	Gross alpha particle activity	15	pCi/L	9/8/2010	6	18	14.60	12
								3610009-004	Gross alpha particle activity	15	pCi/L	6/7/2010	2	18.9	13.11	11
SAN BERNARDINO	Loma Linda city, Redlands city, San Bernardino city	CITY OF LOMA LINDA	3610013	100% GW	22451	9	4	3610013-009	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/3/2010	9	0.37	0.06	411
								3610013-017	Arsenic	10	ug/L	11/2/2010	40	39	20.32	41
								3610013-018	Arsenic	10	ug/L	10/5/2010	232	44	32.55	222
								3610013-024	Arsenic	10	ug/L	11/3/2010	38	33	20.97	38
								3610013-018	Fluoride	2	mg/L	10/5/2010	326	3	2.22	457
								3610013-009	Perchlorate	6	ug/L	10/5/2010	115	26	4.74	441
SAN BERNARDINO	Morongo Valley CDP	GOLDEN STATE WATER CO - MORONGO DEL SUR	3610063	100% GW	2458	3	3	3610063-004	Gross alpha particle activity	15	pCi/L	11/9/2010	15	24.2	16.67	23
								3610063-006	Gross alpha particle activity	15	pCi/L	11/23/2010	16	24.9	16.06	26
								3610063-007	Gross alpha particle activity	15	pCi/L	8/3/2010	2	27.9	25.05	2
								3610063-004	Uranium	20	pCi/L	5/13/2008	11	23	18.78	30
								3610063-006	Uranium	20	pCi/L	5/13/2008	10	23	17.93	30
SAN BERNARDINO	Muscoy CDP, Rialto city, San Bernardino city	SAN BERNARDINO CITY	3610039	100% GW	180315	55	18	3610039-126	Gross alpha particle activity	15	pCi/L	10/28/2008	2	16.8	13.15	4
								3610039-014	Nitrate (as NO3)	45	mg/L	10/6/2010	246	77.3	50.31	403
								3610039-023	Nitrate (as NO3)	45	mg/L	7/13/2010	4	47	32.32	50
								3610039-012	Perchlorate	6	ug/L	7/2/2009	5	9.2	4.36	22
								3610039-030	Perchlorate	6	ug/L	7/20/2010	2	7.7	3.87	10
								3610039-047	Perchlorate	6	ug/L	5/10/2004	7	9.04	4.30	19
								3610039-048	Perchlorate	6	ug/L	10/2/2007	3	8.1	4.53	15
								3610039-005	Tetrachloroethylene (PCE)	5	ug/L	7/14/2010	48	10	6.96	57
								3610039-007	Tetrachloroethylene (PCE)	5	ug/L	6/3/2010	45	7.9	2.80	330
								3610039-008	Tetrachloroethylene (PCE)	5	ug/L	7/21/2009	27	9	6.00	34
								3610039-009	Tetrachloroethylene (PCE)	5	ug/L	4/14/2010	28	9.3	6.63	33

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								3610039-031	Tetrachloroethylene (PCE)	5	ug/L	10/27/2005	7	7.6	4.04	36
								3610039-040	Tetrachloroethylene (PCE)	5	ug/L	10/13/2004	7	9	3.27	34
								3610039-069	Tetrachloroethylene (PCE)	5	ug/L	10/13/2010	19	13	8.47	19
								3610039-113	Tetrachloroethylene (PCE)	5	ug/L	10/13/2010	21	7.8	5.09	39
								3610039-114	Tetrachloroethylene (PCE)	5	ug/L	10/13/2010	29	8.8	5.66	39
								3610039-119	Tetrachloroethylene (PCE)	5	ug/L	10/9/2003	6	6.7	3.67	36
SAN BERNARDINO	Ontario city, Rancho Cucamonga city, San Antonio Heights CDP, Upland city	SAN ANTONIO WATER COMPANY	3610085	100% GW	3165	10	3	3610085-004	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	4/15/2005	9	0.82	0.10	176
								3610085-010	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/24/2010	3	0.26	0.12	117
								3610085-011	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/9/2005	43	0.33	0.13	172
SAN BERNARDINO	Ridgecrest city	SEARLES VALLEY MINERALS OPERATIONS INC	3610854	100% GW	2100	5	3	3610854-003	Arsenic	10	ug/L	9/14/2010	15	24	20.95	16
								3610854-006	Arsenic	10	ug/L	12/8/2009	3	13	8.46	16
								3610854-007	Arsenic	10	ug/L	9/14/2010	14	39	24.66	16
SAN BERNARDINO	San Bernardino city	BASELINE GARDENS MWC	3610007	100% GW	1300	2	1	3610007-003	Nitrate (as NO3)	45	mg/L	7/29/2010	6	63	49.11	7
								3610007-003	Perchlorate	6	ug/L	7/29/2010	6	17	12.69	5
SAN BERNARDINO	Silver Lakes CDP	HELENDALE COMMUNITY SERVICE DISTRICT	3610112	100% GW	8646	7	3	3610112-003	Arsenic	10	ug/L	8/25/2010	32	25	16.95	35
								3610112-006	Arsenic	10	ug/L	8/25/2010	37	30	20.54	37
								3610112-007	Arsenic	10	ug/L	8/31/2010	30	23	13.65	36
								3610112-006	Gross alpha particle activity	15	pCi/L	3/2/2007	2	16	9.65	10
								3610112-007	Gross alpha particle activity	15	pCi/L	11/17/2010	11	46	16.31	23
SAN BERNARDINO	Twentynine Palms city	TWENTYNINE PALMS WATER DIST	3610049	100% GW	17500	12	4	3610049-011	Arsenic	10	ug/L	10/4/2010	42	21	15.00	43
								3610049-009	Fluoride	2	mg/L	11/1/2010	102	2.8	2.37	108
								3610049-011	Fluoride	2	mg/L	11/1/2010	88	2.7	2.32	94
								3610049-018	Fluoride	2	mg/L	10/31/2010	68	6.7	5.85	68
								3610049-015	Gross alpha particle activity	15	pCi/L	11/28/2007	7	19.5	18.00	8
SAN BERNARDINO	Twentynine Palms city	USMC - 29 PALMS	3610703	100% GW	24373	11	1	3610703-004	Arsenic	10	ug/L	6/8/2006	9	13	10.18	17
SAN BERNARDINO	Victorville city	FEDERAL CORRECTIONAL INSTITUTION	3610707	100% GW	4756	3	2	3610707-002	Arsenic	10	ug/L	4/1/2009	7	15	5.36	37
								3610707-003	Arsenic	10	ug/L	4/1/2009	3	50.4	5.56	38
SAN BERNARDINO	Bloomington CDP, Colton city, Fontana city, Muscoy CDP, Rialto city, San Bernardino city	WEST VALLEY WATER DISTRICT	3610004	>50% GW Mixed	65283	18	4	3610004-002	Arsenic	10	ug/L	12/12/2006	3	12	7.56	43
								3610004-008	Nitrate (as NO3)	45	mg/L	2/26/2004	3	53	38.35	32
								3610004-008	Perchlorate	6	ug/L	7/7/2010	3	13	2.72	41
								3610004-031	Perchlorate	6	ug/L	12/27/2004	7	7.3	4.05	64
								3610004-034	Perchlorate	6	ug/L	10/7/2008	8	9.4	4.09	305
SAN BERNARDINO	Chino city	CITY OF CHINO	3610012	>50% GW Mixed	62000	9	2	3610012-009	Nitrate (as NO3)	45	mg/L	9/16/2010	17	96	75.8	17
								3610012-009	Perchlorate	6	ug/L	9/16/2010	14	24	18	17
SAN BERNARDINO	Chino city, Montclair city, Ontario city, Upland city	MONTE VISTA CWD	3610029	>50% GW Mixed	54415	13	7	3610029-003	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	7/7/2010	70	0.5	0.26	104
								3610029-025	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	3/19/2009	16	0.32	0.16	93
								3610029-036	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/1/2010	30	0.55	0.23	39
								3610029-038	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	1/7/2010	2	0.23	0.12	33
								3610029-039	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/22/2010	9	0.36	0.24	15
								3610029-003	Nitrate (as NO3)	45	mg/L	10/7/2010	101	81	63.01	107
								3610029-005	Nitrate (as NO3)	45	mg/L	12/1/2009	66	62	44.82	106
								3610029-009	Nitrate (as NO3)	45	mg/L	11/3/2010	91	66	55.10	101
								3610029-025	Nitrate (as NO3)	45	mg/L	11/5/2010	88	85	56.95	93
								3610029-036	Nitrate (as NO3)	45	mg/L	11/1/2010	30	90	52.20	44
								3610029-038	Nitrate (as NO3)	45	mg/L	11/1/2010	39	76	56.62	46
								3610029-039	Nitrate (as NO3)	45	mg/L	11/16/2010	33	80	69.56	34
								3610029-039	Perchlorate	6	ug/L	10/20/2010	5	8	5.42	15
								3610029-038	Total Trihalomethanes	80	ug/L	6/11/2008	2	85.5	23.54	33
SAN BERNARDINO	Claremont city, Montclair city, Ontario city, San Antonio Heights CDP, Upland city	CITY OF UPLAND	3610050	>50% GW Mixed	73000	12	3	3610050-023	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/15/2009	14	0.4	0.20	30
								3610050-026	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/15/2009	16	0.39	0.20	30
								3610050-045	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/8/2009	2	0.31	0.26	3
								3610050-023	Nitrate (as NO3)	45	mg/L	4/28/2010	34	78	66.83	35
								3610050-026	Nitrate (as NO3)	45	mg/L	4/28/2010	34	81	65.90	36
								3610050-045	Perchlorate	6	ug/L	10/8/2009	2	7.5	7.50	2
SAN BERNARDINO	Crestline CDP	CEDARPINES PARK MWC	3610011	>50% GW Mixed	2418	18	1	3610011-018	Gross alpha particle activity	15	pCi/L	1/4/2010	11	33	15.92	18

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County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
SAN BERNARDINO	Crestline CDP, Los Angeles city	VALLEY OF ENCHANTMENT MWC	3610051	>50% GW Mixed	1280	20	1	3610051-018	Gross alpha particle activity	15	pCi/L	11/1/2010	24	22.2	15.89	31
SAN BERNARDINO	Ontario city, Rancho Cucamonga city	ONTARIO MUNICIPAL UTILITIES COMPANY	3610034	>50% GW Mixed	174536	24	3	3610034-043	Nitrate (as NO3)	45	mg/L	11/1/2010	10	61	54.50	10
								3610034-044	Nitrate (as NO3)	45	mg/L	11/1/2010	10	56	50.70	10
								3610034-045	Nitrate (as NO3)	45	mg/L	12/20/2009	5	52	37.25	8
								3610034-043	Perchlorate	6	ug/L	10/25/2010	2	6.5	5.53	6
SAN BERNARDINO	Rialto city, San Bernardino city	RIALTO-CITY	3610038	>50% GW Mixed	48623	13	5	3610038-015	Nitrate (as NO3)	45	mg/L	1/7/2008	66	53	34.93	208
								3610038-001	Perchlorate	6	ug/L	10/15/2010	134	45	13.14	169
								3610038-003	Perchlorate	6	ug/L	1/4/2010	2	7.9	3.13	12
								3610038-009	Perchlorate	6	ug/L	10/4/2010	40	94	12.72	73
								3610038-015	Perchlorate	6	ug/L	9/15/2010	137	25	7.41	186
								3610038-017	Perchlorate	6	ug/L	5/3/2010	15	8	2.48	273
SAN BERNARDINO	Running Springs CDP, Yucaipa city	RUNNING SPRINGS WATER DISTRICT	3610062	>50% GW Mixed	4475	26	4	3610062-011	Gross alpha particle activity	15	pCi/L	8/24/2010	34	56	28.19	37
								3610062-022	Gross alpha particle activity	15	pCi/L	9/8/2010	8	35	15.94	16
								3610062-034	Gross alpha particle activity	15	pCi/L	8/18/2010	20	44	32.52	21
								3610062-101	Gross alpha particle activity	15	pCi/L	4/18/2007	2	19	11.90	8
								3610062-011	Uranium	20	pCi/L	8/24/2010	20	72	25.21	38
								3610062-022	Uranium	20	pCi/L	9/8/2010	8	44	19.30	16
								3610062-034	Uranium	20	pCi/L	8/18/2010	23	39	29.41	25
SAN BERNARDINO	Twin Peaks	ALPINE WATER USERS ASSOCIATION	3610002	Mixed <50%GW	3000	7	7	3610002-001	Gross alpha particle activity	15	pCi/L	10/20/2010	81	37	21.6407767	81
								3610002-003	Gross alpha particle activity	15	pCi/L	10/20/2010	103	58	39.6875	103
								3610002-004	Gross alpha particle activity	15	pCi/L	1/20/2010	22	43.2	12.050381	22
								3610002-005	Gross alpha particle activity	15	pCi/L	9/14/2005	9	29	6.93174419	9
								3610002-006	Gross alpha particle activity	15	pCi/L	2/18/2004	2	120	4.98571429	2
								3610002-007	Gross alpha particle activity	15	pCi/L	10/20/2010	95	98	37.4929293	95
								3610002-009	Gross alpha particle activity	15	pCi/L	10/20/2010	83	53	24.1067308	83
								3610002-001	Uranium	20	pCi/L	10/20/2010	70	40	22.9961905	70
								3610002-003	Uranium	20	pCi/L	10/20/2010	103	67	39.9134615	102
								3610002-004	Uranium	20	pCi/L	2/17/2010	17	37	14.3486792	16
								3610002-005	Uranium	20	pCi/L	9/14/2005	5	27	7.37850575	5
								3610002-006	Uranium	20	pCi/L	2/18/2004	2	81.5	5.39644231	2
								3610002-007	Uranium	20	pCi/L	10/20/2010	92	110	39.084	90
								3610002-009	Uranium	20	pCi/L	10/20/2010	60	56	24.0885714	58
SAN BERNARDINO	Lake Arrowhead	LAKE ARROWHEAD CSD	3610005	Mixed <50%GW	4292	5	6	3610005-006	Gross alpha particle activity	15	pCi/L	10/25/2010	47	200	135.829787	47
								3610005-007	Gross alpha particle activity	15	pCi/L	10/25/2010	40	130	67.2642857	40
								3610005-009	Gross alpha particle activity	15	pCi/L	10/25/2010	51	42	20.0462963	51
								3610005-012	Gross alpha particle activity	15	pCi/L	10/25/2010	12	110	46.6666667	12
								3610005-013	Gross alpha particle activity	15	pCi/L	10/25/2010	12	130	93.25	12
								3610005-006	Uranium	20	pCi/L	10/25/2010	45	240	131.111111	45
								3610005-007	Uranium	20	pCi/L	10/25/2010	38	130	65.902439	38
								3610005-009	Uranium	20	pCi/L	10/25/2010	41	34	23.6365385	41
								3610005-012	Uranium	20	pCi/L	10/25/2010	12	75	58.25	12
								3610005-013	Uranium	20	pCi/L	10/25/2010	12	130	98.1666667	12
SAN BERNARDINO	Rancho Cucamonga, Upland, Ontario, Fontana	CUCAMONGA VALLEY WATER DISTRICT	3610018	Mixed <50%GW	185534	28	10	3610018-005	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/3/2010	24	0.35	0.09732168	24
								3610018-006	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	12/3/2009	36	0.58	0.19145283	36
								3610018-007	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/3/2010	67	0.83	0.28110811	67
								3610018-029	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/13/2010	182	0.94	0.24955921	182
								3610018-032	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/3/2010	73	0.69	0.25520168	73
								3610018-039	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/3/2010	47	0.89	0.24279167	46
								3610018-002	Nitrate (as NO3)	45	mg/L	3/30/2010	34	59	19.1585492	34
								3610018-005	Nitrate (as NO3)	45	mg/L	8/3/2010	35	89	40.6013514	35
								3610018-006	Nitrate (as NO3)	45	mg/L	8/3/2010	50	82	48.2222222	50
								3610018-007	Nitrate (as NO3)	45	mg/L	8/3/2010	38	71	42.6551724	38
								3610018-010	Nitrate (as NO3)	45	mg/L	11/22/2010	269	66	47.6862259	269
								3610018-029	Nitrate (as NO3)	45	mg/L	10/12/2004	5	78	25.4993548	5
								3610018-032	Nitrate (as NO3)	45	mg/L	8/6/2009	12	55	36.0731707	12
								3610018-037	Nitrate (as NO3)	45	mg/L	4/9/2008	8	49	24.9860825	8
								3610018-038	Nitrate (as NO3)	45	mg/L	8/3/2010	125	93	75.7874016	124
								3610018-039	Nitrate (as NO3)	45	mg/L	8/3/2010	93	79	55.5793651	88
								3610018-002	Perchlorate	6	ug/L	3/30/2010	18	9.8	1.52222222	18
								3610018-037	Perchlorate	6	ug/L	6/14/2010	15	8.6	3.92959184	15

Table 8.1
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County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
SAN BERNARDINO	Green Valley Lake	GREEN VALLEY MWC	3610023	Mixed <50%GW	700	24	2	3610023-034	Gross alpha particle activity	15	pCi/L	10/15/2010	6	36	22	6
								3610023-035	Gross alpha particle activity	15	pCi/L	4/15/2010	4	23	14.5625	4
								3610023-034	Uranium	20	pCi/L	1/6/2006	2	22	17.6666667	2
SAN BERNARDINO	Chino Hills	CITY OF CHINO HILLS	3610036	Mixed <50%GW	78725	5	1	3610036-017	Arsenic	10	ug/L	11/16/2010	25	17	8.56851852	25
SAN BERNARDINO	Redlands	REDLANDS CITY MUD-WATER DIV	3610037	Mixed <50%GW	80000	25	4	3610037-037	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/5/2002	2	0.97	0.08528205	2
								3610037-037	Nitrate (as NO3)	45	mg/L	12/16/2008	29	57	47.9230769	28
								3610037-039	Nitrate (as NO3)	45	mg/L	6/5/2002	2	49	41.8235294	2
								3610037-031	Perchlorate	6	ug/L	10/9/2002	4	9	3.7484386	3
								3610037-037	Perchlorate	6	ug/L	4/7/2009	28	8.8	6.60232558	25
								3610037-039	Perchlorate	6	ug/L	12/16/2008	9	7.6	5.80952381	8
								3610037-060	Perchlorate	6	ug/L	10/20/2010	14	9	5.16046	14
SAN BERNARDINO	Yucaipa	WESTERN HEIGHTS WATER COMPANY	3610053	Mixed <50%GW	7120	5	1	3610053-011	Nitrate (as NO3)	45	mg/L	7/13/2009	7	46	22.3240566	5
SAN BERNARDINO	San Bernardino	EAST VALLEY WATER DISTRICT	3610064	Mixed <50%GW	70000	22	7	3610064-022	Fluoride	2	mg/L	11/16/2010	6	2.2	1.83625	6
								3610064-024	Fluoride	2	mg/L	11/16/2010	583	3.6	2.66393162	569
								3610064-025	Gross alpha particle activity	15	pCi/L	11/2/2010	30	57.89	25.9180645	25
								3610064-046	Gross alpha particle activity	15	pCi/L	10/28/2009	6	22.1	13.5333333	6
								3610064-022	Nitrate (as NO3)	45	mg/L	9/10/2010	115	62	47.9830189	114
								3610064-025	Nitrate (as NO3)	45	mg/L	11/16/2010	30	60	39.2149533	28
								3610064-028	Nitrate (as NO3)	45	mg/L	11/18/2010	189	52	44.3974227	189
								3610064-018	Perchlorate	6	ug/L	8/19/2008	12	12	7.1826087	12
								3610064-022	Perchlorate	6	ug/L	11/21/2003	3	6.6	3.39277108	3
								3610064-023	Perchlorate	6	ug/L	11/21/2003	2	7.1	3.97692308	2
								3610064-028	Perchlorate	6	ug/L	11/4/2010	98	10	7.76796117	94
								3610064-023	Tetrachloroethylene (PCE)	5	ug/L	7/3/2007	6	7	3.88454545	6
								3610064-025	Uranium	20	pCi/L	10/7/2010	30	48.47	28.6037143	26
								3610064-046	Uranium	20	pCi/L	8/18/2006	2	23	14.5112	2
SAN BERNARDINO	Chino city	CITY OF CHINO	3610012	Mixed <50%GW	62000	9	4	3610012-004	Nitrate (as NO3)	45	mg/L	9/16/2010	12	61	45.5333333	12
								3610012-008	Nitrate (as NO3)	45	mg/L	9/16/2010	25	91	68.6923077	25
								3610012-009	Nitrate (as NO3)	45	mg/L	9/16/2010	17	96	75.8235294	17
								3610012-012	Nitrate (as NO3)	45	mg/L	11/2/2010	87	79	58.7111111	87
								3610012-004	Perchlorate	6	ug/L	9/16/2010	20	16	11.2190476	20
								3610012-008	Perchlorate	6	ug/L	9/16/2010	22	18	12.8565217	22
								3610012-009	Perchlorate	6	ug/L	9/16/2010	14	24	18.1428571	14
SAN BERNARDINO	Fontana city, Rialto city	SAN GABRIEL VALLEY WC - FONTANA	3610041	Undetermined	155460	35	6	3610041-014	Nitrate (as NO3)	45	mg/L	7/15/2009	5	64	34.05	56
								3610041-033	Nitrate (as NO3)	45	mg/L	3/12/2008	24	77	36.73	48
								3610041-036	Nitrate (as NO3)	45	mg/L	10/20/2010	43	74	62.57	43
								3610041-042	Nitrate (as NO3)	45	mg/L	3/28/2007	41	78	36.54	78
								3610041-033	Perchlorate	6	ug/L	10/12/2010	163	24	16.45	22
								3610041-036	Perchlorate	6	ug/L	10/20/2010	17	14	11.24	17
								3610041-042	Perchlorate	6	ug/L	1/11/2010	97	21	9.18	44
								3610041-063	Tetrachloroethylene (PCE)	5	ug/L	4/2/2008	30	11	3.84	130
								3610041-064	Tetrachloroethylene (PCE)	5	ug/L	5/24/2006	8	7.7	2.41	363
SAN BERNARDINO	Big Bear City CDP	Dept of Water & Power/Lake Williams	3600283	100% GW	147	3	1	3600283-003	Fluoride	2	mg/L	10/19/2005	2	2.8	2.47	3
SAN BERNARDINO	City of Apple Valley	Apple Valley View MWC	3600012	100% GW	200	3	1	3600012-002	Fluoride	2	mg/L	1/13/2004	2	2.8	2.75	2
SAN BERNARDINO	City of Apple Valley	THUNDERBIRD CWD	3600306	100% GW	720	3	2	3600306-001	Fluoride	2	mg/L	11/3/2010	45	2.4	2.14	53
								3600306-003	Fluoride	2	mg/L	10/5/2010	46	2.5	2.15	53
SAN BERNARDINO	City of Daggett	Daggett Comm Svcs Dist	3600086	100% GW	795	3	2	3600086-002	Arsenic	10	ug/L	2/7/2006	2	41	40.00	2
								3600086-007	Gross alpha particle activity	15	pCi/L	9/29/2004	3	21	9.41	12
SAN BERNARDINO	City of Hesperia	Calico Lakes Homeowners	3601036	100% GW	25	2	1	3601036-001	Gross alpha particle activity	15	pCi/L	9/7/2010	7	22.5	17.39	8
SAN BERNARDINO	City of Mount Baldy	Snowcrest Hts. Imp.	3600262	100% GW	600	5	2	3600262-002	Arsenic	10	ug/L	3/22/2010	4	86	34.25	4

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		Assoc						3600262-003	Arsenic	10	ug/L	3/22/2010	3	23	16.00	3
SAN BERNARDINO	City of Pioneertown	CSA 70 W-4	3600196	100% GW	625	7	7	3600196-001	Arsenic	10	ug/L	1/15/2009	23	36	20.88	30
								3600196-002	Arsenic	10	ug/L	8/18/2010	25	96	55.32	25
								3600196-003	Arsenic	10	ug/L	8/18/2010	37	130	73.76	37
								3600196-004	Arsenic	10	ug/L	8/18/2010	37	160	95.03	36
								3600196-007	Arsenic	10	ug/L	8/18/2010	14	59	45.43	14
								3600196-001	Chromium, Total	50	ug/L	8/31/2006	2	88	49.00	3
								3600196-002	Fluoride	2	mg/L	8/24/2007	2	8.2	5.30	3
								3600196-003	Fluoride	2	mg/L	8/18/2010	23	11	6.43	25
								3600196-002	Gross alpha particle activity	15	pCi/L	9/13/2010	4	31	18.30	7
								3600196-003	Gross alpha particle activity	15	pCi/L	10/23/2008	4	28	16.08	8
								3600196-005	Uranium	20	pCi/L	11/2/2010	33	59	33.12	36
								3600196-006	Uranium	20	ug/L	4/6/2005	11	48	29.08	14
SAN BERNARDINO	Lake Arrowhead CDP	Deer Lodge Water System	3600087	100% GW	745	2	2	3600087-001	Gross alpha particle activity	15	pCi/L	7/22/2010	3	34	23.67	3
								3600087-002	Gross alpha particle activity	15	pCi/L	7/22/2010	4	27	19.17	6
SAN BERNARDINO	Morongo Valley CDP	CSA 70 W-3 (Hacienda)	3600114	100% GW	695	2	2	3600114-001	Gross alpha particle activity	15	pCi/L	5/20/2010	5	37	22.17	6
								3600114-002	Gross alpha particle activity	15	pCi/L	3/26/2008	4	20	14.81	14
								3600114-001	Uranium	20	pCi/L	8/9/2010	18	36	20.91	34
								3600114-002	Uranium	20	pCi/L	10/20/2009	6	24	17.16	29
SAN BERNARDINO	Morongo Valley CDP	CSA 70F, Morongo Valley	3600226	100% GW	450	3	3	3600226-001	Gross alpha particle activity	15	pCi/L	10/8/2009	2	46	40.00	2
								3600226-002	Gross alpha particle activity	15	pCi/L	10/4/2005	2	33	26.33	3
								3600226-003	Gross alpha particle activity	15	pCi/L	12/11/2009	5	44	28.17	6
								3600226-001	Uranium	20	pCi/L	5/19/2010	20	57	26.68	27
								3600226-002	Uranium	20	pCi/L	8/19/2010	26	47	27.36	32
								3600226-003	Uranium	20	pCi/L	8/19/2010	24	50	28.81	32
SAN BERNARDINO	Morongo Valley CDP	Golden State Water-Mor Del Norte	3600270	100% GW	870	3	3	3600270-001	Gross alpha particle activity	15	pCi/L	11/9/2010	13	32.1	15.99	26
								3600270-002	Gross alpha particle activity	15	pCi/L	8/3/2010	15	31.6	18.09	24
								3600270-001	Uranium	20	ug/L	11/14/2006	2	26	15.35	28
								3600270-002	Uranium	20	pCi/L	8/12/2008	6	29	17.31	27
SAN BERNARDINO	Morongo Valley CDP	Roadrunner Mobile Home Pk	3601055	100% GW	150	1	1	3601055-001	Gross alpha particle activity	15	pCi/L	10/18/2010	2	28.4	28.10	2
								3601055-001	Uranium	20	pCi/L	9/28/2010	21	34.6	23.67	26
SAN BERNARDINO	Muscoy CDP, Rialto city, San Bernardino city	SAN BERNARDINO CITY	3610039	100% GW	180315	55	3	3610039-065	Tetrachloroethylene (PCE)	5	ug/L	7/27/2005	4	10	3.65	25
								3610039-066	Tetrachloroethylene (PCE)	5	ug/L	1/20/2010	8	12	4.62	25
								3610039-067	Tetrachloroethylene (PCE)	5	ug/L	1/18/2006	6	8.9	4.01	25
SAN BERNARDINO	Crestline CDP	CRESTLINE VILLAGE CWD - DIVISION 10	3610015	>50% GW Mixed	7400	44	3	3610015-013	Gross alpha particle activity	15	pCi/L	3/31/2004	2	17.2	12.24	8
								3610015-062	Gross alpha particle activity	15	pCi/L	1/31/2005	8	29	17.25	17
								3610015-070	Gross alpha particle activity	15	pCi/L	3/31/2010	5	48.6	24.40	10
								3610015-062	Uranium	20	pCi/L	6/30/2005	6	47	18.55	16
								3610015-070	Uranium	20	pCi/L	3/31/2010	23	47	20.92	56
SAN BERNARDINO	Lake Arrowhead	Sky Forest MWC	3600258	Mixed <50%GW	605	7	1	3600258-002	Gross alpha particle activity	15	pCi/L	9/29/2006	5	26	17.75	5
SAN BERNARDINO	Chino Hills	CITY OF CHINO HILLS	3610036	Mixed <50%GW	78725	5	1	3610036-024	Nitrate (as NO3)	45	mg/L	7/12/2010	5	67	54.5714286	5
SAN BERNARDINO	Sky Forest	ARROWHEAD VILLAS MUTUTUAL SERV. CO.	3610093	Mixed <50%GW	500	2	2	3610093-001	Gross alpha particle activity	15	pCi/L	4/2/2008	6	25	19.1111111	6
								3610093-004	Gross alpha particle activity	15	pCi/L	4/1/2008	2	18	13.05	2
								3610093-001	Uranium	20	pCi/L	8/16/2006	2	23	17.6	2
SAN DIEGO	City of Pauma Valley	YUIMA MUNICIPAL WATER DISTRICT IDA	3700938	100% GW	400	19	3	3700938-005	Nitrate (as NO3)	45	mg/L	10/12/2010	18	57	49.22	24
								3700938-031	Nitrate (as NO3)	45	mg/L	10/12/2010	2	62	62.00	2
								3700938-005	Perchlorate	6	ug/L	10/12/2010	10	8.3	6.41	14
								3700938-006	Perchlorate	6	ug/L	3/19/2008	3	7.5	4.77	13
								3700938-031	Perchlorate	6	ug/L	10/12/2010	2	7.2	6.65	2

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SAN DIEGO	City of Pauma Valley	RANCHO PAUMA MUTUAL WC	3710012	100% GW	500	7	1	3710012-002	Nitrate (as NO3)	45	mg/L	12/16/2004	10	70	12.25	325
SAN DIEGO	Julian CDP	MAJESTIC PINES COMMUNITY SD	3710041	100% GW	1964	3	1	3710041-004	Arsenic	10	ug/L	6/1/2010	3	23	18.33	3
SAN DIEGO	Pine Valley CDP	PINE VALLEY MUTUAL WC	3710039	100% GW	1500	8	1	3710039-010	Gross alpha particle activity	15	pCi/L	8/10/2007	4	18.7	14.93	8
SAN DIEGO	Camp Pendleton North CDP	CAMP PENDLETON (SOUTH)	3710702	>50% GW Mixed	35000	19	2	3710702-014	Gross alpha particle activity	15	pCi/L	7/14/2005	7	17.4	12.42	25
								3710702-031	Gross alpha particle activity	15	pCi/L	8/19/2010	6	22	15.80	10
SAN DIEGO	Pauma Valley	YUIMA MUNICIPAL WATER DISTRICT	3701408	Mixed <50%GW	260	5	2	3701408-002	Nitrate (as NO3)	45	mg/L	10/12/2010	26	86	64.6703704	26
								3701408-004	Nitrate (as NO3)	45	mg/L	1/16/2008	4	63	35.8928571	3
								3701408-002	Perchlorate	6	ug/L	9/17/2008	2	8.7	5.57142857	2
SAN DIEGO	San Diego	SAN DIEGO - CITY OF	3710020	Mixed <50%GW	1266731	3	1	3710020-019	Arsenic	10	ug/L	2/3/2004	2	14.2	8.325	2
								3710020-019	Gross alpha particle activity	15	pCi/L	7/14/2009	8	83.7	64.7625	8
								3710020-019	Tetrachloroethylene (PCE)	5	ug/L	11/1/2010	37	14.4	7.925	37
								3710020-019	Trichloroethylene (TCE)	5	ug/L	10/2/2008	17	9.42	5.2475	17
								3710020-019	Uranium	20	pCi/L	7/14/2009	8	79.6	65.1875	8
SAN DIEGO	Campo CDP	LAKE MORENA OAK SHORE MW CO.	3700923	100% GW	700	6	5	3700923-007	Gross alpha particle activity	15	pCi/L	12/17/2008	2	65.7	63.85	2
								3700923-008	Gross alpha particle activity	15	pCi/L	12/17/2008	2	43	30.85	2
								3700923-001	Nitrate (as NO3)	45	mg/L	5/16/2007	15	71.9	38.73	35
								3700923-002	Nitrate (as NO3)	45	mg/L	5/16/2007	10	118	40.68	33
								3700923-002	Uranium	20	pCi/L	3/31/2010	3	65	17.47	12
								3700923-005	Uranium	20	ug/L	3/28/2010	7	55.4	25.09	13
								3700923-007	Uranium	20	pCi/L	7/1/2010	10	90	49.68	10
								3700923-008	Uranium	20	pCi/L	7/1/2010	9	97	32.32	14
SAN DIEGO	Campo CDP	LAKE MORENA VIEWS MW CO.	3700924	100% GW	360	3	2	3700924-005	Gross alpha particle activity	15	pCi/L	10/2/2005	2	73.1	63.41	2
								3700924-001	Nitrate (as NO3)	45	mg/L	10/25/2005	2	82.6	57.30	3
SAN DIEGO	Campo CDP	LAKE MORENA TRAILER RESORT	3701760	100% GW	60	1	1	3701760-003	Gross alpha particle activity	15	pCi/L	10/21/2010	8	920	575.00	8
								3701760-003	Uranium	20	pCi/L	10/21/2010	9	710	433.64	11
SAN DIEGO	City of Escondido	OAKVALE PARK	3700962	100% GW	100	2	2	3700962-001	Gross alpha particle activity	15	pCi/L	6/17/2010	6	57	38.34	7
								3700962-002	Gross alpha particle activity	15	pCi/L	2/11/2010	5	110	39.86	7
								3700962-001	Uranium	20	pCi/L	6/17/2010	3	45	28.75	4
SAN DIEGO	City of Warner Springs	LOS TULES MUTUAL WATER COMPANY	3700958	100% GW	140	3	2	3700958-003	Gross alpha particle activity	15	pCi/L	10/14/2010	8	57	19.52	15
								3700958-006	Gross alpha particle activity	15	pCi/L	10/14/2010	3	57	26.42	5
								3700958-003	Uranium	20	pCi/L	10/14/2010	3	80	23.67	12
								3700958-006	Uranium	20	pCi/L	10/14/2010	2	80	28.92	5
SAN DIEGO	Guatay City	GUATAY MUTUAL BENEFIT CORPORATION	3700897	100% GW	100	2	1	3700897-001	Gross alpha particle activity	15	pCi/L	1/4/2009	5	110	46.64	5
								3700897-001	Uranium	20	pCi/L	1/4/2009	5	160	77.60	5
SAN DIEGO	Pine Valley CDP	PINE VALLEY MUTUAL WC	3710039	100% GW	1500	8	2	3710039-003	Fluoride	2	mg/L	9/23/2008	3	3.5	3.13	3
								3710039-007	Fluoride	2	mg/L	9/30/2008	2	2.4	1.87	3
								3710039-007	Gross alpha particle activity	15	pCi/L	2/13/2008	4	24	15.69	8
								3700859-003	Gross alpha particle activity	15	pCi/L	11/3/2010	3	18.8	17.57	3
								3700859-003	Uranium	20	pCi/L	11/3/2010	2	25	20.67	3
SAN JOAQUIN	Lathrop city	DEFENSE DISTRIB. DEPOT, SHARPE SITE	3910701	100% GW	1650	2	2	3910701-003	Arsenic	10	ug/L	11/2/2010	31	23	17.03	32
								3910701-005	Arsenic	10	ug/L	11/2/2010	32	35	26.45	32
SAN JOAQUIN	Lathrop city, Patterson city	OAKWOOD LAKE WATER DISTRICT-SUBDIVISION	3910023	100% GW	43	2	2	3910023-004RW3	Arsenic	10	ug/L	9/29/2010	11	26	22.64	11
								3910023-006RW4	Arsenic	10	ug/L	9/29/2010	12	24	21.42	12
SAN JOAQUIN	Morada CDP	SAN JOAQUIN COUNTY - WILKINSON MANOR	3910024	100% GW	861	2	1	3910024-002	Tetrachloroethylene (PCE)	5	ug/L	10/12/2010	3	8.3	2.77	18
SAN JOAQUIN	Ripon city	RIPON, CITY OF	3910007	100% GW	14915	9	3	3910007-009	Arsenic	10	ug/L	6/24/2010	12	13	10.97	19
								3910007-009	cis-1,2-Dichloroethylene	6	ug/L	2/28/2005	3	6.6	4.57	32
								3910007-003	Gross alpha particle activity	15	pCi/L	6/24/2010	2	20.4	14.70	7
								3910007-014	Nitrate (as NO3)	45	mg/L	7/28/2010	14	68	48.64	25
								3910007-009	Vinyl chloride	0.5	ug/L	5/18/2005	4	5	0.36	23

List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

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SAN JOAQUIN	Woodbridge CDP	SAN JOAQUIN COUNTY-MOKELUMNE ACRES	3910017	100% GW	3640	5	1	3910017-008	Gross alpha particle activity	15	pCi/L	12/18/2003	4	28.4	28.40	4
SAN JOAQUIN	Lodi city	LODI, CITY OF	3910004	100% GW	63395	27	6	3910004-020	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/19/2010	96	0.82	0.57	100
								3910004-022	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/14/2010	52	0.39	0.22	75
								3910004-024	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/7/2010	98	0.74	0.47	102
								3910004-026	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/8/2008	71	0.43	0.25	100
								3910004-027	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/14/2010	99	0.66	0.44	101
								3910004-032	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/19/2010	90	0.86	0.62	93
SAN JOAQUIN	Manteca city	MANTECA, CITY OF	3910005	100% GW	66451	18	12	3910005-013	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	2/11/2008	2	0.27	0.14	70
								3910005-012	Arsenic	10	ug/L	11/2/2010	8	12	10.01	15
								3910005-013	Arsenic	10	ug/L	11/2/2010	25	15	12.57	27
								3910005-014RW1	Arsenic	10	ug/L	11/2/2010	36	23	18.61	34
								3910005-015	Arsenic	10	ug/L	11/2/2010	21	16	13.00	22
								3910005-016	Arsenic	10	ug/L	11/2/2010	24	19	12.54	29
								3910005-032019	Arsenic	10	ug/L	8/3/2010	11	17	11.69	17
								3910005-034020	Arsenic	10	ug/L	11/2/2010	24	23	18.95	24
								3910005-036023	Arsenic	10	ug/L	11/2/2010	19	15	12.47	20
								3910005-038021F	Arsenic	10	ug/L	5/18/2010	4	13	11.42	6
								3910005-040022F	Arsenic	10	ug/L	11/2/2010	15	15	11.28	19
								3910005-042RW2	Arsenic	10	ug/L	11/2/2010	45	20	16.94	45
								3910005-044RW2	Arsenic	10	ug/L	11/2/2010	39	15	12.87	41
								3910005-013	Ethylene dibromide (EDB)	0.05	ug/L	1/6/2009	6	0.077	0.03	71
								3910005-036023	Nitrate (as NO3)	45	mg/L	12/4/2007	3	66.7	32.74	222
								3910005-038021F	Nitrate (as NO3)	45	mg/L	5/18/2010	2	51	35.26	18
								3910005-044RW2	Nitrate (as NO3)	45	mg/L	12/19/2006	3	63	26.93	128
SAN JOAQUIN	August CDP, Country Club CDP, Garden Acres CDP, Kennedy CDP, Stockton city	CALIFORNIA WATER SERVICE - STOCKTON	3910001	>50% GW Mixed	171777	25	8	3910001-007	Arsenic	10	ug/L	11/20/2004	2	17.615	8.81	11
								3910001-029	Arsenic	10	ug/L	12/14/2009	2	21	6.48	9
								3910001-045	Arsenic	10	ug/L	9/21/2010	102	24	19.96	103
								3910001-053	Arsenic	10	ug/L	9/21/2010	108	26	19.65	110
								3910001-057	Arsenic	10	ug/L	10/9/2007	54	19	14.44	55
								3910001-059	Arsenic	10	ug/L	9/21/2010	123	24.11	19.44	124
								3910001-060	Arsenic	10	ug/L	9/21/2010	117	22.875	19.59	118
								3910001-061	Arsenic	10	ug/L	9/30/2004	4	16	13.25	4
								3910001-053	Nitrate (as NO3)	45	mg/L	8/22/2007	12	61.954	14.89	162
SAN JOAQUIN	Lathrop city, Manteca city	CITY OF LATHROP	3910015	>50% GW Mixed	12427	5	5	3910015-005	Arsenic	10	ug/L	9/13/2010	32	19	15.72	32
								3910015-006	Arsenic	10	ug/L	9/13/2010	33	26	22.55	33
								3910015-007	Arsenic	10	ug/L	9/13/2010	29	20	17.48	29
								3910015-008	Arsenic	10	ug/L	9/13/2010	29	46	19.41	29
								3910015-016RW1	Arsenic	10	ug/L	11/1/2010	5	20	19.00	5
SAN JOAQUIN	Stockton city	SAN JOAQUIN COUNTY - COLONIAL HEIGHTS	3910002	>50% GW Mixed	1851	2	1	3910002-001	Tetrachloroethylene (PCE)	5	ug/L	11/15/2010	3	8.6	4.45	6
SAN JOAQUIN	Stockton	STOCKTON EAST WATER DISTRICT	3910006	Mixed <50%GW	50	2	1	3910006-004	Arsenic	10	ug/L	6/19/2007	2	11	9.16666667	2
SAN JOAQUIN	Stockton	CITY OF STOCKTON	3910012	Mixed <50%GW	158113	24	1	3910012-083	Arsenic	10	ug/L	2/26/2003	2	19	10.1666667	2
SAN JOAQUIN	City of Lodi	COUNTRY MANOR MHP	3900844	100% GW	75	2	2	3900844-001	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	3/16/2010	7	1.42	0.90	8
								3900844-002	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	1/21/2009	2	0.64	0.30	4
SAN JOAQUIN	City of Millbrae	AVALOS, SILVIA	3901213	100% GW	30	1	1	3901213-007	Arsenic	10	ug/L	10/4/2010	17	15	12.89	18
SAN JOAQUIN	City of San Joaquin	FINNLEES TRAILER PARK	3900705	100% GW	55	1	1	3900705-001	Gross alpha particle activity	15	pCi/L	9/22/2010	2	24	13.75	11
SAN JOAQUIN	City of Stockton	CENTURY MOBILE HOME PARK	3900579	100% GW	50	1	1	3900579-011	Arsenic	10	ug/L	9/29/2010	13	15	13.69	13
SAN JOAQUIN	City of Stockton	GLENWOOD MOBILE HOME PARK	3900649	100% GW	100	1	1	3900649-007	Nitrate (as NO3)	45	mg/L	5/17/2010	4	52.5	36.60	28
SAN JOAQUIN	City of Stockton	ELKHORN ESTATES WATER SYSTEM	3900724	100% GW	200	1	1	3900724-001	Gross alpha particle activity	15	pCi/L	4/26/2007	3	18.9	9.80	20
SAN JOAQUIN	City of Stockton	BEL AIR MOBILE ESTATE	3900907	100% GW	150	3	1	3900907-002	Gross alpha particle activity	15	pCi/L	5/29/2008	3	30.8	14.35	9

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List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

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SAN JOAQUIN	French Camp CDP	SIDHU MOBILE PARK WATER SYSTEM	3900711	100% GW	75	1	1	3900711-001	Arsenic	10	ug/L	7/30/2010	14	14	12.86	14
SAN JOAQUIN	Kennedy CDP	V & P TRAILER COURT WATER SYSTEM	3900732	100% GW	35	1	1	3900732-001	Arsenic	10	ug/L	6/30/2010	11	13	10.80	15
SAN JOAQUIN	Stockton city	SAN JUAN VISTA	3901215	100% GW	100	1	1	3901215-001	Arsenic	10	ug/L	7/28/2008	3	12	10.43	8
SAN JOAQUIN	Undetermined	WEST LANE MOBILE HOME PARK	3900624	100% GW	160	1	1	3900624-001	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/10/2009	12	0.59	0.29	18
SAN JOAQUIN	Undetermined	ISLANDER MARINA	3900653	100% GW	150	2	2	3900653-001	Gross alpha particle activity	15	pCi/L	12/26/2007	10	41.4	17.54	22
								3900653-002	Gross alpha particle activity	15	pCi/L	5/7/2007	2	38.7	6.26	19
								3900653-001	Uranium	20	pCi/L	8/27/2007	7	51.2	17.24	24
SAN JOAQUIN	Lodi city	LODI, CITY OF	3910004	100% GW	63395	27	4	3910004-007	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	10/19/2010	8	0.42	0.16	41
								3910004-011	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/14/2009	56	0.35	0.21	103
								3910004-021	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/9/2010	20	0.31	0.19	52
								3910004-023	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/19/2003	5	0.35	0.11	81
								3910004-011	Gross alpha particle activity	15	pCi/L	11/17/2010	8	20.6	13.97	16
SAN JOAQUIN	City of San Joaquin	ARBOR MOBILE HOME PARK WS	3900831	>50% GW Mixed	340	1	1	3900831-007	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/4/2010	18	1.5	0.81	19
SAN JOAQUIN	Undetermined	WINE COUNTRY APARTMENTS	3900559	>50% GW Mixed	40	1	1	3900559-001	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	3/26/2010	4	0.58	0.19	8
SAN LUIS OBISPO	City of Santa Maria	RURAL WATER COMPANY	4010040	100% GW	1850	11	2	4010040-003	Nitrate (as NO3)	45	mg/L	3/7/2007	4	60	31.07	44
								4010040-009	Nitrate (as NO3)	45	mg/L	4/23/2010	9	71.4	31.73	49
								4010017-006	Nitrate (as NO3)	45	mg/L	1/9/2008	3	50	24.41	46
SAN LUIS OBISPO	Los Ranchos CDP	GOLDEN STATE WATER COMPANY - EDNA	4010023	100% GW	1940	2	2	4010023-008	Selenium	50	ug/L	4/8/2009	12	120	35.71	76
								4010023-011	Selenium	50	ug/L	8/8/2007	9	61	38.83	69
SAN LUIS OBISPO	Nipomo CDP	GOLDEN STATE WATER COMPANY - NIPOMO	4010018	100% GW	4937	5	1	4010018-003	Nitrate (as NO3)	45	mg/L	12/8/2010	8	58	34.90	27
SAN LUIS OBISPO	San Miguel CDP	SAN MIGUEL COMMUNITY SERVICES DISTRICT	4010010	100% GW	1500	2	1	4010010-004	Gross alpha particle activity	15	pCi/L	10/7/2008	2	17	9.65	17
SAN LUIS OBISPO	El Paso de Robles (Paso Robles) city, Templeton CDP	TEMPLETON CSD	4010019	100% GW	6500	12	3	4010019-014	Arsenic	10	ug/L	4/29/2010	12	42	17.53	13
								4010019-036	Arsenic	10	ug/L	4/27/2010	14	32	11.13	47
								4010019-015	Nitrate (as NO3)	45	mg/L	9/22/2009	13	60	42.98	112
SAN LUIS OBISPO	El Paso de Robles (Paso Robles) city	PASO ROBLES WATER DEPARTMENT	4010007	>50% GW Mixed	29500	19	4	4010007-010	Arsenic	10	ug/L	8/26/2010	5	22	12.32	10
								4010007-012	Arsenic	10	ug/L	10/1/2009	26	16	10.24	57
								4010007-013	Arsenic	10	ug/L	10/28/2010	65	46	21.68	65
								4010007-014	Selenium	50	ug/L	8/26/2008	2	66	32.59	17
SAN LUIS OBISPO	Grover Beach city	GROVER BEACH WATER DEPARTMENT	4010004	>50% GW Mixed	13248	4	4	4010004-002	Nitrate (as NO3)	45	mg/L	12/14/2010	168	72	46.94	295
								4010004-003	Nitrate (as NO3)	45	mg/L	10/4/2010	111	100	62.96	115
								4010004-004	Nitrate (as NO3)	45	mg/L	12/7/2010	6	130	59.27	11
SAN LUIS OBISPO	Arroyo Grande	ARROYO GRANDE, WATER DEPARTMENT	4010001	Mixed <50%GW	16682	8	2	4010001-003	Nitrate (as NO3)	45	mg/L	10/26/2004	35	55	41.8571429	35
								4010001-004	Nitrate (as NO3)	45	mg/L	9/14/2010	181	110	65.7213115	180
SAN LUIS OBISPO	Oceano	OCEANO COMM SERVICES DIST.	4010005	Mixed <50%GW	7600	4	2	4010005-002	Selenium	50	ug/L	7/13/2010	76	350	98.2079208	76
								4010005-003	Selenium	50	ug/L	6/1/2010	74	190	100.342593	73
SAN LUIS OBISPO	Morro Bay	MORRO BAY WATER DEPARTMENT	4010011	Mixed <50%GW	10270	8	4	4010011-005	Nitrate (as NO3)	45	mg/L	12/7/2010	36	110	67.452381	36
								4010011-006	Nitrate (as NO3)	45	mg/L	11/2/2010	25	96	45.6355556	25
								4010011-019	Nitrate (as NO3)	45	mg/L	10/6/2009	7	80	33.3631579	7
								4010011-020	Nitrate (as NO3)	45	mg/L	10/6/2009	14	53	29.0619048	14
SAN LUIS OBISPO	Avilla Beach CDP	BASSI RANCH MUTUAL WATER CO.	4000200	100% GW	85	3	1	4000200-001	Bromate	10	ug/L	1/8/2007	2	29	20.00	2
SAN LUIS OBISPO	Callender CDP	WOODLAND PARK MUTUAL WATER CO	4000506	100% GW	500	4	1	4000506-013	Nitrate (as NO3)	45	mg/L	11/3/2010	20	61	47.07	33

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SAN LUIS OBISPO	Cayucos CDP	BELLA VISTA MOBILE LODGE	4000512	100% GW	200	1	1	4000512-001	Arsenic	10	ug/L	10/13/2010	8	26	13.27	11
SAN LUIS OBISPO	City of Arroyo Grande	COUNTRY HILLS ESTATES	4000637	100% GW	60	2	2	4000637-001	Arsenic	10	ug/L	10/12/2010	14	30	23.56	16
								4000637-012	Arsenic	10	ug/L	10/12/2010	8	37	22.00	9
SAN LUIS OBISPO	City of Arroyo Grande	H2O, INC	4000741	100% GW	60	2	1	4000741-002	Arsenic	10	ug/L	1/12/2009	2	13	10.04	7
SAN LUIS OBISPO	City of Grover Beach	EDNA RANCH MUTUAL WATER CO-EAST	4000202	100% GW	60	3	1	4000202-001	Arsenic	10	ug/L	10/11/2010	3	22	12.50	6
SAN LUIS OBISPO	City of Morro Bay	RANCHO COLINA MOBILE HOME PARK	4000653	100% GW	250	1	1	4000653-002	Nitrate (as NO3)	45	mg/L	8/23/2010	6	61.1	28.48	44
SAN LUIS OBISPO	City of Paso Robles	RESTHAVEN MOBILE HOME PARK	4000654	100% GW	75	2	2	4000654-001	Selenium	50	ug/L	10/7/2010	6	490	229.67	6
								4000654-012	Selenium	50	ug/L	10/7/2010	3	64	54.50	4
SAN LUIS OBISPO	City of Templeton	ALMIRA WATER ASSOCIATION	4000631	100% GW	40	1	1	4000631-001	Arsenic	10	ug/L	8/16/2010	11	17	13.63	12
SAN LUIS OBISPO	Oceano CDP	HALCYON WATER SYSTEM	4000501	100% GW	105	1	1	4000501-001	Selenium	50	ug/L	12/9/2009	7	88	73.57	7
SAN LUIS OBISPO	Oceano CDP	KEN MAR GARDENS	4000648	100% GW	84	1	1	4000648-001	Selenium	50	ug/L	1/13/2010	3	71	39.82	11
SAN LUIS OBISPO	San Luis Obispo city	HIGUERA APARTMENTS	4000563	100% GW	30	1	1	4000563-001	Nitrate (as NO3)	45	mg/L	12/13/2006	4	52	49.80	5
SAN LUIS OBISPO	Paso Robles	MUSTANG SPRINGS MUTUAL WATER	4000775	>50% GW Mixed	30	1	1	4000775-001	Fluoride	2	mg/L	1/28/2009	12	3.8	2.91	12
SAN MATEO	Moss Beach CDP, Santa Cruz city	PILLAR RIDGE MHP (FORMER EL GRANADA MHP)	4110028	100% GW	1000	3	2	4110028-002	Trichloroethylene (TCE)	5	ug/L	10/18/2007	20	9.5	5.62	29
								4110028-004	Trichloroethylene (TCE)	5	ug/L	5/13/2002	2	7.1	0.59	36
SAN MATEO	Broadmoor CDP, Daly City city, San Francisco city	CITY OF DALY CITY	4110013	>50% GW Mixed	103000	6	3	4110013-004	Nitrate (as NO3)	45	mg/L	9/1/2010	44	71	41.66	60
								4110013-011	Nitrate (as NO3)	45	mg/L	5/19/2010	2	46	28.90	73
								4110013-014	Nitrate (as NO3)	45	mg/L	10/6/2010	37	170	85.17	50
								4110009-006	Nitrate (as NO3)	45	mg/L	1/9/2008	27	60	45.7154474	20
								4110009-007	Nitrate (as NO3)	45	mg/L	10/18/2006	17	66	28.5796667	11
SAN MATEO	Montara CDP, Moss Beach CDP	MONTARA WATER AND SANITARY DISTRICT	4110010	Undetermined	5412	9	2	4110010-001	Nitrate (as NO3)	45	mg/L	9/7/2010	3	48	31.65	100
								4110010-015	Nitrate (as NO3)	45	mg/L	2/10/2010	46	60	43.71	94
SAN MATEO	Skylonda	SKYLONDA MUTUAL	4100533	Mixed <50%GW	431	3	1	4100533-003	Barium	1000	ug/L	6/2/2010	6	1700	1383.33333	6
SANTA BARBARA	City of New Cuyama	CUYAMA COMMUNITY SERVICES DISTRICT	4210009	100% GW	820	2	2	4210009-002	Arsenic	10	ug/L	1/27/2005	3	64	50.33	3
								4210009-003	Arsenic	10	ug/L	10/10/2008	3	37	34.00	3
SANTA BARBARA	Orcutt CDP, Santa Maria city	GOLDEN STATE WATER COMPANY - ORCUTT	4210016	100% GW	35212	12	1	4210016-005	Nitrate (as NO3)	45	mg/L	9/1/2010	55	61	47.44	95
SANTA BARBARA	Lompoc city	LOMPOC-CITY WATER UTILITY DIV	4210006	>50% GW Mixed	38311	11	4	4210006-007	Arsenic	10	ug/L	1/5/2010	4	14	10.57	7
								4210006-009	Arsenic	10	ug/L	1/5/2010	10	22	17.80	10
								4210006-011	Arsenic	10	ug/L	1/6/2010	7	22	16.50	8
								4210006-013	Arsenic	10	ug/L	1/5/2010	6	13	10.88	8
SANTA BARBARA	Santa Maria city	SANTA MARIA WATER DEPARTMENT	4210011	>50% GW Mixed	83756	8	5	4210011-007	Nitrate (as NO3)	45	mg/L	11/2/2010	21	83.4	51.35	35
								4210011-009	Nitrate (as NO3)	45	mg/L	11/2/2010	34	84	56.86	46
								4210011-010	Nitrate (as NO3)	45	mg/L	11/2/2010	14	73	30.98	44
								4210011-013	Nitrate (as NO3)	45	mg/L	10/5/2010	4	51	21.88	39
								4210011-014	Nitrate (as NO3)	45	mg/L	11/2/2010	20	88	38.36	55
SANTA BARBARA	Guadalupe	GUADALUPE WATER DEPARTMENT	4210003	Mixed <50%GW	5659	2	1	4210003-001	Nitrate (as NO3)	45	mg/L	9/15/2010	23	77	38.3150685	19
SANTA BARBARA	Solvang city	SOLVANG WATER DEPARTMENT	4210013	Undetermined	5383	3	2	4210013-001	Gross alpha particle activity	15	pCi/L	7/12/2004	4	16	13.70	5
								4210013-007	Gross alpha particle activity	15	pCi/L	7/12/2004	8	18	16.61	5
SANTA BARBARA	City of Buellton	BOBCAT SPRINGS M WC OS	4200891	100% GW	120	3	2	4200891-001	Arsenic	10	ug/L	4/24/2007	10	20	12.21	8
								4200891-016	Arsenic	10	ug/L	7/13/2010	2	14	13.00	2

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SANTA BARBARA	Santa Barbara city	LINCOLNWOOD MUTUAL WATER	4200684	100% GW	186	2	1	4200684-003	Nitrate (as NO3)	45	mg/L	11/26/2008	2	75	40.10	10
SANTA BARBARA	Santa Ynez CDP	RANCHO MARCELINO WATER & SERV.	4200531	100% GW	240	3	2	4200531-001	Nitrate (as NO3)	45	mg/L	5/12/2010	5	51.6	38.89	25
								4200531-010	Nitrate (as NO3)	45	mg/L	11/11/2010	14	54	45.62	16
SANTA CLARA	Gilroy city	FARMERS LABOR EXCHANGE	4300943	100% GW	150	1	1	4300943-001	Nitrate (as NO3)	45	mg/L	7/28/2008	43	193	47.89	102
SANTA CLARA	Morgan Hill city, San Jose city	CITY OF MORGAN HILL	4310006	100% GW	34600	17	1	4310006-014	Perchlorate	6	ug/L	7/13/2010	25	10	4.54	346
SANTA CLARA	San Jose city	GREEN ACRES MUTUAL WATER	4300573	100% GW	53	2	1	4300573-002	Asbestos	7	ug/L	8/29/2007	3	93	6.15	42
SANTA CLARA	San Jose city	FOOTHILL MUTUAL WATER	4300630	100% GW	30	1	1	4300630-002	Nitrate (as NO3)	45	mg/L	9/23/2009	8	59	38.27	75
SANTA CLARA	San Jose city	SANTA TERESA MEADOWS WATER COMPANY	4300760	100% GW	68	2	1	4300760-002	Aluminum	1000	ug/L	3/31/2009	2	5300	926.67	9
SANTA CLARA	San Martin CDP	SAN MARTIN COUNTY WATER DISTRICT	4300542	100% GW	600	1	1	4300542-003	Perchlorate	6	ug/L	4/23/2009	9	7.7	4.40	55
SANTA CLARA	San Martin CDP	WEST SAN MARTIN WATER WORKS, INC.	4300543	100% GW	1500	3	1	4300543-004	Perchlorate	6	ug/L	4/1/2010	19	8	5.49	58
SANTA CLARA	Gilroy city	VALLEY VIEW RANCHES	4300996	100% GW	45	1	1	4300996-002	Nitrate (as NO3)	45	mg/L	11/9/2010	24	140	113.63	24
SANTA CLARA	Evergreen, Edenvale	CITY OF SAN JOSE - EVERGREEN/EDENVALE	4310020	Mixed <50%GW	88196	6	1	4310020-011	Aluminum	1000	ug/L	9/14/2010	2	1900	825	2
SANTA CRUZ	Felton CDP, Scotts Valley city	FOREST LAKES MWC	4410016	100% GW	1145	11	1	4410016-006	Fluoride	2	mg/L	9/16/2008	3	3.9	3.87	3
SANTA CRUZ	Santa Cruz city, Scotts Valley city	SCOTTS VALLEY WATER DISTRICT	4410013	100% GW	11301	7	1	4410013-021	Arsenic	10	ug/L	9/12/2007	2	16	6.88	44
SANTA CRUZ	Watsonville	WATSONVILLE, CITY OF	4410011	Mixed <50%GW	51703	14	1	4410011-005	Nitrate (as NO3)	45	mg/L	7/9/2003	5	59	34.1568889	5
SANTA CRUZ	Boulder Creek, Brookdale, Ben Lomond, Zayante, Scotts Valley, Manana Woods, Felton	SAN LORENZO VALLEY WATER DIST	4410014	Mixed <50%GW	19000	6	1	4410014-023	Arsenic	10	ug/L	1/23/2007	6	15	8.74603175	6
SANTA CRUZ	City of Scotts Valley	MANANA WOODS MUTUAL WATER CO	4400539	100% GW	350	1	1	4400539-001	Benzene	1	ug/L	8/6/2008	9	5.8	1.04	39
								4400539-001	Methyl tertiary butyl ether (MTBE)	13	ug/L	2/4/2009	9	37	10.18	39
SANTA CRUZ	Felton CDP, Scotts Valley city	FOREST LAKES MWC	4410016	100% GW	1145	11	1	4410016-013	Arsenic	10	ug/L	1/29/2008	5	94	14.25	15
SANTA CRUZ	La Selva Beach CDP	SAN ANDREAS MUTUAL WATER CO	4400558	100% GW	350	3	1	4400558-003	Nitrate (as NO3)	45	mg/L	8/17/2010	6	61	56.50	6
SHASTA	Redding	CITY OF REDDING	4510005	Mixed <50%GW	85703	17	2	4510005-026	Arsenic	10	ug/L	8/6/2008	3	21	7.14347826	3
								4510005-067	Arsenic	10	ug/L	10/7/2010	13	27	9.25555556	13
SIERRA	Calpine CDP	SIERRA CO. W.W.D #1 CALPINE	4600019	100% GW	225	2	2	4600019-001	Arsenic	10	ug/L	10/18/2010	10	22	18.27	11
								4600019-002	Arsenic	10	ug/L	3/17/2010	3	12	8.67	11
SOLANO	City of Vacaville	RURAL NORTH VACAVILLE WATER DISTRICT	4810013	100% GW	900	2	2	4810013-001	Arsenic	10	ug/L	8/9/2004	2	13	6.11	31
								4810013-002	Arsenic	10	ug/L	5/19/2008	23	25	16.45	26
								4810002-004	Nitrate (as NO3)	45	mg/L	9/2/2007	2	66	35.31	143
SOLANO	Rio Vista city	CITY OF RIO VISTA	4810004	100% GW	7376	7	4	4810004-002	Arsenic	10	ug/L	5/12/2008	2	15	8.72	25
								4810004-004	Arsenic	10	ug/L	11/2/2010	36	20	16.00	35
								4810004-006	Arsenic	10	ug/L	11/12/2007	2	13	8.64	14
								4810004-003	Benzene	1	ug/L	7/10/2002	3	1.3	0.47	64
SOLANO	City of Vacaville	DANA RANCH	4800574	100% GW	34	1	1	4800574-001	Arsenic	10	ug/L	11/16/2005	2	17	11.25	4
SONOMA	City of Penngrove	GEORGE RANCH MUTUAL WATER COMPANY	4900973	100% GW	75	3	1	4900973-001	Arsenic	10	ug/L	5/19/2010	2	19	12.13	3

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SONOMA	City of Petaluma	BOULEVARD HEIGHTS MUTUAL WATER	4901071	100% GW	51	2	1	4901071-005	Arsenic	10	ug/L	9/1/2009	5	14	8.04	14
SONOMA	City of Santa Rosa	WESTERN MOBILE HOME PARK	4900791	100% GW	225	2	1	4900791-001	Trichloroethylene (TCE)	5	ug/L	12/23/2008	3	6.2	3.37	26
SONOMA	City of Santa Rosa	SEQUOIA GARDENS MOBILE HOME PARK	4900676	100% GW	300	1	1	4900676-001	Arsenic	10	ug/L	9/21/2010	14	18	12.07	19
SONOMA	City of Windsor	MOUNT WESKE ESTATES MUTUAL WATER COMPANY	4900643	100% GW	62	1	1	4900643-001	Arsenic	10	ug/L	6/28/2010	24	94	55.83	24
SONOMA	Larkfield-Wikiup CDP	CALIFORNIA-AMERICAN LARKFIELD (PUC)	4910023	100% GW	7775	6	2	4910023-006	Arsenic	10	ug/L	11/8/2010	41	51	13.50	48
								4910023-007	Arsenic	10	ug/L	7/9/2003	2	12	9.27	46
SONOMA	Larkfield-Wikiup CDP, Windsor town	WINDSOR, TOWN OF	4910017	100% GW	26432	7	1	4910017-008	Arsenic	10	ug/L	3/12/2008	4	22	19.00	4
SONOMA	Rohnert Park city	ROHNERT PARK, CITY OF	4910014	100% GW	42650	31	2	4910014-015	Arsenic	10	ug/L	1/16/2008	4	19	11.06	10
								4910014-041	Arsenic	10	ug/L	3/31/2009	3	15	9.35	11
SONOMA	Sebastopol city	RANCHO SANTA ROSA MHP	4900786	100% GW	175	1	1	4900786-001	Arsenic	10	ug/L	7/27/2010	17	30	14.27	20
SONOMA	Sebastopol city	MOUNTAIN VIEW MOBILE ESTATES, LLC	4900798	100% GW	200	2	1	4900798-002	1,1-Dichloroethylene (1,1-DCE)	6	ug/L	11/16/2010	14	13	3.09	43
								4900798-002	Trichloroethylene (TCE)	5	ug/L	11/16/2010	18	64	14.93	44
SONOMA	Sebastopol city	WEST FIELD COMMUNITY	4900855	100% GW	75	1	1	4900855-001	Arsenic	10	ug/L	6/23/2010	13	28	13.90	19
SONOMA	Sebastopol city	MOORLAND AVENUE APARTMENTS	4901195	100% GW	64	1	1	4901195-002	Arsenic	10	ug/L	9/24/2010	9	48	15.89	13
SONOMA	Sebastopol city	SEBASTOPOL, CITY OF	4910011	100% GW	7750	4	2	4910011-004	Arsenic	10	ug/L	2/2/2009	16	24	16.54	17
								4910011-005	Arsenic	10	ug/L	9/23/2009	7	49	9.31	26
SONOMA	Sonoma city	RANCHO DE SONOMA	4900845	100% GW	130	1	1	4900845-001	Arsenic	10	ug/L	10/12/2010	16	27	16.74	17
SONOMA	Valley Ford CDP	VALLEY FORD WATER ASSOCIATION	4900568	100% GW	40	3	3	4900568-001	Nitrate (as NO3)	45	mg/L	9/28/2010	11	92	48.49	21
								4900568-002	Nitrate (as NO3)	45	mg/L	9/28/2010	15	73	53.35	20
								4900568-003	Nitrate (as NO3)	45	mg/L	9/28/2010	8	69	37.54	19
SONOMA	City of Petaluma	LOCH HAVEN MUTUAL WATER COMPANY	4900575	100% GW	50	1	1	4900575-002	Arsenic	10	ug/L	9/19/2010	13	37	16.98	17
SONOMA	Windsor town	SHAMROCK MOBILE HOME PARK	4900723	100% GW	188	1	1	4900723-001	Arsenic	10	ug/L	11/3/2010	8	40	16.19	12
STANISLAUS	Ceres city	CERES, CITY OF	5010028	100% GW	40943	15	3	5010028-032	Arsenic	10	ug/L	9/8/2010	17	18	12.66	19
								5010028-022	Gross alpha particle activity	15	pCi/L	8/14/2006	7	31.2	24.04	7
								5010028-025	Gross alpha particle activity	15	pCi/L	2/13/2006	5	24.3	22.62	5
								5010028-025	Nitrate (as NO3)	45	mg/L	9/8/2010	35	54	45.45	60
								5010028-022	Uranium	20	pCi/L	6/7/2010	20	39	15.54	55
								5010028-025	Uranium	20	pCi/L	10/6/2010	17	30	25.26	17
STANISLAUS	Grayson CDP	CITY OF MODESTO, DE GRAYSON	5010033	100% GW	1100	2	2	5010033-001	Nitrate (as NO3)	45	mg/L	11/3/2010	177	76.1	52.46	219
								5010033-002	Nitrate (as NO3)	45	mg/L	11/3/2010	184	86.3	59.26	194
STANISLAUS	Hughson city	HUGHSON, CITY OF	5010008	100% GW	6082	6	4	5010008-006	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/9/2010	5	0.27	0.12	22
								5010008-003	Arsenic	10	ug/L	3/28/2006	3	17	9.00	25
								5010008-005	Arsenic	10	ug/L	10/14/2010	30	16	13.00	34
								5010008-006	Arsenic	10	ug/L	7/8/2010	15	17	10.50	34
								5010008-007RAW	Arsenic	10	ug/L	10/14/2010	29	26	16.13	32
STANISLAUS	Keyes CDP	KEYES COMMUNITY SERVICES DIST.	5010009	100% GW	4575	4	4	5010009-005	Arsenic	10	ug/L	7/17/2007	3	16	9.84	17
								5010009-006	Arsenic	10	ug/L	10/19/2010	26	18	14.75	26
								5010009-007	Arsenic	10	ug/L	10/19/2010	26	19	12.94	27
								5010009-012RW1	Arsenic	10	ug/L	10/19/2010	26	16	14.12	26
STANISLAUS	Waterford city	CITY OF MODESTO, DE WATERFORD	5010006	100% GW	7897	6	1	5010006-006	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	4/7/2009	22	0.5	0.21	45
STANISLAUS	Bret Harte CDP, Bystrom CDP,	MODESTO, CITY OF	5010010	>50% GW Mixed	212000	75	27	5010010-040	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	4/11/2002	4	0.28	0.11	34

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	Ceres city, Empire CDP, Modesto city, Shackelford CDP, West Modesto CDP							5010010-151	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	2/5/2004	14	0.67	0.31	22
								5010010-178	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/3/2010	41	1.1	0.64	50
								5010010-180	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	4/7/2010	32	0.42	0.25	41
								5010010-184	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/3/2010	60	0.91	0.45	64
								5010010-191	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	5/2/2007	15	0.24	0.17	61
								5010010-194	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	2/3/2010	35	0.44	0.21	65
								5010010-051	Arsenic	10	ug/L	9/5/2006	4	14	11.00	6
								5010010-003	Gross alpha particle activity	15	pCi/L	6/6/2007	4	30	14.50	11
								5010010-006	Gross alpha particle activity	15	pCi/L	6/10/2008	2	18	12.23	9
								5010010-008	Gross alpha particle activity	15	pCi/L	6/10/2008	5	17.1	12.50	14
								5010010-018	Gross alpha particle activity	15	pCi/L	6/11/2008	8	21.7	15.43	12
								5010010-019	Gross alpha particle activity	15	pCi/L	6/11/2008	5	28	12.20	13
								5010010-020	Gross alpha particle activity	15	pCi/L	7/8/2004	5	19	13.74	8
								5010010-027	Gross alpha particle activity	15	pCi/L	11/12/2008	12	25.8	13.33	29
								5010010-031	Gross alpha particle activity	15	pCi/L	7/7/2010	4	27.8	11.88	18
								5010010-032	Gross alpha particle activity	15	pCi/L	7/7/2010	3	23.9	11.71	13
								5010010-038	Gross alpha particle activity	15	pCi/L	6/12/2008	8	23.2	15.35	17
								5010010-040	Gross alpha particle activity	15	pCi/L	9/4/2007	8	29.1	19.84	11
								5010010-059	Gross alpha particle activity	15	pCi/L	6/7/2005	2	15.9	11.80	12
								5010010-070	Gross alpha particle activity	15	pCi/L	6/10/2008	2	16	11.63	16
								5010010-135	Gross alpha particle activity	15	pCi/L	6/10/2008	7	40.9	24.90	9
								5010010-146	Gross alpha particle activity	15	pCi/L	9/30/2010	4	27.7	25.30	4
								5010010-147	Gross alpha particle activity	15	pCi/L	6/23/2010	2	19	12.85	11
								5010010-148	Gross alpha particle activity	15	pCi/L	10/19/2005	4	23.96	18.47	5
								5010010-171	Gross alpha particle activity	15	pCi/L	6/16/2010	2	17.2	9.97	11
								5010010-192	Gross alpha particle activity	15	pCi/L	7/5/2006	3	24.2	14.11	8
								5010010-020	Nitrate (as NO3)	45	mg/L	11/16/2007	8	51.4	40.59	14
								5010010-031	Nitrate (as NO3)	45	mg/L	11/17/2010	49	76	34.57	132
								5010010-040	Nitrate (as NO3)	45	mg/L	9/8/2010	4	57	38.64	24
								5010010-059	Nitrate (as NO3)	45	mg/L	8/20/2008	10	50.5	35.85	112
								5010010-135	Nitrate (as NO3)	45	mg/L	11/10/2010	37	73.9	48.71	52
								5010010-192	Tetrachloroethylene (PCE)	5	ug/L	10/6/2010	34	19	6.65	68
								5010010-052	Trichloroethylene (TCE)	5	ug/L	7/7/2010	21	9	5.83	35
								5010010-192	Trichloroethylene (TCE)	5	ug/L	9/8/2009	18	9	3.44	64
								5010010-003	Uranium	20	pCi/L	7/7/2009	4	31.4	14.28	21
								5010010-019	Uranium	20	pCi/L	9/3/2008	2	29	13.48	17
								5010010-027	Uranium	20	pCi/L	11/12/2008	5	25	11.80	40
								5010010-038	Uranium	20	pCi/L	6/12/2008	5	23	13.91	37
								5010010-040	Uranium	20	pCi/L	10/1/2008	13	29	18.14	58
								5010010-135	Uranium	20	pCi/L	8/11/2010	20	37	27.04	23
								5010010-146	Uranium	20	pCi/L	7/22/2004	3	27.8	23.15	4
								5010010-148	Uranium	20	pCi/L	11/6/2002	2	24.1	17.88	5
STANISLAUS	Ceres city	CERES, CITY OF	5010028	100% GW	40943	15	2	5010028-001	Gross alpha particle activity	15	pCi/L	12/14/2004	5	23.6	20.38	6
								5010028-016	Nitrate (as NO3)	45	mg/L	9/18/2007	5	55	29.08	25
								5010028-001	Uranium	20	pCi/L	10/6/2010	21	35.7	23.66	26
STANISLAUS	City of Ceres	CERES WEST MHP	5000077	100% GW	161	1	1	5000077-001	Arsenic	10	ug/L	9/17/2010	17	22	17.42	17
STANISLAUS	City of Hughson	COUNTRY VILLA APTS	5000218	100% GW	30	1	1	5000218-004	Arsenic	10	ug/L	9/30/2010	12	24	20.42	12
STANISLAUS	City of Modesto	COBLES CORNER	5000033	100% GW	50	1	1	5000033-002	Arsenic	10	ug/L	9/2/2010	17	32	13.75	19
STANISLAUS	City of Modesto	TULLY MOBILE ESTATES	5000067	100% GW	40	1	1	5000067-001	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/10/2010	8	0.6	0.29	11
STANISLAUS	City of Modesto	COUNTRY WESTERN MOBILE HOME PARK	5000080	100% GW	120	1	1	5000080-003	Arsenic	10	ug/L	10/22/2010	15	31	23.06	15
STANISLAUS	City of Turlock	COUNTRYSIDE MOBILEHOME ESTATES - ADULT P	5000086	100% GW	60	1	1	5000086-001	Arsenic	10	ug/L	10/4/2010	17	16	13.00	18
STANISLAUS	City of Turlock	FAITH HOME TEEN RANCH	5000217	100% GW	50	2	1	5000217-001	Nitrate (as NO3)	45	mg/L	12/1/2010	19	70.5	43.61	39
STANISLAUS	Keyes CDP	MOBILE PLAZA PARK	5000051	100% GW	125	2	1	5000051-001	Arsenic	10	ug/L	9/7/2010	10	15	9.93	15

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County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
STANISLAUS	Keyes CDP	GREEN RUN MOBILE ESTATES	5000085	100% GW	100	1	1	5000085-002	Arsenic	10	ug/L	9/3/2010	15	19	14.25	16
STANISLAUS	Monterey Park Tract CDP	MONTEREY PARK TRACT COMMUNITY SERVICE DI	5000389	100% GW	186	1	1	5000389-002	Arsenic	10	ug/L	9/1/2010	22	44	33.40	22
								5000389-002	Nitrate (as NO3)	45	mg/L	10/6/2010	4	71.8	28.78	35
STANISLAUS	Riverdale Park CDP	RIVERDALE PARK TRACT COMMUNITY	5000019	100% GW	300	1	1	5000019-003	Gross alpha particle activity	15	pCi/L	6/26/2008	12	24.6	18.87	15
								5000019-003	Uranium	20	pCi/L	3/27/2007	3	21	17.63	12
STANISLAUS	Turlock city	CURTIS INVESTMENTS	5000316	100% GW	42	1	1	5000316-001	Arsenic	10	ug/L	10/21/2010	14	16.1	12.06	15
STANISLAUS	Turlock city	TURLOCK, CITY OF	5010019	100% GW	64215	25	6	5010019-028 M	Arsenic	10	ug/L	7/8/2010	10	11	10.56	17
								5010019-031	Arsenic	10	ug/L	7/7/2010	4	12	9.92	10
								5010019-035	Arsenic	10	ug/L	7/29/2009	5	12	10.25	17
								5010019-038RW3	Arsenic	10	ug/L	12/2/2010	5	12	10.43	9
								5010019-004	Carbon tetrachloride	0.5	ug/L	7/11/2002	5	0.63	0.20	19
								5010019-024	Nitrate (as NO3)	45	mg/L	2/4/2009	4	56.4	32.94	35
STANISLAUS	Undetermined	FOSTER FARMS #5	5000579	100% GW	26	2	1	5000579-001	Gross alpha particle activity	15	pCi/L	7/1/2010	2	24	13.41	8
SUTTER	Live Oak city	CITY OF LIVE OAK	5110001	100% GW	7475	4	4	5110001-003	Arsenic	10	ug/L	11/17/2010	22	19.1	14.07	24
								5110001-004	Arsenic	10	ug/L	11/17/2010	19	43	13.86	24
								5110001-011	Arsenic	10	ug/L	11/17/2010	13	40	25.31	13
								5110001-013	Arsenic	10	ug/L	11/17/2010	11	73	46.91	11
SUTTER	Robbins CDP	SUTTER CO. WWD#1 (ROBBINS)	5100107	100% GW	336	1	1	5100107-004	Arsenic	10	ug/L	11/10/2004	3	43.6	21.45	4
SUTTER	Yuba City city	YUBA CITY GROUNDWATER-REGION 2-3	5110003	100% GW	10200	3	3	5110003-004	Arsenic	10	ug/L	7/13/2010	38	38.48	20.06	40
								5110003-007	Arsenic	10	ug/L	9/8/2010	49	40	24.02	51
								5110003-009	Arsenic	10	ug/L	9/8/2010	39	140	33.71	40
SUTTER	Yuba City city	YUBA CITY GROUNDWATER REGION 1	5115001	100% GW			2	5115001-005	Arsenic	10	ug/L	4/13/2010	41	23.2	16.13	43
								5115001-006	Arsenic	10	ug/L	4/13/2010	32	21.4	12.66	39
SUTTER	Yuba City city	EL MARGARITA MUTUAL WATER CO.	5100102	100% GW	246	1	1	5100102-001	Perchlorate	6	ug/L	4/14/2010	2	6.6	5.55	10
SUTTER	Yuba City city	WILDWOOD MUTUAL WATER COMPANY	5100109	100% GW	255	1	1	5100109-002	Arsenic	10	ug/L	7/5/2010	17	33	26.45	17
SUTTER	Yuba City city	COUNTRY VILLAGE SOUTH MHP	5101006	100% GW	33	1	1	5101006-002	Arsenic	10	ug/L	9/9/2009	3	12	10.55	4
TEHAMA	Los Molinos CDP	LOS MOLINOS COMM. SERVICES DIST.	5210003	100% GW	1500	3	1	5210003-003	Arsenic	10	ug/L	7/21/2010	10	12.5	11.59	10
TEHAMA	Los Molinos CDP	ORCHARD MOBILE HOME PARK	5200550	100% GW	56	2	2	5200550-001	Arsenic	10	ug/L	10/20/2010	17	28	21.88	17
								5200550-002	Arsenic	10	ug/L	10/20/2010	17	20	16.88	17
TEHAMA	Los Molinos CDP	MILLSTREAM MOBILE HOME PARK	5201137	100% GW	53	1	1	5201137-001	Arsenic	10	ug/L	10/20/2010	16	22	17.41	18
TULARE	City of Porterville	LAKE SUCCESS MOBILE LODGE	5400660	100% GW	20	1	1	5400660-001	Nitrate (as NO3)	45	mg/L	10/19/2010	30	76	59.71	33
TULARE	Springville CDP	TRACT 327 MUTUAL WATER CO	5403103	100% GW	24	1	1	5403103-001	Gross alpha particle activity	15	pCi/L	3/9/2007	2	71	64.50	2
								5403103-001	Uranium	20	pCi/L	2/3/2010	2	101	86.00	2
TULARE	Alpaugh	ALPAUGH JOINT POWERS AUTHORITY	5410050	100% GW	910	2	2	5410050-003	Arsenic	10	ug/L	9/3/2008	3	29	10.72	10
								5410050-004	Arsenic	10	ug/L	9/1/2010	17	18	14.25	19
TULARE	City of Bakersville	CWS - MULLEN WATER COMPANY	5400935	100% GW	139	1	1	5400935-001	Perchlorate	6	ug/L	5/6/2008	25	24	5.02	92
TULARE	Cutler CDP	CUTLER PUD	5410001	100% GW	6200	3	1	5410001-004	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	8/3/2010	53	0.36	0.22	91
								5410001-004	Nitrate (as NO3)	45	mg/L	11/19/2009	17	54	37.81	113
TULARE	Dinuba city	DINUBA, CITY OF	5410002	100% GW	21237	8	1	5410002-013	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/16/2009	11	0.27	0.16	93
TULARE	East Tulare Villa CDP	CWS - TULCO WATER COMPANY	5410041	100% GW	799	2	1	5410041-002	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	12/1/2004	7	0.3	0.16	101
								5410041-002	Nitrate (as NO3)	45	mg/L	7/8/2010	2	129	34.29	29
TULARE	Exeter city	EXETER, CITY OF	5410003	100% GW	10730	7	2	5410003-002	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	9/11/2009	29	0.53	0.26	43
								5410003-006	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	11/30/2007	5	0.33	0.14	36

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								5410003-006	Perchlorate	6	ug/L	8/5/2010	6	8.3	6.94	7
TULARE	Goshen CDP, Patterson Tract CDP, Visalia city	CWS - VISALIA	5410016	100% GW	133749	74	5	5410016-016	1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/L	6/16/2009	5	0.24	0.16	107
								5410016-085	Nitrate (as NO3)	45	mg/L	10/12/2010	17	84.887	32.05	148
								5410016-151	Nitrate (as NO3)	45	mg/L	7/10/2002	10	49	28.43	45
								5410016-016	Tetrachloroethylene (PCE)	5	ug/L	10/6/2010	46	7.78	4.94	108
								5410016-037	Tetrachloroethylene (PCE)	5	ug/L	11/14/2010	97	66.61	39.01	106
TULARE	Pine Flat CDP	PINE FLAT WATER COMPANY	5410034	100% GW	200	4	2	5410034-007	Gross alpha particle activity	15	pCi/L	9/23/2010	6	26.9	24.32	6
								5410034-009	Gross alpha particle activity	15	pCi/L	11/21/2006	4	29.1	18.70	5
								5410034-007	Uranium	20	pCi/L	10/22/2010	8	29.7	22.41	10
								5410034-009	Uranium	20	pCi/L	9/22/2009	5	29.5	15.95	9
TULARE	Porterville city	PORTERVILLE DEVELOPMENTAL CENTER	5410801	100% GW	2567	7	2	5410801-006	Nitrate (as NO3)	45	mg/L	9/29/2009	33	100	54.11	58
								5410801-009	Nitrate (as NO3)	45	mg/L	9/1/2009	114	81	57.99	145
TULARE	Richgrove CDP	RICHGROVE COMMUNITY SERVICES DISTRICT	5410024	100% GW	3330	2	1	5410024-004	Arsenic	10	ug/L	7/20/2010	11	17	10.41	18
TULARE	Strathmore, Porterville	STRATHMORE PUBLIC UTIL DIST	5410012	Mixed <50%GW	1904	1	1	5410012-002	Nitrate (as NO3)	45	mg/L	11/8/2010	198	83	65.8838384	193
TULARE	City of Porterville	DEL ORO RIVER ISLAND SERV TERR #1	5400665	100% GW	810	14	6	5400665-002	Gross alpha particle activity	15	pCi/L	9/28/2010	6	60.4	41.52	6
								5400665-005	Gross alpha particle activity	15	pCi/L	9/28/2010	6	49.9	36.44	8
								5400665-008	Gross alpha particle activity	15	pCi/L	10/23/2008	6	25.3	19.70	7
								5400665-018	Gross alpha particle activity	15	pCi/L	9/28/2010	2	15.6	10.14	9
								5400665-021	Gross alpha particle activity	15	pCi/L	6/17/2010	5	28.2	15.18	9
								5400665-025	Gross alpha particle activity	15	pCi/L	6/17/2010	7	25.6	20.98	8
								5400665-002	Nitrate (as NO3)	45	mg/L	7/21/2009	12	99	46.70	28
								5400665-005	Nitrate (as NO3)	45	mg/L	9/21/2005	4	64.1	37.18	23
								5400665-002	Uranium	20	pCi/L	10/26/2010	14	55.2	31.26	16
								5400665-005	Uranium	20	pCi/L	10/26/2010	5	44.8	25.38	8
								5400665-008	Uranium	20	pCi/L	9/28/2010	7	23.4	19.03	12
								5400665-025	Uranium	20	pCi/L	3/22/2010	3	24.2	19.37	6
TULARE	City of Springville	DEL ORO RIVER ISLAND SERV TERR #2	5402048	100% GW	87	2	2	5402048-002	Gross alpha particle activity	15	pCi/L	10/13/2008	2	56.4	20.09	6
								5402048-001	Nitrate (as NO3)	45	mg/L	6/17/2010	6	85	39.13	26
								5402048-002	Nitrate (as NO3)	45	mg/L	6/17/2010	14	105	74.00	20
								5402048-002	Uranium	20	pCi/L	10/13/2008	2	55.8	21.43	6
TULARE	City of Dinuba	EL MONTE VILLAGE M H P	5400523	100% GW	100	1	1	5400523-001	Nitrate (as NO3)	45	mg/L	11/22/2010	14	77.9	45.37	29
TULARE	City of Dinuba	GLEANINGS FOR THE HUNGRY	5402047	100% GW	31	3	1	5402047-001	Nitrate (as NO3)	45	mg/L	10/11/2010	24	115	83.14	26
TULARE	City of Porterville	BEVERLY GRAND MUTUAL WATER	5400651	100% GW	108	1	1	5400651-001	Nitrate (as NO3)	45	mg/L	5/7/2010	18	91	69.39	18
TULARE	City of Porterville	FAIRWAYS TRACT MUTUAL	5400663	100% GW	250	1	1	5400663-002	Gross alpha particle activity	15	pCi/L	10/25/2005	2	19	13.06	5
								5400663-002	Nitrate (as NO3)	45	mg/L	11/13/2009	8	148	105.61	9
TULARE	City of Porterville	SIERRA MUTUAL WATER CO	5403110	100% GW	39	2	2	5403110-001	Nitrate (as NO3)	45	mg/L	11/23/2009	4	100	96.75	4
								5403110-002	Nitrate (as NO3)	45	mg/L	6/19/2008	3	110	77.50	4
TULARE	City of Springville	TRIPLE R MUTUAL WATER CO	5400670	100% GW	400	10	6	5400670-002	Gross alpha particle activity	15	pCi/L	9/21/2004	6	20.5	16.73	7
								5400670-004	Gross alpha particle activity	15	pCi/L	10/20/2008	2	18.3	13.16	7
								5400670-005	Gross alpha particle activity	15	pCi/L	10/20/2008	3	17.7	15.13	7
								5400670-006	Gross alpha particle activity	15	pCi/L	10/20/2008	6	25	19.92	6
								5400670-008	Gross alpha particle activity	15	pCi/L	12/16/2003	2	16.1	10.73	7
								5400670-001	Nitrate (as NO3)	45	mg/L	10/4/2010	25	61	54.06	27
								5400670-006	Nitrate (as NO3)	45	mg/L	10/4/2010	26	70.9	56.26	27

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								5400670-006	Uranium	20	pCi/L	10/20/2008	2	22.3	20.20	4
TULARE	City of Tulare	ALLENSWORTH C S D	5400544	100% GW	400	2	2	5400544-002	Arsenic	10	ug/L	11/30/2010	8	13	11.30	10
								5400544-003	Arsenic	10	ug/L	11/30/2010	3	13	9.25	8
TULARE	City of Tulare	SOULTS MUTUAL WATER CO	5400805	100% GW	100	1	1	5400805-001	Gross alpha particle activity	15	pCi/L	11/20/2007	6	35.5	24.35	6
								5400805-001	Nitrate (as NO3)	45	mg/L	9/2/2010	23	118	76.14	24
								5400805-001	Uranium	20	pCi/L	11/20/2007	4	36.9	34.00	4
TULARE	City of Visalia	WOODVILLE FARM LABOR CENTER	5400792	100% GW	725	2	1	5400792-001	Nitrate (as NO3)	45	mg/L	3/17/2009	5	52	27.27	49
TULARE	Ducor CDP	DUCOR CSD	5400542	100% GW	850	2	1	5400542-004	Nitrate (as NO3)	45	mg/L	1/5/2009	2	48	23.79	7
TULARE	East Orosi CDP	EAST OROSI CSD	5401003	100% GW	700	2	2	5401003-001	Nitrate (as NO3)	45	mg/L	2/10/2010	6	61.3	38.50	25
								5401003-002	Nitrate (as NO3)	45	mg/L	2/10/2010	6	59.9	39.68	26
TULARE	Ivanhoe CDP	IVANHOE PUBLIC UTILITY DIST	5410019	100% GW	4474	4	1	5410019-007	Nitrate (as NO3)	45	mg/L	6/24/2008	3	52	33.49	37
TULARE	Lemon Cove CDP	LEMON COVE WATER CO	5400616	100% GW	200	1	1	5400616-001	Nitrate (as NO3)	45	mg/L	8/26/2010	16	57.3	51.81	17
TULARE	Matheny CDP	PRATT MUTUAL WATER CO	5410033	100% GW	1500	2	2	5410033-001	Arsenic	10	ug/L	10/14/2010	7	21	15.00	8
								5410033-003	Arsenic	10	ug/L	10/14/2010	8	15	11.87	12
TULARE	Orosi CDP	OROSI PUBLIC UTILITY DISTRICT	5410008	100% GW	7318	4	1	5410008-008	Nitrate (as NO3)	45	mg/L	3/10/2003	2	50	29.27	37
TULARE	Pixley CDP	PIXLEY PUBLIC UTIL DIST	5410009	100% GW	2793	4	3	5410009-001	Arsenic	10	ug/L	10/18/2010	13	27	23.54	13
								5410009-005	Arsenic	10	ug/L	10/18/2010	12	24	19.15	13
								5410009-006	Arsenic	10	ug/L	4/29/2010	10	24	13.92	13
TULARE	Plainview CDP	CENTRAL WATER CO	5400682	100% GW	170	1	1	5400682-001	Nitrate (as NO3)	45	mg/L	6/11/2010	2	52	33.20	5
TULARE	Porterville city	AKIN WATER CO	5401038	100% GW	50	2	2	5401038-001	Gross alpha particle activity	15	pCi/L	3/12/2007	2	17.2	14.85	4
								5401038-002	Gross alpha particle activity	15	pCi/L	3/12/2007	2	17.8	14.10	3
								5401038-001	Nitrate (as NO3)	45	mg/L	2/8/2006	3	50	41.30	10
TULARE	Rodriguez Camp CDP	RODRIGUEZ LABOR CAMP	5400735	100% GW	110	1	1	5400735-001	Nitrate (as NO3)	45	mg/L	3/4/2010	7	130	125.86	7
TULARE	Seville CDP	SEVILLE WATER CO	5400550	100% GW	400	1	1	5400550-001	Nitrate (as NO3)	45	mg/L	12/14/2009	2	46	43.83	6
TULARE	Three Rivers CDP	SEQUOIA RV RANCH	5400629	100% GW	22	1	1	5400629-002	Arsenic	10	ug/L	9/8/2009	13	49	17.00	14
								5400629-002	Gross alpha particle activity	15	pCi/L	7/30/2007	4	22.9	18.32	5
								5400629-002	Uranium	pCi/L	ug/L	3/21/2008	4	26.13	21.93	5
TULARE	Three Rivers CDP	SO KAWEAH MUTUAL WATER CO	5400754	100% GW	300	3	3	5400754-001	Arsenic	10	ug/L	5/27/2010	7	19	9.72	18
								5400754-002	Arsenic	10	ug/L	11/4/2009	9	17	11.18	22
								5400754-003	Arsenic	10	ug/L	8/31/2010	15	98	19.38	21
TULARE	Tooleville CDP	TOOLEVILLE WATER COMPANY	5400567	100% GW	300	2	2	5400567-001	Nitrate (as NO3)	45	mg/L	11/29/2006	3	67.1	46.04	9
								5400567-002	Nitrate (as NO3)	45	mg/L	6/5/2009	5	68	42.06	12
TULARE	Traver CDP	TRAVER WATER LLC	5400553	100% GW	500	3	1	5400553-001	Nitrate (as NO3)	45	mg/L	2/4/2009	2	58.7	24.21	18
TULARE	Visalia city	WESTLAKE VILLAGE M H P	5400966	100% GW	350	1	1	5400966-001	Nitrate (as NO3)	45	mg/L	10/12/2010	4	51	43.79	19
TULARE	Yettem CDP	YETTEM WATER SYSTEM	5403043	100% GW	350	2	1	5403043-001	Nitrate (as NO3)	45	mg/L	4/2/2010	24	67	42.34	71
TUOLUMNE	Mono Village	TUD - MONO VILLAGE WATER SYSTEM	5510019	Mixed <50%GW	649	2	1	5510019-002	Arsenic	10	ug/L	12/6/2006	2	23	11.475	2
TUOLUMNE	Standard City	BLUEBELL VALLEY MWC	5500040	100% GW	230	4	1	5500040-005	Gross alpha particle activity	15	pCi/L	7/26/2010	2	22.5	13.01	7
TUOLUMNE	Scenic View, Scenic Brook	TUD-SCENIC VIEW/SCENIC BROOK	5510033	Mixed <50%GW	625	2	1	5510033-001	Gross alpha particle activity	15	pCi/L	4/15/2010	4	23	16.3875	4
VENTURA	City of Fillmore	SAN CAYETANO MUTUAL WATER CO	5601116	100% GW	45	4	1	5601116-001	Nitrate (as NO3)	45	mg/L	10/26/2006	2	51	28.34	14
VENTURA	City of Santa Paula	SOUTH MOUNTAIN MUTUAL WATER CO	5601141	100% GW	45	1	1	5601141-001	Gross alpha particle activity	15	pCi/L	9/3/2010	2	29.7	14.99	5
VENTURA	El Rio CDP	RIO MANOR MUTUAL WATER CO	5610035	100% GW	1500	2	2	5610035-001	Gross alpha particle activity	15	pCi/L	7/14/2005	4	23.3	11.73	17
								5610035-002	Gross alpha particle activity	15	pCi/L	7/14/2005	2	21.21	10.68	9

Table 8.1
List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
								5610035-001	Uranium	pCi/L	ug/L	11/11/2004	3	33.3	12.49	16
VENTURA	San Buenaventura (Ventura) city	SATICOY COUNTRY CLUB-CITY OF VENTURA	5602140	100% GW	150	2	1	5602140-001	Gross alpha particle activity	15	pCi/L	7/12/2010	5	16.7	14.50	6
VENTURA	El Rio CDP	UNITED WTR CONS DIST	5610046	100% GW	0	8	5	5610046-006	Nitrate (as NO3)	45	mg/L	2/16/2010	50	124	21.29	394
								5610046-007	Nitrate (as NO3)	45	mg/L	9/18/2008	3	53.4	16.10	420
								5610046-008	Nitrate (as NO3)	45	mg/L	9/25/2008	2	86.7	13.74	430
								5610046-009	Nitrate (as NO3)	45	mg/L	12/29/2009	2	48.4	9.03	429
								5610046-013	Nitrate (as NO3)	45	mg/L	3/8/2010	28	75.2	19.48	415
VENTURA	Camarillo city	CAMARILLO WATER DEPT	5610019	>50% GW Mixed	44831	4	2	5610019-005	Gross alpha particle activity	15	pCi/L	12/7/2009	3	20.4	17.70	4
								5610019-007	Gross alpha particle activity	15	pCi/L	1/15/2008	2	19.2	10.81	6
VENTURA	Camarillo city, Santa Rosa Valley CDP	CAMROSA WATER DISTRICT	5610063	>50% GW Mixed	30000	6	4	5610063-011	Gross alpha particle activity	15	pCi/L	1/22/2004	2	33.7	8.59	9
								5610063-001	Nitrate (as NO3)	45	mg/L	2/27/2009	35	133	98.73	36
								5610063-006	Nitrate (as NO3)	45	mg/L	12/5/2008	33	139	101.24	34
								5610063-007	Nitrate (as NO3)	45	mg/L	12/2/2010	4	83.7	66.93	4
								5610063-011	Nitrate (as NO3)	45	mg/L	3/22/2007	24	71	48.62	40
VENTURA	Mira Monte CDP	TICO MUTUAL WATER CO	5601122	>50% GW Mixed	95	1	1	5601122-001	Nitrate (as NO3)	45	mg/L	9/28/2010	269	64	48.62	429
VENTURA	Mira Monte CDP	VENTURA RIVER CWD	5610022	>50% GW Mixed	6400	5	1	5610022-006	Nickel	100	ug/L	11/24/2009	6	605	251.44	5
VENTURA	Oxnard city	OXNARD WATER DEPT	5610007	>50% GW Mixed	192000	12	5	5610007-038	Gross alpha particle activity	15	pCi/L	9/1/2010	6	24.8	21.48	6
								5610007-021	Nitrate (as NO3)	45	mg/L	11/7/2007	15	58.9	35.01	50
								5610007-037	Nitrate (as NO3)	45	mg/L	6/2/2010	10	53	45.31	17
								5610007-038	Nitrate (as NO3)	45	mg/L	4/7/2010	13	200	61.35	25
								5610007-039	Nitrate (as NO3)	45	mg/L	12/1/2010	90	76	59.58	92
								5610007-041	Nitrate (as NO3)	45	mg/L	3/11/2009	10	60	30.13	55
VENTURA	Moorpark, Piru, Bell Canyon, Somis, North Coast, Nyeland Acres, El Rio, Camarillo Airport, Lake Sherwood, Todd Road Jail	VENTURA WATER DEPARTMENT	5610017	Mixed <50%GW	107490	9	1	5610017-031	Gross alpha particle activity	15	pCi/L	9/16/2010	11	27.6	13.3852381	11
								5610017-031	Uranium	20	pCi/L	9/15/2008	5	25.9	15.4341176	5
VENTURA	Ojai, Upper Ojai, Ventura River Valley, Ventura, Rincon	CASITAS MUNICIPAL WATER DIST	5610024	Mixed <50%GW	65000	1	1	5610024-003	Nitrate (as NO3)	45	mg/L	12/6/2010	52	97	63.412963	52
VENTURA	Oxnard, Port Hueneme, Point Mugu, Camarillo, Newbury Park, Thousand Oaks, Noorpark, Simi, Lake Bard, Westlake	CALLEGUAS MUNICIPAL WATER DIST	5610050	Mixed <50%GW	0	18	5	5610050-006	Gross alpha particle activity	15	pCi/L	11/20/2008	2	27.1	15.0866667	2
								5610050-009	Gross alpha particle activity	15	pCi/L	2/21/2008	3	28.4	13.1944444	3
								5610050-017	Gross alpha particle activity	15	pCi/L	5/18/2009	3	21.3	12.3685556	3
								5610050-022	Gross alpha particle activity	15	pCi/L	11/15/2010	3	37.6	15.3811111	3
								5610050-009	Uranium	20	pCi/L	8/9/2006	2	26.4	11.7166667	2
								5610050-017	Uranium	20	pCi/L	5/18/2009	2	25.5	12.6802222	2
VENTURA	Oxnard	VINEYARD AVE ESTATES MWC	5610056	Mixed <50%GW	1200	1	1	5610056-002	Nitrate (as NO3)	45	mg/L	10/4/2010	22	93.9	30.3126316	22
VENTURA	Simi	GOLDEN STATE WATER COMPANY - SIMI	5610059	Mixed <50%GW	42717	2	2	5610059-001	Gross alpha particle activity	15	pCi/L	7/8/2009	2	20.9	10.728	2
								5610059-001	Nitrate (as NO3)	45	mg/L	12/1/2010	47	74	56.4211538	47
								5610059-002	Nitrate (as NO3)	45	mg/L	9/1/2010	21	63	41.5794118	21
YOLO	Woodland city	CITY OF WOODLAND	5710006	100% GW	56000	24	1	5710006-019	Nitrate (as NO3)	45	mg/L	2/28/2002	3	51	26.53	31
YOLO	Woodland city	WILD WINGS GOLF COMMUNITY	5710011	100% GW	1187	2	1	5710011-001	Arsenic	10	ug/L	8/13/2009	8	15	10.01	20
YOLO	Madison CDP	MADISON SERVICE DIST	5700571	100% GW	876	4	1	5700571-002	Nitrate (as NO3)	45	mg/L	4/15/2003	3	50	32.00	10
YUBA	Linda CDP, Olivehurst CDP	LINDA COUNTY WATER DISTRICT	5810002	100% GW	10000	6	1	5810002-007	Benzene	1	ug/L	9/1/2010	62	11	1.39	102
YUBA	City of Marysville	COUNTRY VILLAGE MOBILE HM PRK	5800824	100% GW	30	1	1	5800824-001	Arsenic	10	ug/L	9/25/2007	4	15	13.00	4
YUBA	City of Olivehurst	FEATHER RIVER MANOR	5800851	100% GW	35	1	1	5800851-001	Nitrate (as NO3)	45	mg/L	6/24/2009	5	58.5	44.16	8

Table 8.1

List of Community Water Systems that Rely on a Contaminated Groundwater Source for Drinking Water

County	Primary City	Public Water System Name	PWS Number	Source of PWS Supply	Population Served	System Wells	Wells with Princ. Cont.	Well Number	Princ. Contaminant	MCL	Units	Most Recent Det. >MCL	Det. >MCL	Max Conc.	Avg. Conc.	Sampling Events
YUBA	Linda CDP	CHRISTOPHER SIMS RENTALS	5800852	100% GW	30	1	1	5800852-001	Nitrate (as NO3)	45	mg/L	6/13/2006	3	50.9	25.43	10
YUBA	Olivehurst CDP	GEORGE AVENUE APARTMENTS	5800878	100% GW	40	1	1	5800878-001	Arsenic	10	ug/L	3/24/2010	8	34.9	13.98	9

A Guide for Private Domestic Well Owners

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Compiled by the
California State Water Resources Control Board
Division of Water Quality
GAMA Program

Revised April 2011

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Revised April 2011

DISCLAIMER

This document is provided for informational purposes only. Water quality problems in private domestic wells may occur even when precautions are taken. This guide can help well owners with water quality testing and interpretation, and contains tips to help preserve and maintain a problem-free, clean well. For additional questions, please contact your local environmental health agency, or contact GAMA Program Manager John Borkovich at 916-341-5779.

ACRONYMS and ABBREVIATIONS

mg/l = milligrams per liter
µg/l = micrograms per liter. A microgram is 1/1000th of a milligram
Mgal = million gallons
Mgal/day = million gallons per day
CDPH = California Department of Public Health
DTSC = Department of Toxic Substances Control
DWR = Department of Water Resources
SWRCB = State Water Resources Control Board
US EPA = United States Environmental Protection Agency
USGS = United States Geological Survey

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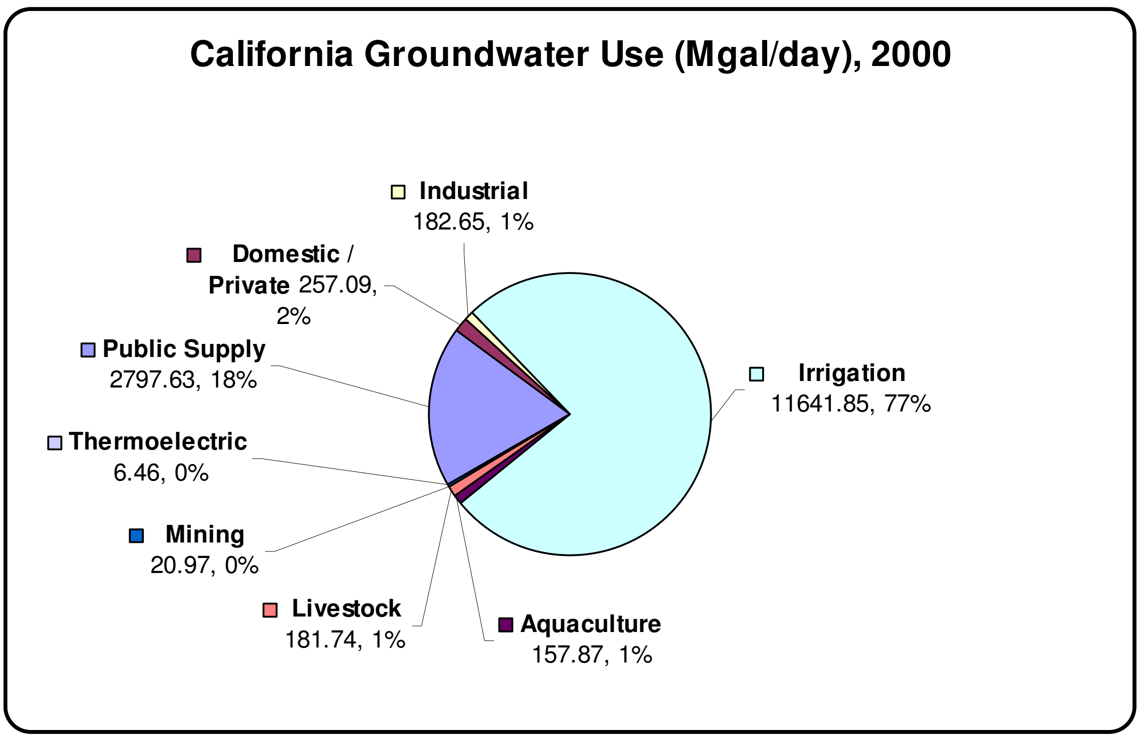
INTRODUCTION

What is Groundwater?
Groundwater is water that fills spaces between soil and rocks in the ground. Most groundwater comes from rain and snow that falls to the ground and percolates downward through naturally-occurring openings. Irrigation water, percolation ponds, and other sources can also contribute to groundwater. The area in the ground that is filled with water is called the saturated zone, and the top of the saturated zone is called the water table. The water table can be very near or far below the ground surface.

Who Uses Groundwater?
Approximately half the people in the United States use groundwater for drinking water. Californian's use about 15 billion gallons of groundwater – per day! Most groundwater is used for agricultural crop irrigation and industrial purposes.

Over 16 million Californian's get at least part of their drinking water from groundwater, from both public supplies and private domestic wells. Groundwater use in California increases during drought conditions. Over 11 billion gallons of groundwater per day are used for agricultural irrigation, helping to make California's agricultural economy one of the largest in the United States.

- Californians use more groundwater than any other state – about 15 billion gallons per day.
- Californians use approximately 20% of all the groundwater consumed in the United States.
- Californians use twice as much groundwater as the next highest state (Texas).
- Most of the groundwater used in California is for agricultural crop irrigation.



Data from "Estimated Use of Water in the United States for County-Level Data for 2000," USGS. Mgal/day is millions of gallons per day.

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GROUNDWATER BASICS

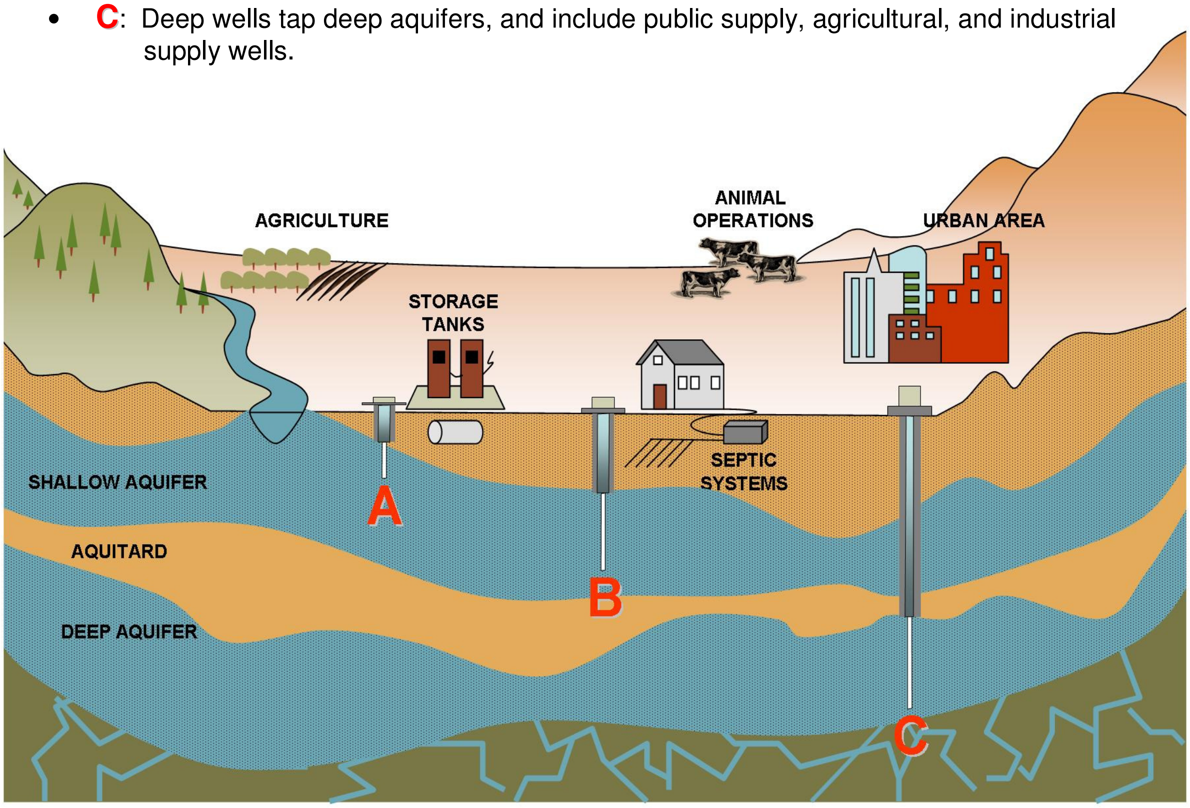
How Do We Get Groundwater?
Most groundwater is brought to the surface by pumping it from a well. There are several types of wells: public supply wells, irrigation wells, industrial supply wells, monitoring wells, and private domestic wells. Artesian wells flow without pumping.

What's In Groundwater?
Groundwater quality is related to several factors including geology, climate, and land use. Many naturally occurring chemicals in groundwater come from dissolving rocks, soil, and decaying plant material. Well water can become contaminated. Human activities can increase the concentration of naturally occurring substances like salts, minerals, and nitrate. Poor well construction or placement close to a potential source of contamination can affect domestic well water quality. Domestic well owners are responsible for testing their well water to ensure its quality.

Other compounds, such as pesticides and volatile organic compounds (VOCs), do not occur naturally in the environment. These substances can enter groundwater through spills, irrigation, wastewater percolation fields, septic systems, animal facilities, leaking underground fuel storage tanks, and other sources.

Wells draw water from different depths, and can be affected by different pollution sources. Types of wells and possible pollution sources are illustrated in the figure below:

- **A**: Shallow wells capture water from shallow aquifers close to the surface. Some private domestic wells are shallow wells.
- **B**: Intermediate wells can tap either deep or shallow aquifers, and can include private domestic, agricultural, and industrial supply wells.
- **C**: Deep wells tap deep aquifers, and include public supply, agricultural, and industrial supply wells.



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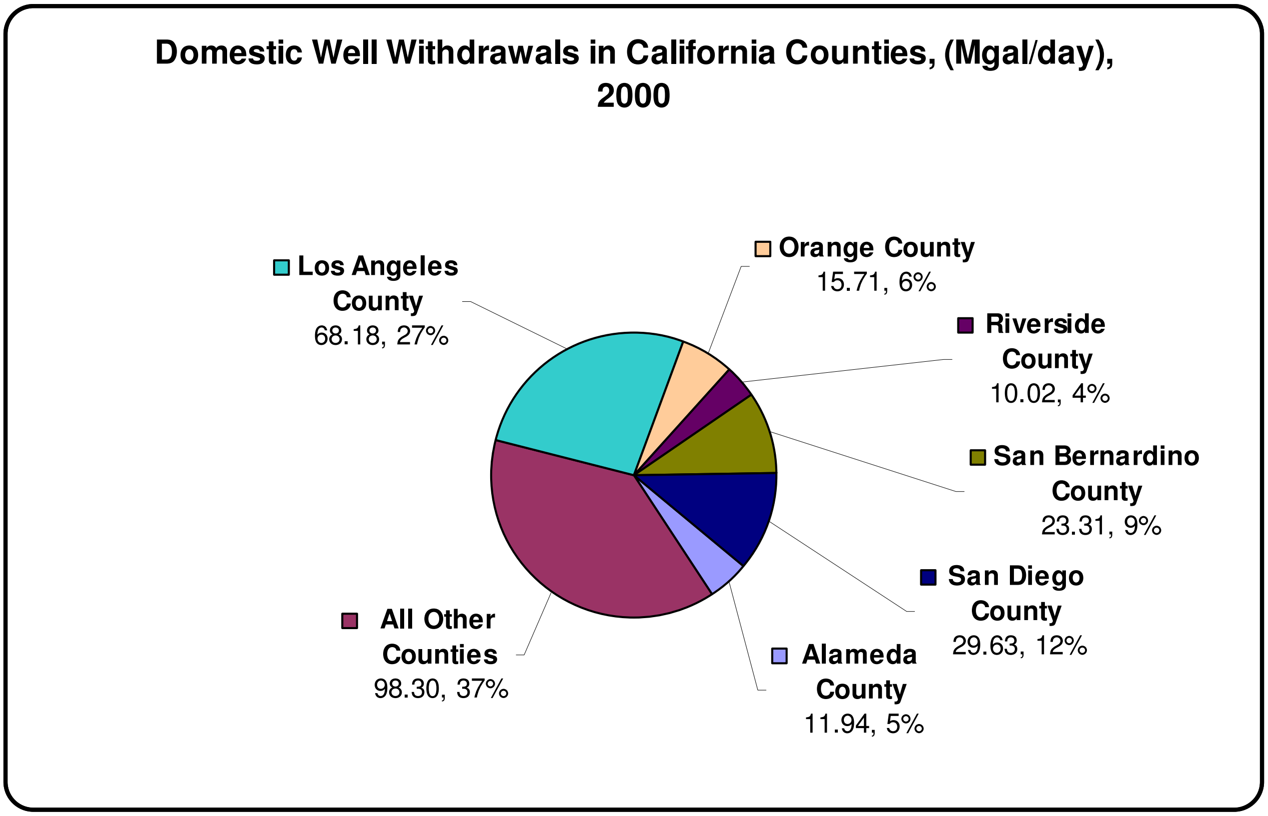
PRIVATE DOMESTIC WELL USE IN CALIFORNIA

As of 2010, the drinking water for about 1.4 million state residents comes from over 600,000 private domestic wells. The majority of domestic wells are located in southern California. Los Angeles, San Diego, San Bernardino, Orange, and Riverside counties account for 58% of domestic well groundwater withdrawals in the state.



Data from "Estimated Use of Water in the United States for County-Level Data for 2000," USGS

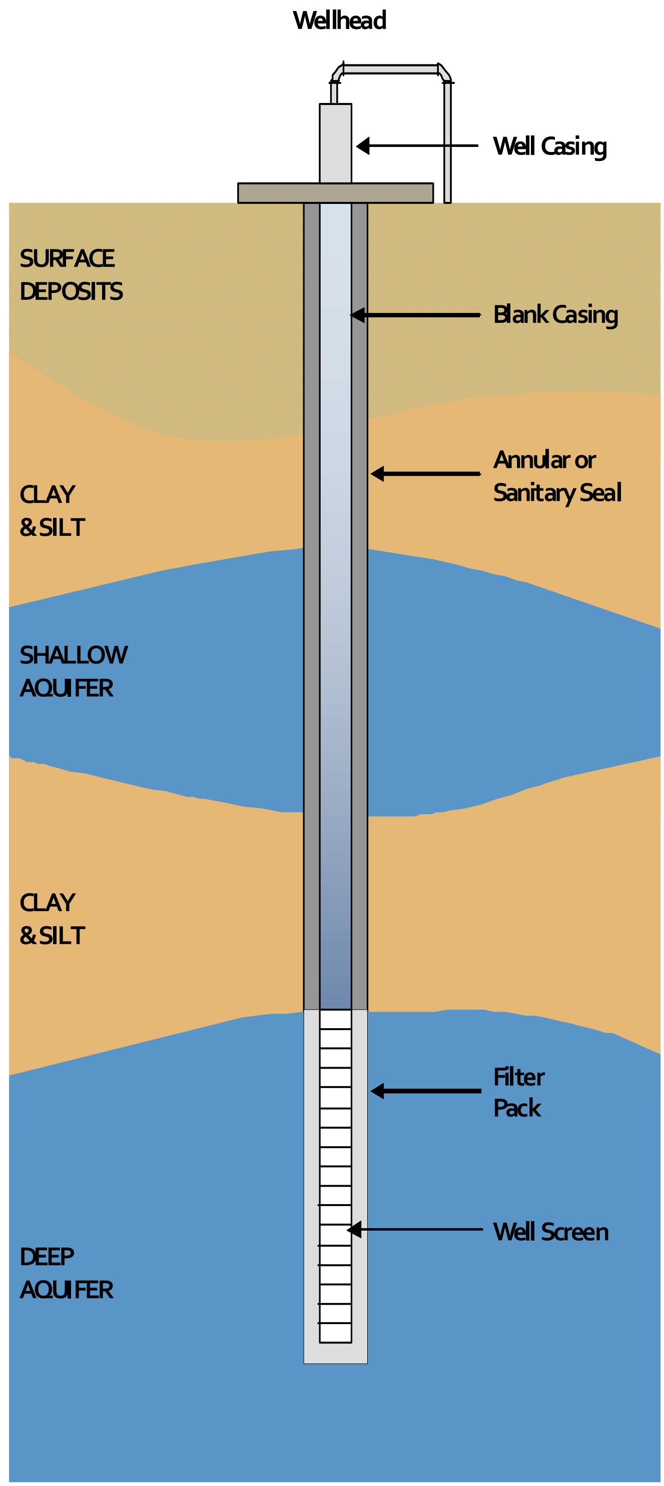
WELL CONSTRUCTION

Well owners obtain permits from local environmental health agencies or local water districts before construction, modification, or destruction takes place. The State of California does not issue well construction permits; however, the Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB) have established well construction standards (**Well Standards**). Domestic wells must be drilled by a licensed contractor, and must meet applicable local and/or state well standards. When choosing a location for a well, make sure the area is free of potential sources of contamination (see "Water Quality Protection" on page 12).

The driller will record geologic information at the drill site and will submit a copy of this information (**Driller Log or Well Completion Report**) to both the homeowner and the local permitting agency. The drill hole will intersect layers of sand or gravel that produce water (**Aquifers**). The driller may pass through upper shallow aquifers to find a deeper aquifer with better production or water quality. A length of plastic or steel pipe (**Well casing**) is installed in the drill hole. The bottom of the well casing will have thin cuts or perforations in it (**Well screen**), or can be open at the bottom (**Open Hole**) so that water can enter the well.

To keep fine sand, silt, and clay from entering the well, the driller will surround the well screen with sand (**Filter pack**). The driller must also install a concrete or cement seal (**Annular or Sanitary seal**) between the upper portions of the drill hole and the well casing. Well seal depths are generally mandated by local agencies or water districts.

The annular sanitary seal extends to the surface, where it creates a concrete pad with the well casing extending out of the middle (**Wellhead**). The casing should extend above the surface and be securely capped so that nothing – including surface water – can enter the well. The concrete pad should slope away from the well. Unless the well is artesian, a pump is placed in the well to bring water to the surface.



WATER QUALITY TESTING

How to Test a Water Well

The best way to test the quality of your well's water is to have a California State-certified drinking water testing laboratory conduct the analyses. The laboratory will supply the sampling bottles and can help you sample the well. You can also have an outside business collect a sample of your well and interpret the results for you. A list of drinking water laboratories certified by the State of California Department of Public Health (CDPH) is available and is searchable by county: http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls

What to Test For

Recommended tests and testing frequency are shown in Table 1 below. It's recommended that well owners should test for total coliform bacteria, nitrate, and electrical conductivity (EC) annually. More thorough testing should take place if you suspect contamination or notice a change in taste or appearance of your water.

Sampling Costs

Estimated sampling costs are shown in Table 1 below. Basic sampling costs can range from $100 to $400 dollars. Hiring an outside business to sample your well and interpret the results will likely cost more. Ask an accredited laboratory from the CDPH list (referenced above) for a written estimate before sampling.

Interpreting Test Results

The State of California does not regulate water quality in private domestic wells. CDPH regulates the water quality in public water systems. Comparing your well's test results to public drinking water standards can be helpful. These standards are found on-line at: http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-11-28-2008.pdf

Table 1 on the following page provides basic information and guidance for interpreting your test results. More information about contaminants and potential health effects can be obtained by calling the US Environmental Protection Agency's (US EPA) Safe Drinking Water Hotline (1-800-426-4791).

Commonly Encountered Contaminants

Drinking water, including bottled water, may contain trace amounts of some chemical constituents. Many are natural in origin, as water can dissolve naturally occurring minerals as it flows over or through the ground.

Commonly observed water contaminants are briefly summarized below:

- Microbes (viruses and bacteria) can come from sewage, septic systems, animal operations, and wildlife.
- Minerals, including salts, nitrate, and metals, can be naturally-occurring or can result from human activities at the surface.
- Pesticides and herbicides from agricultural, urban stormwater, and residential uses can be found in well water. Pesticides or herbicides should not be applied within 100 feet of a private domestic well.
- Organic chemicals from industry, gasoline stations, agriculture, stormwater runoff, and septic systems have been detected in groundwater.
- Radioactive elements typically occur naturally; however, human activities at the surface can release naturally occurring radioactive elements from sediments and bedrock.

The table below includes recommended tests and possible interpretations for those test results. Consult a water treatment professional for a more detailed interpretation of your test results.

TABLE 1: Water Quality Tests for Domestic Well Owners

Recommended Test			Interpreting your results	
Test	**Recommended Frequency**	**Cost***	**If the lab report shows:**	**Then you may want to consider:**
Coliform Bacteria	Test for total coliform annually; fecal if total coliforms are detected.	\$20 - 50	Present	First re-test another sample to verify the results. Eliminate cause, disinfect, and retest. Increase testing frequency; if recurrent problems persist, consult a water treatment professional for more advice. Some bacteria may cause serious illness or death.
Nitrate (NO_3)	Annually	\$25 - 45	$\geq$ 45 mg/L as NO_3 or $\geq$ 10 mg/L as N	First re-test another sample to verify the results. Install a treatment system or find an alternate water supply. Consult a water treatment professional for more advice.
Electrical Conductivity (EC)	Annually	\$10 - 20	> 1600 µmhos/cm or significantly different from previous result.	Test for minerals, nitrate, and/or VOCs to determine the possible cause of the high EC.
MINERALS Aluminum (Al) Arsenic (As) Barium (Ba) Cadmium (Cd) Chromium (Cr) Fluoride (F) Iron (Fe) Lead (Pb) Manganese (Mn) Mercury (Hg) Selenium (Se) Silver (Ag)	Every 5-10 years or if the following significant changes occur: • EC changes • Taste, color, or odor changes • Surrounding land use changes	Package \$250 - 300 Individual \$20 - 30 Mercury \$30 - 40	Al >0.2 mg/l As > 0.01 mg/l Ba >1.0 mg/l Cd >0.005 mg/l Cr >0.05 mg/l F >2.0 mg/l Fe >0.3 mg/l Pb >0.015 mg/l Mn >0.05 mg/l Hg >0.002 mg/l Se >0.05 mg/l Ag >0.1 mg/l	Compare to previous results. Consider retesting for any high results. Install a treatment system or find an alternate water supply. The appropriate treatment system depends on your overall water chemistry and the constituents that need to be removed. Consult a water treatment professional for more advice.
Volatile Organic Compounds	See MINERALS, above	Package \$150-300	Any detection	Ask lab to re-test. If confirmed, consult a water treatment professional for more advice.

* Estimated costs as of 2009. Some labs report minerals in µg/L. 1 mg/L is equal to 1,000 µg/L.
"$\geq$" means "greater or equal to."

Tests for Specific Water Quality Problems

Some well owners may have specific issues or problems with their well water. Table 2 outlines several common problems in drinking water, and substances you can test for. Not every problem and possible cause is a health risk. Less-frequently encountered water quality issues are not listed in Table 2; consult a water treatment professional if your particular water quality problem is not listed or for a more thorough discussion of the causes of water quality problems.

TABLE 2: Possible Causes of Common Taste, Odor, and Appearance Problems in Domestic Wells

Problem	Possible Cause
Water is orange or reddish brown	High levels of iron (Fe)
Porcelain fixtures or laundry are stained brown or black	Manganese (Mn) and/or iron (Fe) can cause staining
White spots on the dishes or white encrustation around fixtures	High levels of calcium (Ca) and magnesium (Mg) can cause hard water, which leaves spots
Water is blue	High levels of copper (Cu)
Water smells like rotten eggs	Hydrogen sulfide (H_2S)
Water heater is corroding	Water can be corrosive. Very corrosive water can damage metal pipes and water heaters
Water appears cloudy, frothy, or colored	Suspended particulates, detergents, and sewage can cause water to appear cloudy, frothy, or colored
Your home's plumbing system has lead pipes, fittings, or solder joints	Corrosive water can cause lead (Pb), copper (Cu), cadmium (Cd), and zinc (Zn) to leach from lead pipes, fittings, and solder joints
Water has a turpentine odor	Methyl tertiary butyl ether (MTBE) or other organic compounds
Water has a chemical smell or taste	Volatile or semi-volatile organic compounds (VOCs) or pesticides

Residents near landfills, industry, dry cleaners, gas stations, and/or automobile repair shops may wish to consider testing for VOCs, metals, total dissolved solids (TDS), and petroleum hydrocarbons. Well owners in agricultural and livestock areas may consider testing for pesticides, nitrate, bacteria, and TDS.

WATER QUALITY TREATMENT

Examples of domestic well treatment systems include activated alumina filters, activated charcoal filters, air stripping, anion exchange, chlorination, reverse osmosis, ozonation, and ultraviolet radiation. The type of treatment system used will depend on the type of water quality issues you are trying to address. It is important to know what your water quality issues are *before* installing a treatment system. Not all water treatment systems will work for every type of contaminant. Most treatment systems also require routine maintenance and upkeep – improperly maintained systems can cause more damage than having no treatment system at all. A treatment system, installation, and maintenance can be expensive, depending on what particular water quality problem you're trying to address. Talk to a water treatment professional, and ask for a guarantee that the system you want to install will work for your situation. A list of water treatment professionals can likely be found in a local phone book. Contact your county environmental health office for additional help in finding a water quality professional who can help you select and install an appropriate treatment system.

In some cases, it may be necessary to drill a new well that taps a less contaminated aquifer, or to obtain an alternative water supply. Treatment systems may not be successful in every situation.

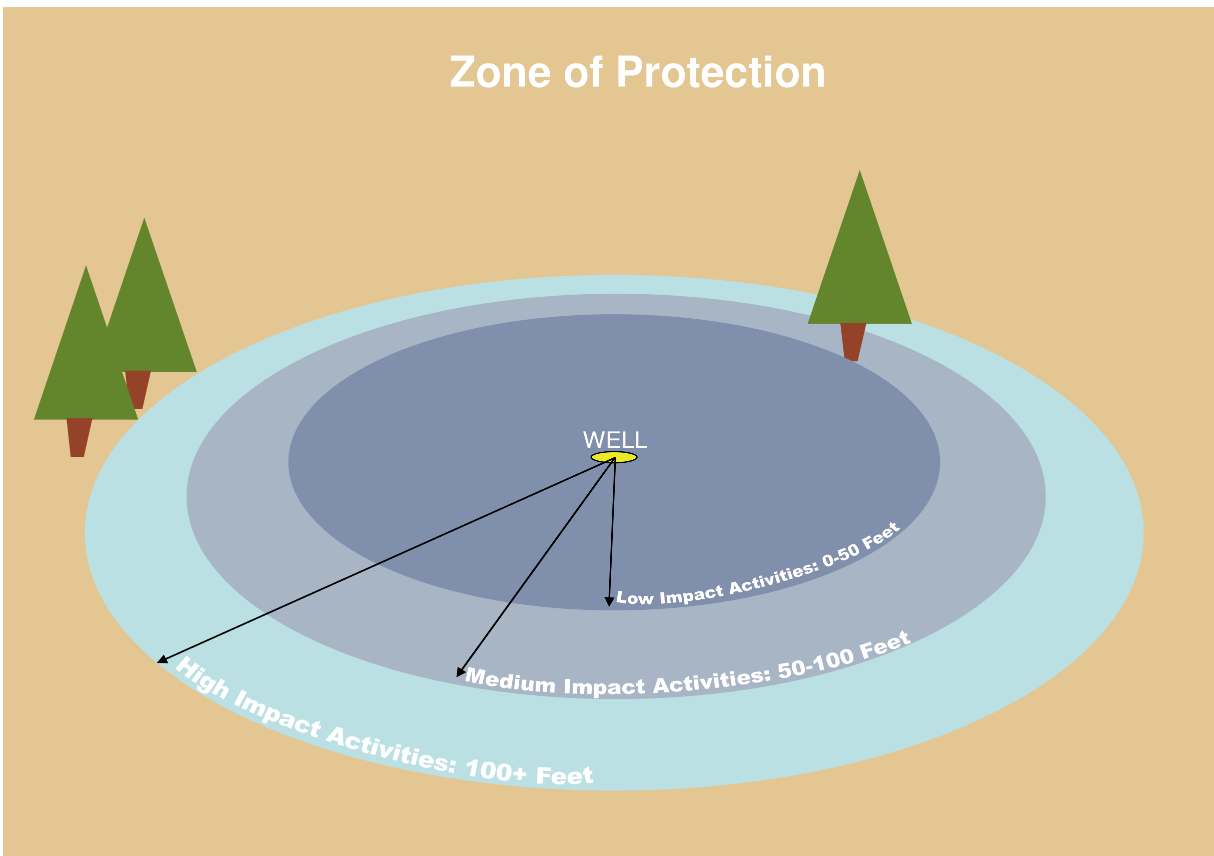
WELL DESTRUCTION

Unused and abandoned wells can allow for contamination of aquifers used as drinking water sources. The risk of groundwater contamination increases when other wells are operating, since pumping can draw poor quality water down the abandoned well and into the drinking water aquifer. To prevent unnecessary contamination, wells that are no longer being used must be destroyed.

The DWR has developed standards for well destruction. These standards are available in Bulletins 74-81 and 74-90, and can be found on-line at:
http://www.dpla.water.ca.gov/sd/groundwater/california_well_standards/well_standards_content.html. Usually, the abandoned well is entirely filled with cement or similar compounds. Local environmental health agencies are responsible for specific well destruction standards and typically require well destruction permits. In some cases, local well destruction standards may be more stringent than State of California standards. The deconstruction work must be completed by a State licensed contractor.

WATER QUALITY PROTECTION

Preventing groundwater contamination is the best way to keep your well water clean. Groundwater typically moves slowly, so any contamination can take decades to naturally flush clean. The layer of ground between the surface and groundwater will provide some protection, but is not a perfect filter. The farther away possible contamination activities are from your well, the more soil is available to filter out contaminants if an accidental spill or release occurs. Local health agencies may have legally-mandated setbacks. The US EPA recommends that private well owners establish a “zone of protection” around their well. This zone should be considered off-limits for storing, mixing, spraying, spilling, burying, or dumping anything that might contaminate your water supply. Check with your local agencies to see if there are any specific ordinances requiring setbacks for animal enclosures, septic systems, and other types of facilities. The State of California does not regulate the location of private domestic wells.



LOW IMPACT ACTIVITIES
- Recreation area
- House
- Outdoor furniture and play areas

MEDIUM IMPACT ACTIVITIES
- Garage
- Boat
- City sewer lines

HIGH IMPACT ACTIVITIES
- Chemical storage
- Animal enclosures
- Manure/compost piles
- Machine/auto repair
- Septic system

Source: USEPA

Protect your well, and protect your water:

- Only low-impact facilities, such as a house, outdoor play area, or outdoor furniture should be located within 50 feet of the well. Do not mix or store any material that might contaminate your water supply within 50 feet of your well. Medium and high impact activities should only occur at safe distances.

- Animal enclosures and septic systems should have a minimum setback of 100 feet from a domestic well.

- Do not store or mix pesticides, fertilizers, lawn-care products, paint or paint cleaners, hazardous cleaning products, gasoline (including gasoline generators), or automotive wastes near the well.

- Do not dispose of hazardous materials (including some types of household cleaners, paint and paint cleaners, automotive waste, and pesticides) to a septic system – these substances are not treated in a typical septic system, and can easily migrate to groundwater. Take hazardous household chemicals to a designated collection center for disposal.

- Septic systems should be located downhill (downgradient) from a domestic well, and 100 feet from any drinking water source.

- Inspect your well at least once a year for cracks in the casing and seal, or any other types of leaks or possible sources of contamination. If issues are noted, have a State-licensed contractor repair the well.

RESOURCE GUIDE

There are many sources of information on private domestic wells. Programs that can help answer private domestic well water quality questions are provided below.

Local Government

County environmental health agencies are typically responsible for issuing well construction/abandonment/destruction permits, septic system permits, and other issues associated with private domestic wells. Consult your phone book or conduct an internet search to find the specific agency in your county responsible for private domestic well oversight. Some local agencies run hazardous household waste programs. Such programs typically offer tips for use, recycling, and disposal of these products.

State Government

The State of California does not regulate the water quality in private domestic wells. However, state agencies can be helpful in dealing with water quality issues and identifying threats to water quality.

California Department of Public Health (CDPH): The CDPH Division of Drinking Water and Environmental Management is responsible for the regulation and monitoring of public water systems (a public water system serves 200 or more homes). Visit the Division of Drinking Water and Environmental Management website at: http://www.cdph.ca.gov/programs/Pages/DDWEM.aspx

California Department of Water Resources (DWR): DWR provides groundwater level and water quality data. DWR's Integrated Water Resources Information System (IWRIS) is a web-based GIS application that allows users to access, integrate, query, and visualize multiple sets of data. Visit the DWR website at: http://www.water.ca.gov

Department of Toxic Substances Control (DTSC): The DTSC can help answer questions about hazardous materials and waste, reducing household use of hazardous materials, locating disposal and handling facilities for specific types of household materials, and where to report illegal dumping and spills. Visit the DTSC website at: http://www.dtsc.ca.gov

State Water Resources Control Board (SWRCB): The SWRCB is responsible for the adjudication of water rights and water quality protection. Visit the SWRCB website at: http://www.waterboards.ca.gov

- **Groundwater Ambient Monitoring and Assessment (GAMA) Program**: The GAMA Program is the SWRCB's comprehensive groundwater quality monitoring program for California. The main goals of GAMA are to improve statewide groundwater monitoring and to increase the availability of groundwater quality information to the public. Visit the GAMA website at: http://www.waterboards.ca.gov/gama

- **GeoTracker GAMA**: GeoTracker GAMA provides user-friendly internet access to groundwater quality data in California. GeoTracker GAMA provides water quality data for raw, or untreated, groundwater and integrates and provides tools to analyze several datasets. Visit the GeoTracker GAMA Introduction page at: http://www.waterboards.ca.gov/gama/geotracker_gama.shtml

- **Regional Water Resources Control Boards** (Regional Boards): Regional Boards develop Basin Plans for their hydrologic areas, issue waste discharge requirements (WDRs), take enforcement action against violators, and monitor water quality. To find the Regional Board for your area, visit the following website at: http://www.waterboards.ca.gov/water_boards.shtml

Federal Government: US EPA Safe Drinking Water Hotline:
The Federal Government does not regulate water quality in private domestic wells. However, the US EPA provides helpful information to domestic well owners. The Safe Drinking Water Hotline is available to help understand regulations and programs developed in response to the Safe Drinking Water Act. The hotline can be reached at (800) 426-4791. Visit the website at: www.epa.gov/safewater/privatewells/index2.html

Photo: Private domestic well water sampling.

ACKNOWLEDGEMENTS

The SWRCB would like to acknowledge and thank the Santa Clara Valley Water District and the San Diego County Department of Environmental Health for use of their informational fliers in the development of this document.

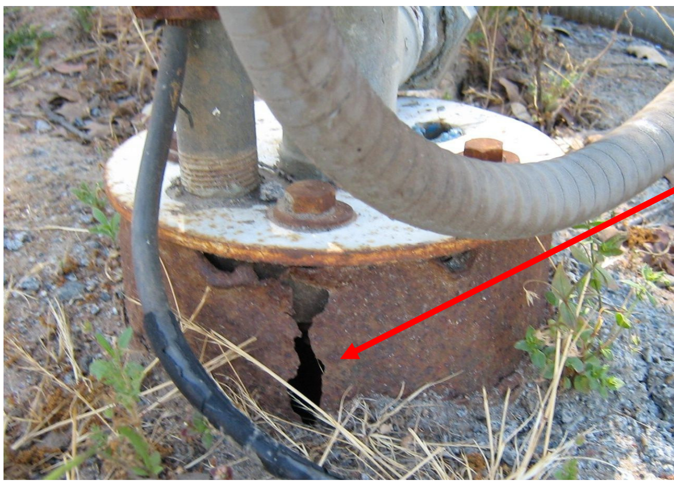
For additional information, please contact GAMA Program Manager John Borkovich at (916) 341-5779 or jborkovich@waterboards.ca.gov.

Photo: A domestic well showing the well casing, cover, and conveyance system.
The well is located inside a shed with a concrete floor.

APPENDIX: Photographic Guide to Common Well Maintenance Issues

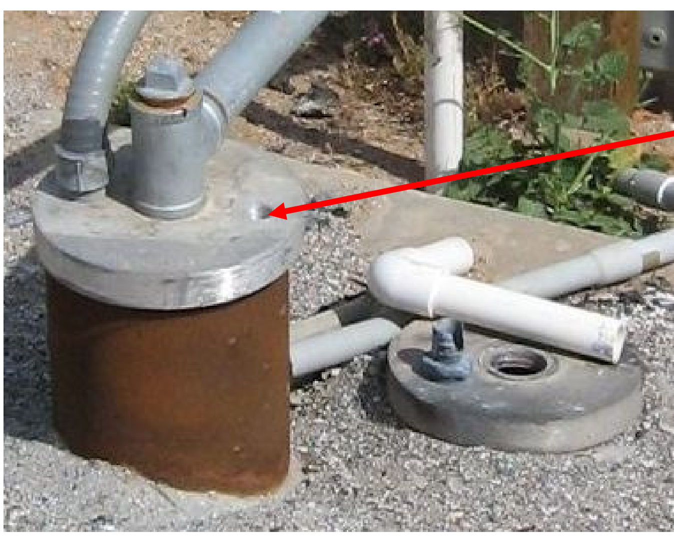
Proper well maintenance can help prevent groundwater contamination. The following are examples of commonly observed well maintenance issues and suggestions on how to minimize potential contamination at your well

Cracked Well Casing



A cracked well casing may allow surface water and contaminants into your well. One of the most common water quality issues associated with a cracked well casing is the presence of coliform bacteria. Other chemicals can also be introduced into the well through the cracked casing. Consult a water quality professional, like a licensed well driller to repair or replace the cracked casing.

Missing Plugs and Other Well Openings



Many wells have a small plug located at the top of the well casing. The plug may degrade over time and sometimes fall off. If the plug is missing, the well is directly open to potential contamination. The most frequently observed contaminant associated with a missing plug are coliform bacteria. Replacing a missing plug is an effective way to reduce potential contamination.

Well Location: Near Storage Tanks

Storage tanks for hazardous materials should be kept at least 100 feet from your well. Gasoline products, VOCs, and pesticides are the most common contaminants associated with spills or leaks from storage tanks. Keeping your fuel tanks at least 100 feet away from your well may help avoid well water contamination.

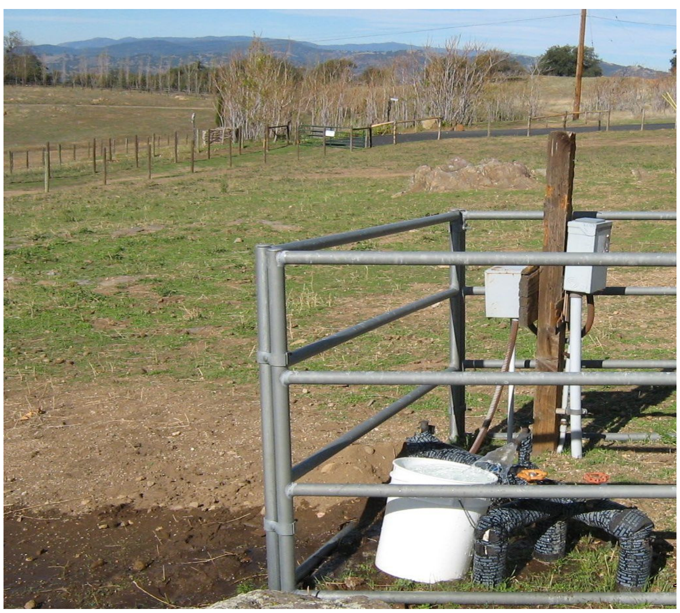
Well Location: Agricultural Areas

Locating a well close to agricultural areas – such as orchards or row crops – increases the likelihood of detecting nutrients (such as nitrate), salts and pesticides in your well water.
Your well should be located at least 100 feet from areas of pesticide or fertilizer application.

Well Location: Downhill (Downgradient) from a Contaminant Source

Avoid placing your well downhill from a potential contaminant source like a fuel tank or a septic system. Groundwater flow direction typically follows topography – so a leak from an uphill or upgradient contaminant source could potentially affect your well water quality.

Well Location: Animal Enclosures



Manure is a source of microbial contaminants (including coliform bacteria), nutrients (such as nitrate), and salts. Your well should be located at least 100 feet from any permanent animal enclosure.

Well Location: Storage of Hazardous Substances

Storing hazardous substances near your well increases the potential for well water contamination. Hazardous substances including paint, petroleum products (like gasoline), pesticides, herbicides, fertilizers, and solvents should be stored or mixed at least 100 feet from your well location.

Excess Vegetation Surrounding Your Well

Overgrowth of vegetation near your well may lead to root damage of the casing, creating a conduit for possible well water contamination.

Do not apply herbicides, pesticides, or other chemicals to vegetation near your well, as these chemicals may contaminate your well water.

DRAFT

Voluntary Domestic Well Assessment Project

El Dorado County Data Summary Report

STATE WATER RESOURCES CONTROL BOARD
GROUNDWATER AMBIENT MONITORING AND ASSESSMENT PROGRAM

September 2005

ACKNOWLEDGEMENTS

The Groundwater Ambient Monitoring and Assessment Program (GAMA) would like to thank the many individuals from various state and local agencies, organizations, and interested parties who participated in the El Dorado County implementation of the Voluntary Domestic Well Assessment Project (Voluntary Project).

The GAMA Program would like to thank the California Department of Health Services (DHS), the California Department of Water Resources (DWR), and the California Conference of Directors of Environmental Health (CCDEH) for sharing their experiences and expertise with domestic well water quality during the development of the Voluntary Project. In addition, we would also like to acknowledge the AB 599 (Statutes of 2001, Groundwater Quality Monitoring Act of 2001) Interagency Task Force (ITF) and Public Advisory Committee (PAC) for their support. Their contribution during the development of the GAMA Program's statewide monitoring effort helped identify important issues affecting domestic well use and water quality.

We would also like to thank the El Dorado County Environmental Management Department, especially Greg Stanton and Christine Mearse, for participating in the El Dorado County implementation of the Voluntary Project. Thanks also to the El Dorado County Assessor's Office for providing the information necessary to contact domestic well owners in El Dorado County.

A number of State Water Resources Control Board (State Water Board), Division of Water Quality staff, particularly in the GAMA Program Unit, had primary staff responsibility for the Voluntary Project. Those individuals include Carol Anacker-Hubbard, Chris Cochrane, Adam Harris, Jan Stepek, and Brett Wyckoff. We also appreciate all the State Water Board staff that participated in the sampling effort.

TABLE OF CONTENTS

Executive Summary

In January 2002, the State Water Board GAMA Program Unit initiated the Voluntary Domestic Well Assessment Project (Voluntary Project). Currently, the quality of domestic well water in California is largely unknown. Domestic well sampling programs in other states have detected chemicals such as nitrate and coliform bacteria in domestic wells. The Voluntary Project samples private domestic wells in California for chemicals that could degrade water quality and provides the results to the well owners. The Voluntary Project focuses, as resources permit, on specific areas of the state and provides a previously unavailable sampling of water quality in domestic wells in California. Voluntary Project focus areas are chosen in coordination with local environmental health agencies, based upon domestic well use and the existing knowledge of water quality and land use. The State Water Board incurs the costs of sampling and analysis, and the results are provided to domestic well owners as quickly as possible, as well as to the appropriate local environmental health agencies and the Regional Boards. Because water quality in individual domestic wells is largely unregulated, participation is voluntary.

Currently, no federal or state water quality standards regulate domestic wells. The Voluntary Project uses state maximum contaminant levels (MCLs) as a benchmark for domestic well water quality data. The MCL is the highest concentration of a contaminant allowed in public drinking water (i.e. public supply wells) and is an enforceable water quality standard. "Primary" MCLs address health concerns and "Secondary" MCLs address esthetics, such as taste and odor. In general, public water systems treat or blend sources of water to ensure compliance with drinking water standards. Many private domestic well owners may be using well water exclusively and may not have the option to treat or blend their water to improve water quality.

During 2003 and 2004, and as part of a small pilot study in 2001, the Voluntary Project sampled 398 private domestic wells in El Dorado County. Of the domestic wells sampled, approximately 30 percent (119 wells, some wells detected multiple chemicals) would not pass state primary drinking water standards for public water systems. This statistic demonstrates that private domestic wells are vulnerable to contamination that may affect public health. The most common reasons for primary MCL exceedance were positive detection of coliform (total coliform present in 111 domestic wells and fecal coliform present in 14 domestic wells), followed by arsenic (15 domestic wells) and nitrate (7 domestic wells). Although additional research is necessary to determine the degree that domestic wells are impacted and the sources of water quality contamination, the results of the El Dorado County implementation of the Voluntary Project underscore the importance of understanding the impact of chemical contaminants to domestic wells, and taking measures to protect and monitor the quality of water provided by them.

Voluntary Domestic Well Assessment Project
El Dorado County Data Summary Report

State Water Resources Control Board
Groundwater Ambient Monitoring and Assessment Program

Introduction

In January 2002, the State Water Board GAMA Unit initiated the Voluntary Project. In addition to a small-scale pilot study conducted in 2001, the Voluntary Project has been implemented in two focus areas: Yuba County (2002) and El Dorado County (Phase I - 2003 and Phase II - 2004).

In 2003 and 2004, and as part of a 2001 pilot study, the Voluntary Project sampled 398 domestic wells in El Dorado County (*Figure 1*). Water samples collected from domestic wells were analyzed for total and fecal coliform bacteria, general minerals and chemical parameters, inorganic chemicals, volatile organic chemicals (VOCs), and stable isotopes of oxygen and hydrogen. The results were transmitted to the participants, along with public education materials for domestic well owners and users. The purpose of this report is to summarize the domestic well water quality data collected in El Dorado County. The relationship between domestic well water quality and other factors such as geology and land use will be discussed in subsequent reports.

Background

The California Legislature, Governor, and private citizens have become increasingly concerned about groundwater quality and drinking water well closures. This is due, in part, to increasing detections of chemicals such as the gasoline additive MTBE, industrial solvents, and more recently the chemical perchlorate. To address these concerns, the Supplemental Report of the 1999 Budget Act, and later the Groundwater Quality Monitoring Act of 2001 (Water Code Section 10780 et seq.), required the State Water Board to develop a comprehensive ambient groundwater monitoring plan.

The primary objectives of the GAMA Program are to improve comprehensive statewide groundwater monitoring, create a centralized groundwater quality database, and increase the availability of groundwater quality information to the public. The GAMA Program has two main components: A comprehensive, statewide groundwater monitoring program which focuses on public drinking water wells, and the Voluntary Project. The Voluntary Project provides a previously unavailable sampling of water quality in domestic wells. Because water quality in individual domestic wells is largely unregulated, participation in the project is voluntary and the project focuses, as resources permit, on specific areas of the state based on domestic well use and the availability of local domestic well information.

Based on data from the 1990 U.S. Census, more than 500,000 private domestic wells provide drinking water for more than one million persons in California (State of California, 1999). The number of domestic wells per county is identified in *Table 1*. The current number of private domestic wells is likely closer to 600,000 based on an extrapolation of the domestic well data included in the 2003 Onsite Wastewater Treatment Systems Status Report (CWTRC and US EPA Region 9, 2003).

Table 1. Number of Domestic Wells per County (Top ten counties shown in bold)

County	No. of Domestic Wells	County	No. of Domestic Wells
Alameda	2,106	Orange	866
Alpine	200	Placer	13,882
Amador	5,063	Plumas	3,877
Butte	**20,000**	**Riverside**	**17,814**
Calaveras	14,966	Sacramento	14,604
Colusa	1,895	San Benito	2,666
Contra Costa	7,267	**San Bernardino**	**18,000**
Del Norte	2,435	**San Diego**	**15,764**
El Dorado	11,659	San Francisco	0
Fresno	11,084	**San Joaquin**	**23,239**
Glenn	4,000	San Luis Obispo	12,686
Humboldt	4,315	San Mateo	1,679
Imperial	1,105	Santa Barbara	3,517
Inyo	2,022	Santa Clara	6,926
Kern	11,790	Santa Cruz	8,088
Kings	5,106	Shasta	11,909
Lake	5,476	Sierra	217
Lassen	5,298	Siskiyou	6,624
Los Angeles	11,012	Solano	4,559
Madera	11,205	**Sonoma**	**33,877**
Marin	1,606	**Stanislaus**	**16,895**
Mariposa	5,413	Sutter	8,311
Mendocino	10,590	Tehama	7,477
Merced	**15,000**	Trinity	1,565
Modoc	2,250	**Tulare**	**20,007**
Mono	1,500	Tuolumne	6,549
Monterey	12,000	Ventura	2,401
Napa	6,599	Yolo	4,566
Nevada	**15,956**	Yuba	6,063

Source: State of California, Department of Finance, City/County Population and Housing Estimates, 1991-1999, with 1990 census counts. Sacramento California, May 1999.

The quality of domestic well water in California is largely unknown. Each domestic well owner is responsible for ensuring the water quality of his own domestic well. In many areas of the state, domestic wells traditionally produce very high quality drinking water. In recent years, however, chemicals from industrial spills, leaking underground fuel tanks, and agricultural applications have impacted our drinking water aquifers. Also, biological pathogens from sewers, septic systems and animal facilities infiltrate into the subsurface (Santa Clara Valley Water District; El Dorado County, 2004). These contaminants can find their way through natural protective layers of clay and silt and enter our drinking water aquifers. This problem can be exacerbated by the presence of improperly constructed wells, abandoned wells, or wells located too near a potential contaminant source, such as a septic system. Domestic well sampling programs in other states have detected chemicals, such as nitrates and coliform bacteria, in domestic wells (NJDEP, 2004).

The Voluntary Project samples private domestic wells in California for chemicals that could degrade water quality and provides the results and interpretation to well owners and local environmental health agencies. In addition, the Voluntary Project includes a public education component to aid the public in understanding water quality data and water quality issues affecting domestic wells. Voluntary Project focus areas are chosen in coordination with local environmental health agencies, based upon domestic well use and the existing knowledge of water quality and land use. The State Water Board incurs the costs of sampling and analysis, and the results are provided to domestic well owners as quickly as possible, as well as to the appropriate local environmental health agencies and Regional Boards.

Project Objectives

The primary goal of the Voluntary Project is to provide the public with specific information regarding domestic well water quality. In addition, domestic well water quality data will be analyzed collectively with existing groundwater information and public supply well data collected as part of the GAMA Program, to help assess California groundwater quality and identify issues that may impact private domestic well water.

The specific objective of the El Dorado County Phase I and Phase II sampling efforts was to collect domestic well water quality data for the foothill areas of El Dorado County and provide information to domestic well owners and local environmental health agencies.

Hydrogeologic Setting - El Dorado County

El Dorado County is located in the Sierra Nevada geomorphic province of California, east of the Great Valley province and west of the Basin and Range province. The Sierra Nevada province is characterized by steep-sided hills and narrow, rocky stream channels. This province consists of uplifted Pliocene and older deposits resulting from episodes of plate tectonics, granitic intrusion, and volcanic activity. Subsequent glaciation and Pleistocene/Holocene volcanic activity led to the east-west orientation of most stream channels. The southwestern foothills of El Dorado County are composed of rocks of the Mariposa Formation including amphibolite, serpentinite, and pyroxenite. The Calaveras Formation occurs in northwestern areas of the county, and includes metamorphic rocks such as chert, slate, quartzite, and mica schist. In addition, limited serpentinite formations are located in this area. The higher peaks in the eastern part of the county consist primarily of igneous and metamorphic rocks intruded by granite, a main soil parent material at higher elevations.

Although groundwater does not penetrate the hard rock mass, it can be found flowing in fractures below the ground surface. The characteristics of a fractured hard rock system that affect the ability of water users to develop groundwater resources include the size and location of fractures, the interconnection between fractures, and the amount of material deposited within fractures. In addition, fracture width generally decreases with depth. Therefore, groundwater recharge, movement and storage of water in fractures of hard rock are limited.

According to the 1990 Census data, there are more than 11,650 domestic wells in El Dorado County serving approximately 32,000 persons. Data from the 2003 Onsite Wastewater Treatment Systems Status Report indicates that an additional 1,067 domestic wells were installed in El Dorado County between 1998 and 2000, for a county total of nearly 13,000 domestic wells. During the drought of 1976 and 1977, El Dorado County Division of Environmental Health (DEH) initiated a water well survey, canvassing residents with wells in 15 county planning areas. *Table 2* lists median depth and estimated production rate for wells in the 15 areas.

El Dorado County does not require testing or tracking of the quality of water from private single-family or agricultural wells (EDAW, 2003). However, a bacteriological and/or chemical analysis may be required by the El Dorado County DEH on any proposed water supply before a building permit is issued (Policy 800.02 DEH Policies and Procedures Manual). For a fee, DEH staff members will test for bacteria and compliance with the County's well-construction-standard ordinance upon request by lending agencies or concerned property owners.

Table 2. Well Characteristics in El Dorado County

County Planning Area	Number of Wells Surveyed	Median Depth (Feet)	Median Rate (gpm)
Camino-Fruitridge	57	100	5
Cool	29	200	5
El Dorado/Diamond Springs	19	150	4
Finnon	37	150	10
Garden Valley	70	150	10
Gold Hill	2	—	5-10
Kelsey	45	125	4
Latrobe	23	200	5
Lotus-Coloma	66	<100	10
Pilot Hill	21	150	7
Pollock Pines	10	—	8
Pleasant Valley	199	100	6
Rescue	120	125	10
Shingle Springs	42	125	4
Somerset/Fairplay/Mt Aukum	—	—	10

Source: Calkins, Carla, Water Well Survey Report, June 1978

In general, groundwater quality in El Dorado County is considered good to excellent, but historically there has been no reliable database (EDAW, 2003). As the county's population increases and more people rely upon local groundwater for their water supply, groundwater quality becomes a more prominent concern. According to the El Dorado County General Plan Environmental Impact Report (EDAW, 2003), major sources of potential groundwater pollution include septic tanks or septic leach fields, underground fuel tanks, spillage of hazardous materials or commercial waste, and infiltration of agricultural byproducts, including fertilizer and livestock waste. In addition, improperly located and constructed water wells present additional water quality concerns.

Approach

The Voluntary Project utilizes standard groundwater sample collection methods and laboratory analyses to identify domestic wells where water quality may be of concern. All water samples were collected from domestic wells by State Water Board staff and analyzed by Department of Health Services (DHS) certified drinking water test laboratories. Samples were analyzed for total and fecal coliform bacteria, general minerals and chemical parameters, inorganic chemicals, and volatile organic chemicals (VOCs). In addition, a subset of the samples was also analyzed for the stable isotopes of oxygen and hydrogen. A detailed list of the analytes specific to El Dorado County domestic wells sampled is included in the Appendix. For the purposes of this report, all detections of chemicals above the Practical Quantitation Limit (PQL) are used in calculating detection frequencies. The PQL defines the lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions (40 CFR 257.23).

Methods

El Dorado County was selected as a focus area to conduct private domestic well water testing because of the large number of domestic well users and the accessibility of local domestic well information. The El Dorado County Assessor's Office provided the Voluntary Project with an electronic database containing approximately 6,000 domestic well owner names, mailing addresses, and parcel map book numbers. Voluntary Project staff identified book number sections on the El Dorado County parcel map and determined the number of domestic well owners within each book number section. This information was then used to select specific local foothill communities on the parcel map to conduct domestic well testing.

El Dorado County communities selected to conduct domestic well testing:

- Cameron Park
- Coloma
- Cool
- Diamond Springs
- El Dorado
- El Dorado Hills
- Fairplay
- Garden Valley
- Georgetown
- Greenwood
- Grizzly Flats
- Kelsey
- Latrobe
- Lotus
- Mt. Aukum
- Pilot Hill
- Pleasant Valley
- Placerville
- Rescue
- Shingle Springs
- Somerset

Well Selection

Domestic well owners within the selected communities were mailed a Voluntary Project brochure. The Voluntary Project brochure was developed to inform domestic well owners about the well testing and invite them to participate. Each brochure has a detachable card for well owners to complete and return to the State Water Board. Information in the brochure includes general information about the Voluntary Project, domestic well water quality and the responsibilities of the domestic well owner, along with the importance of regularly testing domestic well water quality. The brochure also indicates that results are for information only, and that the State Water Board cannot require or provide service to correct the drinking water quality of privately owned domestic wells.

Voluntary Project contact information is available in both English and Spanish. Domestic Well owners are instructed to sign the brochure and mail in the detachable card. State Water Board staff contact potential participants to schedule a sampling time and location. In general, domestic well owners must be present during well sampling.

Using domestic well owner location data provided by the El Dorado County Assessor's Office, more than 2,600 Voluntary Project brochures were mailed to potential participants. The Voluntary Project sampled 398 domestic wells in El Dorado County, some as a direct response to the Voluntary Project brochure and some as a response to the well owner contacting the State Water Board for information on the Voluntary Project.

Sample Collection

Of the 398 domestic wells sampled in El Dorado County, 190 domestic wells were sampled as part of Phase I (February 4 – May 29, 2003) and 201 domestic wells were sampled as part of Phase II (April 12 – June 18, 2004). An additional 6 domestic wells in El Dorado County were sampled as part of the Voluntary Project pilot study and 1 domestic well in El Dorado County was sampled during the 2002 Voluntary Project implementation in Yuba County.
Sampling was conducted in accordance with the Voluntary Project Sampling and Analysis Plan (State Water Board, 2003 and 2004). Procedures utilized by the Voluntary Project were implemented to minimize the potential for airborne contamination of samples and cross contamination between wells. These procedures also helped to collect a representative groundwater sample at each domestic well. If it was not feasible to collect a representative sample, a sample was collected with a field notation documenting the collection method. In general, sampling was performed in a manner that allowed collection of a groundwater sample that had not been altered by any water storage and / or treatment system. In some cases, one or more of the following scenarios may have influenced water sampling procedures:

- Sample collected from pipe at the holding tank prior to the pressure tank
- Sample collected at or after the pressure tank
- Sample collected prior to the pressure tank, but no back-flow valve in place
- Sample collected after water filter or water treatment system

At most wells, samples were drawn from the faucet closest to the well prior to any filter or water treatment system. In El Dorado County, samples from approximately 25 wells were collected post-treatment system and therefore may not accurately represent groundwater conditions.

Limited information on domestic well construction data and technical parameters were available from most owners. Well owners provided well construction reports for 39, or approximately 10% of the wells tested. Voluntary Project staff contacted the California Department of Water Resources (DWR) in an effort to confirm well construction data and locate missing information. Prior to sampling, each domestic well was located using global positioning system (GPS) technology. In addition, Voluntary Project staff collected additional information on any potentially contaminating activities (PCA) in the vicinity of the domestic well. Field parameters of electrical conductivity, pH, total dissolved solids (TDS), and temperature were measured at the time of the sampling. All field information was documented on a field form and later entered into the Voluntary Project database. Samples were stored on ice and transported to the laboratory for analysis within 24 hours.

Water samples testing positive for total coliform were tested for fecal coliform and domestic well owners were notified of positive test results within 24 hours.

El Dorado County Phase I (2003) samples were analyzed by Twining Laboratory Inc. in Fresno, California. Phase II (2004) samples were analyzed by Alpha Analytical Laboratories Inc. in Ukiah, California. Domestic wells sampled as part of the 2001 Voluntary Project pilot study were analyzed by Sierra Foothill Laboratory in Jackson, California.

A subset of the wells were also analyzed for the stable isotopes of oxygen and hydrogen to provide information on source water and recharge conditions. These analyses were conducted by Lawrence Livermore National Laboratory (LLNL) and will be discussed in a subsequent report.

Quality Control

A Quality Assurance Plan was developed for the GAMA program and was utilized during the collection of the El Dorado County samples. This plan included basic training requirements for sampling personnel, standard operating procedures for sample collection and transport, analysis techniques and standards for laboratories, standard methods for equipment calibration, maintenance and use, and instructions for quality control sample collection. Quality control samples (trip blank and duplicate samples) were collected at approximately 10 percent of the domestic wells to determine if contaminants were introduced during sample collection, processing, storage, transportation, or laboratory analysis.

Results

Voluntary Project results for El Dorado County may be divided into two categories: Primary Drinking Water Contaminants and Secondary Drinking Water Parameters. In addition, general mineral and inorganic chemical data may also be used to describe local groundwater geochemistry.

Currently, no federal or state water quality standards regulate domestic wells. The Voluntary Project uses state maximum contaminant levels (MCLs) as a benchmark for domestic well water quality data. The MCL is the highest concentration of a contaminant allowed in public drinking water (i.e. public supply wells) and is an enforceable water quality standard. “Primary” MCLs address health concerns and “Secondary” MCLs address esthetics, such as taste and odor. In general, public water systems treat or blend sources of water to ensure compliance with drinking water standards. Many domestic well owners may be using well water exclusively and may not have the option to treat or blend their water to improve water quality.

Basic groundwater geochemistry was also evaluated using Piper diagrams. Piper diagrams illustrate ion concentrations and total dissolved solids for multiple water samples.

Primary Drinking Water Contaminants

Based on water quality data collected from 398 domestic wells in El Dorado County, 119 individual wells exceeded the state primary MCLs for at least one constituent. The most common reasons for primary MCL exceedance were positive detection of coliform (total coliform present in 111 domestic wells and fecal coliform present in 14 domestic wells), followed by arsenic (15 domestic wells) and nitrate (7 domestic wells). The primary drinking water contaminant data is summarized in *Table 3* and *Figure 2*.

Secondary Drinking Water Parameters

Based on water quality data collected from 398 domestic wells in El Dorado County, 120 individual wells exceeded the state secondary MCLs for at least one constituent. The most common reasons for secondary MCL exceedance were manganese (98 domestic wells) and iron (81 domestic wells), followed by aluminum (11 domestic wells). The secondary drinking water contaminant data is summarized in *Table 4* and *Figure 2*.

Table 3. Primary Drinking Water Contaminants – Data from 398 domestic wells located in El Dorado County.

Chemical	Number of Wells with Detections	Number of Wells Exceeding the Primary MCL	State Primary MCL (μg/L)[2]	Results Range (μg/L)[2]	Common source of contaminant in drinking water[1]
Microbiological Contaminants					
Total Coliform	111	111	Absence	Presence	Total coliforms are naturally present in the environment; Fecal coliform and *E.coli* come from human and animal fecal waste.
Fecal Coliform	14	14	Absence	Presence	
Inorganic Contaminants					
Aluminum	48	1	1000	50 - 1500	Erosion of natural deposits; residue from some surface water treatment processes
Antimony	2	2	6	11 - 12	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	94	15	10[a]	2 - 110	Erosion of natural deposits; runoff from orchards, glass and electronics production wastes
Nickel	25	1	100	11 - 150	Erosion of natural deposits; discharge from metal factories
Nitrate (as NO_3)	256	7	45 mg/L	1 – 84 mg/L	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate + Nitrite (as N)	242	7	10,000	150 – 19,000	
Volatile Organic Contaminants					
Benzene	2	1	1	0.5 - 15	Discharge from plastics, dyes and nylon factories; leaching from gas storage tanks and landfills

[1] California Department of Health Services, "Preparing Your California Drinking Water Consumer Confidence Report – Guidance for Water Suppliers", January 2005.

[2] Micrograms/Liter unless otherwise stated

[a] The new federal MCL for arsenic, 10 micrograms/liter (μg/L), becomes effective on January 23, 2006.

Table 4. Secondary Drinking Water Parameters – Data from 398 domestic wells located in El Dorado County.

Chemical	Number of Wells with Detections	Number of Wells Exceeding the Secondary MCL	State Secondary MCL (μg/L)[2]	Results Range (μg/L)[2]	Common source of contaminant in drinking water[1]
Aluminum	48	11	200	50 - 1500	Erosion of natural deposits; residue from some surface water treatment processes
Iron	123	81	300	65 - 87000	Leaching from natural deposits; industrial wastes
Manganese	121	98	50	20 - 1800	Leaching from natural deposits
Methyl-*tert*-butyl ether (MTBE)	4	1	5	1.8 - 5.7	Leaking underground storage tanks; discharge from petroleum and chemical factories;
Zinc	54	1	5000	31 - 5800	Runoff/leaching from natural deposits; industrial wastes
Color	3	1	15 Units	4 - 29 Units	Naturally occurring organic materials
Turbidity	7	3	5 NTU	0.12 – 48 NTU	Soil runoff

[1] California Department of Health Services, "Preparing Your California Drinking Water Consumer Confidence Report – Guidance for Water Suppliers", January 2005.

[1] Micrograms/Liter unless otherwise noted

Nitrate

Of particular interest are the nitrate data from El Dorado County. In general, nitrate contaminated groundwater is in part caused by excessive use of fertilizer, animal waste from dairies and feedlots, explosives, and human waste (i.e. septic systems). Nitrate concentrations in natural groundwaters are typically less than 2 mg/L nitrate as nitrogen, equivalent to approximately 9 mg/L nitrate as NO_3 (Mueller and others, 1995).

Based on water quality data collected from 398 domestic wells in El Dorado County, 256 domestic wells had detections of nitrate (*Figure 3*). Of those, 7 domestic wells exceeded the MCL of 45 mg/L (nitrate as NO_3) and 100 domestic wells had concentrations above 9 mg/L (nitrate as NO_3), indicating that the source of nitrate is likely due to human activities.

Additional Chemicals of Concern

Several chemicals of concern were detected but at levels below the state MCLs. For the purposes of this report, chemicals of concern include chemicals for which there is a state primary MCL or action level (AL). Detections for these chemicals are shown in *Table 5*.

Table 5. Additional Chemicals of Concern – Data from 398 domestic wells located in El Dorado County.

Chemical	Number of Wells with Detections	State Primary MCL[2] (ug/L)	Results Range (ug/L)	Common source of contaminant in drinking water[1]
Inorganic Contaminants				
Barium	99	1000	11 - 900	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Cadmium	1	5	2.3	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries, and paints
Chromium	2	50	1 - 14	Discharge from steel and pulp mills; erosion of natural deposits
Flouride	212	2000	110 – 1600	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Selenium	4	50	6 - 12	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive)
Volatile Organic Contaminants				
Dichloromethane	2[b]	5	1.2	Discharge from pharmaceutical and chemical factories; insecticide
Tert-Butyl-alcohol (TBA)	1	12[a]	5.5	Leaking underground storage tanks; discharge from petroleum and chemical factories;
Tetrachloroethylene (PCE)	1	5	.66	Discharge from factories, dry cleaners, and auto shops (metal degreaser)
Toluene	4	150	0.85 - 29	Discharge from petroleum and chemical factories; underground gas tank leaks
Xylenes (Total)	1	1750	1.2	Discharge from petroleum and chemical factories; fuel solvent
Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproduct Precursors				
Total Trihalomethanes (TTHMs)	6	80	0.61 - 21	Byproduct of drinking water chlorination
Radioactivity				
Gross Alpha	1	15 pCi/L	7.64 pCi/L	Erosion of natural deposits

[1] California Department of Health Services, "Preparing Your California Drinking Water Consumer Confidence Report – Guidance for Water Suppliers", January 2005.

[2] Maximum Contaminant Level or State Action Level (AL) where noted.

[a] State Action Level

[b] Dichloromethane was also detected in one trip blank at a similar concentration.

Groundwater Geochemistry

Basic groundwater geochemistry was also evaluated using a Piper diagram. Piper diagrams illustrate ion concentrations and total dissolved solids for multiple water samples. The Piper diagram plots the major ions as percentages of milli-equivalents in two base triangles. The total cations and the total anions are set equal to 100% and the data points in the two triangles are projected onto an adjacent grid. This plot reveals useful properties and relationships for large water sample groups. The main purpose of the Piper diagram is to show clustering of data points to indicate water samples that have similar geochemical compositions.

El Dorado County domestic well samples were plotted on a Piper diagram using RockWorks99 software. The results are depicted graphically in *Figure 4.* The diagram indicates that groundwater in the sampled area is a bicarbonate, sodium-magnesium type. This suggests mostly carbonate and dolomite source of dissolved mineral in groundwater. Small sub-facies of magnesium type and sodium-potassium type of water can be distinguished within the graph.

Quality Control Results

The Voluntary Project carried out a quality assurance/quality control program to quantify the repeatability and precision of the field sampling program results.

Thirty-two trip blank samples were analyzed as part of the El Dorado County implementation of the Voluntary Project. Dichloromethane was detected in one trip blank sample. Dichloromethane was also detected in two water samples at similar concentrations collected the same day, and was not detected in any other water sample from El Dorado County. Therefore, the source of contamination may be a result of contamination during collection, transportation or shipment of water samples that day. No other chemicals were detected in any of the trip blanks.

Random duplicate samples were obtained at approximately 10 percent of all sampling locations. Duplicate samples were obtained immediately following collection of the primary sample, using the same sampling protocol. Duplicate samples were labeled so as not to be differentiable from other samples at the processing laboratory. Handling and processing of the duplicate samples occurred at the same time as the primary samples. Repeatability and precision of duplicate sample measurements was quantified in two ways.

1. Results from each sample and its duplicate were first grouped and the percent difference[1] was calculated for each positive detection of a constituent in at least one of each duplicate sample pair. If both sample and duplicate sample reported non-detect results, the results were not included in estimation of sampling precision and repeatability. If these samples had been included, total reported error would be substantially lower. Thus, percent differences only refer to chemical detections, and do not include the repeatability of non-detect measurements. Median and interquartile range percent errors for detected constituents in each sample and duplicate sample were calculated and are reported.

2. Chemicals were then grouped by individual constituents and the percent difference was calculated for individual constituents detected in at least one of two duplicate samples. Non-detect results for one constituent in both sample and duplicate sample were not included, but would lower total reported error substantially if included. Median and interquartile range percentage errors for all individual detected constituents were calculated and reported for constituents for which three or more detections were available for comparison.

Results:

1. Thirty-six duplicate samples were obtained in El Dorado County during the sampling program. For these samples, each duplicate sample pair reported an average of 24 constituents for comparison. Of these 24 constituents, most samples reported pH, Hardness as $CaCO_3$, Alkalinity, Bicarbonate Alkalinity, Total Dissolved Solids and Specific Conductance, reducing to approximately 18 the average number of chemical constituent detections per sample pair.

2. For 17 of 21 paired constituents with three or more detections available for comparison, the median difference of sample constituents where at least one sample detected the presence of a chemical constituent above the Practical Quantitation Limit (PQL) was less than 3 percent. For the four additional constituents, the median difference was between 6 percent and 14 percent.

[1] Percent difference is defined here as the difference between sample and duplicate compared to the original sample result, reported in percent.

3. For 32 of 36 duplicate paired samples, the median difference of sample constituents where at least one sample detected the presence of a chemical constituent above the PQL was less than 5 percent. For the four additional duplicate paired samples, the median difference was between 5 percent and 9 percent.

4. Twenty-two individual constituents reported a detection in one sample and a non-detect result in another. Of these, 14 samples detected a concentration of less than twice the PQL in one sample and a non-detect in the other sample. Eight samples detected a concentration of greater than twice the PQL in one sample and a non-detect in the other.

Data Limitations

When reviewing Voluntary Project results, it is important to remember that the project is voluntary and limited in scope. The water quality data only represents those domestic wells that were selected for invitation and where the well owners agreed to participate in the project and is only generally applicable to the region sampled. In addition, in most cases, laboratory analyses were conducted on an untreated or raw water sample collected prior to any water treatment system. Many houses or wells may already have treatment systems in place to improve water quality. Therefore, the Voluntary Project test results may not reflect information regarding potable drinking water subsequent to the use of an installed treatment system. Further analysis of post-treatment samples collected at a kitchen tap is necessary to evaluate the effectiveness of any treatment system. In general, Voluntary Project test results are not confirmed through the collection and analysis of a second, or confirmation sample.

Although the Voluntary Project provides a previously unavailable sampling of water quality in domestic wells, the list of parameters is limited. Other types of compounds may be present in water if the well is near specific sources of contamination. Caution must be used not to infer that these contaminants are not present in the drinking water. Inferences about water quality may only be made for the tested parameters.

Domestic Well Water Testing

To assure the quality of domestic well water, the Voluntary Project encourages private well owners to test their drinking water supply for common contaminants once a year and general minerals every five years. At the minimum, tests for nitrates and coliform bacteria should be performed to detect potential contamination problems of these acute parameters as soon as possible. Testing should also be performed if domestic well water becomes discolored, has a particular odor or objectionable taste, someone in the household is pregnant or nursing, a neighbor finds an unsafe contaminant, or if it is suspected for any reason that the drinking water may contain any other kind of contamination. In addition, testing should be completed whenever a well pump is replaced or if a well is reconditioned.

Analytical tests on potable well water should be performed by a DHS certified drinking water test laboratory. A list of DHS Certified Laboratories can be attained by contacting the DHS Environmental Laboratory Accreditation Program (ELAP) office at (510) 540-2800 or visiting the DHS Internet site at http://www.dhs.ca.gov/ps/ls/ELAP/default.htm.

For more information…

For more information on the Voluntary Project or to review data summary reports from additional focus areas, please visit the State Water Board GAMA Internet site at http://www.waterboards.ca.gov/gama/ or contact the GAMA Program (916) 341-5250.

Figures

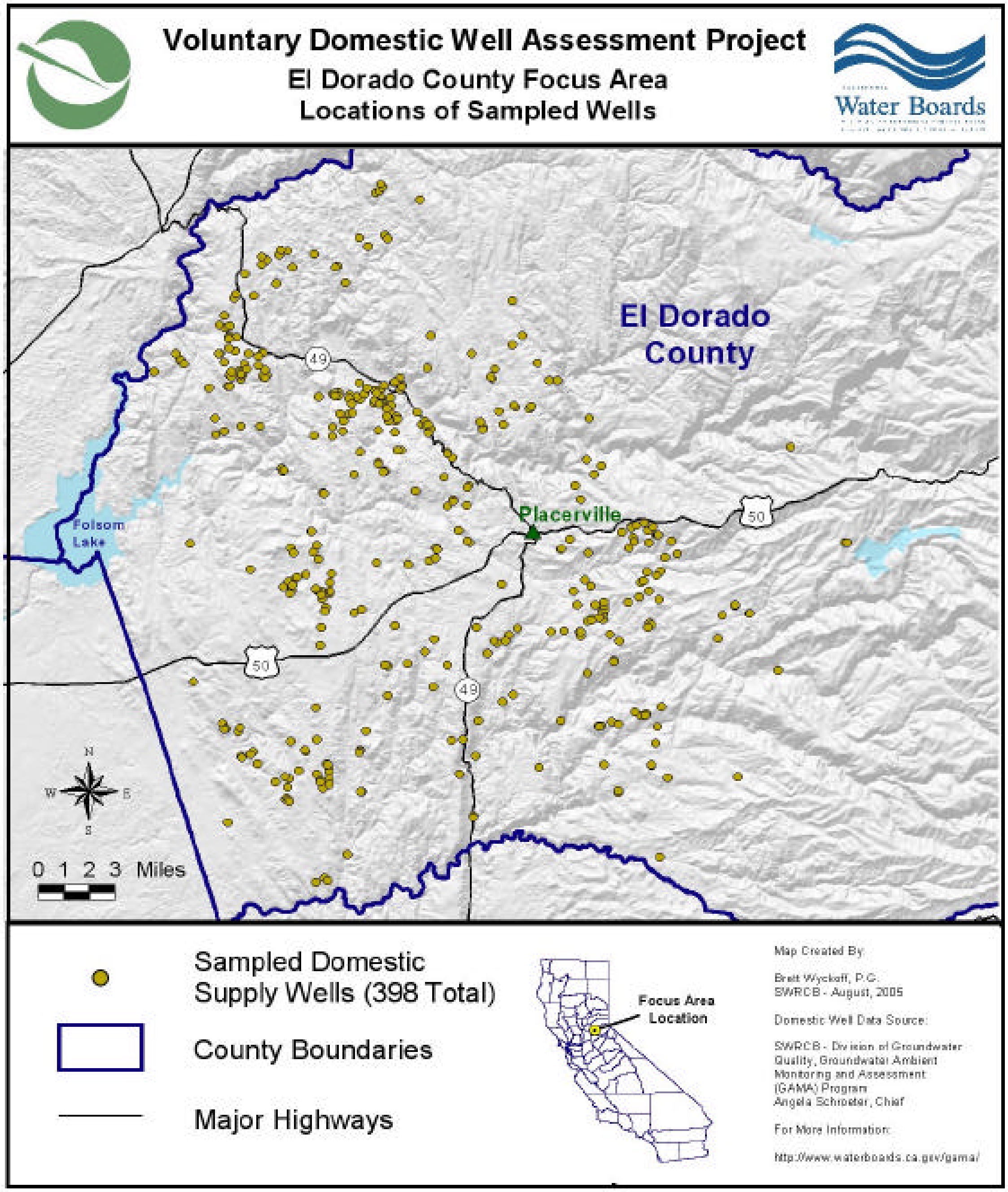


Figure 1. El Dorado County domestic wells sampled as part of the Voluntary Project.

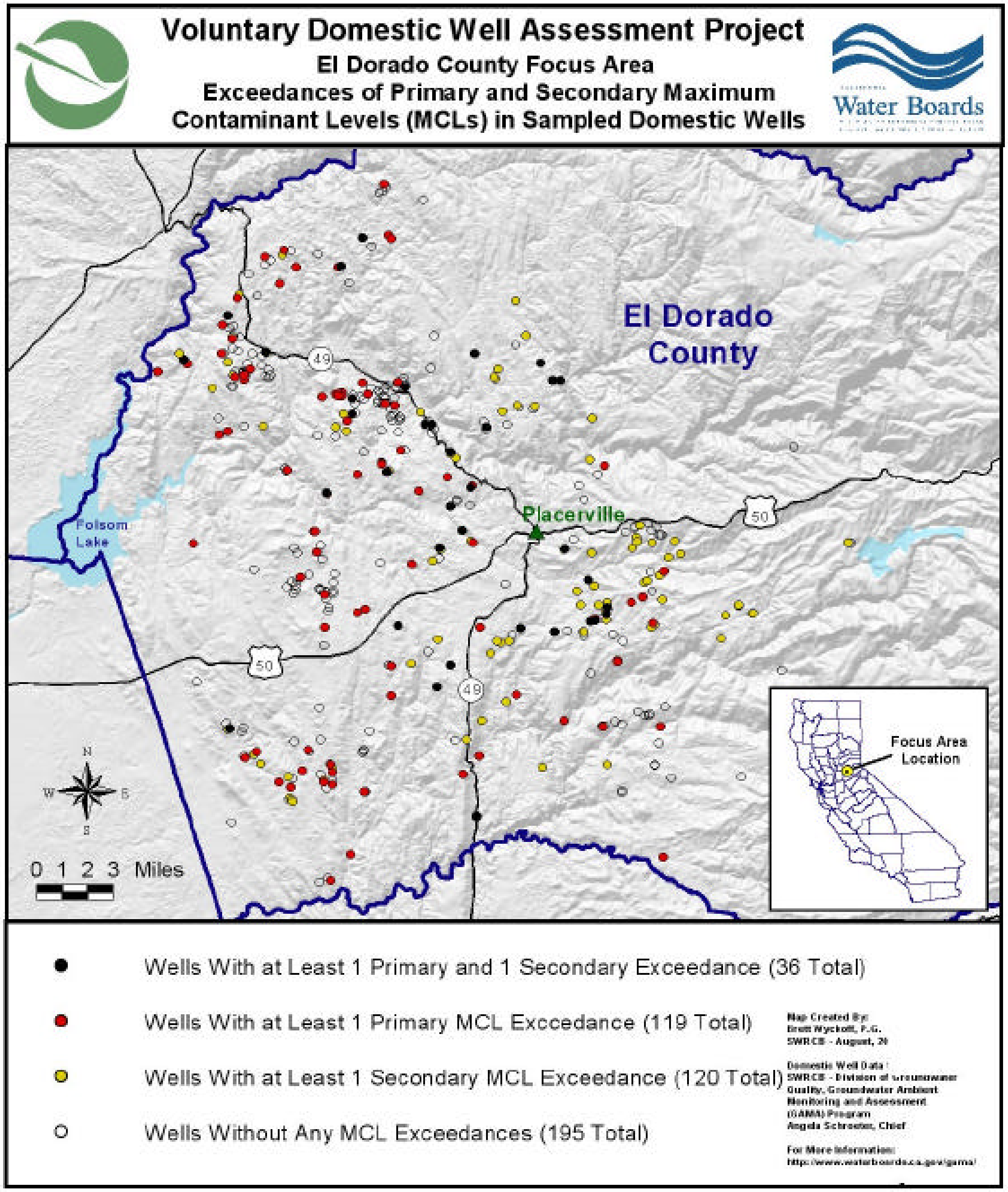


Figure 2. El Dorado County wells sampled as part of the Voluntary Project with detections greater than State primary and secondary drinking water standards for public water systems.

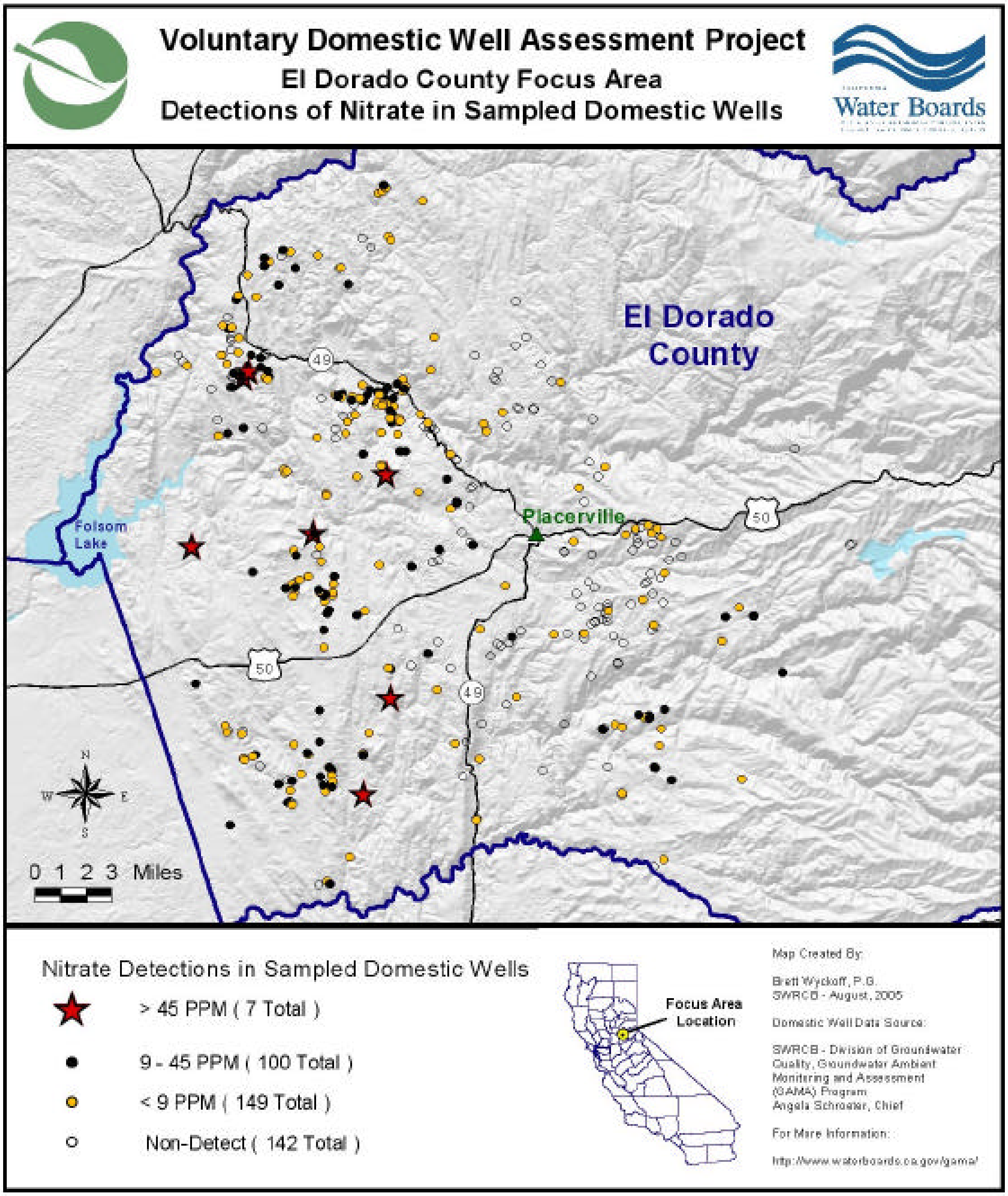


Figure 3. Nitrate (as NO_3) detections in El Dorado County domestic wells sampled by the Voluntary Project.

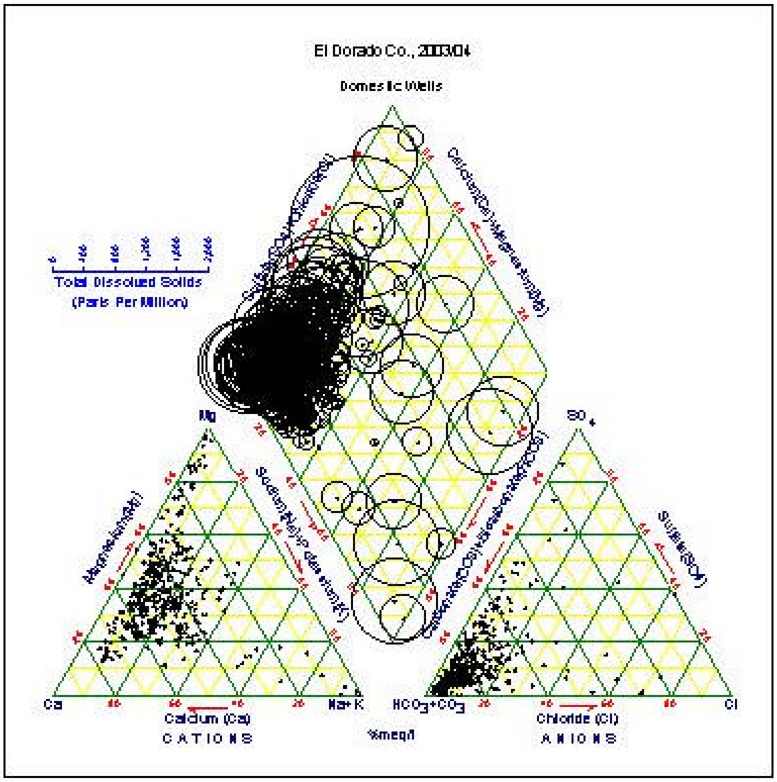


Figure 4. Piper diagram for Voluntary Project ground water samples collected from 398 domestic wells in El Dorado County.

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11. State Water Resources Control Board, Report to the Governor and Legislature, A Comprehensive Groundwater Quality Monitoring Program For California, March 2003.

12. State Water Resources Control Board, Voluntary Domestic Well Assessment Project Sampling and Analysis Plan, 2003 and 2004.

13. U.S. Environmental Protection Agency, Office of Water, Protect our Health from Source to Tap – National Drinking Water Program Highlights, EPA-816-K-01-001, May 2001.

Appendix

The following is a detailed list of the analytes specific to the El Dorado County implementation of the Voluntary Domestic Well Assessment Project. Laboratory analytical data provided by Sierra Foothill Laboratory, Twining Laboratories, Alpha Analytical Laboratories Inc., and Lawrence Livermore National Laboratory.

Compound Name (Alias)	PQL[1] (µg/L)	Number of detections above PQL	Concentration Range (µg/L)
Microbiological			
Total Coliforms	1	111	Presence
Fecal Coliforms	1	14	Presence
General Minerals and Chemical Parameters			
Bicarbonate Alkalinity as $CaCO_3$	1	397	6.3 - 490
Carbonate Alkalinity as $CaCO_3$	4	1	8.3 - 60
Hydroxide Alkalinity as $CaCO_3$	1000	0	-
Total Alkalinity as $CaCO_3$	1	398	11 - 410
Carbonate	1000	NA	NA
Chloride	2	398	1.6 - 250
Color	3 Units	3	4 – 29 Units
Cyanide	0.02	0	-
Fluoride	0.1	212	0.1 – 1.6
Hardness, Total as $CaCO_3$	5	397	2.1 - 680
Hydroxide	1000	NA	NA
Langelier Index	NA	NA	NA
Methyl Blue Activated Substances (MBAS)	50	47	50 - 130
Nitrate Nitrogen (NO_3-N)	NA	NA	NA
Nitrate as NO_3	1	256	1 - 84
Nitrate + Nitrite (as Nitrogen)	400	242	150 - 19000
Nitrite (as Nitrogen)	NA	NA	NA
Odor	1	7	1
pH, Laboratory	1	208	5.9 – 8.2
Specific Conductance, Laboratory	1	197	60 - 800
Sulfate as SO_4	2	391	0.6 - 280
Total Dissolved Solids	10	398	24 - 890

Compound Name (Alias)	PQL[1] (µg/L)	Number of detections above PQL	Concentration Range (µg/L)
Turbidity, Laboratory	0.1 NTU	7	0.12 – 48 NTU
Inorganic Chemicals			
Aluminum	50	48	50 - 1500
Antimony	6	2	11 -12
Arsenic	2	94	2 - 110
Barium	10	99	11 - 900
Beryllium	1	0	-
Cadmium	1	1	2.3
Calcium	1	398	0.72 - 220
Chromium, Total	10	3	1 – 14
Copper	20	20	22 -440
Iron	100	123	65 - 87000
Lead	5	12	3.6 -110
Magnesium	1	397	0.16 - 210
Manganese	20	121	20 - 1800
Mercury	1	0	-
Nickel	10	25	6 - 150
Potassium	1	206	1 - 21
Selenium	5	4	6 - 12
Silver	10	0	-
Sodium	1	396	1.2 - 330
Thallium	1	0	-
Zinc	50	54	31 - 5800
Volatile Organic Chemicals			
Acetone	5	14	20 - 200
Acrylonitrile (Acritet)	5	0	-
Benzene	0.3	2	0.5 - 15
Bromobenzene	0.5	0	-
Bromochloromethane	0.5	0	-
Bromodichloromethane (Dichlorobromomethane)	0.5	1	0.5
Bromoform	0.5	1	38
Bromomethane	0.5	0	-

Compound Name (Alias)	PQL[1] (μg/L)	Number of detections above PQL	Concentration Range (μg/L)
n-Butylbenzene	0.5	0	-
sec-Butylbenzene	0.5	0	-
Carbon disulfide	5	0	-
Carbon tetrachloride	0.5	0	-
Chlorobenzene (Monochlorobenzene)	0.5	0	-
Chloroethane	0.5	0	-
Chloroform	0.5	12	0.5 - 20
Chloromethane	0.5	0	-
2-Chlorotoluene	0.5	0	-
4-Chlorotoulene	0.5	0	-
1,2-Dibromo-3-chloropropane (DBCP)	0.5	0	-
1,2-Dibromoethane (Ethylene Dibromide, EDB)	0.5	0	-
Dibromomethane	0.5	0	-
1,2-Dichlorobenzene (o-DCB)	0.5	0	-
1,3-Dichlorobenzene	0.5	0	-
1,4-Dichlorobenzene (p-DCB)	0.5	0	-
1,2-Dichlorobenzene	NA	0	-
Dichlorodifluoromethane (CFC-12)	0.5	0	-
trans-1,4-Dichloro-2-butene	5	NA	NA
1,1-Dichloroethane (1,1-DCA)	0.5	0	-
1,2-Dichloroethane (1,2-DCA)	0.5	0	-
1,1-Dichloroethene (1,1-DCE)	0.3	0	-
cis-1,2-Dichloroethene(c-1,2-DCE)	0.5	0	-
trans-1,2-Dichloroethene(t-1,2-DCE)	0.5	0	-
Dichloromethane	0.5	2[a]	1.2
1,2-Dichloropropane	0.5	0	-
1,3-Dichloropropane	0.5	0	-
2,2-Dichloropropane	0.5	0	-
1,1-Dichloropropene	0.5	0	-
trans-1,3-Dichloropropene	0.5	0	-
Ethylbenzene	0.5	0	-
Hexachlorobutadiene	0.5	0	-

Compound Name (Alias)	PQL[1] (µg/L)	Number of detections above PQL	Concentration Range (µg/L)
2-Hexanone	5	NA	NA
Isopropylbenzene	0.5	0	-
p-Isopropyltoluene	0.5	0	-
Methyl ethyl ketone	1	1	36
Methyl iodide	2	NA	NA
Methyl isobutyl ketone	1	0	-
Methyl-tert-butyl-ether (MTBE)	0.5	4	1.8 - 5.7
Methylene chloride (Dichloromethane)	0.5	2	1.2
Naphthalene	0.5	0	-
n-Propylbenzene (1-Phenylpropane)	0.5	0	-
Styrene	0.5	0	NA
1,1,1,2- Tetrachloroethane	0.5	0	-
tert-Amyl-Methyl Ether (TAME)	NA	0	-
tert-Butyl Alcohol (TBA)	2	1	5.5
Tert-Butylbenzene	NA	0	-
1,1,2,2-Tetrachloroethane	0.5	0	-
Tetrachloroethene (PCE)	0.5	1	0.66
Toluene	0.5	4	0.85 - 29
1,2,3-Trichlorobenzene	0.5	0	-
1,2,4-Trichlorobenzene	0.5	0	-
1,1,1-Trichloroethane (1,1,1-TCA)	0.5	0	-
1,1,2-Trichloroethane (1,1,2-TCA)	0.5	0	-
Trichloroethene (TCE)	0.5	0	-
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5	0	-
Trichlorofluoromethane	0.5	0	-
1,2,3-Trichloropropane	0.5	0	-
Trihalomethanes (total)	0.5	6	0.5 - 21
1,2,4-Trimethylbenzene	0.5	0	-
1,3,5-Trimethylbenzene	0.5	0	-
Vinyl Chloride (VC)	0.5	0	-
m,p-Xylene	0.5	0	-
o-Xylene	0.5	1	1.2

Compound Name (Alias)	PQL[1] (mg/L)	Number of detections above PQL	Concentration Range (mg/L)
Xylenes (total)	0.5	1	1.2
Additional Parameters			
Gross Alpha	NA	1	7.64 pCi/L
Stable isotopes of oxygen and hydrogen	NA	NA	NA

[1] Practical Quantitation Limit (PQL). In cases where multiple PQLs apply, the lowest PQL is indicated.

[a] Dichloromethane was also detected in one trip blank at a similar concentration.

NA – Data currently not available.

El Dorado Irrigation District

SB 610 Water Supply Assessment for the Village of Marble Valley Specific Plan

291112 Part 3

SB 610 Water Supply Assessment

Prepared for the
Village of Marble Valley Specific Plan

Final

August 2013

Prepared by:

Tully & Young
Comprehensive Water Planning

Prepared for:

El Dorado Irrigation District

Approved by Eldorado Irrigation District Board of Directors on August 26, 2013 as action item #8

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Table of Contents

SECTION 1 – PROJECT INTRODUCTION

1.1 INTRODUCTION

In December 2012, the El Dorado Irrigation District (EID) received a letter from the El Dorado County Planning Department (County) requesting the completion of a Water Supply Assessment (WSA) for the Village of Marble Valley Specific Plan (hereafter referred to as the "Proposed Project"). As the proposed water supply purveyor for the Proposed Project, EID has prepared this WSA to assess the availability and sufficiency of EID's water supplies to meet the Proposed Project's estimated water demands. This document provides the necessary information to comply with the assessment of sufficiency as required by statute.

Statutory Background

Enacted in 2001, Senate Bill 610 added section 21151.9 to the Public Resources Code requiring that any proposed "project," as defined in section 10912 of the Water Code, comply with Water Code section 10910, et seq. Commonly referred to as a "SB 610 Water Supply Assessment," Water Code section 10910 outlines the necessary information and analysis that must be included in an environmental analysis of the project (e.g. CEQA compliance) to ensure that proposed land developments have a sufficient water supply to meet existing and planned water demands over a 20-year projection.

Proposed "projects" requiring the preparation of a SB 610 water supply assessment include, among others, residential developments of more than 500 dwelling units, shopping centers or business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor space, commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space and projects that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.[1]

The Proposed Project requires a WSA because it contemplates more than 500 new dwelling units as detailed in Section 1.2.

Document Organization

This WSA supports the Proposed Project's environmental review process and analyzes the sufficiency of water supplies to meet projected water demands of the Proposed Project through the required planning horizon. The WSA is organized according to the following sections:

- **Section 1: Project Introduction**. This section provides an overview of WSA requirements, and a detailed description of the Proposed Project, especially the land-use elements that will require water service.

[1] Water Code § 10912, subdivision (a).

- **Section 2: Proposed Project Estimated Water Demands**. This section describes the methodology used to estimate water demands of the Proposed Project and details the estimated water demands at build-out of the Proposed Project.

- **Section 3: Other Estimated Water Demands**. This section details the other water demands currently served by EID and anticipated to be served based on information in the El Dorado County's (County) General Plan as well as known and potential planned modifications since the County's adoption of the General Plan.

- **Section 4: Water Supply Characterization**. This section characterizes the EID water supply portfolio that will serve the Proposed Project along with other current and future water demands. Water rights, along with water service contracts and agreements are characterized for normal, single dry, and multiple dry year conditions.

- **Section 5: Sufficiency Analysis**. This section assesses whether sufficient water will be available to meet the Proposed Project water demands, while recognizing existing and other potential planned water demands within the EID service area. To provide the necessary conclusions required by statute, the analysis integrates the demand detailed in Section 2 and Section 3 with the characterization of EID's water supply portfolio detailed in Section 4.

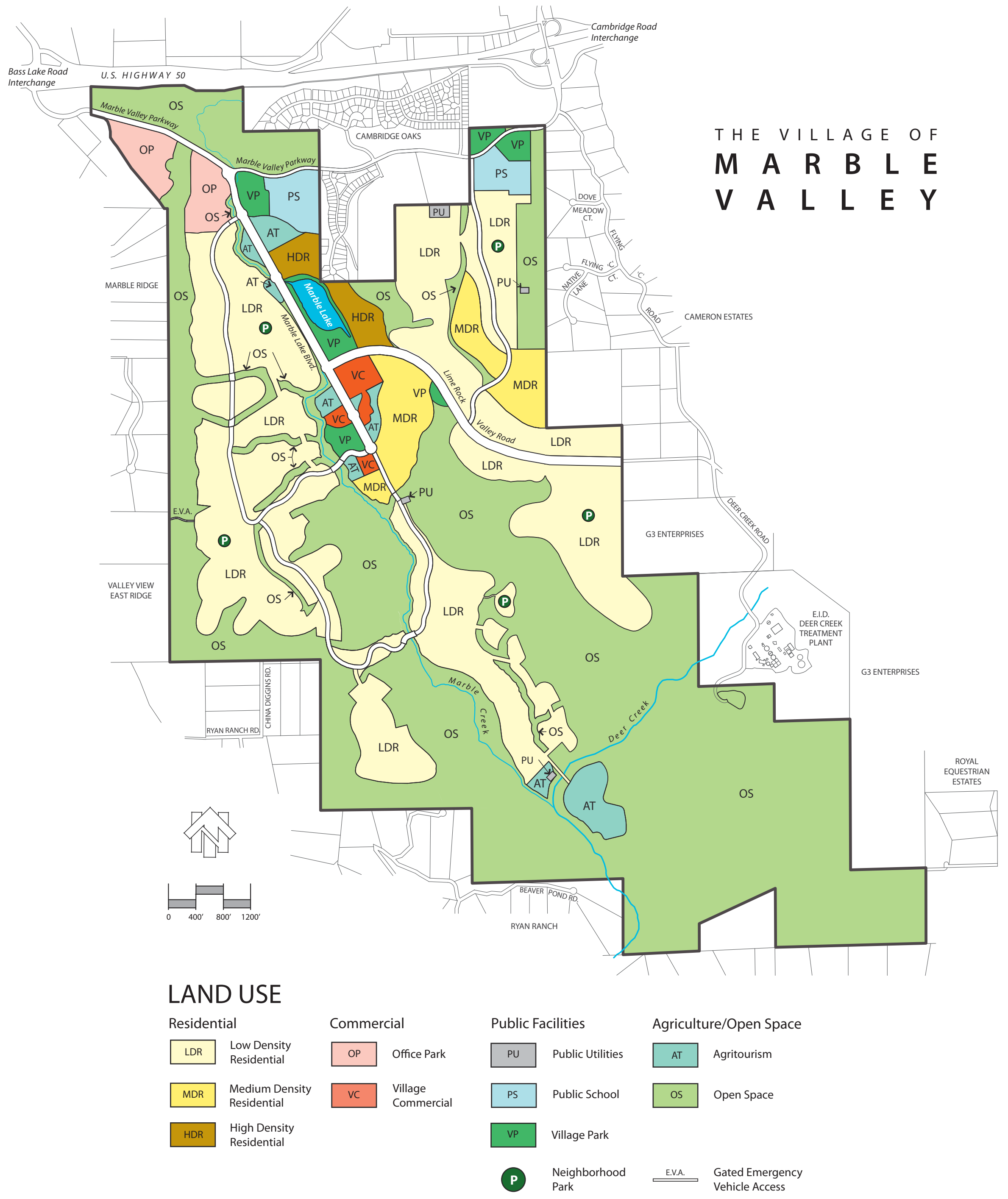
1.2 PROPOSED PROJECT DESCRIPTION

The Proposed Project is a planned development between Bass Lake and Cambridge Roads, south of Highway 50 encompassing approximately 2,340 acres in the unincorporated community of El Dorado Hills (see **Figure 1-1**).

The Proposed Project includes 3,236 residences, commercial space, village and neighborhood parks, agricultural uses, two schools, and open space. Proposed residential dwelling units include 193 custom lots on approximately 1 acre, 125 custom homes on approximately 1/2 acre-lots, 982 production lots with densities of 3 to 4 dwelling units per acre (designated "medium density-low"), 663 production lots with densities of 4 to 5 dwelling units per acre (designated "medium density-high"), 981 lots with densities of 7 to 12 dwelling units per acre (designated "Condo/Duplex"), and 292 high-density units (designated "multi-family"). Parks are spread throughout the project and include private parks in the gated areas, joint use parks along side the schools, village parks for non gated areas, a large park around the lake, and a historic park. The project includes about 475,000 square feet of commercial, retail, office, and other non-residential space residing on about 58 acres on the project site. Both a K5 and K8 school are planned for about 35 acres. About 55 acres of vineyards are to be planted on site both in designated lots and in some medians for aesthetics.

Table 1-1 summarizes the proposed land use acreages.

Figure 1-1 – Proposed Project Location and Land Uses



Torrence Planning
26 April 2013

1.2.2 Projected Land Uses

Table 1-1 – Summary of Proposed Build-Out Land Uses and Acreages[2]

Land Use	Description	Acres	Units
1 Acre Custom Homes	1 DU/Ac	198	193
1/2 Acre Custom Homes	2 DU/Ac	62	125
3-4 per Acre Production Homes	3-4 DU/Ac	277	982
4-5 per Acre Production Homes	4-5 DU/Ac	148	663
Condominiums/Town Homes	5-12 DU/Ac	85	772
High Density Residential	12-24 DU/Ac	28	501
Office Park/Commercial	--	60	--
Schools	--	35	--
Parks	--	47	--
Open Space	--	1,282	--
ROW and Landscaping	--	73	--
Vineyards	--	55	--
	Total	**2,350**	**3,236**

1.3 Proposed Project Phasing

Table 1-2 describes the Proposed Project's four construction phases. Each phase represents a portion of the development, focusing on particular land-use classifications. Before constructing homes, commercial space, or other parts of the development, the proponents will begin site grading and project-wide infrastructure development. Some infrastructure and site grading will continue throughout all phases of the Proposed Project, as necessary. These activities include installing facilities for potable water, recycled water (as appropriate for the Proposed Project), sewer, electric, telecommunications, gas, stormwater, and roads. During these activities, a small water demand will exist – referred to in this WSA as "construction water." This demand is included in the yearly water demands presented in Section 2.

The initial phase will result in approximately one quarter of the Proposed Project demanding water service by 2020, with the three subsequent phases each adding an additional quarter as they are completed. All construction is planned to be completed by 2035, within the 20-year planning horizon of this WSA.

[2] Specific Plan Land Use Summary was provided by El Dorado County of Development Services Department.

Table 1-2 – Proposed Project Schedule

Land Use	Phase 1 By 2020	Phase 2 2021-2025	Phase 3 2026-2030	Phase 4 2031-2035	Total
1 Acre Custom Homes	25	20	100	48	193
1/2 Acre Custom Homes	25	25	--	75	125
3-4 per Acre Production Homes	215	378	--	389	982
4-5 per Acre Production Homes	--	--	663	--	663
Condominiums/Town Homes	75	522	175	--	772
High Density Residential	209	50	228	14	501
Total	549	995	1,166	526	**3,236**

SECTION 2 – PROPOSED PROJECT ESTIMATED WATER DEMANDS

2.1 INTRODUCTION

This section describes the methodology, provides the supporting evidence, and presents the estimated water demands for the Proposed Project. For the purpose of estimating water demand, the Proposed Project is planned to develop according to the phasing in **Table 1-2**.

2.2 DETERMINING UNIT WATER DEMAND FACTORS

As detailed in Section 1, the Proposed Project has specific residential and non-residential land-uses with defined residential lot-sizes, types of commercial uses and other characteristics. As these attributes vary among the types of proposed land-uses, so too will the water needs. To understand the water needs of the entire Proposed Project, unique demand factors that correspond with each unique land use are necessary. This subsection presents the methodology for determining the baseline unit water use demand factors that become the basis of the Proposed Project water demand estimates. Two distinct groups of demand factors are presented: (1) residential, and (2) non-residential.

2.3 PRIMARY SOURCE OF BASELINE WATER USE DATA

Because the Proposed Project is very similar in nature to particular elements built as part of the Serrano and El Dorado Hills developments over the past few decades, recent water use data for comparable products in these neighborhoods provides a reliable foundation for EID to establish new project-specific water demands. Through comparison of Proposed Project land-use elements to existing land uses, EID determined appropriate existing, established neighborhoods and commercial facilities that best aligned with each unique residential and non-residential project element. For each comparable neighborhood, EID gathered and assessed total annual water use for the years 2008 through 2012. This selected period of water use best represents 1) the highest build-out percentage within each selected area (including established back-yard landscapes), and 2) varied water use over a range of climatic conditions reflecting various rainfall amounts and timing. Average annual uses were derived from the data and are discussed under the respective land-use categories.

2.4 BASELINE RESIDENTIAL WATER USE DEMAND FACTORS

The Proposed Project anticipates specific residential products that fall within general lot-size designations. The size of the lot will have the largest impact on the annual per-lot demand for water. Indoor demands remain relatively consistent regardless of lot size, with the exception of apartments, which tend to have fewer people living in each unit and thus a slightly lower indoor use.

For purposes of this WSA, the per-lot demand for residential lots will be described as "the acre-feet of water use annually per dwelling unit" – or simply put, acre-feet/dwelling unit (af/du). This value will reflect indoor and outdoor uses expected for a typical dwelling unit for each of the following classifications:[3]

- 1-acre custom lots
- ½-acre custom lots
- 8,000 to 10,000 square-foot production lots
- 5,000 to 7,000 square-foot production lots
- Condominiums/townhouses
- Multi-family housing with community facilities including pool and/or clubhouse

The method and basis for determining the baseline unit water demand factor for each of these classifications is detailed in the following subsections.

1-Acre Custom Home Lots

Water demand factors for the proposed large lots are based on recent water use data records for residential lots in the Serrano development – specifically existing residential lots located on Greenview Drive, Errante Drive, and others. The proposed lots in this category average at about 1 acre. However, not all land on these lots will be landscaped. For instance, a lot may include hillside and/or areas of oak woodland that must be protected, resulting in a diminished area for the home's footprint, outdoor hardscapes and landscaping. Generally, the house itself is large, with extensive outdoor features including pools, hardscapes, water features, and significant landscaping with well-maintained turf areas.

Based on available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is approximately 1.16 af/du.

½-Acre Custom Home Lots

Water demand factors for the proposed large lots are based on recent water use data records for residential lots in the Serrano development – specifically existing residential lots located on Renaissance Way and Renaissance Place. The proposed lots in this category average at about 1/2-acre though have a project minimum of 15,000 square feet. Landscaping on the lot may be based on a predetermined landscaping package for a production home. Generally, the house itself is large, with extensive outdoor features including pools, hardscapes, water features, and significant landscaping with well-maintained turf areas.

Based on available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is approximately 0.87 af/du.

[3] These classifications reflect EID's defined water demand factor categories as EID believes they best relate to the Proposed Project's land-use classifications as shown in the Table 1-1.

8,000 to 10,000 Square-foot Production Lots

The proposed project will include a large number of lots reserved for production homes on lots typically described as "large" for a residential community. For these lots, ranging up to ¼-acre or more, water demands will be based on recent water use data records for similar lots in the Serrano development – specifically Village D2 and portions of Village E, which includes numerous similar-sized lots. In contrast to the smaller lot production homes described in the next classification, these lots will retain adequate area on the lot for well-maintained turf and other landscaping. As much as one-half, but not less than about one-quarter, of the lot may still remain for landscaping, after accounting for the home's footprint and hardscape areas – equating to a few thousand to several thousand square-feet. Though less landscaped area than the custom home lots, the landscaped area will drive water use on these lots.

Based on the available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is 0.55 af/du.

5,000 to 7,000 Square-foot Production Lots

The Proposed Project includes numerous proposed lots with average of 4 to 5 dwelling units per acre. As a result of the limited outdoor area, many of these lots are limited to front-yard landscaping with well-maintained turf, and back yards often only including hardscapes, pools or other amenities, and lower water using landscapes. Unit water demands are based on recent water use data records for similar lots in the Serrano development – specifically Village D1A, portions of Village E and Euer Ranch, which include numerous similar-sized lots.

Based on the available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is 0.50 af/du.

Condominiums/Townhouses

The Proposed Project includes numerous proposed lots characterized as being condominiums or townhomes (7 to 12 units per acre). These proposed lots are anticipated to be similar to projects in the El Dorado Hills area, most notable the Regalo Project in Serrano. The Proposed Project includes large attached housing units, with large individual landscape yards and common areas.

Based on the available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is 0.40 af/du.

Multi-Family Housing

The Proposed Project includes numerous multi-family housing elements characterized as multi-family housing. These lots will include community landscaping, multi-story housing structures, community pools and other amenities. These projects are anticipated to be similar to the existing indoor and outdoor demands of the Sterling Apartment and Vineyard Apartment properties currently served by EID. Although both of these properties differ in their layouts and landscape types and coverage, both use approximately the same quantity of water on a per-dwelling unit basis.

Based on the available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is 0.16 af/du – inclusive of both indoor and outdoor demands.

Residential Indoor Water Use

Based on EID meter data for the past several years, indoor water use for typical single-family homes averages about 0.18 af/du.[4]. The value drops for apartments as a result of less people on average living in each apartment unit.[5] This value can be used to derive separation of residential demands that could be served with non-potable supplies, such as recycled water from the Deer Creek and/or El Dorado Hills wastewater treatment facilities (see Section 2.7.2).

2.5 MODIFYING BASELINE VALUES

All of the above-developed water demand factors for the residential classifications are based on similar existing developments in the El Dorado Hills area. However, since construction of the existing houses, a few changes have occurred that will reduce the Proposed Project's water demands from the baseline unit water demands derived from existing meter data. These include:

- CAL Green Code
- California Model Water Efficient Landscape Ordinance

CAL Green Code

In January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (CAL Green Code) that requires the installation of water-efficient indoor infrastructure for all new projects beginning January 1, 2011. CAL Green Code was incorporated as Part 11 into Title 24 of the California Code of Regulations.[6] The CAL Green Code applies to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure. All proposed land uses must satisfy the indoor water use infrastructure standards necessary to meet the CAL Green Code. The CAL Green Code requires residential and nonresidential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use inside the building by 20 percent. The 20 percent water savings can be achieved in one of the following ways: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the CAL Green Code, or (2) by demonstrating a 20 percent reduction in water use from the building

[4] This value is a subset of the total usage estimated for a dwelling unit under each land-use category. Data from 2012 Water Resources and Service Reliability Report, EID, August 13, 2012, Appendix Table A, p.42
[5] El Dorado County indicates the average household size is 2.63 persons per occupied unit. (El Dorado County General Plan, 2008 Housing Element, August 2008 (Amended April 2009), p. 4-7).
[6] The CAL Green Code is Part 11 in Title 24.

"water use baseline."[7] The Proposed Project will satisfy one of these two requirements through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, on-demand water heaters, as well as Energy Star and California Energy Commission-approved appliances.

California Model Water Efficient Landscape Ordinance

In 2006, the Water Conservation in Landscaping Act was enacted, which required the Department of Water Resources to update the Model Water Efficient Landscape Ordinance (MWELO).[8] In fall of 2009, the Office of Administrative Law (OAL) approved the updated MWELO, which required that a retail water supplier adopt the provisions of the MWELO by January 1, 2010 or enact its own provisions equal to or more restrictive than the MWELO provisions.

The provisions of the MWELO are applicable to new construction with a landscape area greater than 2,500 square feet.[9] The MWELO provides a methodology to calculate total water use based upon a given plant factor and irrigation efficiency. Finally, MWELO requires the landscape design plan to delineate hydrozones (based upon plant factors) and then assign a unique valve for each hydrozone (low, medium, high water use).[10] The design of landscape irrigation systems is anticipated to better match the needs of grouped plant-types and thus result in more efficient outdoor irrigation.

Applying Conservation to Baseline Demand Factors

Collectively, these and other factors will put downward pressure on the baseline residential unit water demand factors – potentially dropping each unit demand by up to 10 percent for the larger lots. **Table 2-1** provides a summary of the baseline demand factor for each residential land-use category, the anticipated savings from the conservation mandates, and the resulting unit demand factor used to estimate the Proposed Project's water use.

[7] See CAL Green Code.
[8] Gov. Code §§ 65591-65599
[9] CCR Tit. 23, Div. 2, Ch. 27, Sec. 490.1.
[10] CCR Tit. 23, Div. 2, Ch. 27, Secs. 492.3(a)(2)(A) and 492.7(a)(2).

Table 2-1 – Summary of Residential Baseline and Proposed Project Demand Factors

EID Water Demand Category (Relates to Table 1-1 Land Use)	**Density Range**	**Current Factor (af/du)**	**Conservation Applied**	**Factor Used (af/du)**
1 Acre Custom Homes	1 DU/Ac	1.16	10%	1.04
1/2 Acre Custom Homes	2 DU/Ac	0.87	8%	0.80
8,000-10,000 sf Lots	3 - 4 DU/Ac	0.55	5%	0.52
5,000-7,000 sf Lots	4 - 5 DU/Ac	0.50	5%	0.48
Condominiums/Town Homes	7 - 12 DU/Ac	0.40	4%	0.38
Multi-Family Housing[1]	15 - 24 DU/Ac	0.16	2%	0.16

1. The Multi-family Housing values remain constant due to rounding. The "current factor" was determined to be 0.165 af/du.

2.6 Baseline Non-Residential Water Use Demand Factors

Similar to the residential water demand factors, non-residential factors are based upon recent water use trends for similar types of land classifications.

For purposes of this WSA, the per-lot demand for non-residential lots is described as "the acre-feet of water use annually per acre of land" – or simply put, acre-feet/acre (af/ac). This value reflects indoor and outdoor water needs expected for a typical non-residential use for each of the following classifications:

- Office Park/Village Commercial
- Public and Neighborhood Parks
- Schools
- Other miscellaneous uses, including street medians, recreational lake, vineyards, and environmental mitigation

The method and basis for determining the baseline unit water demand factor for each of these classifications is detailed in the following subsections.

Office Park/Village Commercial

The proposed office park/village commercial facilities are anticipated to be "office space" as well as "retail and entertainment" in nature. Analysis of recent meter data for both the La Borgata retail facility on El Dorado Hills Boulevard and the Village Green office/public facility at the corner of Silva Valley and Serrano Parkways indicates that water use on a per-acre basis is nearly consistent, with the retail space using about 2.15 af/ac and the office facility using 1.95 af/ac. Although the Village Green indoor facilities have lower use, the area has more turf landscaped area (not including Village Green park), which matches, on a gross acre-by-acre comparison with the higher indoor retail demands and limited landscaping of the restaurants at La Borgata.

Based on the available historic meter data for similar facilities served by EID, the unit water demand factor is 2.0 af/ac.

Public and Neighborhood Parks

The Proposed Project includes five neighborhood parks, two village joint-use parks, and two special use parks. Neighborhood parks will include expansive turf areas, playfields, and other park amenities. Village joint-use parks will be adjacent to the school facilities and consist of similar features as the neighborhood parks. The special use parks, that surround the lake and historical site, differ from the other parks and are analyzed on a net landscaped acreage to match the water use estimates. Based upon recent water meter data for similar park facilities in the El Dorado Hills area – namely Bella Terra Park, Allan Lindsey Park, and the Village A, C, L3, and L4 parks – a representative water demand factor was identified. A "smart meter" controls the irrigation system at each existing park. These devices adjust water use to actual climate data, including precipitation events. Thus, the recent meter data is very indicative of expected demands for the new parks, which will also be outfitted with similar technology.

Based on the available historic meter data for similar facilities served by EID, the unit water demand factor is 2.77 af/ac.

Schools

The Proposed Project includes two schools: a Kindergarten through 5th grade, and a Kindergarten through 8th grade. The schools will use adjacent village parks for school-related recreational activities, and will include turf playfields. As an example, the water use at Oak Meadows Elementary on Silva Valley Parkway provides a useful representation of the expectations for the two proposed school facilities. Oak Meadows, operational by 2004, has an average water use of 1.70 af/ac – representing a use of about 0.019 af/student. For comparison, other schools in the area were analyzed and had very comparable per-student water use rates for similar facilities. But, the range in school use varied from as much as 2.5 af/ac to 0.8 af/ac – depending on factors like total school footprint, number of students and amenities. The average among seven schools analyzed was 1.43 af/ac. For purposes of this WSA, the average value would be an appropriate estimation for the future school sites.

Based on the available historic meter data for similar facilities served by EID, the unit water demand factor will use a baseline value of approximately 1.43 af/ac.

Other Miscellaneous Uses

The Proposed Project has additional miscellaneous uses including landscaped street medians, environmental mitigation requirements, a recreational lake, vineyards, gate houses at entrances to private streets, sewer lift stations, and construction water. These uses have minimal impacts to the overall per-project total water use due to their limited size and water needs, and some are temporary in nature.

Landscape Street Medians and Community Entrances

The Proposed Project includes proposed landscaping along street corridors and at entrances to particular residential areas, as is common in El Dorado Hills. Since comparable data is not available due to the variety of landscapes used in existing street medians around El Dorado Hills, unit water demands for this category is derived from the MWELO (see prior discussion under "residential land-uses"). To provide flexibility to the Proposed Project to landscape as needed, the entire width of the landscaped area was assumed to demand the maximum use allowed by MWELO.[11] This maximum is determined as 70 percent of the reference evapotranspiration for the area. Using available maps from the California Department of Water Resources, the reference evapotranspiration for the Proposed Project area is approximately 57 inches per year.[12] The resulting demand factor is 3.3 af/ac.

Oak Woodlands Management

As of the preparation of this WSA, the mitigation requirements for impacts to oak woodlands resulting from the Proposed Project are as detailed in the County's Policy 7.4.4.4.[13] For purposes of estimating the water demands of this Proposed Project element, the WSA assumes mitigation will include establishing new trees, likely with associated irrigation water to assure seedlings are established. As defined in the County's Oak Woodland Management Plan Monitoring Program:

> *"Replacement of removed tree canopy . . . is subject to intensive to moderate management and 10 to 15 years of monitoring, respectively. The survival rate shall be 90 percent as specified in the approved monitoring plan for the project, prepared by a qualified professional. Acorns may be used instead of saplings or one gallon trees."*

> *"Management intensity assumes that 10 years after planting 1 year old saplings that trees that have been nurtured with high management intensity will be on average 2 inches DBH with 90 percent survival; moderate management intensity will result in trees that are on average 1.5 inches DBH with 85 percent survival."*

More precisely, an intensive management program is required to obtain 90 percent survival. The management includes10 years of monitoring for one-gallon/one year old saplings and 15 years of

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[11] Although this may be higher than seen by EID for current street medians and community entrances, this conservative assumption allows the Proposed Project with flexibility to landscape these areas up to the full demands of MWELO.

[12] Reference Evapotranspiration is obtained from the map available at http://wwwcimis.water.ca.gov/cimis/cimiSatEtoZones.jsp

[13] The County Board of Supervisors has an Oak Woodland Management Plan (OWMP) codified as Chapter 17.73 of the County Code (Ord. 4771. May 6, 2008.). The primary purpose of this plan is to implement the Option B provisions of Policy 7.4.4.4. On September 24, 2012, the Board of Supervisors directed the Development Services Department to prepare a General Plan amendment to amend Policies 7.4.2.8, 7.4.2.9, 7.4.4.4, 7.4.4.5, 7.4.5.1, and 7.4.5.2 and their related implementation measures to clarify and refine the County's policies regarding oak tree protection and habitat preservation. (This excerpt was copied from the following El Dorado County web site: http://www.edcgov.us/Government/Planning/General_Plan_Oak_Woodlands.aspx on May 4, 2013.)

monitoring if acorns are planted. Any trees/acorns that do not survive within the monitoring periods are to be replaced within that time, so that 90 percent survival is achieved at the end of the monitoring period.

Because establishment of new trees is highly dependent on site conditions (soil depth and composition, depth to water table, slope, aspect, existing vegetation), planting conditions (water year, starting from acorns or saplings, weed mats, mulch, density of plantings and other adjacent veg, etc.), establishment and maintenance practices (manual or installed irrigation systems, and irrigation intervals), and the required success criteria (target % survival), the estimated water demands are difficult to predict.[14] However, in order to be reasonably conservative, this WSA assumes that each acre of habitat mitigation will require 1 acre-foot per acre of annual irrigation for a period of 15 years.[15] For instance, if the Proposed Project must mitigate with 10 acres of woodland, the demand would be 10 acre-feet annually. All oak woodland will be established prior to build-out and require no on-going irrigation.

Recreational Lake

The recreational lake is expected to need augmentation water to maintain desired lake elevations. Currently, the lake fills from adjacent groundwater seepage and stormwater runoff. Based on characterizations of this seepage from Proposed Project representatives, the water elevation often lowers during the summer and fall as surface evaporation outpaces seepage. To maintain water level elevations in the 10-acre lake, and estimated 6 to 10 acre-feet per surface acre of the lake will be assumed. For the entire lake, this equates to between 60 and 100 acre-feet. For purposes of the WSA, an assumed annual demand of 85 acre-feet will be used.

Vineyards

The Proposed Project will include approximately 55 acres of vineyards spread throughout the project. These vineyards serve as both an aesthetic feature and a business function – actively producing wine grapes. The majority of the planting is located on lots spread between differing housing types. Vineyards are also used in medians and other ornamental type plantings where appropriate. The use of vineyards in this fashion results in lower water use than fully landscaped medians. The vineyard water use estimates is based on a collection of documents from the University of California – Cooperative Extension combined with input for a local producer and winemaker. Reviewing water use data from *Wine Grape Cost and Return Studies, El Dorado and Amador Counties*, as well as other areas with similar climates and elevations, water demand range from 5 to 12 inches per year for established vines. In the interest of being conservative,

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[14] A qualified professional will likely develop the project specific oak management plan. More detailed water use will be available in this plan. Review of information from oak mitigation projects in the area revealed a range of planting types, irrigation methods, and management time frames. Overall, irrigation demands were all low as would be expected for a native species.

[15] A conservative water demand number and a long management window were assumed to provide the Proposed Project applicants flexibility in meeting the oak woodland mitigation requirements.

the 12-inch annual value is used.[16] To account for any additional water demands while establishing the vines, this WSA assumes that twice the water will be needed in the first few years following planting. As shown in **Table 2-3**, the initial demand upon planning (included for the first 5-year increment for each vineyard planning phase) is 2 acre-feet/acre. This value drops to 1 acre-foot/acre for the remainder of the analysis period for a particular planting phase.

Gate Houses at Private Entrances

No usable comparison exists in the EID water use history to represent the demand of a gate house. A gate house consists of a small building with a single bathroom. The average country club employee per shift uses 50 Liters per day, or just over 13.2 gallons.[17] Assuming two employees per shift and 3 shifts per day, the resulting water use comes out to about 0.09 acre-feet per year. To be conservative, the demand used is rounded up to 0.1 acre-feet per year.

Sewer Lift Stations

Lift station demand comes in form of maintenance of the stations. Operational flushing at these lift stations is the primary water use. Based on EID records for such operations, each lift station is assumed to demand 2.5 acre-feet of water annually.

Construction Water

As stated in Section 1, early phases of the Proposed Project will include site grading and infrastructure installation. These and other construction elements will require dust suppression and other incidental water uses. These are estimated to be nominal, and do not continue beyond the construction phases of the Proposed Project. For purposes of identifying incremental water demands, construction water is assumed within this WSA to be 11 acre-feet per year (this is well over 3.5 million gallons – or nearly 900 fill-ups of a 4,000 gallon water truck annually).

Modifications to Reflect Additional Water Use Reductions

Similar to the residential demand factors, the above-developed water demand factors for the non-residential classifications are based on similar existing developments in the El Dorado Hills area. Considerations to reduce these baseline values for conservation factors, however, are not required, since demand factors for many of the landscaped features, such as parks, will not change from the existing values – with the exception of commercial land-uses. The landscape-dominant demand factors are affected primarily by climatic conditions that drive plant evapotranspiration. In other words, an acre of turf at a park will still use the same amount of water in the new parks as the existing parks. Commercial land-uses, however, are adjusted downward slightly to reflect the CAL Green Code and likely modifications to landscape designs (compared to existing establishments) to limit outdoor water use. Schools are kept consistent

[16] *The water demand is one dimensional and total demand is dependent on area. For the purposes of this WSA, acres are used for the second dimension. Therefore, one acre-foot of water is multiplied by each acre of vineyard. The result is 1 acre-foot/acre which is used in this documents calculations*

[17] Tchobanoglous, George, and Edward Schroeder. *Water Quality*. Menlo Park: Addison Wesley Longman, 1987

with the existing demand factor, since the data is based on the average of several schools and the exact configuration and number of students at the proposed schools is not fully defined. **Table 2-2** summarizes the non-residential demand factors used in this WSA.

Table 2-2 – Summary of Non-Residential Demand Factors

Land Use	Current Factor (af/ac)	Conservation % Applied	Factor Used (af/ac)
Office Park/Commercial	2.00	3%	1.94
Parks	2.77	0%	2.77
Schools	1.43	0%	1.43
ROW Landscaping	3.30	0%	3.30
Open Space	0.00	0%	0.00

2.7 Proposed Project Water Demand Projection

Combining the Proposed Project's land-use details and phasing as summarized in **Table 1-1** and **Table 1-2** with the demand factors presented in **Table 2-1** and **Table 2-2**, the water demands for the project from initiation to build-out are estimated. At completion, the Proposed Project is estimated to need 1,927 acre-feet of water annually (prior to considerations of non-revenue water, described in the next subsection) as shown in **Table 2-3**.

2.7.1 Non-Revenue Water Demands

The demand factors presented earlier in this section represent the demand for water at the customer's meter for each category. To fully represent the demand on EID's water resources, non-revenue water also needs to be included. Non-revenue water represents all of the water necessary to deliver to the customer accounts and reflects distribution system leaks, water demands from potentially un-metered uses such as fire protection, hydrant flushing, and unauthorized connections, and inescapable inaccuracies in meter readings.[18] In most instances, the predominant source of non-revenue water is from system leaks – the loss from fittings and connections from EID's water sources through treatment plants, tanks, pumping plants, major delivery system back-bone pipelines, and community distribution systems. Because a significant portion of the delivery system used to bring water to the Proposed Project already exists, the benefits of new piping within the Proposed Project has limited effect on the overall percentage of non-revenue water necessary to operate the system.

[18] The American Water Works Association and the California Urban Water Conservation Council recognize the inherent non-revenue water that is either lost or mis-accounted in urban treated water distribution systems and suggest purveyors strive for a value of 10% of all delivered water. Obtaining this value is dependent on numerous factors including the age and extent of distribution system infrastructure, meter rehabilitation programs, and how a purveyor accounts for actions such as fire flows and hydrant flushing.

Although EID has an established program for identifying and accounting for most unbilled and other system losses, there are still pipeline leaks, unmetered uses, unauthorized connections, meter inaccuracies, and other losses that are difficult to specifically quantify. Consistent with the District's methodology for calculating future water meter availability, as defined in the *2012 Water Resources and Service Reliability Report,* non-revenue water is projected at a fixed rate of 13 percent. Non-revenue demand is estimated to add 250 acre-feet per year at build-out to the Proposed Project's land-use demands, bringing the estimated build-out water demand attributed to the Proposed Project to 2,177 acre-feet annually (see **Table 2-3**).

2.7.2 Recycled Water Demand

A portion of the Proposed Project's demands (see Figure 1-1) could be met with recycled water provided by EID (see Section 4.3). As previously noted, other than the high-density multi-family units, residential potable demands require about 0.18 acre-feet annually per household. The remaining portion of the unit demand factor for each type of residential lot could be met with recycled water (see **Table 2.1** for unit demand factors). For the high-density residential units, the potable water requirement is lower due to fewer customers per unit on average when compared to other housing types. Using these unit water demand assumptions, coupled with the number of residential units, the Proposed Project could meet approximately 937 acre-feet of the 1,510 acre-feet of residential water demand with recycled water – prior to consideration of non-revenue water demands.

Non-residential components of the Proposed Project could also be met with recycled water, especially the parks, vineyards and lake supplementation. Removing the small potable demands for parks and the limited commercial properties, the Proposed Project could meet 355 acre-feet of the 417 acre-feet of total non-residential demand with recycled water – prior to the consideration of non-revenue water demands. Combined, recycled water could serve approximately 1,292 acre-feet of the Proposed Project's demand (see **Table 2-4**).

Table 2-4 – Estimated Demand Met with Recycled Water

	Demand (af/yr)		
	Residential	Non-Res	Total
Potable	572	62	635
Recycled	937	355	1,292
Total Demand	**1,510**	**417**	**1,927**

Table 2-3 – Estimated Proposed Project Water Demands from Start-up to Build-out

	Unit Count or Acreage						Demand Factor (af/du or af/ac)						Demand (af/yr)					
Category	Current	2015	2020	2025	2030	2035	Current	2015	2020	2025	2030	2035	Current	2015	2020	2025	2030	2035
Residential																		
1 Acre Custom Homes	0	0	25	45	145	193	1.16	1.04	1.04	1.04	1.04	1.04	0	0	26	47	152	202
1/2 Acre Custom Homes	0	0	25	50	50	125	0.87	0.80	0.80	0.80	0.80	0.80	0	0	20	40	40	100
8,000-10,000 sf Lots	0	0	215	593	593	982	0.55	0.53	0.53	0.53	0.53	0.53	0	0	113	312	312	517
5,000-7,000 sf Lots	0	0	0	0	663	663	0.50	0.48	0.48	0.48	0.48	0.48	0	0	0	0	315	315
Condominiums/Town Homes	0	0	75	597	772	772	0.40	0.38	0.38	0.38	0.38	0.38	0	0	29	228	295	295
Multi-Family Housing	0	0	209	259	487	501	0.16	0.16	0.16	0.16	0.16	0.16	0	0	34	42	79	81
												Subtotal	0	0	222	669	1,192	1,510
Commercial																		
Office Park/Commercial	0	0	0	12	27	58	2.00	1.94	1.94	1.94	1.94	1.94	0	0	0	22	52	112
Schools	0	0	0	0	19	35	1.43	1.43	1.43	1.43	1.43	1.43	0	0	0	0	28	50
Gate House	0	0	1	1	1	1	0.10	0.10	0.10	0.10	0.10	0.10	0	0	0	0	0	0
												Subtotal	0	0	0	23	80	162
Public																		
Parks	0	5	13	14	22	22	2.77	2.77	2.77	2.77	2.77	2.77	0	14	37	40	60	60
Open Space	0	1,282	1,282	1,282	1,282	1,282	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
Lake	0	0	1	1	1	1	85.00	85.00	85.00	85.00	85.00	85.00	0	0	85	85	85	85
Vineyards Phase 1	0	0	18	18	18	18	0.00	0.00	2.00	1.00	1.00	1.00	0	0	35	18	18	18
Vineyards Phase 2	0	0	0	13	13	13	0.00	0.00	0.00	2.00	1.00	1.00	0	0	0	26	13	13
Vineyards Phase 3	0	0	0	0	10	10	0.00	0.00	0.00	0.00	2.00	1.00	0	0	0	0	20	10
Vineyards Phase 4	0	0	0	0	0	14	0.00	0.00	0.00	0.00	0.00	2.00	0	0	0	0	0	28
Lift Stations	0	0	2	2	2	2	2.50	2.50	2.50	2.50	2.50	2.50	0	0	5	5	5	5
												Subtotal	0	14	162	173	201	219
Other																		
ROW & landscape lots	0	0	6	11	11	11	3.30	3.30	3.30	3.30	3.30	3.30	0	0	18	36	36	36
Mitigation Demands	0	100	225	225	125	0	1.00	1.00	1.00	1.00	1.00	1.00	0	100	225	225	125	0
Construction Water	0	2	2	2	2	0	5.50	5.50	5.50	5.50	5.50	5.50	0	11	11	11	11	0
												Subtotal	0	111	254	272	172	36
												Total Water Demand	**0**	**125**	**638**	**1,137**	**1,646**	**1,927**
												Non-Revenue Demand at 13%	0	16	83	148	214	250
												Total Proposed Project Demand	**0**	**141**	**721**	**1,285**	**1,860**	**2,177**

SECTION 3 – OTHER ESTIMATED WATER DEMANDS

3.1 INTRODUCTION

As stated in this excerpt from Water Code Section 10910(b)(3): *"[T]he water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available…will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses…"* This section details EID's other "existing and planned future uses." For purposes of this WSA, existing and planned future uses are subdivided into the following:

- **Other Currently Proposed Projects** – in addition to the Proposed Project, El Dorado County (County) is the Lead Agency (pursuant to CEQA) for four additional proposed development projects. As Lead Agency, the County has requested separate WSAs from EID for each of these other projects. Because detailed land-use information is available for three of the four projects and separate WSAs are being developed for these three in parallel to this WSA, each of these three projects have unique water demand estimates that are included in this WSA.[19]

- **All Other Existing and Planned Future Uses –** in addition to the Proposed Project and the Other Currently Proposed Projects, existing customers and anticipated growth in the County must be quantified. The subdivisions of this category are:

  - **Current Customers and Uses** – using 2012 as a baseline condition, this category reflects the current range of EID's potable and recycled water customers. Because these customers and uses already exist, keeping them separate from planned future uses allows an analysis to reflect anticipated reductions in use over time as EID continues to implement its urban water conservation programs targeted at many of the existing customers.[20]

  - **Adjusted General Plan Update Land Use Growth** – in addition to the identified development projects currently undergoing County CEQA review, the County's 2004 General Plan Update (GPU) anticipates continued urban growth throughout the EID service area. This growth is accounted for in the EID 2013 *Integrated*

[19] EID understands the fourth project, San Stino, to be undergoing changes to its land-use plans at the time of drafting this WSA. Lacking the details needed to determine water demands similar to the other WSAs currently being completed, the San Stino project is reflected in the next subgroup of demands (see Section 3.3).

[20] New customers added to EID's system will have lower demand factors, as discussed in Section 2, and will be less likely to implement additional conservation or see much reduction when changes are made. For instance, many existing customers may still have 3 gallon per flush toilets or even 1.6 gallon per flush toilets, which when replaced, will likely only use 1.28 gallons. New houses will be constructed, per the CAL Green Code, with 1.28 gallon per flush toilets. EID has had conservation and incentives programs for more than 20 years.

Water Resources Master Plan (2013 IWRMP) and serves as the primary water demand driver into the future. Adjustments to anticipated GPU growth to reflect the "Other Currently Proposed Projects" and other proposed land-use changes, however, must be made. The adjustments discussed under this category include: (1) potential changes in the 2004 General Plan land use designations as identified in Facility Improvement Letters received and analyzed by EID; and (2) the removal of the Proposed Project and other proposed project uses being developed under concurrent WSAs.

  - **Other Authorized Uses** – EID does not anticipate increases above 2012 levels in other authorized potable water uses such as fire flows, meter testing, water quality flushing, and ditch system operations. Demands for this category of water use is removed from the general plan growth and included separately.

- **Non-Revenue Water** – As discussed in Section 2.7.1, an additional demand is seen by EID to treat and deliver water to all customers. Referred to as non-revenue water, this water demand represents a 13 percent increase added to estimated customer demands. This value represents a long-term average experienced by EID.

3.2 Other Currently Proposed Projects

As mentioned in the previous section, El Dorado County is the Lead CEQA Agency for four additional proposed development projects and has requested EID to prepare WSA's for each development concurrent with this Proposed Project WSA. EID is currently drafting three of these four WSAs.[21] The estimate of water demand for each WSA follows the same methods used in Section 2 of this WSA, with specific unit demand factors applied to each unique land use element. The other projects are:

- Central El Dorado Hills – located along El Dorado Hills Blvd north of Hwy 50, this projects is a planned infill mixed development with primarily residential units and some commercial space.
- Lime Rock Valley Specific Plan – located adjacent to the Village of Marble Valley, this development is a planned residential community with a variety of lot sizes and housing types.
- Dixon Ranch Residential Project – located northeast of the Proposed Project, this development is a planned residential community with a range of lot sizes and housing types, including a number of "age-restricted" units, accompanied by a community club house, parks, ponds, and trails.

[21] EID understands that the San Stino development project is undergoing changes to the land-use plans previously submitted to the County. Therefore, EID has not begun the WSA for that project.

Based on the detailed analysis completed in the other WSAs, these "Other Currently Proposed Projects" represent approximately 1,330 acre-feet per year of new demand by 2035. **Table 3-1**, presented later in this section, summarizes the estimated water demands as determined and detailed in the concurrent WSAs for each unique project. The values shown are the estimated customer and use demands and do not include the additional water associated with non-revenue percentages attributable to the treatment and distribution for each project (see Section 3.5).

3.3 All Other Existing and Planned Future Uses

In simple terms, this category of use would typically reflect all the other water demands anticipated by EID that are in addition to the Proposed Project. However, because of the unique circumstance that other WSAs are concurrently being drafted by EID, this category must be adjusted to remove those other well-defined water demands. Furthermore, because other potential changes to the 2004 GPU have been brought to EID's attention, and EID anticipates changes to current customer uses, a more detailed assessment of future demands is warranted. This subsection describes:

- Current Customers and Uses
- Adjusted GPU Land Use Growth
- Other Authorized Uses

3.3.1 Current Customers and Uses

Current customers and uses in the contiguous EID service area provide a baseline from which to assess additional demand from the Proposed Project and other potential planned uses. For purposes of the WSA, the deliveries to current customers in 2012 were used to define this baseline. Based on the 2012 EID *Water Diversion Report*, EID diverted 36,580 acre-feet into its potable water system. In addition to the potable water, EID served 2,404 acre-feet of recycled water to meet customer demands.[22] Combined, the current water demand is represented as 38,984 acre-feet. This value includes the non-revenue water (see Section 2.7.1), including system losses, necessary to deliver these supplies from their respective treatment plants to the customer meter. This value also includes 1,269 acre-feet sold to the City of Placerville.[23]

Since the WSA uses 2012 as a baseline, the "current" demand varies from that used in the recently adopted 2013 IWRMP, which used the year 2008 for its baseline.[24] Given on-going conservation efforts, adoption of new rate structures, and other drivers, EID has seen an overall decrease in the annual customer use since the IWRMP selected its baseline. Therefore the 2012

[22] See EID 2013 Water Resources and Reliability Report (Table 14)
[23] See EID Consumption Report: Reporting Year 2012 (Table on p. 7)
[24] The IWRMP, adopted by the EID Board in March 2013, began several years ago and at the time used 2008 as a baseline. Since that time, EID's annual diversions have dropped from a high in 2008 of about 45,000 acre-feet to 35,678, 33,453, and 36,580 in 2010, 2011, and 2012, respectively. Combined with recycled water deliveries, the 2012 demand is lower than that used for the 2013 IWRMP, but greater than 2010 and 2011.

baseline used for this WSA is more representative of the baseline use expected into the future from these existing customers and uses.

A slight adjustment to this baseline is necessary, however, to project it into the future. Although this demand will remain relatively constant since it does not add any new uses (additional uses are discussed in the next subsections), a slight decrease is assumed that reflects on-going implementation of conservation and installation of new water-using fixtures by existing customers. EID's continued leadership in conservation will enable existing customers to retrofit toilets, receive appliance rebates for new household items such as dishwashers, water heaters and clothes washers, and implement irrigation efficiency improvements through various incentives. Additional reductions in existing customer demands will also occur simply as a result of the natural replacement of old fixtures and appliances with lower water-use devices. For purposes of the WSA, EID estimates the reduction in current customer demand will be approximately 2% by 2020 and an additional 1% by 2035. This is consistent with EID's expectations necessary to meet its per-capita water use targets as detailed in the 2010 Urban Water Management Plan.[25]

3.3.2 Adjusted GPU Land Use Growth

In the 2004 GPU, the County made growth projections using land-use zoning throughout the County. Within the contiguous EID water service area, the GPU land-use zoning correlates to EID defined unit water demand factors. During preparation of the recently adopted 2013 IWRMP, EID used GIS-based land-use designations, combined with the water demand factors, to develop estimated growth in water demand. Absent any changes to the 2004 GPU land-use designations, the 2013 IWRMP demand projections would provide a valid representation of future water needs. However, because several proposed changes to the GPU land-use designations have been submitted – both through the County's formal process, such as is the situation with the Proposed Project and Other Planned Projects, and through an EID process explained below – the 2013 IWRMP demand projections require refinement. The steps to adjust these demands included:

- Removal of Proposed Project and Other Planned Projects water demands
- Modifying land-use zoning based on Facility Improvement Letters
- Determining Growth to Year 2035

Once these steps were completed, the analysis reassessed the water demand using the water demand factors applied in the 2013 IWRMP.

Step 1: Removal of Proposed Project and Other Planned Project Water Demands

The first step in adjusting the water demands was to remove the detailed water demands estimated in this WSA for the Proposed Project and for the Other Planned Projects (see

[25] See Section 3 of the 2010 UWMP available here: http://www.eid.org/modules/showdocument.aspx?documentid=338

Section 2 and Section 3.2). This step involved removing the specific acreage and water demand factors from the 2013 IWRMP analysis. The 2004 GPU included land-use zoning for the lands underlying the Proposed Project as well as the Other Planned Projects. In the 2013 IWRMP, water demands were estimated using the existing zoning. Removing these land uses eliminates the potential to double-count the associated acreage when assessing the remaining GPU expected growth.

Step 2: Modifying Land-use Zoning based on FILs
When investigating water service from EID for development projects (e.g. lot splits, land use changes, and new service to existing parcels), existing landowners submit a Facilities Improvement Letter (FIL). This document allows EID to assess whether infrastructure or supplies are available to serve the proposed project. In some instances, the FILs include proposed land-use zoning changes not previously incorporated into EID water demand projections. By using GIS to map the locations of the FILs requesting a change in land-use zoning, EID was able to identify where changes to the 2013 IWRMP demand estimates would occur. About 25 specific FILs were identified as having land-use designation changes. These identified parcels were removed from the prior analysis to eliminate potential double counting of demands.

In a separate analysis, the water demand for this subset of parcels was recalculated using the appropriate water demand factor for the new proposed land-use classification (e.g. water needs for these parcels may have previously been calculated based on very-low density housing, but is requesting a change to higher density housing). Through the analysis, an increased demand of approximately 3,000 acre-feet over the 2013 IWRMP projections was identified.

Step 3: Determining Growth to 2035
The GPU identifies anticipated build-out conditions for the County and, as a subset, for the EID contiguous water service area. Since this WSA assesses water demands in 5-year increments only to 2035 – well short of the anticipated timing of the County's build-out – the amount of build-out growth occurring by 2035 must be determined. This was done for both the parcels identified with new land-use zoning through the FIL analysis, and for the remaining parcels with original GPU land-use designations.

Because there is little detail about planned development rates for the FIL-related parcels, this WSA assumed that these parcels would have full water demand usage by 2035.[26] This is a conservative estimate, since some of these lands may not develop by 2035 or may never

[26] This assumption also considers that a landowner would likely only submit a FIL to EID if they are seriously contemplating the development activity. Thus, there is a higher likelihood that these parcels will develop at a faster rate than other generally anticipated growth for the remaining parcels in the GPU.

develop. Thus, the estimated increase in demand of approximately 3,000 acre-feet was assumed to occur by 2035 with the 2013 IWRMP growth rate applied.

For the remaining parcels, growth rates used to determine the degree of development were based on EID's 2013 IWRMP. In the 2013 IWRMP, growth rates for the El Dorado Hills, and Western/Eastern water service areas were identified for specific year-ranges.[27] This WSA uses those growth rates for the remaining parcels. Using the 2013 IWRMP growth rates, the analysis determined build-out for the El Dorado and Western/Eastern service areas occurs after 2035.

During this adjustment, special attention was provided to the City of Placerville. The City purchases potable water from EID for distribution to its residents. The 2013 IWRMP projected future water demands for the City based on the City's existing General Plan. This WSA assumes the same rate of growth and build-out demand as the 2013 IWRMP for the City.

Upon completion of these steps, the adjusted demand for the GPU land uses was determined. **Table 3-1** summarizes the anticipated increase in water demand during each 5-year increment as a result of these adjustments to the GPU land-uses.

3.3.3 Other Authorized Uses

In addition to the sale of water to metered customers, EID has a set of water demands it refers to as "Other Authorized Uses." This designation is for the following existing uses:

- Knolls Reservoir Assessment District
- Private Fire Services
- Temporary Water Use Permit
- Bulk Water Stations - Permanent
- Bulk Water Stations - Temporary
- Lift Stations
- Collection System Flushing
- Spills, Overflows, and Flushing
- Clear Creek Aesthetics Flow Maintenance District

Of these, the Clear Creek aesthetic flows comprise over 80 percent of the annual authorized uses. Lift stations and temporary use permits comprise another 10 percent. The current demand of approximately 2,200 acre-feet is already reflected in the "Current Customers and Uses." EID anticipates no growth in these authorized water uses, with the total demand to remain constant at 2,200 acre-feet through 2035.

[27] EID Integrated Water Resources Master Plan, adopted March 2013 (Table 9-2).

3.4 Non-Revenue Water Demands

The subtotal values in **Table 3-1** represent the demand for water at the customer's meter for each category. To fully represent the demand placed on EID's water resources, non-revenue water also needs to be included. Non-revenue water represents all of the water necessary to deliver to the meter and reflects distribution system leaks, water demands from potentially un-metered uses of fire protection, fire hydrant flushing, and unauthorized connections, and inescapable inaccuracies in meter readings.[28] In most instances, the predominant source of non-revenue water is from system losses – the loss from fittings and connections from the District's water sources through treatment plants, tanks, pumping plants, major delivery system back-bone pipelines, and community distribution systems.

Although the District has an established program for identifying and accounting for most unbilled and other system losses, there are still pipeline leaks, unmetered uses, unauthorized connections, meter inaccuracies, and other losses that are difficult to specifically quantify. Consistent with the District's methodology for calculating future water meter availability, as defined in the *2012 Water Resources and Service Reliability Report,* non-revenue water is projected at a fixed rate of 13 percent.

As shown in **Table 3-1**, non-revenue demand for Existing and Planned Future Uses is estimated to be about 7,500 acre-feet per year by 2035.

3.5 Estimated Existing and Planned Future Uses

Combining the estimated water demand for Other Currently Planned Projects (see Section 3.2 with the All Other Existing and Planned Future Uses demand (Current Customers and Uses plus the Adjusted GPU Land Use values), the total estimated demand during each 5-year increment to 2035 is derived (see subtotal water demand in **Table 3-1)**.

[28] See footnote 14

Table 3-1 – All Other Existing and Planned Future Uses

Category	Estimated Demand (af/yr)					
	Current	2015	2020	2025	2030	2035
Other Currently Proposed Projects	0	163	696	1,052	1,272	1,332
Current Customers and Uses [1]	38,984	34,154	33,809	33,694	33,579	33,464
Adjusted GPU Land Use [2]	0	514	2,853	7,975	14,718	22,830
Subtotal Water Demand	**38,984**	**34,831**	**37,359**	**42,721**	**49,570**	**57,627**
	Current	**2015**	**2020**	**2025**	**2030**	**2035**
Non-Revenue Water at 13%	--	4,528	4,857	5,554	6,444	7,491
Total Water Demand	**38,984**	**39,359**	**42,216**	**48,275**	**56,014**	**65,117**

1. The "Current Customers and Uses" demand value includes the "Other Authorized Uses." The Value is greater under the "Current" condition because "Non-Revenue Water" is included in the current year. All other years will have "non-revenue water" added on a separate line. A 3% conservation decrease occurs by 2035.
2. "Adjusted GPU Land Use" reflects changes to the 2004 GPU as determined by FILs submitted to EID. This value also does NOT include the other proposed projects currently undergoing County CEQA review.

3.6 Total Estimated Demand

The other existing and planned future water demands described in this section represent the total demands anticipated *in addition to* the water demands of the Proposed Project. Combining the estimated Proposed Project water demands of 2,177 acre-feet annually (see **Table 2-3**) with the estimated Existing and Planned Future water demands of approximately 65,000 acre-feet annually (see **Table 3-1**), a total estimated demand for EID water supplies by 2035 is determined. Estimated existing and planned future water demands, inclusive of non-revenue water needs, for each 5-year increment to 2035 are presented in **Table 3-2**. The estimated demand for EID Water supplies is 67,295 acre-feet annually.

Table 3-2 – Total Estimated Water Demands

Category	Estimated Demand (af/yr)					
	Current	2015	2020	2025	2030	2035
Proposed Project	0	141	721	1,285	1,860	2,177
Existing and Planned Future Uses	38,984	39,359	42,216	48,275	56,014	65,117
Total Water Demand	**38,984**	**39,500**	**42,937**	**49,560**	**57,874**	**67,295**

Of note is that the estimated water demand for 2035 presented in **Table 3-2** fits within the range of total demands presented in Table 9-1 of the 2013 IWRMP (estimated to be between 61,262 acre-feet and 77,315 acre-feet). The primary differences is that the 2013 IWRMP used 2008 as a baseline demand, which is substantially higher than EID has seen in the last several years. This WSA uses 2012 as a baseline. The 2008 value was approximately 45,000 acre-feet, while the 2012 value is 38,984 – or about 39,000 acre-feet. This represents a difference of about 6,000 acre-feet. Starting from a different baseline quantity and year, and then applying the 2013 IWRMP growth rates, results in a different estimated total demand when reaching 2035.

SECTION 4 – WATER SUPPLY CHARACTERIZATION

4.1 INTRODUCTION

This section explains the intended water supply that EID will use to serve the Proposed Project.[29] EID will meet the Proposed Project's water demands by utilizing water assets derived from its existing sources as well as through future asset acquisition efforts with El Dorado County Water Agency. This section details the Proposed Project's available water supplies and entitlements as well as its planned water supplies and entitlements in both normal water years and dry water years. The Proposed Project exists completely in El Dorado Irrigation District's contiguous water service area (see **Figure 4-1**) and may be served with both treated water and recycled water.[30]

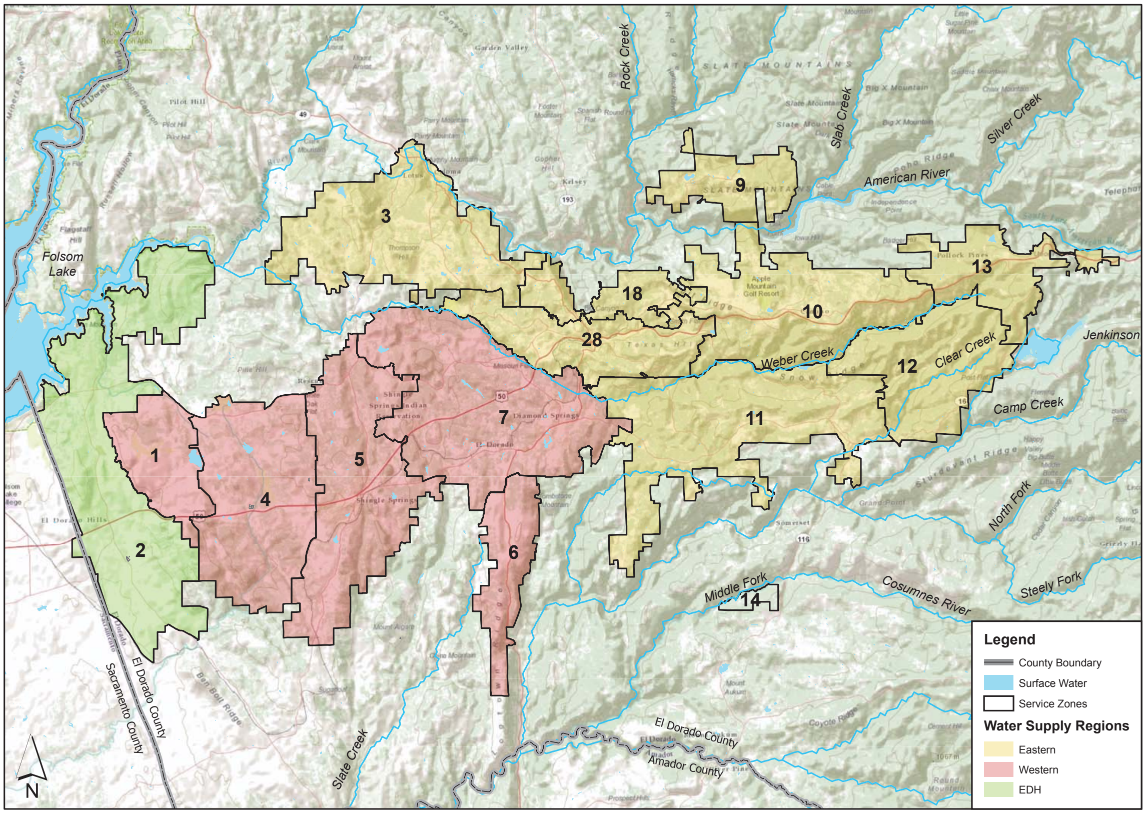
El Dorado Irrigation District maintains two primary interconnected water systems in its contiguous service area: the El Dorado Hills system and the Western/Eastern system, along with a separate recycled water system. The El Dorado Hills water system obtains its primary supplies under rights and entitlements from Folsom Reservoir. The Western/Eastern system derives its supplies from sources under rights and entitlements emanating from further up the American River watershed and the Cosumnes River watershed. The recycled water system serves treated wastewater from the El Dorado Hills wastewater treatment plant and the Deer Creek wastewater treatment plant.

The water assets can be further categorized by the service area they primarily serve and the treatment plant they flow through. Water derived from Folsom Reservoir is delivered to the El Dorado Hills water treatment plant and serves the El Dorado Hills area. Water derived from upstream American River watershed diversions and storage reservoirs generally use the Reservoir 1 Water Treatment Plant while the Cosumnes River diversions use Reservoir A Water Treatment Plant to serve the Western/Eastern area. Water assets from these upstream diversions can be delivered by gravity feed to the El Dorado Hills area, but assets from Folsom Reservoir are not delivered outside the El Dorado Hills area due to infrastructure limitations. The following subsections describe these water supplies and delivery mechanics in more detail.

[29] CWC § 10910(d)(1) requires that "The assessment… include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system…under existing water supply entitlements, water rights, or water service contracts. (2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system…shall be demonstrated by providing information related to all of the following: (A) Written contracts or other proof of entitlement to an identified water supply. (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system. (C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply. (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply."

[30] EID also has surface water assets that it serves to two non-contiguous areas as well as raw water assets that are used for agricultural purposes. These water assets are irrelevant to the Proposed Project contemplated in this Water Supply Assessment and are, therefore, not analyzed.

Figure 4-1 – El Dorado Irrigation District Service Area
(from Figure 8-7, Integrated Water Resources Master Plan, EID, March 2013)



4.2 Treated Water Supplies

EID's treated water supplies identified for the Proposed Project are derived from a number of water rights and entitlements as detailed in **Table 4-1**. The maximum available water assets column in **Table 4-1** does not account for other hydrological, technical, regulatory, and contractual limitations that apply to the water assets for normal year and dry year deliveries. These issues are addressed in the other two columns in the table. EID's water assets available for the Proposed Project include water rights and entitlements that EID currently has in its possession and planned water rights and entitlements that it will control in the future.

4.2.1 Water Rights and Entitlements Description

Generally, EID's water assets are derived from pre-1914 appropriative water rights, licensed and permitted appropriative water rights, Central Valley Project (CVP) contracts, Warren Act contracts (that allow non-federal water assets to be wheeled through the federal storage and conveyance facilities), and recycled water generated from the effluent treated at the District's two wastewater treatment plants. The District's counsel has recently confirmed all of these water rights and entitlements. Pertinent information regarding these water assets is included in **Appendix A** of this document as required by Water Code section 10910(d).

Water for the Proposed Project will be derived from both Folsom Reservoir and upstream American River and Cosumnes River diversions. As shown in **Table 4-1**, the primary water assets for diversion at Folsom Reservoir are: CVP Contract 14-06-200-1375A-LTR1, and License 2184 and several pre-1914 water rights incorporated into Warren Act contract 06-WC-20-3315. EID is seeking to finalize its Warren Act contract for diversions of Permit 21112 at Folsom Reservoir. EID also has additional water assets under the El Dorado – SMUD Cooperation Agreement and a Central Valley Project water entitlement derived from El Dorado County Water Agency's Fazio water supply. These water assets will be described in **Section 4.2.2**.

Table 4-1 – Water Rights, Entitlements, and Supply Availability

Water Right or Entitlement	Maximum Water Assets Available (Ac-ft)	Normal Year Planned Supply Availability (Ac-ft)	Dry-Year Planned Supply Availability (Ac-ft)
License 2184 and pre-1914 ditch rights including Warren Act Contract 06-WC-20-3315	4,560	4,560	3,000
Licenses 11835 and 11836	33,400	23,000	20,920[A]
CVP Contract 14-06-200-1375A-LTR1	7,550	7,550	5,660
Pre-1914 American River diversion and storage rights	15,080	15,080	15,080
Permit 21112	17,000	17,000	17,000
Subtotal Existing	**77,590**	**67,190**	**61,660**
Central Valley Project Fazio water entitlement (PL 101-514 (1990) Fazio) [D]	7,500	7,500	5,625
Applications 5645X12, 5644X02 and partial assignment of Applications 5645, 5644 with El Dorado-SMUD Cooperation Agreement [E]	40,000[B]	30,000	5,000[C]
Subtotal Planned	**47,500**	**37,500**	**10,625**
Recycled Water	5,600	5,600	5,600
Total	**130,690**	**110,290**	**77,885**

[A] This is the modeled safe-yield of this water right during a single dry-year. For planning purposes, the second and third dry years of a three-year dry period are assumed to be 17,000 acre-feet, and 15,500 acre-feet, respectfully
[B] Section 5.1.1 of the El-Dorado SMUD Cooperation Agreement indicates that 40,000 acre-feet of SMUD water will be available after 2025. For conservative Normal Year planning purposes, the District uses 30,000 acre-feet of available supply.
[C] Available supply is 15,000 acre-feet in a single dry year but in preparing for multiple dry years EID anticipates using only 5,000 acre-feet per year for a three year period.
[D] Available starting in 2015
[E] Available starting in 2025

License 2184 and Pre-1914 Water Rights

Water rights associated with Weber Dam, Weber Creek (Farmer's Free Ditch), Slab Creek (Summerfield Ditch), and Hangtown Creek (Gold Hill Ditch) are available to be diverted at Folsom Reservoir under a long-term Warren Act Contract, with approximately 4,560 acre-feet available each year from these sources. A Warren Act Contract allows the use of federal facilities to take non-CVP water such as these supplies. The 40-year contract commenced on March 1, 2011 and has a maximum net contract amount of 4,560 acre-feet per year. The contract total also assumes a 15% conveyance loss between the former points of diversion and Folsom Reservoir, which can be adjusted at a later date by mutual agreement without amending the contract. The annual water diversion season is limited to April through November 15 and the water must be used for municipal and industrial purposes in the El Dorado Hills and Cameron Park areas.

Licenses 11835 and 11836

Licenses 11835 and 11836 allow for 33,400 acre-feet of diversion in EID's upstream system in the Cosumnes River watershed. These diversions are stored in Jenkinson Lake, the largest storage reservoir in EID, formed by two earth and rock dams across Sly Park Creek near Pollock Pines with a maximum capacity of 41,033 acre-feet. The dam was constructed as a portion of the United States Bureau of Reclamation (USBR) CVP in 1955. With the transfer of ownership from the USBR of the Sly Park dam and associated lands and facilities in 2003, EID not only operates and maintains the Jenkinson Lake and Sly Park Dam facilities, including recreational aspects, but also holds the water rights. The average annual use from this facility is approximately 23,000 acre-feet, though EID's annual water right is for 33,400 acre-feet of total beneficial use. This water supply is used entirely within EID's contiguous service area. Under average flow conditions, Jenkinson Lake is operated to maintain 14,000 to 18,000 acre-feet of carryover storage each year. The outlet works at Sly Park Dam have a maximum capacity of 125 cfs. Water is released to the Reservoir A Water Treatment Plant for subsequent treatment, transmission, and distribution.

Jenkinson Lake contributes approximately 20,920 acre-feet per year to EID's system firm yield. Over the past five years, EID's annual diversions from Jenkinson Lake have averaged approximately 22,600 acre-feet per year. EID's maximum and minimum diversions from this particular water source during this five-year period were 25,745 and 20,800 acre-feet per year, respectively.

USBR CVP Contract 14-06-200-1375A-LTR1

Surface water from Folsom Reservoir is provided to the El Dorado Hills area. By contract with the USBR for Folsom Reservoir water, EID is entitled to 7,550 acre-feet per year. The contract includes provisions for use in a particular area that generally encompasses the El Dorado Hills and Cameron Park areas. Folsom Reservoir is operated by the USBR as part of the CVP, a multipurpose project that provides flood control, hydroelectricity, drinking water, and water for irrigation.

The El Dorado Hills County Water District entered into a USBR Contract in 1964 for water supply from Folsom Reservoir. The contract had a not-to-exceed limit of 37,600 acre-feet per year. When EID annexed the El Dorado Hills County Water District in 1973, the contract was assigned to EID, and subsequently, in 1979, an amendatory contract replaced the original 1964 contract and reduced the maximum annual supply quantity of Folsom Reservoir water to 6,500 acre-feet per year. In 1983, the USBR increased the maximum annual supply quantity from 6,500 to 7,500 acre-feet per year. EID also annexed and succeeded to a USBR Contract for 50 acre-feet per year to supply the Lakehills area in El Dorado Hills. In 2006, these two contracts were consolidated into a single 40-year USBR Contract with a maximum quantity of 7,550 acre-feet per year.

Pre-1914 South Fork American River and Project 184

EID acquired Project 184 from Pacific Gas and Electric (PG&E) in 1999. Project 184 includes reservoirs and associated dams, 22 miles of canals, a 21 Mw powerhouse, and other ancillary facilities. Prior to the transfer of ownership and water rights, EID held a contract to purchase water from PG&E and its predecessor, Western States Gas and Electric Co. The original water rights claims date back to 1856, with additional claims being filed in the 1860s and 1870s. The water rights for diversions from Echo Lake were established in 1880 in a California Supreme Court decision. Then, in 1918, the California Railroad Commission (predecessor to the California Public Utilities Commission) recognized the use of water from the El Dorado Canal for irrigation and domestic purposes.

The sources of this water supply include natural flows in the South Fork American River and its tributaries, and stored water in Silver, Aloha, Echo, and Caples Lakes. The supply is diverted from the South Fork American River at Kyburz and is conveyed via the El Dorado Canal to the El Dorado Forebay. Some additional water is obtained by diversions into the El Dorado Canal from streams tributary to the South Fork American River. EID takes consumptive use of the water supply at the Main Ditch Intake, located at the El Dorado Forebay. This particular supply contributes 15,080 acre-feet per year to EID's system firm yield.

Water diversions of up to 156 cfs can be made from the South Fork American River at the diversion dam. In addition to these direct diversion rights, EID also has pre-1914 diversion and storage rights associated with portions of the waters stored in Silver Lake, Caples Lake, and Lake Aloha and all of the waters stored in Echo Lake.

El Dorado Forebay is filled by the surface water supply from the Project 184 facilities upstream in the South Fork American River basin and at Echo Lake. EID has a consumptive water entitlement of 15,080 acre-feet per year delivery at the Forebay. The entitlement is a pre-1914 water right, and diversions are made in compliance with the 40-year Federal Energy Regulatory Commission Project 184 operating license issued to EID in October 2006. Because the full entitlement can be provided in all years including the most severe historic single dry year of 1977, this source of water is considered assured, and not subject to shortage from hydrologic droughts.

Permit 21112 and Warren Act Contract

The State Water Resources Control Board (SWRCB) issued EID a water right permit in 2001 for an additional 17,000 acre-feet per year of water supply associated with Project 184 facilities and power operations to be taken at Folsom Reservoir. This water supply was authorized under Permit 21112 for diversion and consumptive use anywhere within EID's contiguous service area. There are no cutback provisions on this supply.

The El Dorado County Water Agency (EDCWA) and EID applied to the SWRCB to obtain water rights for consumptive use of waters previously stored and released for power generation from Caples, Silver, and Aloha Lakes, as well as certain direct diversions from the South Fork American River, all of which have been used by Project 184 for hydroelectric power generation or instream flows. The EDCWA later assigned all of its rights under this application to EID. The SWRCB granted the right to appropriate 17,000 acre-feet per year of water. Permit 21112 allows EID to make direct diversions from the South Fork American River at Folsom Reservoir; to store in Caples, Silver, and Aloha Lakes; and to redivert the water released from storage. The sole approved point of take for consumptive purposes is Folsom Reservoir.

A diversion from Folsom Reservoir requires acquiescence from the USBR and issuance of a Warren Act Contract. EID has diverted water under this right under a temporary urgency basis and the Warren Act Contract is pending.

Recycled Water Supplies

EID produces recycled water at both the El Dorado Hills and Deer Creek wastewater treatment plants which is then used by EID's customers for irrigation of residential landscape and commercial landscape. The availability of recycled water is currently limited to the El Dorado Hills and Cameron Park areas. EID anticipates a 2035 recycled water supply totaling 5,600 acre-feet per year (see Section 4.3 for further details).

4.2.2 Planned Water Supplies

EID has plans to acquire and use two additional water supplies from EDCWA for use within its service area to make available for the Proposed Project – water under the El Dorado-SMUD Cooperation Agreement and water under EDCWA's Fazio CVP supply. This section describes these supplies.

El Dorado-SMUD Cooperation Agreement

As shown in **Table 4-1**, the additional supplies include a grouping of water right applications and assignment of existing water right applications totaling approximately 40,000 acre-feet of water. This supply is being developed by the El Dorado Water and Power Authority (EDWPA). EDWPA is a Joint Powers Authority consisting of El Dorado County, El Dorado County Water Agency and El Dorado Irrigation District (collectively, El Dorado Parties). EDWPA was formed to pursue additional water supplies for the western slope of El Dorado County as determined by the El Dorado County General Plan. This need is identified in the El Dorado County Water Agency Water Resources Development and Management Plan (Water Plan).[31] The Water Plan is

[31] http://www.edcgov.us/water/final_water_resources_plan.html

designed to coordinate water resource planning activities within El Dorado County and identifies water supply needs for the western slope of El Dorado County of approximately 34,000 acre-feet per year (AFA) at the 2025 demand level.

In 2005, the El Dorado Parties signed the "El Dorado – SMUD Cooperation Agreement" (included with **Appendix A**), which would help meet the Water Plan's identified water supply needs. This Agreement requires SMUD to make annual deliveries of up to 30,000 acre-feet of water through 2025 and 40,000 acre-feet thereafter from SMUD's Upper American River Project (UARP) to the El Dorado Parties. In 2008, EDWPA petitioned the SWRCB for partial assignment of two applications for diversion and storage to obtain water supplies necessary to trigger SMUD's obligations. A Draft Environmental Impact Report has been prepared in support of the water rights application and was circulated in July 2010. EDWPA is currently in the protest settlement phase and the CEQA process is anticipated to be completed in 2014 with award of water rights shortly thereafter.

The El Dorado-SMUD Cooperation Agreement also obliges SMUD to provide carryover storage and delivery to EID of up to 15,000 acre-feet of drought protection water supplies to be obtained by EDWPA. Based on demand projections, EID anticipates that only 30,000 acre-feet of the 40,000 acre-feet identified in the water right applications and the El Dorado – SMUD Cooperative Agreement will be available to EID in normal years. Moreover, EID has planned that a mere 5,000 acre-feet of the water supply will be available for EID's uses in each dry year. This number is derived from Appendix H of the El Dorado – SMUD Cooperation Agreement describing deliveries available from carryover storage. Both of these conservative assumptions are shown in **Table 4-1**. EID has planned this supply to be available starting in 2025.

Fazio CVP Supply
EID is also in the final stages of securing 7,500 acre-feet of CVP water supplies in conjunction with EDCWA. In 1990, Congress directed the Secretary of the Interior, through the USBR, to enter into a new CVP Municipal and Industrial (M&I) water service contract with EDCWA for up to 15,000 acre-feet of water annually (Section 206 of P.L. 101-514). The CVP water service contract requires requisite compliance by EDCWA and the USBR with CEQA, NEPA, and ESA statutes.

In 2009, a draft EIS/EIR was released for public review and comment for the CVP M&I water rights contract. In 2010, USBR advised EDCWA that it would take another 5 years before the CVP-Operations Criteria and Plan (OCAP) related litigation would allow the EIS to move forward. As a result, EDCWA made the decision to detach the EIR from the EIS – essentially separating the CEQA and NEPA processes. EDCWA certified the Final EIR and approved the project in January 2011. EDCWA then prepared and submitted to USBR a draft Biological Assessment (BA) in September 2011 and a draft Final EIS in October 2011. USBR submitted the draft Final EIS to NOAA Fisheries in December 2011. Final EIS completion and contract execution is pending completion of ESA consultation with NOAA Fisheries.

The CVP contract seeks to acquire 15,000 acre-feet of CVP project water, of which at least 7,500 acre-feet would be made available to EID by subcontracts with EDCWA.[32] Diversions by EID would occur at its existing intake in Folsom Reservoir, conveyed to the El Dorado Hills Water Treatment Plant, and delivered to a specific place of use location in El Dorado Hills and Cameron Park areas as shown in Figure ES-2 of EDCWA's EIR.

The contract negotiations and environmental compliance efforts are ongoing. These actions allow EID to use this water supply in this WSA as a planned supply that will be available to EID in the future to serve the Proposed Project. The approval of the contract terms as well as finalization of the environmental documents will allow EID to apply the water supplies under this contract entitlement to municipal and industrial beneficial uses. EID has planned this water supply to be available starting in 2015.

4.2.3 Normal Year Water Supply Availability

As shown in **Table 4-1**, EID's total water entitlements under its existing and planned supplies does not equate to the amount of water available in normal years in the future. The normal year water supplies will be described in this section.

Excluding recycled supplies, EID's secured water rights and entitlements available for the Proposed Project total 67,190 acre-feet. As shown in the sufficiency analysis in Section 5, this amount is insufficient to serve EID's future demand incorporating the Proposed Project and all planned future projects. Accordingly, this section assesses both EID's secured supplies and additional planned supplies. EID's water supplies associated with the entire secured and planned water assets totals 110,290 acre-feet per year.

The 67,190 acre-feet of secured supplies include appropriative water right license 2184 and pre-1914 appropriative water rights associated with Slab Creek, Hangtown Creek and Weber Creek. As described above, these rights are collectively combined for conveyance purposes in a Warren Act Contract, No. 06-WC-20-3315, that allows for storage in and diversion from Folsom Reservoir. The total volume is 4,560, net of a negotiated 15% conveyance loss under the terms of the Warren Act contract. For purposes of serving the Proposed Project, EID assumes full diversion at 4,560 in normal years under these water assets.

Appropriative water right licenses 11835 and 11836 are also secured supplies. These supplies can be diverted from several creeks in the Cosumnes River watershed (Camp, Hazel, and Sly

[32] Central Valley Project Water Supply Contracts Under Public Law 101-514 (Section 206): Proposed Contract Between the U.S. Bureau of Reclamation and the El Dorado County Water Agency, and Proposed Subcontracts Between the El Dorado County Water Agency and the El Dorado Irrigation District, and Between the El Dorado County Water Agency and the Georgetown Divide Public Utility District Final Environmental Impact Report at ES-1, January 2011.

Park) and are typically stored in Jenkinson Lake. The maximum rate of diversion is 500 cfs for a total possible diversion volume of 33,400. However, due to limitations in storage availability in Jenkinson Lake assessed through OASIS hydrologic modeling, the maximum available normal year supply for the Proposed Project is 23,000 acre-feet.[33] Although EID has diverted as much as 25,745 acre-feet from this reservoir, EID does not anticipate using more than 23,000 acre-feet under this right for its normal year diversions in the future.

Central Valley Project Contract 14-06-200-1375A-LTR1 is a secured supply available for immediate use for the Proposed Project. This CVP contract entitlement requires the USBR to deliver up to 7,550 acre-feet of water from its SWRCB water right permits on the American River to EID.

As described in Section 4.2.1, EID also has a number of pre-1914 appropriative water rights on the American River with storage components in Silver Lake, Lake Aloha, Caples Lake, and Echo Lake. For purposes of this document, these are collectively called the pre-1914 American River water rights.[34] The total volume of water available under the pre-1914 American River water rights is 15,080 acre-feet in normal years.

Appropriative water right permit 21112 is a secured supply for purposes of this WSA. Permit 21112 allows EID to divert up to 17,000 acre-feet of water per year from Folsom Reservoir to be used in EID's service area. EID has diverted water under this permit as part of a temporary urgency in 2008. EID must finalize its Warren Act Contract to divert this water at Folsom Reservoir. However, based upon the availability of the supply in Permit 21112, the ability to store the water in Caples, Silver, and Aloha lakes, and the pending conveyance agreement with USBR, the normal-year availability of this supply is 17,000 acre-feet.[35]

As described in Section 4.2.2, EID's planned water supplies include the CVP Fazio supply of 7,500 acre-feet as authorized under federal law. Once secured, EID should receive normal-year deliveries of the full entitlement just as USBR promises to other CVP M&I contract holders on the American River system. There is no reason to believe that this contract entitlement will be different than other CVP contract entitlements on the American River system.

Last, as described in Section 4.2.2, EID's planned water supplies derived from the EDWPA appropriative water right applications filings and assignments, as well as the El Dorado – SMUD Cooperation Agreement, indicate that EID should receive normal-year water deliveries of 30,000 acre-feet per year starting in 2025 and then as much as 40,000 acre-feet of deliveries thereafter.

[33] 2013 Water Resources Report

[34] California Water Code section 10910(d)(2)(A) requires "proof of entitlement" of each individual water right that is combined into this pre-1914 American River water rights grouping. These documents are contained in **Appendix A** of this Water Supply Assessment.

[35] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-7 of 22. Follow-up discussion with EID Counsel on water availability on April 23, 2013.

Based on demand projections, the District uses 30,000 acre-feet of normal-year deliveries under these collective applications and the El Dorado-SMUD Cooperation Agreement.

4.2.4 Dry-Year Water Supply Availability

As shown in **Table 4-1**, EID anticipates less water being available in dry years than is otherwise available in normal years as described in Section 4.2.3. Dry-year supplies include supply reductions attributable to hydrologic droughts and regulatory curtailments. The dry-year water supplies are described in this section.

EID's entire normal-year secured and planned water assets total 110,290 acre-feet per year. In dry years, EID's total water assets equal 77,885 acre-feet. Of this total supply, 61,660 acre-feet are secured water assets and 16,225 acre-feet are planned water assets.

As described in Section 4.2.3, the secured water assets include License 2184 and the additional pre-1914 appropriative rights that are included in Warren Act contract 06-WC-20-3315, Licenses 11835 and 11836, CVP Contract 14-06-200-1375A-LTR1, the pre-1914 American River water rights grouping, and Permit 21112. All of these water rights are subject to different regulatory and hydrological restrictions that could result, in some instances, in reduction of the water supplies available under the right or entitlement in dry years.

The water rights contained in the Warren Act Contract 06-WC-20-3315 have some level of regulatory restrictions and hydrological uncertainty. EID's 2010 UWMP indicates that the estimated dry-year yield associated with this water asset is 3,000 acre-feet per year based upon regional hydrologic conditions.[36] Accordingly, based upon the presumed hydrologic conditions, the dry-year reliability for this supply in three consecutive dry years is 3,000 acre-feet per year.

Licenses 11835 and 11836 have a full diversion entitlement of 33,400 acre-feet per year. Of that amount, carryover storage in Jenkinson Lake and diminished inflow reduce that entitlement to a normal-year supply of 23,000 acre-feet per year. In dry years, this amount is further reduced based upon hydrologic conditions as well as carryover storage needs for future years from Jenkinson Lake. Accordingly, based upon the OASIS hydrologic modeling report, EID reduces this supply's availability to 20,920 acre-feet in a single dry year. Thus, 20,920 acre-feet per year is used in this WSA as the dry-year safe yield number for a single dry year. To be conservative, EID plans for this supply to be further reduced during year two and again in year three of and three consecutive dry years. This WSA uses 17,000 acre-feet and 15,500 acre-feet as the available supply in year two and year three of a multi-year drought, respectfully.

CVP Contract 14-06-200-1375A-LTR1 has a normal-year entitlement of 7,500 acre-feet per year. The USBR, however, assesses the dry-year supply availability of its CVP M&I contracts

[36] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-6 of 22. Follow-up discussion with EID Counsel on water availability on April 23, 2013.

through the CVP M&I Shortage Policy. Based on inflow and storage criteria developed at the joint operations center, USBR can reduce contract water supplies under the CVP M&I Shortage Policy by up to 25% of historic use with various adjustments made for population, use of non-CVP water and extraordinary conservation actions.[37] With these adjustments in mind, USBR calculates the reduced CVP M&I delivery essentially based upon the average of the three previous normal years of use under the CVP contract. Under the strictest interpretation of this policy, if the water under the CVP contract was not used, then the dry year water is not available. But, USBR has considered that use of non-CVP supplies in lieu of CVP water use may be used to calculate use under this shortage policy. For purposes of this analysis, however, we have determined that based upon normal growth in demand in EID's service area, EID's customers would utilize the entire contract entitlement in normal years in the future. As such, EID calculates its dry-year reduction for this Proposed Project based upon three years of full use of its contract allocation. Accordingly, the dry year supply under this water contract entitlement is 5,660 acre-feet per year.

EID's pre-1914 American River water rights-grouping has a normal-year reliability of 15,080 acre-feet per year. Based upon the early priority date of these water assets and the storage capability within EID's system associated with these water assets, they are not reduced at all in a single dry year or three consecutive dry years.

Permit 21112 is another secure dry-year water asset. EID's 2010 UWMP states "there are no cutback provisions on this supply."[38] As such, the dry year reliability of Permit 21112 is 17,000 acre-feet per year.

As described in Section 4.2.2, EID's planned supplies include the CVP Fazio supply, and the several rights and contract that make up the UARP SMUD water. All of these assets combined have a three consecutive dry year supply reliability of 10,625 acre-feet per year.

The CVP Fazio supply is another CVP M&I contract supply that is subject to the same Municipal and Industrial shortage provisions described above for EID's other CVP contract entitlement. EID's expected portion of the Fazio supply has a normal-year contract allocation of 7,500 acre-feet per year. Assuming under the rules described above that EID is able to use its entire contract entitlement in the future, a 25% reduction from the contract entitlement reduces the delivery by 1,875 acre-feet per year. As such, the single dry year reliability and three consecutive dry year reliability under this contract is 5,625 acre-feet per year.

[37] Reclamation has the authority to reduce the supply volumes even further under extreme conditions – Health and Safety criteria – but this sort of supply reduction would only occur in extreme drought and would be offset by reductions in demand in EID's service area, as needed, to maintain basic Health and Safety conditions. The District's drought contingency plans address these situations.

[38] This assertion was confirmed in a telephone conversation with the District's Counsel on April 23, 2013.

Last, the UARP SMUD water that is derived from the numerous water right applications and assignments as well as the El Dorado-SMUD Cooperative Agreement indicates that the water available under these components in dry years could be severely curtailed. Appendix H of the Agreement states that annual deliveries can be superseded and deliveries from carryover drought storage can be reduced to as little as 5,000 acre-feet in a declared Critically Dry year if SMUD reservoir storage drops below 100,000 acre-feet (approximately 25%). Out of an abundance of caution, EID anticipates only 5,000 acre-feet of carryover drought-supply water would be available each year over the course of a three-year drought.

4.3 RECYCLED WATER SUPPLIES

EID uses recycled water to meet some current non-potable demands within its service area. EID may expand its development and use of recycled water in the future to meet a portion of the non-potable demands associated with the Proposed Project and other anticipated new demands. EID's current recycled water use is about 2,200 acre-feet per year. This use will expand incrementally over time. By 2035, EID anticipates a supply of 5,600 acre-feet of recycled water per year within its service area.[39]

EID's recycled water system consists of supply from the El Dorado Hills wastewater treatment plant and the Deer Creek wastewater treatment plant. These treatment plants have an interconnected network of transmission and distribution pipelines, pump stations, storage tanks, pressure reducing stations, and appurtenant facilities located within the communities of El Dorado Hills and Cameron Park.[40] EID mandates the use of recycled water through Board Policy 7010, wherever economically and physically feasible as determined by the Board, for non-domestic purposes.[41] At this time, non-domestic use includes commercial landscape irrigation, residential or multi-family dual-plumbed landscape irrigation, construction water, and recreational impoundments.

Recycled water availability is an outcome of increased municipal and domestic demand and wastewater production as a byproduct of this demand. In other words, annual recycled water production capabilities are based on the total wastewater flows to the treatment plants. With the population and industrial demands growing in this region, as described in Section 3, the availability of recycled water will increase. EID is taking a conservative view of the growth in recycled water based upon its current production levels, estimated regional population growth, facility expansion identified in its 2013 IWRMP and WWFMP, treated water discharge requirements, and its ability to capture and store recycled water supplies in the future. The total recycled water available for use in 2035 is estimated to be 5,600 acre-feet per year.[42]

[39] EID Integrated Water Resources Master Plan, March 31, 2013
[40] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-10 of 22.
[41] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-6 of 22.
[42] EID Integrated Water Resources Master Plan, March 31, 2013 at page 221.

Accordingly, Table 4-2 shows the incremental recycled water assets that would be available over time for the District's non-potable water uses.

Table 4-2 – Timing of Recycled Water and Quantities

Year	Recycled Water Supply (acre-feet)
Current	2,200
2015	2,400
2020	2,600
2025	3,100
2030	4,200
2035	5,600

4.4 Facility Costs and Financing

EID's recently completed 2013 IWRMP and WWFMP identify and allocate the future costs of capital expansion and replacement needs, and addresses financing mechanisms for EID's water assets. These costs and financing mechanisms are hereby incorporated by reference.

The District establishes and periodically updates its Facility Capacity Charges (FCCs) to recover the cost of those portions of existing District facilities that will be used by future customers and to fund needed expansion, or additional capacity, of District facilities to serve new users. The District periodically reviews its FCCs to ensure they accurately reflect the costs of providing service to new customers. Currently the District is updating the FCCs to incorporate projects identified in the adopted 2013 IWRMP. The FCC update is currently under review by the Board and a developer committee, and the District anticipates adoption of the updated FCCs in August 2013.

4.5 Regulatory Approvals and Permits

As described in Section 4.2.2, EID has water assets that require further regulatory approvals, permit compliance, and contract approvals. Each water asset has its own set of regulatory requirements that are assessed in this section.

Appropriative water right Permit 21112 issued by the SWRCB has not been perfected. In order to perfect an appropriative water right, EID must put all of the water assets under that permit to beneficial use. Upon putting the water to beneficial uses and meeting all of the other conditions in the water right permit, EID will be eligible to obtain a water right license for this appropriative water right. Attaining a water right license further fortifies the legitimacy of the water right for EID's continual use in the future. There is no indication that EID will have difficulty in obtaining a water right license for Permit 21112.

Permit 21112 also requires a Warren Act Contract to be negotiated and approved by the USBR. The Warren Act Contract will allow EID to divert water from Folsom Reservoir for delivery to the El Dorado Hills Water Treatment Plant. Although the District may choose to divert some of the water upstream of Folsom Reservoir through other SWRCB regulatory processes, a Warren Act Contract is essential for any diversions emanating from Folsom Reservoir. EID is currently in negotiations with USBR to obtain a long-term contract. While those negotiations continue, short-term Warren Act Contracts are also obtainable, if needed. There are no foreseeable reasons that these negotiations will not succeed. Both EID's Board of Directors and USBR officials will need to execute the contract once the terms have been drafted, and EID will need to obtain judgment in a judicial action to validate the contract.

The Fazio water supply also has additional regulatory approvals and permits pending. This CVP contract entitlement is authorized by Public Law 101-514. The 15,000 acre-feet of water supply is contemplated to be split equally between Georgetown Divide Public Utilities District and EID. As described in Section 4.2.2, EDCWA is negotiating with USBR on behalf of EID to secure the CVP contract entitlement authorized by this federal statute and finalize the EIS. Accordingly, EID will continue to work with EDCWA and USBR to finalize acquisition of this water supply. Upon completion of the EIS, the EDCWA's designee and USBR officials will need to execute the CVP water supply contract, and EDCWA may need to obtain judgment in a judicial action validating the contract.

The pending water right applications and application assignments before the SWRCB as well as the El Dorado – SMUD Cooperation Agreement constitute the last water supply that is pending further regulatory approvals. As described in Section 4.2.2, EDWPA is awaiting approvals from SWRCB for these water assets. Upon SWRCB approval, EID will obtain 30,000 acre-feet of water under the El Dorado – SMUD Cooperation Agreement.

The SWRCB water right process requires the SWRCB to conduct an internal project review of the applicable technical and hydrological information as well as consider the broader effects on other legal users of water throughout the watershed before issuing a permit. This regulatory process may eventually necessitate a SWRCB hearing where testimony from proponents and opponents of the water right permit is heard and weighed by the SWRCB Board Members before issuing the conditioned permits. Once permits have been issued, then the District must comply with the permit terms and perfect application of the water supplies to beneficial use in order to acquire water right licenses associated with the appropriative water rights.

The El Dorado – SMUD Cooperation Agreement is an agreement among the various parties to cooperate in facilitating the storage and delivery of these water assets to the identified purveyors. As such, through the processing of the water right applications and the furtherance of compliance with the terms of those agreements, the water assets considered there are likely to be available to

EID. The regulatory approvals and permits needed to finalize EID's control over these water assets are moving forward.

4.6 SUPPLY SUMMARY

EID has two broad categories of water assets that are available for the Proposed Project – the secured water assets and planned water assets. Collectively, these supplies total 110,290 acre-feet in normal water years and 77,885 acre-feet in a single dry water year. In year two and year three of a multi-year drought, supplies are further reduced to 73,965 acre-feet and 72,465 acre-feet, respectfully.

As described above, the secured water assets include appropriative water right License 2184 and the accompanying pre-1914 appropriative water rights held under Warren Act Contract 06-WC-20-3315, appropriative water right Licenses 11835 and 11836, CVP Contract 14-060200-1375A-LTR1, the pre-1914 American River storage and diversion appropriative water rights, and Permit 21112. The normal year water supplies available to EID under the secured assets total 67,190 acre-feet per year. In dry years, the water supplies available to EID under the secured assets totals 61,660 acre-feet per year.

The planned water assets, although partially secured, are not yet fully available for EID's use to serve the Proposed Project contemplated in this WSA. As described above, these assets are sufficiently secure to be considered planned supplies for the Proposed Project in 2035. In normal years, the water supplies under these assets total 37,500 acre-feet. In dry years, the water supplies under these assets total 10,625 acre-feet.

Finally, the recycled water assets in both normal and dry years, derived from planned growth and continual indoor water usage regardless of year type, total 5,600 acre-feet in 2035.

SECTION 5 – SUFFICIENCY ANALYSIS

5.1 INTRODUCTION

The analysis detailed in this section provides a basis for determining whether sufficient water supplies exist to meet the estimated water demand of the Proposed Project.[43]

This section includes:

- Analysis of sufficiency, considering variations in supply and demand characteristics under normal, single-dry and multi-dry hydrologic conditions,
- Analysis conclusions

5.2 SUFFICIENCY ANALYSIS

The sufficiency analysis integrates the water demands detailed in Section 2 and Section 3 with the water supplies characterized in Section 4. The results are presented in **Table 5-1** beginning with "current" conditions (recognized as 2012) and continuing with 5-year increments from 2015 through 2035. While the analysis at various intervals before build-out is important, the most critical projection for the sufficiency analysis occurs in 2035. This analysis assumes that the Proposed Project, along with the other projects simultaneously undergoing a WSA analysis (see Section 3.3), are fully constructed by 2035, and other anticipated growth continues as described in Section 3.4.

Table 5-1 incorporates the Proposed Project water demand projection in **Table 2-3**, assuming the Proposed Project develops as detailed in Section 1, and the estimated water demands for all other existing and planned future uses through 2035 as detailed in **Table 3-2**. **Table 5-1** also presents the available water supplies for the contiguous EID service area during normal, single-dry and multiple-dry years, as detailed in Section 4. The water demands and available supplies in a single dry-year and multiple dry-year condition are discussed in the following subsections.

[43] CWC § 10910 (c)(4) provides that "If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses."

Table 5-1 – Comparable Analysis of Supply and Demand

Year	Project Water Demand (af/yr)	All Other EID Water Demands (af/yr)	Total Water Demands (af/yr)	Non-Revenue Water @ 13%	Demands with Loss	EID Water Supplies							
						Surface Water					Recycled Water (af/yr)	Total Available Water Supply (af/yr)	Projected Surplus/ (Shortfall) (af/yr)
						Hydrologic Year Type		EDH Service Area (af/yr)	West/East Service Area (af/yr)	Total (af/yr)			
Current	0	38,984	38,984	N/A	38,984	Normal		29,110	38,080	67,190		69,390	30,406
	0	40,933	40,933	N/A	40,933	Single Dry		25,660	36,000	61,660		63,860	22,927
	0	40,933	40,933	N/A	40,933	Multiple Dry	Year 1	25,660	36,000	61,660	2,200	63,860	22,927
	0	38,068	38,068	N/A	38,068		Year 2	25,660	32,080	57,740		59,940	21,872
	0	34,793	34,793	N/A	34,793		Year 3	25,660	30,580	56,240		58,440	23,647
2015	125	34,831	34,956	4,544	39,500	Normal		36,610	38,080	74,690		77,090	37,590
	131	36,573	36,704	4,771	41,475	Single Dry		31,285	36,000	67,285		69,685	28,210
	131	36,573	36,704	4,771	41,475	Multiple Dry	Year 1	31,285	36,000	67,285	2,400	69,685	28,210
	122	34,012	34,134	4,437	38,572		Year 2	31,285	32,080	63,365		65,765	27,193
	111	31,087	31,198	4,056	35,254		Year 3	31,285	30,580	61,865		64,265	29,011
2020	638	37,359	37,997	4,940	42,937	Normal		36,610	38,080	74,690		77,290	34,353
	670	39,227	39,897	5,187	45,084	Single Dry		31,285	36,000	67,285		69,885	24,801
	670	39,227	39,897	5,187	45,084	Multiple Dry	Year 1	31,285	36,000	67,285	2,600	69,885	24,801
	623	36,481	37,104	4,824	41,928		Year 2	31,285	32,080	63,365		65,965	24,037
	569	33,343	33,912	4,409	38,321		Year 3	31,285	30,580	61,865		64,465	26,144
2025	1,137	42,721	43,859	5,702	49,561	Normal		19,610	85,080	104,690		107,890	58,329
	1,194	44,858	46,052	5,987	52,039	Single Dry		14,285	58,000	72,285		75,485	23,446
	1,194	44,858	46,052	5,987	52,039	Multiple Dry	Year 1	14,285	58,000	72,285	3,200	75,485	23,446
	1,111	41,718	42,828	5,568	48,396		Year 2	14,285	54,080	68,365		71,565	23,169
	1,015	38,129	39,144	5,089	44,233		Year 3	14,285	52,580	66,865		70,065	25,832
2030	1,646	49,570	51,216	6,658	57,874	Normal		19,610	85,080	104,690		108,790	50,916
	1,728	52,048	53,777	6,991	60,768	Single Dry		14,285	58,000	72,285		76,385	15,617
	1,728	52,048	53,777	6,991	60,768	Multiple Dry	Year 1	14,285	58,000	72,285	4,100	76,385	15,617
	1,607	48,405	50,012	6,502	56,514		Year 2	14,285	54,080	68,365		72,465	15,951
	1,469	44,241	45,710	5,942	51,652		Year 3	14,285	52,580	66,865		70,965	19,313
2035	1,927	57,627	59,554	7,742	67,295	Normal		19,610	85,080	104,690		110,290	42,995
	2,023	60,508	62,531	8,129	70,660	Single Dry		14,285	58,000	72,285		77,885	7,225
	2,023	60,508	62,531	8,129	70,660	Multiple Dry	Year 1	14,285	58,000	72,285	5,600	77,885	7,225
	1,881	56,273	58,154	7,560	65,714		Year 2	14,285	54,080	68,365		73,965	8,251
	1,720	51,432	53,152	6,910	60,061		Year 3	14,285	52,580	66,865		72,465	12,404

5.2.1 Single Dry Year Supply and Demand Conditions

Under this condition, EID would anticipate a variance from the normal-year analysis, including: (1) shortage in full availability of supplies as detailed in **Section 4**, and (2) an increase in water demand. The increase in demand is based on the following:

- Landscape irrigation demands will increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year. Since this increase only applies to the outdoor portion of a customer's demand, an adjustment factor of 5 percent is applied to the total normal-year water demand values.
- Historically, during single dry year circumstances, EID does not implement its shortage contingency plan,[44] since the extent of the dry conditions into future years is unknown. EID follows adopted policies and its 2008 *Drought Preparedness Plan* when implementing any voluntary or mandatory demand reduction measures.

As a result of these factors, the Proposed Project water demand and those of the other existing and planned uses is expected to increase in a single dry year above the demand expected under normal hydrologic circumstances. Additionally, as detailed in Section 4, EID anticipates a decrease in available water supplies. These changes are shown in **Table 5-1**.

5.2.2 Multi-Dry Year Supply and Demand Conditions

When a single dry year expands into a series of dry years, water supply and demand conditions will continue to evolve. Under such a multi-dry year, EID would anticipate many similar conditions that were assumed for the single-dry year, including: (1) shortage in full availability of supplies as detailed in Section 4, and (2) increases in projected demands. However, when entering the second and third year of a sequence of dry-years, EID would implement necessary policies to manage limited water supplies.[45] Demands over a series of three dry years are adjusted as follows:

- Year 1 – the first year mimics a "single-dry year" condition, where demands increase approximately 5 percent and EID shortage policies are not yet invoked (see Section 5.2.1).
- Year 2 – The demands again mimic a "single-dry year" and would be expected to increase by 5 percent above normal year conditions. However, when recognizing a second dry-year, EID would invoke the first stage of the Drought Preparedness Plan. This stage states: "*The objective of Stage 1 is to initiate public awareness of predicted water shortage conditions, and encourage voluntary water conservation to decrease*

[44] See EID Board Policy AR 5011-Water Supply Management Conditions (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).
[45] See EID Board Policy AR 5011-Water Supply Management Conditions (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).

normal demand up to 15%."[46] As part of this stage, EID implements drought water rates among other specified activities to encourage conservation. For purposes of this WSA, the demand reduction achieved under Stage 1 is estimated to be 7 percent of the already higher single dry-year demand.

- Year 3 – Upon entering the third dry year, EID would invoke the second stage of the Drought Preparedness Plan. This stage states: "*The objective of Stage 2 is to increase public understanding of worsening water supply conditions, encourage voluntary water conservation measures, and then if necessary, enforce mandatory conservation measures in order to decrease normal demand up to 30%.*"[47] Under this Stage, EID increases efforts to reduce demand. For purposes of this WSA, the savings achieved under Stage 2 is estimated to be 15 percent of the already higher single dry-year demand.

As a result of these factors, the Proposed Project water demand and those of the Other Existing and Planned Uses is expected to increase in the first year of a multi dry-year condition above that estimated during normal hydrologic circumstances. In subsequent years, the demand will drop as elements of EID's Drought Preparedness Plan are implemented. These changes are shown in **Table 5-1**.

5.2.3 Analysis

As shown in **Table 5-1**, the demand and supply are compared under each hydrologic condition for each 5-year increment out to 2035. The resulting "supply surplus" or "supply shortfall" is shown in the final column. Based on the analyses, EID anticipates it will have sufficient water under all hydrologic conditions in each of the 5-year increments through 2035. Notably, the "surplus" supply is lowest during the second year of a multi-dry year condition, since this is the circumstance where demand is only slightly constrained, while supplies are the most constrained. Yet, even under such circumstances, sufficient water should be available.

5.3 Sufficiency Analysis Conclusions

As detailed in **Section 2**, this WSA estimates water demands for the Proposed Project of 2,177 acre-feet per year at build-out (including non-revenue water demands). The annual water demand estimate for all existing and planned projects in the contiguous EID service area, as detailed in **Section 3**, is approximately 67,300 acre-feet per year by 2035. After accounting for these demand projections for the next twenty years, EID should have sufficient water to meet the demands of the Proposed Project and its other service area demands for at least the next 20 years.

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[46] See EID Board Policy AR 5011.2-Water supply slightly restricted Drought Stage 1 – Voluntary reductions in use (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).
[47] See EID Board Policy AR 5011.3-Water supply slightly restricted Drought Stage 2 – Voluntary and mandatory reductions (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).

The conclusion that EID should have sufficient water available to meet the needs of the Proposed Project, in addition to the other demands in its service area through 2035, rests on the following set of assumptions:

- EID, EDCWA, and EDWPA successfully execute the contracts and obtain the water right permit approvals for currently unsecured water supplies discussed in Section 4. Absent these steps, the water supplies currently held by EID and recognized to be diverted under existing contracts and agreements would be insufficient in 2035 to meet the Proposed Project demands along with all other existing and planned future uses.
- EID will commit to implement Facility Capacity Charges in an amount sufficient to assure the financing is available as appropriate to construct the necessary infrastructure as detailed in the March 2013 EID *Integrated Water Resources Master Plan*.
- Demand in single-dry years includes an additional 5 percent of demand over the normal year demand during the same time period. This conservative assumption accounts for the likelihood that EID customers will irrigate earlier in the season to account for dry spring conditions. This hypothetical demand augmentation may or may not manifest in dry years, but this conservative assumption further tests the sufficiency of water supplies during dry conditions.
- The estimated demands include 13 percent to account for non-revenue water losses (e.g. distribution system losses).

The finding of this WSA is that EID should have sufficient water to meet the demands of Proposed Project and its other service area demands for the next 20 years.

TYPICAL WATER DEMANDS FOR RURAL RESIDENTIAL PARCELS (and for other uses)

Estimated daily per person water use indoors		
Type of use	*Average gallons per day (GPD)*	*GPD if using water efficient fixtures**
Toilet	18.5	8.2*
Clothes Washer	15	10*
Shower	11.6	8.8*
Faucet	10.9	10.8*
Other domestic	1.6	1.6
Bath	1.2	1.2
Dishwasher	1	0.7*
Leakage	9.5	4*
Total	69.3	45.2

Adapted from American Water Works Association, 2008.

Estimated daily outdoor water use	
Type of use	*Average gallons per day*
Lawn and Garden (per 1000 sq. ft.) Assumes 1-inch per day (typical)	600
Livestock Drinking (per animal):	
Beef, yearlings	20
Brood Sows, nursing	6
Cattle or Steers	12
Dairy	20
Dry Cows or Heifers	15
Goat or Sheep	2
Hogs/Swine	4
Horse or Mules	12
Livestock Facilities	
Dairy Sanitation (milkroom)	500
Floor Flushing (per 100 sq. ft.)	10
Sanitary Hog Wallow	100
Poultry (per 100 birds):	
Chicken	5 - 10
Ducks	22
Turkeys	10 - 25

Adapted from Small Water System, Conference of State Sanitary Engineers, 1977, 1979, 1981.

Estimated Water use by Crops					
Elevation	*Inches of water required per season**				
	Pome fruits	Stone fruits	Grapes	Pasture	Christmas trees
500-1000	N/A	N/A	N/A	50	N/A
1000-1500	N/A	N/A	22	46	N/A
1500-2000	44	44	18	43	N/A
2000-2500	39	39	15	N/A	9
2500-3000	36	36	13	N/A	7
3000-3500	33	33	10	N/A	6
3500-4000	31	31	N/A	N/A	6

Some of the water needs are met by rainfall, but the vast majority requires irrigation. Pome fruits include apples and pears. Stone fruits include cherries, peaches, plum, and nectarines.
**Assume 1 inch of water in 1000 square feet area is approximately 600 gallons
El Dorado Irrigation District, Irrigation Management System, Kirk Taylor, 2008

Other types of establishments	
Typical water demand	*Average gallons per day*
Airport (per passenger)	3 - 5
Apartment, multiple family (per resident)	50
Bathhouse (per bather)	10
Boardinghouse (per boarder) Additional kitchen reqs. for nonresident boarders	50 10
Camp: Construction, semipermanent (per worker) Day, no meals served (per camper) Luxury (per camper) Resort, day and night, limited plumbing (per camper) Tourist, central bath and toilet facilities (per person)	 50 15 100 - 150 50 35
Cottage, seasonal occupancy (per resident)	50
Club: Country (per resident member) Country (per nonresident member present)	 100 25
Factory (gallons per person per shift)	15 - 35
Highway rest area (per person)	5
Hotel: Private baths (2 persons per room) No private baths (per person)	 50 50
Institution other than hospital (per person) Hospital (per bed)	75 - 125 250 - 400
Laundry, self-serviced (gallons per washing [per customer]	50
Motel: Bath, toilet, and kitchen facilities (per bed space) Bed and toilet (per bed space)	 50 40
Park: Overnight, flush toilets (per camper) Trailer, own bath units, no sewer connection (per trailer) Trailer, own baths, connected to sewer (per person)	 25 25 50

Typical water demand	*Average gallons per day*
Picnic:	
Bathhouses, showers, and flush toilets (per picnicker)	20
Toilet facilities only (gallons per picnicker)	10
Restaurant:	
Toilet facilities (per patron)	7 - 10
No toilet facilities (per patron)	2-1/2 - 3
Bar and cocktail lounge (additional quantity per patron)	2
School:	
Boarding (per pupil)	75 - 100
Day, cafeteria, gymnasiums, and showers (per pupil)	25
Day, cafeteria, no gymnasiums or showers (per pupil)	20
Day, no cafeteria, gymnasiums or showers (per pupil)	15
Service station (per vehicle)	10
Store (per toilet room)	400
Theater:	
Drive-in (per car space)	5
Movie (per auditorium seat)	5
Worker:	
Construction (per person per shift)	50
Day (school or offices per person per shift)	15

Adapted from Small Water System, Conference of State Sanitary Engineers, 1977, 1979, 1981.

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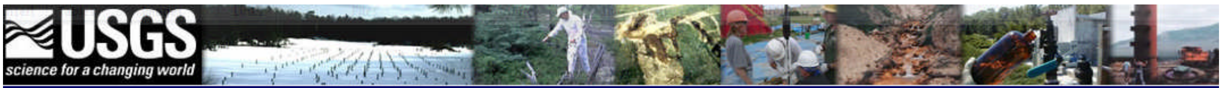


Environmental Health - Toxic Substances

Research Projects

Contamination in Fractured Rock Aquifers

Fractured-rock aquifers are widely distributed near land surface and are highly susceptible to contamination from human activities. Researchers are developing an improved understanding of the movement of water and contaminants in fractured-rock aquifers, methods for characterization of field conditions, and modeling tools. Contaminant transport and fate is fundamentally different in fractured rock than in unconsolidated (sand and gravel) aquifers. Significantly more uncertainty exists as to the direction and rate of contaminant migration, as well as the processes and factors that control chemical and microbial transformations. At many contaminated sites across the Nation, remedial action is delayed or stymied by the complexity of contaminated fractured-rock aquifers. Long-term research on contamination in fractured-rock aquifers has been conducted at the Program's two field research sites:

USGS scientists processing a bedrock core taken from the NAWC site (circa 2005). The core was sampled near fractures and the rock matrix was analyzed for volatile organic compounds (VOCs) -- from the Naval Air Warfare Center (NAWC) Research Site

Bibliography *281 Publications*

> **Chlorinated Solvents in Fractured Sedimentary Rock -- Naval Air Warfare Center (NAWC) Research Site, West Trenton, New Jersey**
>
> **Multidisciplinary Characterization of Contaminant Transport in Fractured Rock -- Mirror Lake, New Hampshire** [Completed]

Other Program Fractured Rock Research

- Transport Phenomena in Fractured Rock
- Hydrology of Fractured Rocks
- Geophysical characterization of Fractured Rock: Branch of Geophysics Toxics Program Research
- Borehole Geophysics as Applied to Geohydrology
- Using Seismic Tomography to Characterize Fractured Bedrock
- Bedrock Regional Aquifer Systematics Study (BRASS)

Program Headlines Related to Fractured Rock Research

- Improving Bioaugmentation Strategies for Remediating Contaminated Fractured Rocks
- Measuring Aquifer Properties at Contaminated Sites without Interrupting Remediation
- Improved Simulation of Contamination in Fractured Rock
- Visualizing Contamination Pathways in the Subsurface
- USGS Patents the Multifunction Bedrock-Aquifer Transportable Testing Tool (BAT^3)
- New Paradigm for Fractured Rock Cleanup
- What Controls the Migration of Chlorinated Solvents in Fractured Rock?

Fact Sheets

- Borehole-radar methods--Tools for characterization of fractured rock: USGS Fact Sheet FS-054-00.
- Characterizing ground-water chemistry and hydraulic properties of fractured-rock aquifers using the multifunction bedrock-aquifer transportable testing tool (BAT3): USGS Fact Sheet FS-075-01.
- Contamination in fractured-rock aquifers--Research at the former Naval Air Warfare Center, West Trenton, New Jersey: USGS Fact Sheet 2007-3074.
- Fractured-rock aquifers--Understanding an increasingly important source of water: USGS Fact Sheet 112-02.
- The Mirror Lake Fractured-Rock Research Site--A multidisciplinary research effort in characterizing ground-water flow and chemical transport in fractured rock: USGS Fact Sheet FS-138-95.
- Simulating contaminant attenuation, double-porosity exchange, and water age in aquifers using MOC3D: USGS Fact Sheet 086-99.

New Publications

Upcoming Publications

- High-resolution delineation of chlorinated volatile organic compounds in a dipping, fractured mudstone--Depth- and strata-dependent spatial variability from rock-core sampling: Goode, D.J., Imbrigiotta, T.E., and Lacombe, P.J., Journal of Contaminant Hydrology, doi:10.1016/j.jconhyd.2014.10.005 (IN PRESS).

Newly Published

- High-resolution delineation of chlorinated volatile organic compounds in a dipping, fractured mudstone--Depth- and strata-dependent spatial variability from rock-core sampling: Goode, D.J., Imbrigiotta, T.E., and

Lacombe, P.J., 2014, Journal of Contaminant Hydrology, v. 171, p. 1-11, doi:10.1016/j.jconhyd.2014.10.005.

- Integration of stable carbon isotope, microbial community, dissolved hydrogen gas, and $^{2}H_{H2O}$ tracer data to assess bioaugmentation for chlorinated ethene degradation in fractured rocks: Révész, K.M., Sherwood Lollar, B., Kirshtein, J.D., Tiedeman, C.R., Imbrigiotta, T.E., Goode, D.J., Shapiro, A.M., Voytek, M.A., Lacombe, P.J., and Busenberg, E., 2014, Journal of Contaminant Hydrology, v. 156, p. 62-77, doi:10.1016/j.jconhyd.2013.10.004.
- Evaluation of known-boundary and resistivity constraints for improving cross-borehole DC electrical resistivity imaging of discrete fractures: Robinson, J., Johnson, T., and Slater, L., 2013, Geophysics, v. 78, no. 3, p. D115-D127, doi:10.1190/geo2012-0333.1.
- Abiotic dechlorination in rock matrices impacted by long-term exposure to tce: Schaefer, C.E., Towne, R.M., Lippincott, D.R., Lacombe, P.J., Bishop, M.E., and Dong, H., 2015, Chemosphere, v. 119, p. 744-749, doi:10.1016/j.chemosphere.2014.08.005.

Fractured-Rock Aquifers: Understanding an Increasingly Important Source of Water

This publication is also available in pdf format. Downlod the pdf file (3 MB) [Acrobat Reader]

Fractured-rock aquifers in the United States provide water for domestic use, locations for isolating hazardous and toxic waste, and sites for foundations and infrastructure.

Ground water is one of the Nation's most important natural resources. It provides drinking water to communities, supports industry and agriculture, and sustains streams and wetlands. A long record of contributions exists in understanding ground-water movement in sand and gravel aquifers; historically, these aquifers were easily accessible and the first to be investigated. With increased demand for water, communities are looking to fractured-rock aquifers, where water moves through fractures in the rock. Fractures, however, may not always convey or store large quantities of water. Understanding ground-water flow through fractured-rock aquifers is an area of ground-water research that will have increasing importance to our Nation over the coming years.

Fractures form complex paths for fluid movement in fractured-rock aquifers. Mapping rock types and fractures, where the rock is exposed, enables scientists to link fracture orientation, the interconnectivity of fractures, and fracture length with the availability of water.

Many areas of the United States rely on fractured-rock aquifers for water supply. In addition, areas experiencing population growth in the Northeast, Southeast, and mountainous regions of the West are likely to rely heavily on water supplies from fractured-rock aquifers. Finding water for thirsty communities, however, is not the only societal issue requiring an understanding of ground-water flow in fractured rock. Land-use practices affect water quality in fractured-rock aquifers, particularly where ground water flows rapidly through fractures. Fractured rock aquifers also are viewed as potential repositories for radioactive and other types of waste, where it is desirable for the ground water to be inaccessible or move at a very slow rate.

Complexity of Fractured Rock

Understanding how water flows—or doesn't flow—through fractured rock is a crucial factor in decisions made by ground-water resource managers and geological and structural engineers. Fractures may transmit large quantities of water; in other areas, they may be nearly impervious. Because of the complex distribution of fractures in almost every type of rock, no single method can unambiguously map fractures and their capacity for fluid movement. U.S. Geological Survey (USGS) scientists synthesize research from the fields of geology, geophysics, hydrology, and geochemistry to develop methods of identifying subsurface fractures and their role in the movement of ground water and chemical constituents.

The Washington Metropolitan Area Transit Authority (WMATA) is currently using metal pans on the walls (inset) of subway tunnels as a temporary means of diverting water leakage. The excessive leakage in tunnels is damaging electrical conduits and other infrastructure. Building foundations, large structures such as dams, and infrastructure for transportation, water supply and other utilities frequently are built in fractured rock. With an understanding of how water moves through fractures, geologic and structural engineers can design cost-effective ways of diverting water from such structures.

USGS Research in Fractured Rock

The ability to characterize and understand ground-water flow conditions in a cost-effective manner is needed to ensure sound decisions in ground-water management. For example, a manager that needs to provide a water supply must answer a series of questions. Where do fractures produce enough water for a production well? Where is the ground water recharged and what land use activities affect its quality? Are the availability and quality of the water supply sustainable? Similar questions also arise in characterizing sites of contaminated ground water and assessing fractured-rock aquifers as potential repositories for various types of waste.

Low-level radioactive waste is buried in unconsolidated sediments overlying a fractured dolomite aquifer near Argonne, Illinois. Throughout the United States, low-level radioactive waste, landfills, septic tank effluent, and other potential sources of ground-water contamination are frequently close to fractured-rock aquifers.

The USGS conducts research to develop field techniques and interpretive methods for characterizing fluid movement and chemical migration in fractured-rock aquifers to answer such questions. USGS research focuses on characterizing ground-water flow in fractured-rock aquifers over distances from meters to kilometers. Research is conducted at well-instrumented field research sites, such as the Mirror Lake water-shed in central New Hampshire, or on actual field problems with resource managers and regulators. Ground-water resource managers and geological and structural engineers are now applying the results of this research in fractured-rock aquifers throughout the United States.

The USGS publishes the results of its research in technical articles and other publications, and conducts seminars, workshops, and training classes. Numerous Federal and State agencies that work cooperatively with the USGS have attended USGS demonstrations of techniques used to characterize ground-water flow in fractured-rock aquifers.

With the experience in characterizing ground-water flow in fractured-rock aquifers, the USGS is now addressing other issues of societal importance in fractured-rock aquifers, which include processes affecting bacterial activity, and the transport of colloids and pathogens.

- A. M. Shapiro

For More Information
More information on characterizing ground-water flow and chemical transport in fractured-rock aquifers can be found at the following web sites:

USGS, National Research Program, Transport Phenomena in Fractured Rock:
http://water.usgs.gov/nrp/proj.bib/shapiro.html

USGS, National Research Program, Hydrology of Fractured Rocks:
http://water.usgs.gov/nrp/proj.bib/hsieh.html

Fluid Flow and Solute Transport in Fractured Rock, Mirror Lake, New Hampshire:
http://toxics.usgs.gov/sites/mirror_page.html

Natural Attenuation of Chlorinated Solvents in Fractured Rocks, Naval Air Warfare Center Research Site, Trenton, New Jersey:
http://toxics.usgs.gov/sites/nawc_page.html

USGS, Ground-Water Resources Program: http://water.usgs.gov/ogw/GWRP.html

USGS, Toxic Substances Hydrology Program: http://toxics.usgs.gov

USGS, Office of Ground Water, Branch of Geophysics:
http://water.usgs.gov/ogw/bgas

USGS Home Water Climate Change Science Systems Ecosystems Energy and Minerals Environmental Health Hazards

Accessibility FOIA Privacy Policies and Notices

Understanding and Managing the Effects of Groundwater Pumping on Streamflow

Groundwater is a critical resource in the United States because it provides drinking water, irrigates crops, supports industry, and is a source of water for rivers, streams, lakes, and springs. Wells that pump water out of aquifers can reduce the amount of groundwater that flows into rivers and streams, which can have detrimental impacts on aquatic ecosystems and the availability of surface water. Estimation of rates, locations, and timing of streamflow depletion due to groundwater pumping is needed for water-resource managers and users throughout the United States, but the complexity of groundwater and surface-water systems and their interactions presents a major challenge. The understanding of streamflow depletion and evaluation of water-management practices have improved during recent years through the use of computer models that simulate aquifer conditions and the effects of pumping groundwater on streams.

The Lower Colorado River and adjacent farmland near Yuma, Arizona. Court rulings on use of water in the river have recognized that water can be withdrawn from the Colorado River by "underground pumping." (Photograph courtesy of Andy Pernick, Bureau of Reclamation)

Introduction

Groundwater is an important source of water for many human needs, including drinking water, agriculture, and industry. Groundwater and surface-water systems are connected, and groundwater discharge is often the primary source of streamflow, particularly during periods with no rainfall or snowmelt (fig. 1*A*). Pumping from wells reduces the amount of groundwater that flows to streams and, in some cases, can draw streamflow into the underlying aquifer. Streamflow reduction caused by pumping, also referred to as "depletion" or "capture," has become an important water-resource management issue because of the negative effects that reduced flows can have on aquatic ecosystems, the availability of surface water, and the aesthetic value of streams and rivers.

Managing the effects of streamflow depletion by wells is one of the most common and often one of the most challenging aspects of conjunctively managing groundwater and surface-water systems. Scientific research and practical applications of this research to real-world settings over the past seven decades have improved the understanding of the capture process by hydrologists, providing valuable insights to water administrators for improving groundwater and surface-water management. This Fact Sheet summarizes some of the basic information about how groundwater pumping affects streams, misconceptions that have developed around the process of streamflow depletion, and methods for understanding and managing streamflow depletion by wells. A more detailed description of these and other issues related to the effects of pumping on streams is provided in U.S. Geological Survey Circular 1376.

A Vermilion Flycatcher in the riparian corridor of the San Pedro River, Arizona. (Photograph courtesy of Bob Herrmann, copyright 2011.)

Sources of Water to a Well

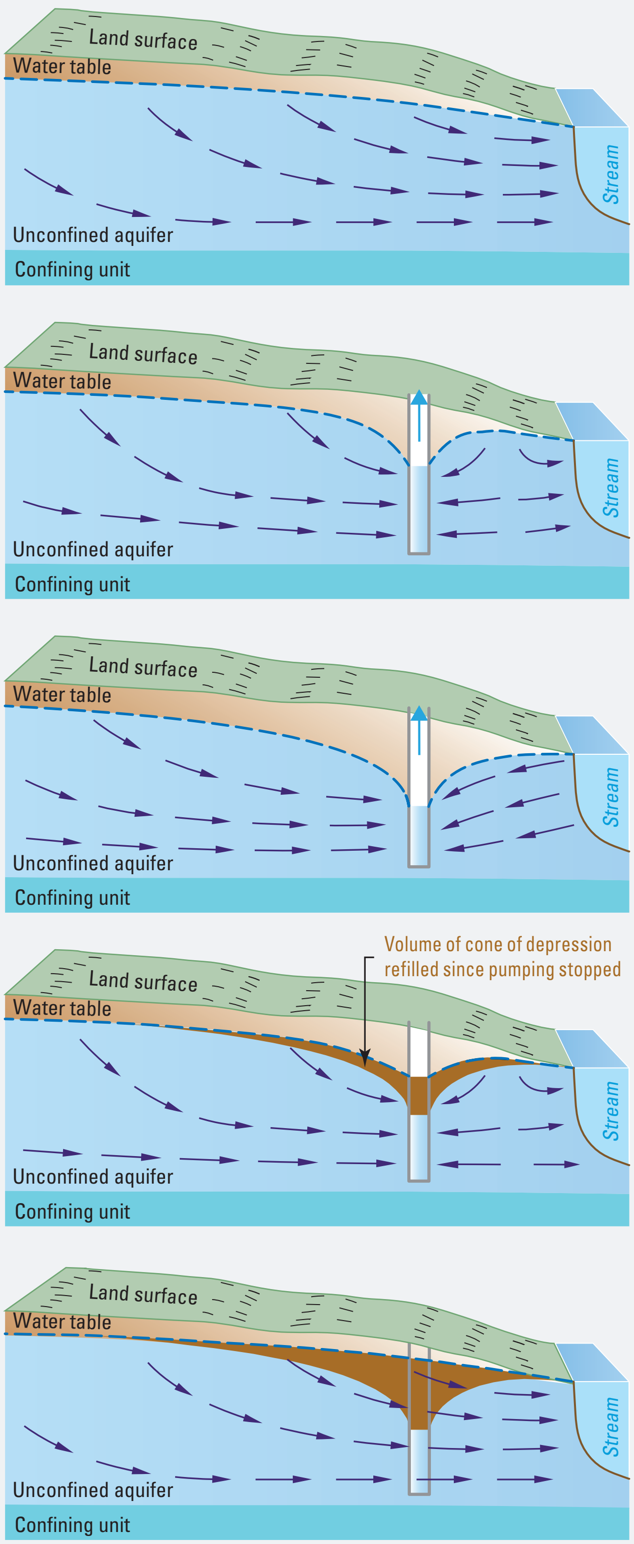
When a well begins to pump water from an aquifer, it first pulls water closest to the well from storage within the aquifer, forming a “cone of depression” in the water table around the well (fig. 1*B*). These water-level declines are largest at the well and decrease with distance from the well. Over time, the cone of depression deepens and expands outward from the well.

The release of water from aquifer storage continues to be the only source of water to the well until the cone of depression reaches one or more locations from which water can be captured—commonly streams that are hydraulically connected to the aquifer.

Captured streamflow consists of two possible components: groundwater that would otherwise have discharged to a stream or river (“captured groundwater discharge”) and streamflow that is drawn into an aquifer because of pumping (“induced infiltration” of streamflow; fig. 1*C*). Streamflow depletion, therefore, is the sum of captured groundwater discharge and induced infiltration. Captured groundwater discharge is often the primary component of streamflow depletion, but if pumping rates are relatively large or the locations of withdrawal are relatively close to a stream, then induced infiltration may become an important component of depletion.

Other hydrologic features also can be affected by pumping wells. Groundwater withdrawals can decrease groundwater discharge rates to lakes and springs and reduce the amount of water that would otherwise be available to groundwater-dependent plants in riparian areas.

Figure 1. Progressive changes to groundwater flow and streamflow before, during, and after pumping at a hypothetical well site.



A. Under natural conditions, recharge at the water table is equal to discharge at the stream.

B. Pumping from a well removes water from storage in a cone of depression and reduces discharge to the stream.

C. In some circumstances, the pumping rate of the well may be large enough to cause water to flow from the stream to the aquifer, a process called induced infiltration of streamflow.

D. After pumping stops, groundwater levels begin to recover, and water flows into aquifer storage to refill the cone of depression created by the previous pumping stress.

E. Eventually, the system may return to its prepumping condition with no additional changes in aquifer storage or streamflow depletion.

Time Response of Streamflow Depletion

The timing of streamflow depletion from pumping at a particular well is affected by many factors, including the geologic structure, dimensions, and hydraulic properties of the groundwater system and streambeds, and—importantly—the distance from the pumping location to the streams connected to the aquifer. Substantial streamflow depletion by a well that is tens of feet from a stream may occur in a matter of days, whereas depletion from a well that is tens of miles from the nearest stream may occur over decades or even centuries.

An example of the transition from aquifer storage to streamflow depletion as a source of pumped water is illustrated in figure 2. At any given time, the sum of aquifer storage change and streamflow depletion account for 100 percent of the pumping rate of the well, with a trend toward the condition in which all of the pumping rate is from depletion. The pumping time at which 50 percent of the pumping rate is from depletion is referred to as the “time to depletion-dominated supply.”

Common Misconceptions Regarding Streamflow Depletion by Wells

Despite the many advances that have been made in our understanding of the processes that affect streamflow depletion by wells, several misconceptions related to the effects of pumping on streamflow have developed over the years. These include the following:

Misconception 1: Total development of groundwater resources from an aquifer is "sustainable" or "safe" when the overall rate of groundwater extraction does not exceed the long-term average rate of recharge to the aquifer. In many aquifers, however, the level of groundwater development may be limited by the amount of reduced streamflow that a community or regulatory authority is willing to accept.

Misconception 2: Streamflow depletion is dependent on the rate and direction of water movement in an aquifer. Actually, for all but the most extreme pumping conditions, the rates, locations, and timing of streamflow depletion caused by pumping are independent of the prepumping rates and directions of flow within an aquifer—including the recharge rates to an aquifer. Moreover, depletion is unlikely to be affected by transient events such as changes in aquifer recharge rates or variations in river stage from flood flows in streams.

Misconception 3: Depletion stops immediately after pumping ceases. Streamflow depletion continues after pumping stops because it takes time for groundwater levels in the cone of depression to recover from the previous pumping stress and for the aquifer to be refilled (fig. 1*D*). During the time that the aquifer is being replenished, groundwater that otherwise would have flowed to streams instead goes into aquifer storage; thus, streamflow depletion is ongoing, even though pumping has ceased. In many cases, the time of maximum streamflow depletion actually occurs after pumping has stopped. Eventually, the aquifer and stream may return to their prepumping conditions (fig. 1*E*), but the time required for full recovery may be quite long, possibly much longer than the total time that the well was pumped. Over the time interval from when pumping starts until the system fully recovers to its prepumping levels, the volume of streamflow depletion will equal the volume of water pumped.

Misconception 4: Pumping groundwater exclusively below a clay layer or other confining layer will eliminate the possibility of depletion of surface water connected to the overlying groundwater system. Even though clay or other confining layers can slow the progression of depletion in comparison to equivalent aquifer systems without confining layers, it is not reasonable to expect that pumping beneath an extensive confining layer will entirely eliminate depletion. Furthermore, pumping below discontinuous confining beds may actually increase the speed of the depletion process relative to a condition in which the beds are absent.

Managing Streamflow Depletion by Wells

Managing streamflow depletion by wells is challenging because of the natural complexity of groundwater systems, the often-difficult task of identifying streamflow depletion from data collected at gaging stations, and the time delays that may occur between the onset of pumping until significant (that is, measurable) effects occur in nearby streams. Therefore, effective management of streamflow depletion requires both a long-term planning perspective and a basinwide understanding of how streamflow depletion responds to pumping each well individually and at all wells simultaneously. Many groundwater basins have hundreds or thousands of pumped wells. Individually, these wells may have little effect on streamflow depletion, but small effects of many wells within a basin can combine to produce substantial effects on streamflow and aquatic habitats. Moreover, basinwide groundwater development typically occurs over a period of several decades, and the resulting cumulative effects on streamflow depletion may not be fully realized for many years.

Although monitoring of streamflow depletion at gaging stations can be effective for determining both short-term and long-term changes in streamflow in response to groundwater pumping, the most robust approach for determining the rates, locations, and timing of streamflow depletion is numerical modeling.

Numerical models have been used across the United States to better understand and improve water-management options and practices because they can account for the effects of complex aquifer settings, stream geometries, and pumping histories from large numbers of wells on all types of hydrologic features, including streams. (See case study on the next page.)

Further Information

A fuller exposition of the effects of groundwater pumping on streamflow can be found in:

Barlow, P.M., and Leake, S.A., 2012, Streamflow depletion by wells—Understanding and managing the effects of groundwater pumping on streamflow: U.S. Geological Survey Circular 1376, 84 p. (Available at http://pubs.usgs.gov/circ/1376/.)

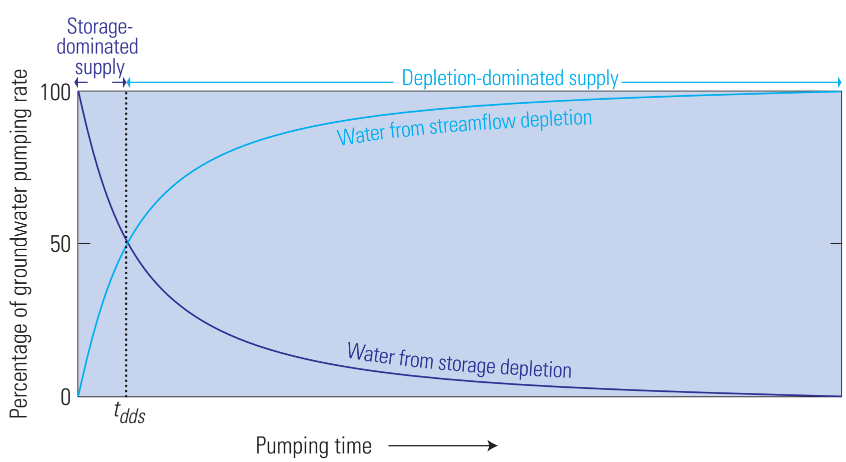
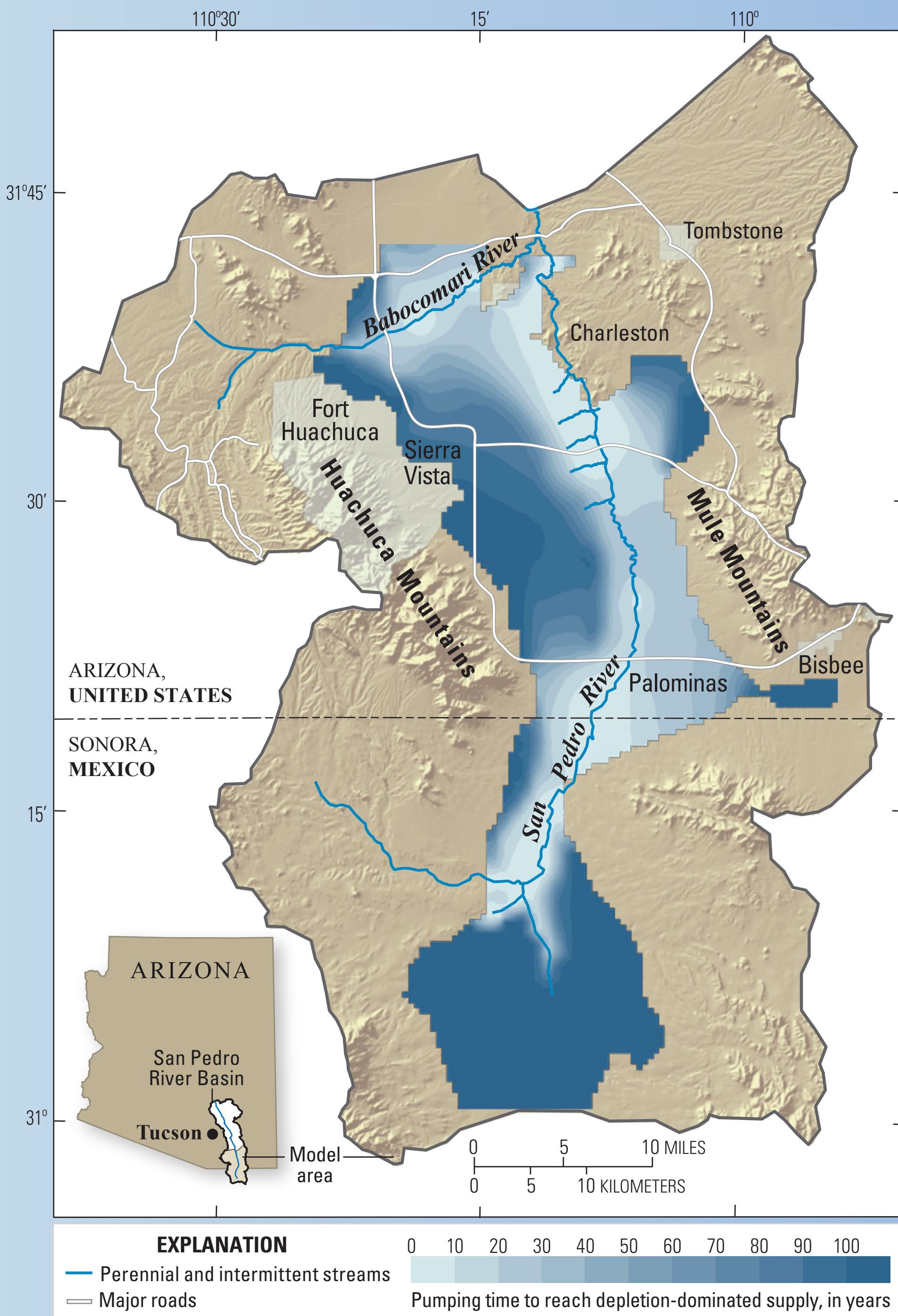


Figure 2. Relation of storage change and streamflow depletion as sources of pumped groundwater through time for a hypothetical well. The variable t_{dds} is the time to reach the condition of depletion-dominated supply for a particular pumping location. In some settings, the transition from storage-dominated to depletion-dominated supply can occur in a matter of days to months, whereas for others depletion-dominated supply may not occur for decades.

Case Study: Use of Numerical Modeling for Analysis of Streamflow Depletion in the Upper San Pedro River Basin

The upper San Pedro River Basin spans the international boundary between the United States and Mexico, covering an area of about 1,700 square miles. Groundwater discharge sustains perennial reaches in the San Pedro River and its tributaries, as well as the adjacent riparian area. The riparian area provides year-round habitat for wildlife species and is an important corridor for birds migrating between Mexico and the United States.

A numerical groundwater model was used by USGS hydrologists to study the timing of depletion from pumping in the aquifer of the upper San Pedro River Basin. Model runs were completed for about 1,500 hypothetical well locations throughout the aquifer. The pumping time required to reach depletion-dominated supply was determined for each of the potential well locations and the results plotted on a map. Maps such as these—which have been referred to as “capture maps”—provide a visual tool for scientists and water-resource managers to better understand the effects of pumping at individual locations within a larger set of possible pumping locations within the aquifer. In the resulting map, the lightest color, generally adjacent to connected rivers, indicates that depletion-dominated supply would occur within 10 years of pumping. In contrast, the darkest color indicates that depletion-dominated supply would not be reached within 100 years.



Pumping time required to reach depletion-dominated supply as a function of well location in the primary aquifer underlying the upper San Pedro River Basin.

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Ground Water and Surface Water A Single Resource

U.S. Geological Survey Circular 1139

by Thomas C. Winter
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Denver, Colorado
1998

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FOREWORD

Traditionally, management of water resources has focused on surface water or ground water as if they were separate entities. As development of land and water resources increases, it is apparent that development of either of these resources affects the quantity and quality of the other. Nearly all surface-water features (streams, lakes, reservoirs, wetlands, and estuaries) interact with ground water. These interactions take many forms. In many situations, surface-water bodies gain water and solutes from ground-water systems and in others the surface-water body is a source of ground-water recharge and causes changes in ground-water quality. As a result, withdrawal of water from streams can deplete ground water or conversely, pumpage of ground water can deplete water in streams, lakes, or wetlands. Pollution of surface water can cause degradation of ground-water quality and conversely pollution of ground water can degrade surface water. Thus, effective land and water management requires a clear understanding of the linkages between ground water and surface water as it applies to any given hydrologic setting.

This Circular presents an overview of current understanding of the interaction of ground water and surface water, in terms of both quantity and quality, as applied to a variety of landscapes across the Nation. This Circular is a product of the Ground-Water Resources Program of the U.S. Geological Survey. It serves as a general educational document rather than a report of new scientific findings. Its intent is to help other Federal, State, and local agencies build a firm scientific foundation for policies governing the management and protection of aquifers and watersheds. Effective policies and management practices must be built on a foundation that recognizes that surface water and ground water are simply two manifestations of a single integrated resource. It is our hope that this Circular will contribute to the use of such effective policies and management practices.

(Signed)

Robert M. Hirsch
ChiefHydrologist

CONTENTS

BOXES

PREFACE

- Understanding the interaction of ground water and surface water is essential to water managers and water scientists. Management of one component of the hydrologic system, such as a stream or an aquifer, commonly is only partly effective because each hydrologic component is in continuing interaction with other components. The following are a few examples of common water-resource issues where understanding the interconnections of ground water and surface water is fundamental to development of effective water-resource management and policy.

WATER SUPPLY

- It has become difficult in recent years to construct reservoirs for surface storage of water because of environmental concerns and because of the difficulty in locating suitable sites. An alternative, which can reduce or eliminate the necessity for surface storage, is to use an aquifer system for temporary storage of water. For example, water stored underground during times of high streamflow can be withdrawn during times of low streamflow. The characteristics and extent of the interactions of ground water and surface water affect the success of such conjunctive-use projects.
- Methods of accounting for water rights of streams invariably account for surface-water diversions and surface-water return flows. Increasingly, the diversions from a stream that result from ground-water withdrawals are considered in accounting for water rights as are ground-water return flows from irrigation and other applications of water to the land surface. Accounting for these ground-water components can be difficult and controversial. Another form of water-rights accounting involves the trading of ground-water rights and surface-water rights. This has been proposed as a water-management tool where the rights to the total water resource can be shared. It is an example of the growing realization that ground water and surface water are essentially one resource.
- In some regions, the water released from reservoirs decreases in volume, or is delayed significantly, as it moves downstream because some of the released water seeps into the streambanks. These losses of water and delays in traveltime can be significant, depending on antecedent ground-water and streamflow conditions as well as on other factors such as the condition of the channel and the presence of aquatic and riparian vegetation.
- Storage of water in streambanks, on flood plains, and in wetlands along streams reduces flooding downstream. Modifications of the natural interaction between ground water and surface water along streams, such as drainage of wetlands and construction of levees, can remove some of this natural attenuation of floods. Unfortunately, present knowledge is limited with respect to the effects of land-surface modifications in river valleys on floods and on the natural interaction of ground water and surface water in reducing potential flooding.

WATER QUALITY

- Much of the ground-water contamination in the United States is in shallow aquifers that are directly connected to surface water. In some settings where this is the case, ground water can be a major and potentially long-term contributor to contamination of surface water. Determining the contributions of ground water to contamination of streams and lakes is a critical step in developing effective water-management practices.
- A focus on watershed planning and management is increasing among government agencies responsible for managing water quality as well as broader aspects of the environment. The watershed approach recognizes that water, starting with precipitation, usually moves

through the subsurface before entering stream channels and flowing out of the watershed. Integrating ground water into this "systems" approach is essential, but challenging, because of limitations in knowledge of the interactions of ground water and surface water. These difficulties are further complicated by the fact that surface-water watersheds and ground-water watersheds may not coincide.

- To meet water-quality standards and criteria, States and local agencies need to determine the amount of contaminant movement (wasteload) to surface waters so they can issue permits and control discharges of waste. Typically, ground-water inputs are not included in estimates of wasteload; yet, in some cases, water-quality standards and criteria cannot be met without reducing contaminant loads from ground-water discharges to streams.

- It is generally assumed that ground water is safe for consumption without treatment. Concerns about the quality of ground water from wells near streams, where contaminated surface water might be part of the source of water to the well, have led to increasing interest in identifying when filtration or treatment of ground water is needed.

- Wetlands, marshes, and wooded areas along streams (riparian zones) are protected in some areas to help maintain wildlife habitat and the quality of nearby surface water. Greater knowledge of the water-quality functions of riparian zones and of the pathways of exchange between shallow ground water and surface-water bodies is necessary to properly evaluate the effects of riparian zones on water quality.

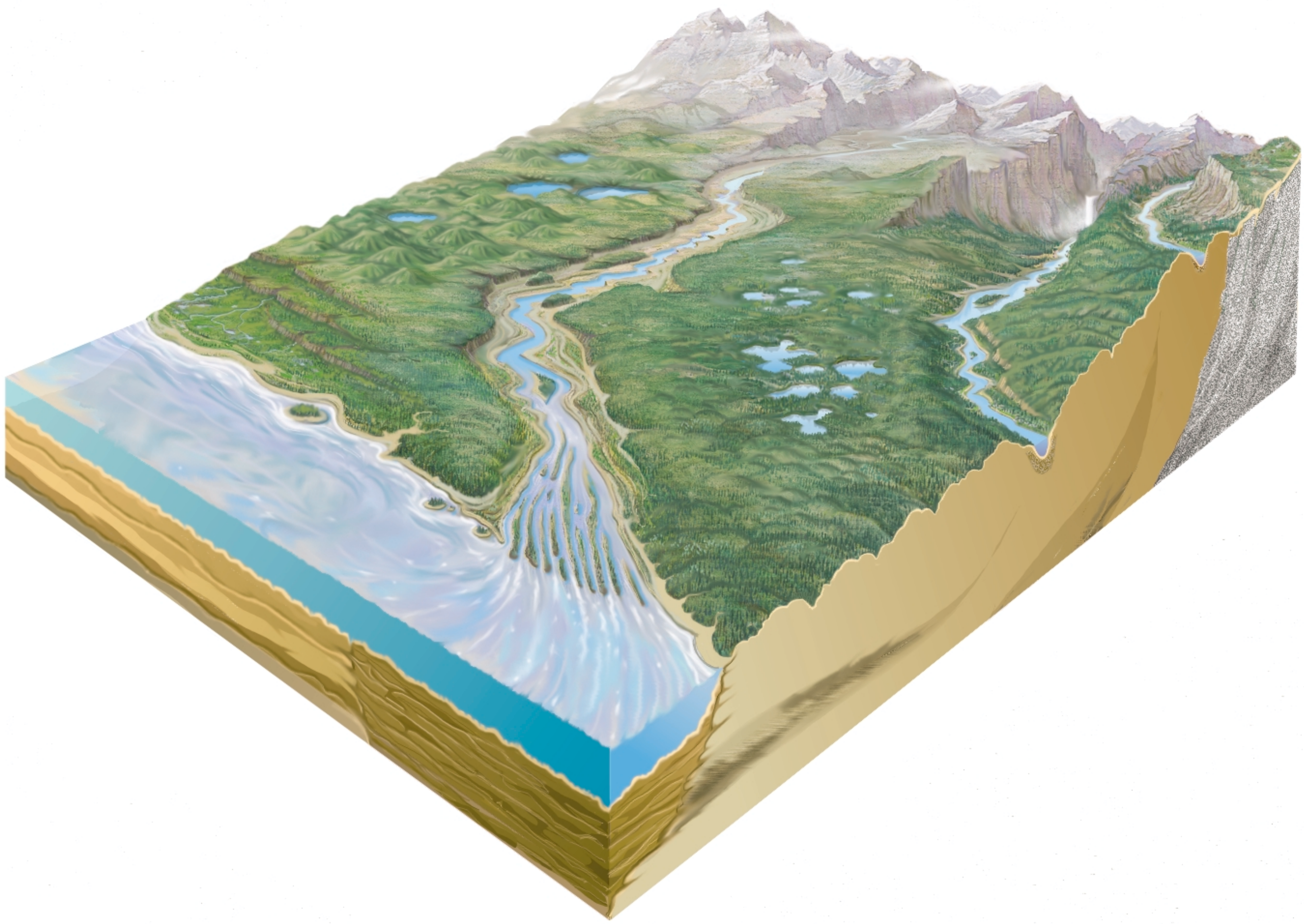
CHARACTERISTICS OF AQUATIC ENVIRONMENTS

- Mixing of ground water with surface water can have major effects on aquatic environments if factors such as acidity, temperature, and dissolved oxygen are altered. Thus, changes in the natural interaction of ground water and surface water caused by human activities can potentially have a significant effect on aquatic environments.

- The flow between surface water and ground water creates a dynamic habitat for aquatic fauna near the interface. These organisms are part of a food chain that sustains a diverse ecological community. Studies indicate that these organisms may provide important indications of water quality as well as of adverse changes in aquatic environments.

- Many wetlands are dependent on a relatively stable influx of ground water throughout changing seasonal and annual weather patterns. Wetlands can be highly sensitive to the effects of ground-water development and to land-use changes that modify the ground-water flow regime of a wetland area. Understanding wetlands in the context of their associated ground-water flow systems is essential to assessing the cumulative effects of wetlands on water quality, ground-water flow, and streamflow in large areas.

- The success of efforts to construct new wetlands that replicate those that have been destroyed depends on the extent to which the replacement wetland is hydrologically similar to the destroyed wetland. For example, the replacement of a wetland that is dependent on ground water for its water and chemical input needs to be located in a similar ground-water discharge area if the new wetland is to replicate the original. Although a replacement wetland may have a water depth similar to the original, the communities that populate the replacement wetland may be completely different from communities that were present in the original wetland because of differences in hydrogeologic setting.



Ground Water and Surface Water
A Single Resource

by T.C. Winter
J.W. Harvey
O.L. Franke
W.M. Alley

INTRODUCTION

As the Nation's concerns over water resources and the environment increase, the importance of considering ground water and surface water as a single resource has become increasingly evident. Issues related to water supply, water quality, and degradation of aquatic environments are reported on frequently. The interaction of ground water and surface water has been shown to be a significant concern in many of these issues. For example, contaminated aquifers that discharge to streams can result in long-term contamination of surface water; conversely, streams can be a major source of contamination to aquifers. Surface water commonly is hydraulically connected to ground water, but the interactions are difficult to observe and measure and commonly have been ignored in water-management considerations and policies. Many natural processes and human activities affect the interactions of ground water and surface water. The purpose of this report is to present our current understanding of these processes and activities as well as limitations in our knowledge and ability to characterize them.

"Surface water commonly is hydraulically connected to ground water, but the interactions are difficult to observe and measure"

NATURAL PROCESSES OF GROUND-WATER AND SURFACE-WATER INTERACTION

The Hydrologic Cycle and Interactions of Ground Water and Surface Water

The hydrologic cycle describes the continuous movement of water above, on, and below the surface of the Earth. The water on the Earth's surface—surface water—occurs as streams, lakes, and wetlands, as well as bays and oceans. Surface water also includes the solid forms of water—snow and ice. The water below the surface of the Earth primarily is ground water, but it also includes soil water.

The hydrologic cycle commonly is portrayed by a very simplified diagram that shows only major transfers of water between continents and oceans, as in Figure 1. However, for understanding hydrologic processes and managing water resources, the hydrologic cycle needs to be viewed at a wide range of scales and as having a great deal of variability in time and space. Precipitation, which is the source of virtually all freshwater in the hydrologic cycle, falls nearly everywhere, but its distribution is highly variable. Similarly, evaporation and transpiration return water to the atmosphere nearly everywhere, but evaporation and transpiration rates vary considerably according to climatic conditions. As a result, much of the precipitation never reaches the oceans as surface and subsurface runoff before the water is returned to the atmosphere. The relative magnitudes of the individual components of the hydrologic cycle, such as evapotranspiration, may differ significantly even at small scales, as between an agricultural field and a nearby woodland.

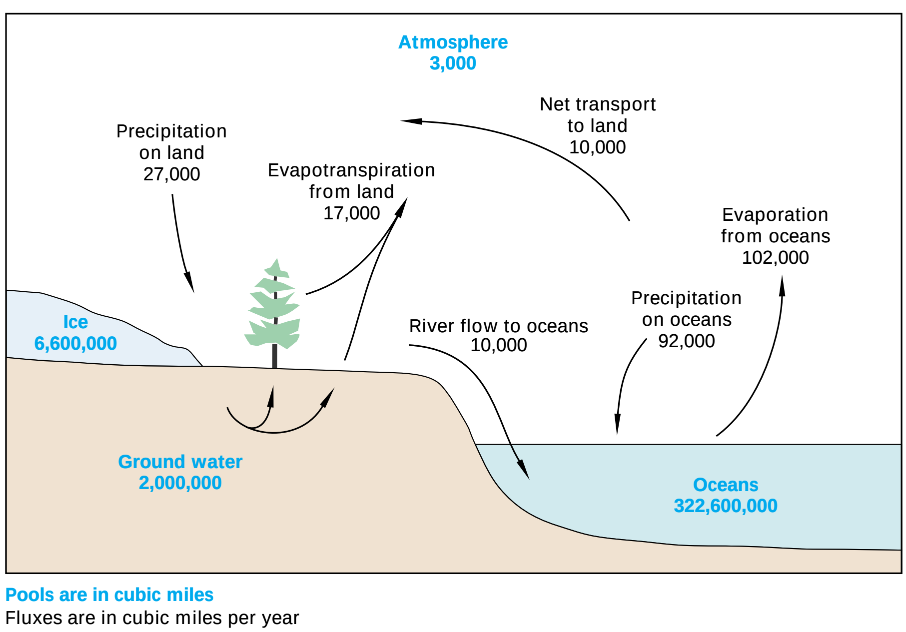
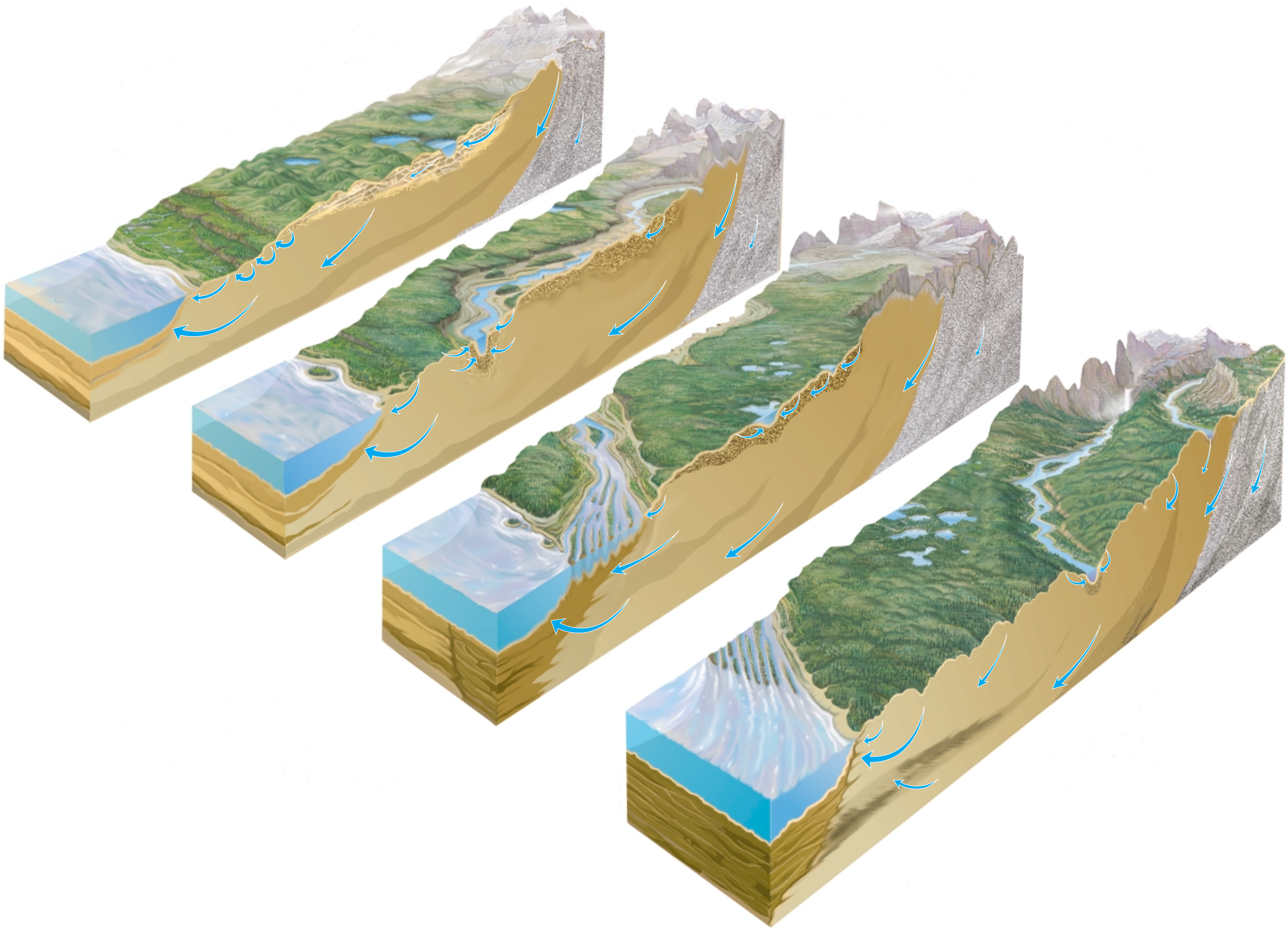


Figure 1. Ground water is the second smallest of the four main pools of water on Earth, and river flow to the oceans is one of the smallest fluxes, yet ground water and surface water are the components of the hydrologic system that humans use most. (Modified from Schelesinger, W.H., 1991, Biogeochemistry–An analysis of global change: Academic Press, San Diego, California.) (Used with permission.)

To present the concepts and many facets of the interaction of ground water and surface water in a unified way, a conceptual landscape is used (Figure 2). The conceptual landscape shows in a very general and simplified way the interaction of ground water with all types of surface water, such as streams, lakes, and wetlands, in many different terrains from the mountains to the oceans. The intent of Figure 2 is to emphasize that ground water and surface water interact at many places throughout the landscape.

Movement of water in the atmosphere and on the land surface is relatively easy to visualize, but the movement of ground water is not. Concepts related to ground water and the movement of ground water are introduced in Box A. As illustrated in Figure 3, ground water moves along flow paths of varying lengths from areas of recharge to areas of discharge. The generalized flow paths in Figure 3 start at the water table, continue through the ground-water system, and terminate at the stream or at the pumped well. The source of water to the water table (ground-water recharge) is infiltration of precipitation through the unsaturated zone. In the uppermost, unconfined aquifer, flow paths near the stream can be tens to hundreds of feet in length and have corresponding traveltimes of days to a few years. The longest and deepest flow paths in Figure 3 may be thousands of feet to tens of miles in length, and traveltimes may range from decades to millennia. In general, shallow ground water is more susceptible to contamination from human sources and activities because of its close proximity to the land surface. Therefore, shallow, local patterns of ground-water flow near surface water are emphasized in this Circular.

"Ground water moves along flow paths of varying lengths in transmitting water from areas of recharge to areas of discharge"



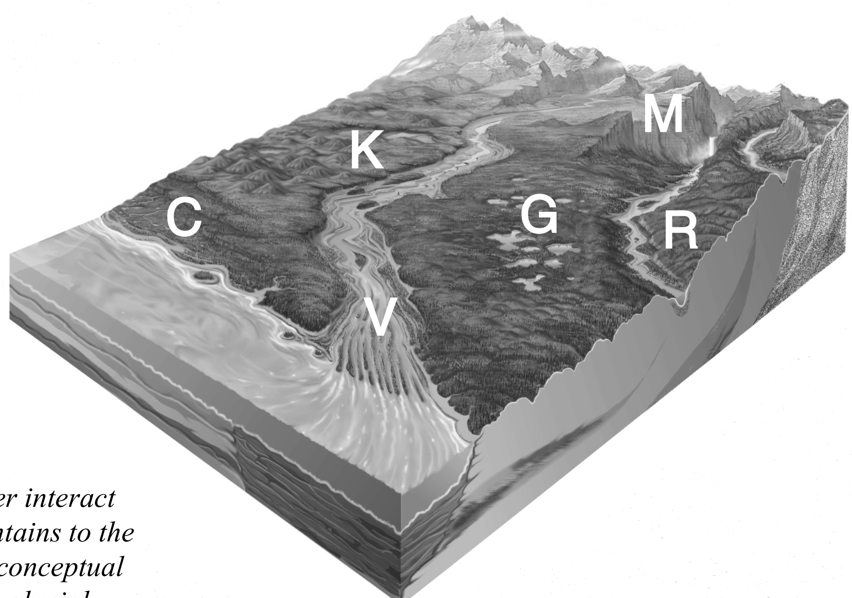


Figure 2. *Ground water and surface water interact throughout all landscapes from the mountains to the oceans, as depicted in this diagram of a conceptual landscape. M, mountainous; K, karst; G, glacial; R, riverine (small); V, riverine (large); C, coastal.*

Small-scale geologic features in beds of surface-water bodies affect seepage patterns at scales too small to be shown in Figure 3. For example, the size, shape, and orientation of the sediment grains in surface-water beds affect seepage patterns. If a surface-water bed consists of one sediment type, such as sand, inflow seepage is greatest at the shoreline, and it decreases in a nonlinear pattern away from the shoreline (Figure 4). Geologic units having different permeabilities also affect seepage distribution in surface-water beds. For example, a highly permeable sand layer within a surface-water bed consisting largely of silt will transmit water preferentially into the surface water as a spring (Figure 5).

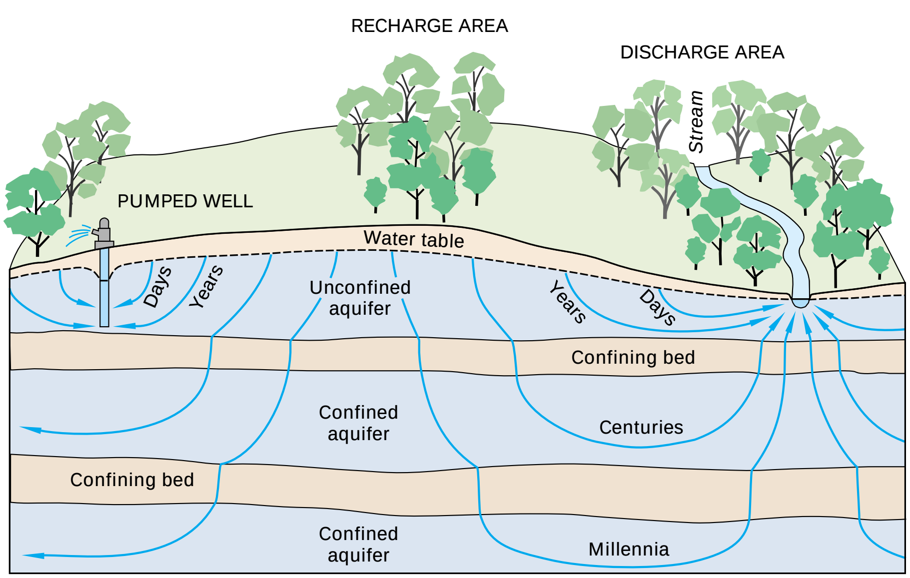


Figure 3. *Ground-water flow paths vary greatly in length, depth, and traveltime from points of recharge to points of discharge in the ground-water system.*

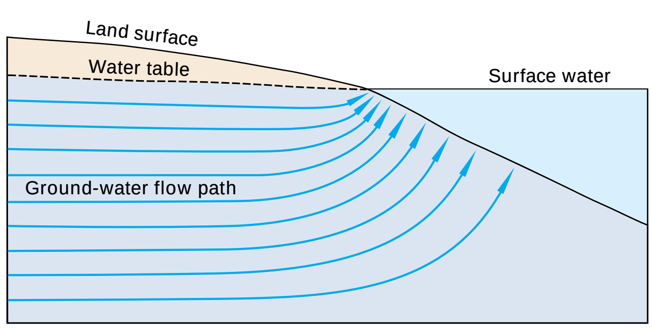


Figure 4. *Ground-water seepage into surface water usually is greatest near shore. In flow diagrams such as that shown here, the quantity of discharge is equal between any two flow lines; therefore, the closer flow lines indicate greater discharge per unit of bottom area.*

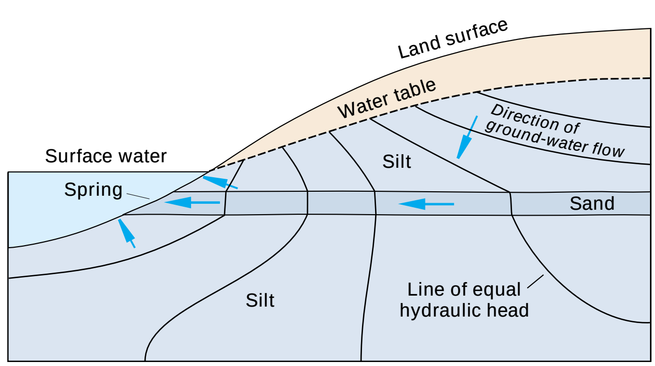


Figure 5. *Subaqueous springs can result from preferred paths of ground-water flow through highly permeable sediments.*

A

Concepts of Ground Water, Water Table, and Flow Systems

SUBSURFACE WATER

Water beneath the land surface occurs in two principal zones, the unsaturated zone and the saturated zone (Figure A–1). In the unsaturated zone, the voids—that is, the spaces between grains of gravel, sand, silt, clay, and cracks within rocks—contain both air and water. Although a considerable amount of water can be present in the unsaturated zone, this water cannot be pumped by wells because it is held too tightly by capillary forces. The upper part of the unsaturated zone is the soil-water zone. The soil zone is crisscrossed by roots, voids left by decayed roots, and animal and worm burrows, which enhance the infiltration of precipitation into the soil zone. Soil water is used by plants in life functions and transpiration, but it also can evaporate directly to the atmosphere.

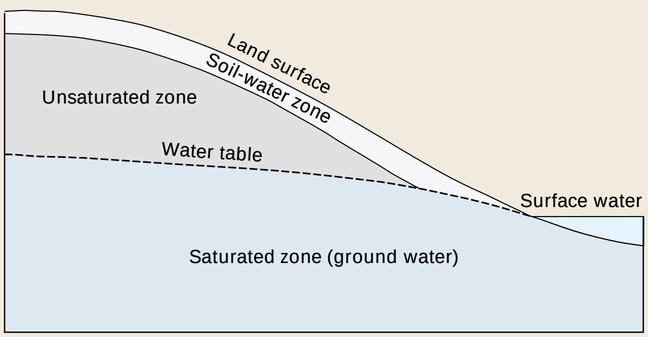


Figure A–1. The water table is the upper surface of the saturated zone. The water table meets surface-water bodies at or near the shoreline of surface water if the surface-water body is connected to the ground-water system.

In contrast to the unsaturated zone, the voids in the saturated zone are completely filled with water. Water in the saturated zone is referred to as ground water. The upper surface of the saturated zone is referred to as the water table. Below the water table, the water pressure is great enough to allow water to enter wells, thus permitting ground water to be withdrawn for use. A well is constructed by inserting a pipe into a drilled hole; a screen is attached, generally at its base, to prevent earth materials from entering the pipe along with the water pumped through the screen.

The depth to the water table is highly variable and can range from zero, when it is at land surface, to hundreds or even thousands of feet in some types of landscapes. Usually, the depth to the water table is small near permanent bodies of surface water such as streams, lakes, and wetlands. An important characteristic of the water table is that its configuration varies seasonally and from year to year because ground-water recharge, which is the accretion of water to the upper surface of the saturated zone, is related to the wide variation in the quantity, distribution, and timing of precipitation.

THE WATER TABLE

The depth to the water table can be determined by installing wells that penetrate the top of the saturated zone just far enough to hold standing water. Preparation of a water-table map requires that only wells that have their well screens placed near the water table be used. If the depth to water is measured at a number of such wells throughout an area of study, and if those water levels are referenced to a common datum such as sea level, the data can be contoured to indicate the configuration of the water table (Figure A–2).

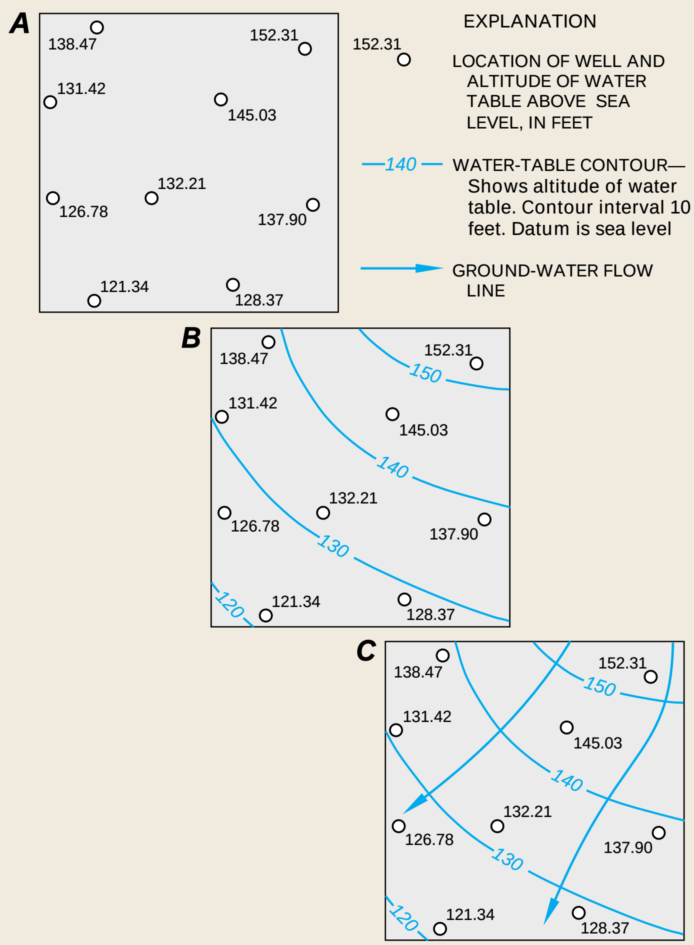


Figure A–2. Using known altitudes of the water table at individual wells (A), contour maps of the water-table surface can be drawn (B), and directions of ground-water flow along the water table can be determined (C) because flow usually is approximately perpendicular to the contours.

In addition to various practical uses of a water-table map, such as estimating an approximate depth for a proposed well, the configuration of the water table provides an indication of the approximate direction of ground-water flow at any location on the water table. Lines drawn perpendicular to water-table contours usually indicate the direction of ground-water flow along the upper surface of the ground-water system. The water table is continually adjusting to changing recharge and discharge patterns. Therefore, to construct a water-table map, water-level measurements must be made at approximately the same time, and the resulting map is representative only of that specific time.

GROUND-WATER MOVEMENT

The ground-water system as a whole is actually a three-dimensional flow field; therefore, it is important to understand how the vertical components of ground-water movement affect the interaction of ground water and surface water. A vertical section of a flow field indicates how potential energy is distributed beneath the water table in the ground-water system and how the energy distribution can be used to determine vertical components of flow near a surface-water body. The term hydraulic head, which is the sum of elevation and water pressure divided by the weight density of water, is used to describe potential energy in ground-water flow systems. For example, Figure A–3 shows a generalized vertical section of subsurface water flow. Water that infiltrates at land surface moves vertically downward to the water table to become ground water. The ground water then moves both vertically and laterally within the ground-water system. Movement is downward and lateral on the right side of the diagram, mostly lateral in the center, and lateral and upward on the left side of the diagram.

Flow fields such as these can be mapped in a process similar to preparing water-table maps, except that vertically distributed piezometers need to be used instead of water-table wells. A piezometer is a well that has a very short screen so the water level represents hydraulic head in only a very small part of the ground-water system. A group of piezometers completed at different depths at the same location is referred to as a piezometer nest. Three such piezometer nests are shown in Figure A–3 (locations A, B, and C). By starting at a water-table contour, and using the water-level data from the piezometer nests, lines of equal hydraulic head can be drawn. Similar to drawing flow direction on water-table maps, flow lines can be drawn approximately perpendicular to these lines of equal hydraulic head, as shown in Figure A–3.

Actual flow fields generally are much more complex than that shown in Figure A–3. For example, flow systems of different sizes and depths can be present, and they can overlie one another, as indicated in Figure A–4. In a local flow system, water that recharges at a water-table high discharges to an adjacent lowland. Local flow systems are the most dynamic and the shallowest flow systems; therefore, they have the greatest interchange with surface water. Local flow systems can be underlain by intermediate and regional flow systems. Water in deeper flow systems have longer flow paths and longer contact time with subsurface materials; therefore, the water generally contains more dissolved chemicals. Nevertheless, these deeper flow systems also eventually discharge to surface water, and they can have a great effect on the chemical characteristics of the receiving surface water.

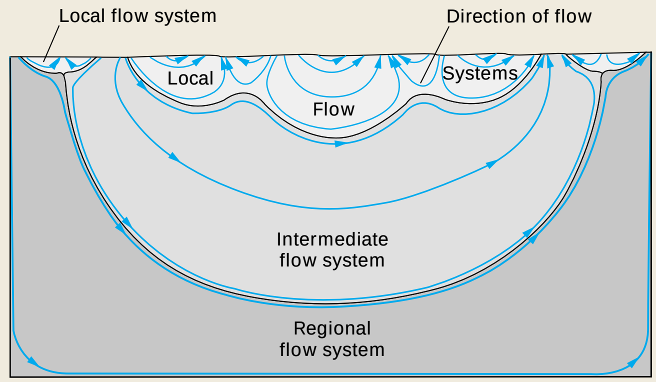


Figure A–4. Ground-water flow systems can be local, intermediate, and regional in scale. Much ground-water discharge into surface-water bodies is from local flow systems. (Figure modified from Toth, J., 1963, A theoretical analysis of groundwater flow in small drainage basins: p. 75–96 in Proceedings of Hydrology Symposium No. 3, Groundwater, Queen's Printer, Ottawa, Canada.)

GROUND-WATER DISCHARGE

The quantity of ground-water discharge (flux) to and from surface-water bodies can be determined for a known cross section of aquifer by multiplying the hydraulic gradient, which is determined from the hydraulic-head measurements in wells and piezometers, by the permeability of the aquifer materials. Permeability is a quantitative measure of the ease of water movement through aquifer materials. For example, sand is more permeable than clay because the pore spaces between sand grains are larger than pore spaces between clay particles.

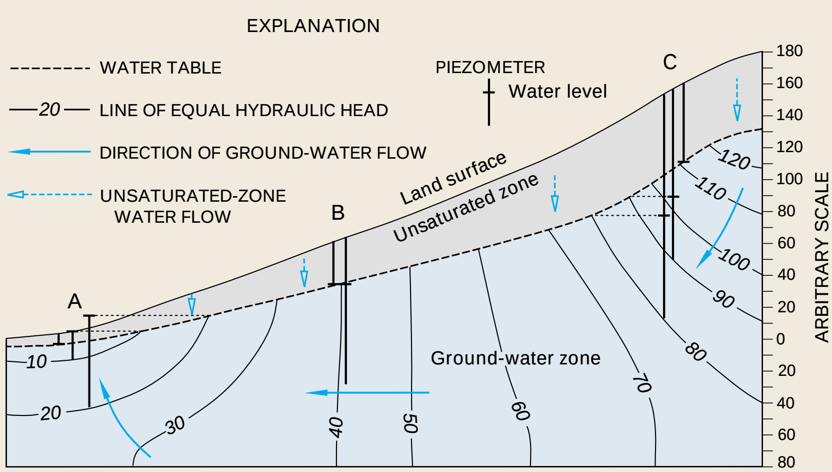


Figure A–3. If the distribution of hydraulic head in vertical section is known from nested piezometer data, zones of downward, lateral, and upward components of ground-water flow can be determined.

Changing meteorological conditions also strongly affect seepage patterns in surface-water beds, especially near the shoreline. The water table commonly intersects land surface at the shoreline, resulting in no unsaturated zone at this point. Infiltrating precipitation passes rapidly through a thin unsaturated zone adjacent to the shoreline, which causes water-table mounds to form quickly adjacent to the surface water (Figure 6). This process, termed focused recharge, can result in increased ground-water inflow to surface-water bodies, or it can cause inflow to surface-water bodies that normally have seepage to ground water. Each precipitation event has the potential to cause this highly transient flow condition near shorelines as well as at depressions in uplands (Figure 6).

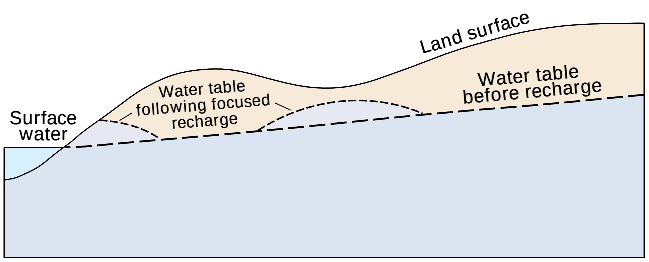


Figure 6. Ground-water recharge commonly is focused initially where the unsaturated zone is relatively thin at the edges of surface-water bodies and beneath depressions in the land surface.

Transpiration by nearshore plants has the opposite effect of focused recharge. Again, because the water table is near land surface at edges of surface-water bodies, plant roots can penetrate into the saturated zone, allowing the plants to transpire water directly from the ground-water system (Figure 7). Transpiration of ground water commonly results in a drawdown of the water table much like the effect of a pumped well. This highly variable daily and seasonal transpiration of ground water may significantly reduce ground-water discharge to a surface-water body or even cause movement of surface water into the subsurface. In many places it is possible to measure diurnal changes in the direction of flow during seasons of active plant growth; that is, ground water moves into the surface water during the night, and surface water moves into shallow ground water during the day.

These periodic changes in the direction of flow also take place on longer time scales: focused recharge from precipitation predominates during wet periods and drawdown by transpiration predominates during dry periods. As a result, the two processes, together with the geologic controls on seepage distribution, can cause flow conditions at the edges of surface-water bodies to be extremely variable. These "edge effects" probably affect small surface-water bodies more than large surface-water bodies because the ratio of edge length to total volume is greater for small water bodies than it is for large ones.

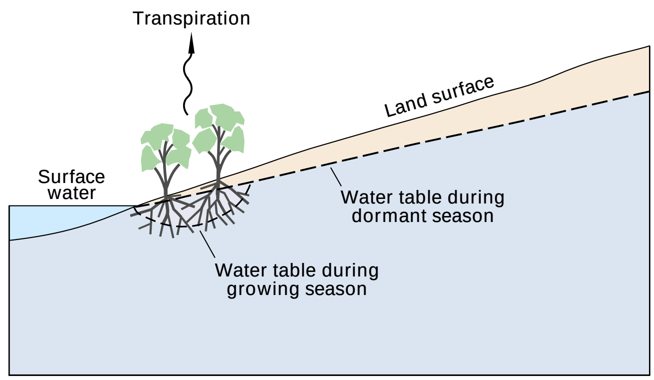


Figure 7. Where the depth to the water table is small adjacent to surface-water bodies, transpiration directly from ground water can cause cones of depression similar to those caused by pumping wells. This sometimes draws water directly from the surface water into the subsurface.

INTERACTION OF GROUND WATER AND STREAMS

Streams interact with ground water in all types of landscapes (see Box B). The interaction takes place in three basic ways: streams gain water from inflow of ground water through the streambed (gaining stream, Figure 8*A*), they lose water to ground water by outflow through the streambed (losing stream, Figure 9*A*), or they do both, gaining in some reaches and losing in other reaches. For ground water to discharge into a stream channel, the altitude of the water table in the vicinity of the stream must be higher than the altitude of the stream-water surface. Conversely, for surface water to seep to ground water, the altitude of the water table in the vicinity of the stream must be lower than the altitude of the stream-water surface. Contours of water-table elevation indicate gaining streams by pointing in an upstream direction (Figure 8*B*), and they indicate losing streams by pointing in a downstream direction (Figure 9*B*) in the immediate vicinity of the stream.

Losing streams can be connected to the ground-water system by a continuous saturated zone (Figure 9*A*) or can be disconnected from

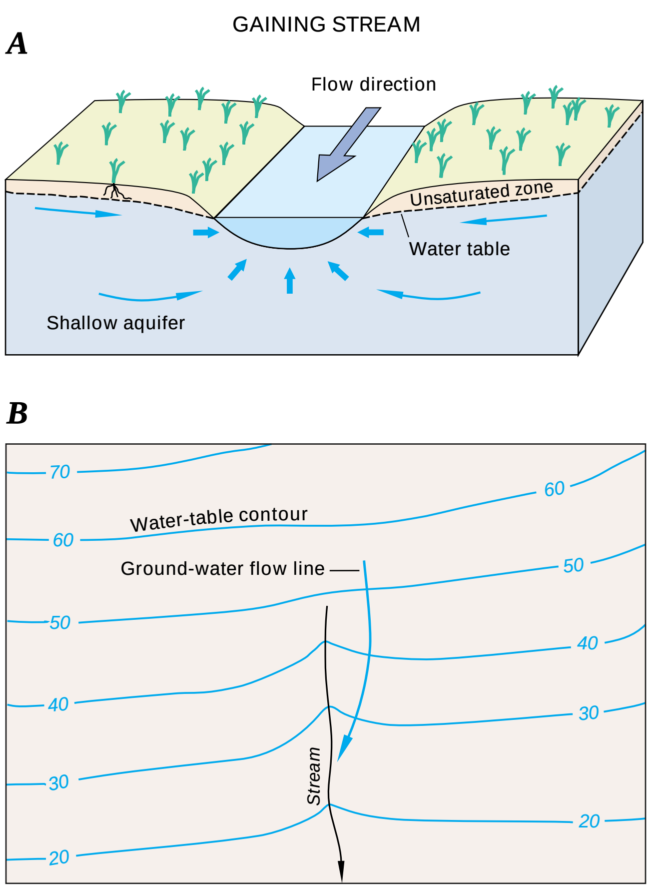


Figure 8. Gaining streams receive water from the ground-water system (A). This can be determined from water-table contour maps because the contour lines point in the upstream direction where they cross the stream (B).

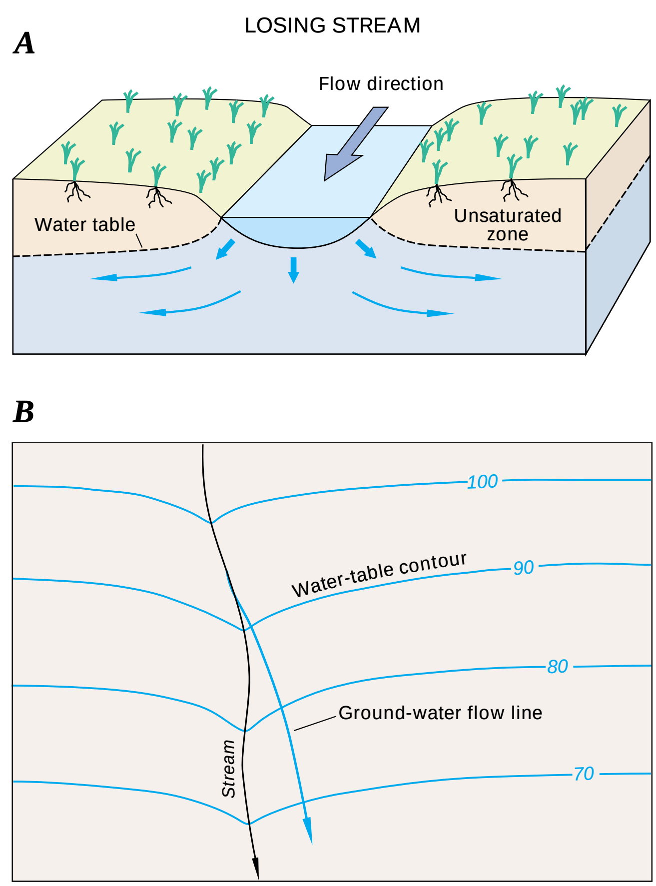


Figure 9. Losing streams lose water to the ground-water system (A). This can be determined from water-table contour maps because the contour lines point in the downstream direction where they cross the stream (B).

the ground-water system by an unsaturated zone. Where the stream is disconnected from the ground-water system by an unsaturated zone, the water table may have a discernible mound below the stream (Figure 10) if the rate of recharge through the streambed and unsaturated zone is greater than the rate of lateral ground-water flow away from the water-table mound. An important feature of streams that are disconnected from ground water is that pumping of shallow ground water near the stream does not affect the flow of the stream near the pumped wells.

In some environments, streamflow gain or loss can persist; that is, a stream might always gain water from ground water, or it might always lose water to ground water. However, in other environments, flow direction can vary a great deal along a stream; some reaches receive ground water, and other reaches lose water to ground water. Furthermore, flow direction can change in very short timeframes as a result of individual storms causing focused recharge near the streambank, temporary flood peaks moving down the channel, or transpiration of ground water by streamside vegetation.

A type of interaction between ground water and streams that takes place in nearly all streams at one time or another is a rapid rise in stream stage that causes water to move from the stream into the streambanks. This process, termed bank storage (Figures 11 and 12*B*), usually is caused by storm precipitation, rapid snowmelt, or release of water

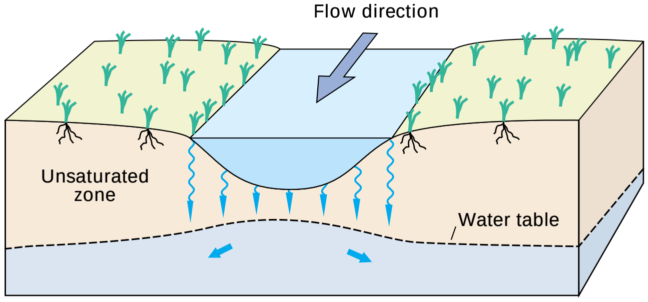


Figure **10.** *Disconnected streams are separated from the ground-water system by an unsaturated zone.*

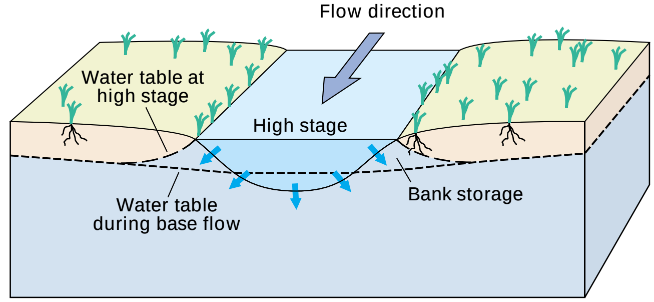


Figure **11**. *If stream levels rise higher than adjacent ground-water levels, stream water moves into the streambanks as bank storage.*

"Streams interact with ground water in three basic ways: streams gain water from inflow of ground water through the streambed (gaining stream), they lose water to ground water by outflow through the streambed (losing stream), or they do both, gaining in some reaches and losing in other reaches"

from a reservoir upstream. As long as the rise in stage does not overtop the streambanks, most of the volume of stream water that enters the streambanks returns to the stream within a few days or weeks. The loss of stream water to bank storage and return of this water to the stream in a period of days or weeks tends to reduce flood peaks and later supplement stream flows. If the rise in stream stage is sufficient to overtop the banks and flood large areas of the land surface, widespread recharge to the water table can take place throughout the flooded area (Figure 12*C*). In this case, the time it takes for the recharged floodwater to return to the stream by ground-water flow may be weeks, months, or years because the lengths of the ground-water flow paths are much longer than those resulting from local bank storage. Depending on the frequency, magnitude, and intensity of storms and on the related magnitude of increases in stream stage, some streams and adjacent shallow aquifers may be in a continuous readjustment from interactions related to bank storage and overbank flooding.

In addition to bank storage, other processes may affect the local exchange of water between streams and adjacent shallow aquifers. Changes in streamflow between gaining and losing conditions can also be caused by pumping ground water near streams (see Box C). Pumping can intercept ground water that would otherwise have discharged to a gaining stream, or at higher pumping rates it can induce flow from the stream to the aquifer.

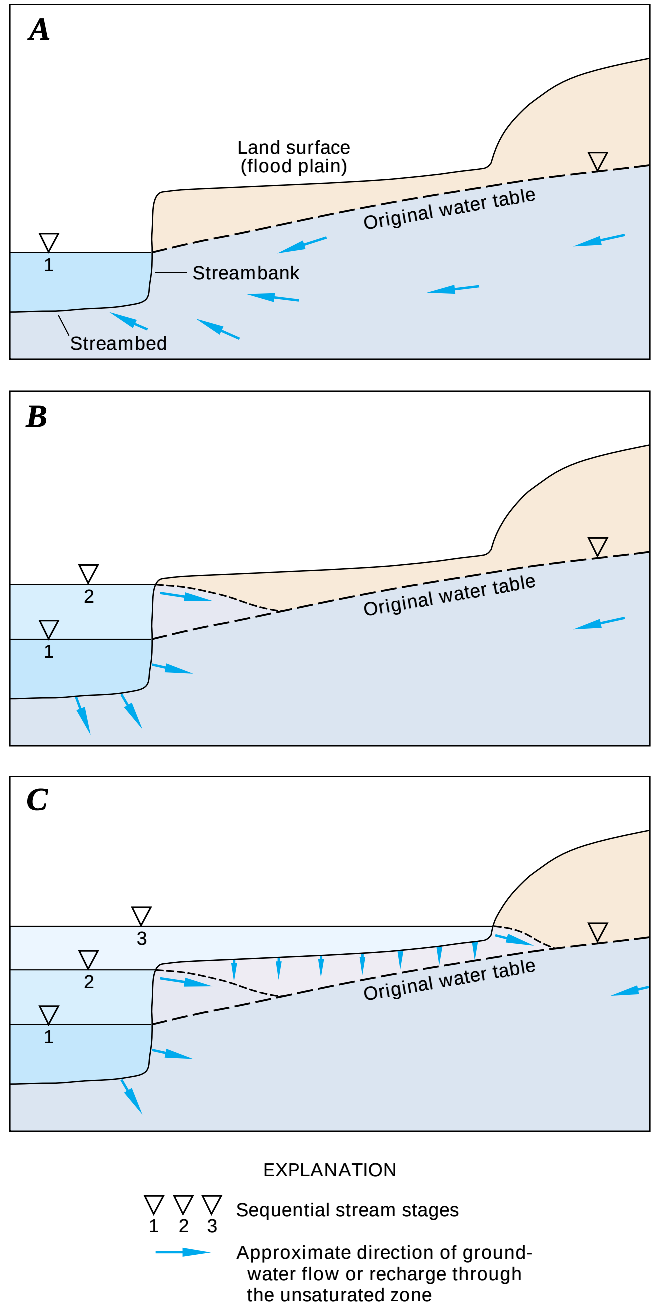


Figure **12.** *If stream levels rise higher than their streambanks (C), the floodwaters recharge ground water throughout the flooded areas.*

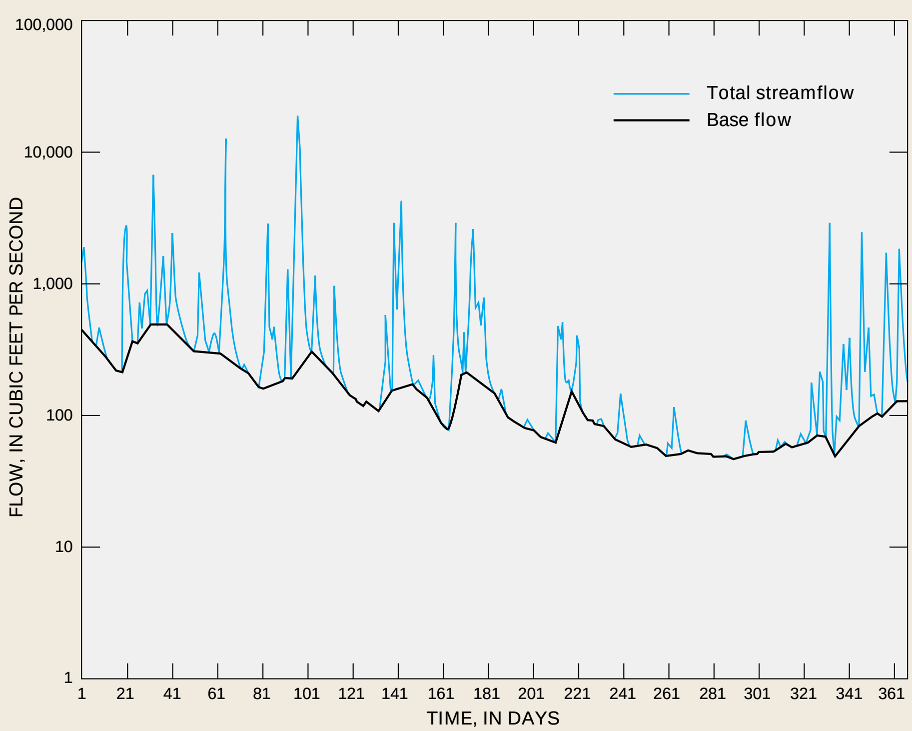
B

The Ground-Water Component of Streamflow

Ground water contributes to streams in most physiographic and climatic settings. Even in settings where streams are primarily losing water to ground water, certain reaches may receive ground-water inflow during some seasons. The proportion of stream water that is derived from ground-water inflow varies across physiographic and climatic settings. The amount of water that ground water contributes to streams can be estimated by analyzing streamflow hydrographs to determine the ground-water component, which is termed base flow (Figure B–1). Several different methods of analyzing hydrographs have been used by hydrologists to determine the base-flow component of streamflow.

One of the methods, which provides a conservative estimate of base flow, was used to determine the ground-water contribution to streamflow in 24 regions in the conterminous United States. The regions, delineated on the basis of physiography and climate, are believed to have common characteristics with respect to the interactions of ground water and surface water (Figure B–2). Fifty-four streams were selected for the analysis, at least two in each of the 24 regions. Streams were selected that had drainage basins less than 250 square miles and that had less than 3 percent of the drainage area covered by lakes and wetlands. Daily streamflow values for the 30-year period, 1961–1990, were used for the analysis of each stream. The analysis indicated that, for the 54 streams over the 30-year period, an average of 52 percent of the streamflow was contributed by ground water. Ground-water contributions ranged from 14 percent to 90 percent, and the median was 55 percent. The ground-water contribution to streamflow for selected streams can be compared in Figure B–2. As an example of the effect that geologic setting has on the contribution of ground water to streamflow, the Forest River in North Dakota can be compared to the Sturgeon River in Michigan. The Forest River Basin is underlain by poorly permeable silt and clay deposits, and only about 14 percent of its average annual flow is contributed by ground water; in contrast, the Sturgeon River Basin is underlain by highly permeable sand and gravel, and about 90 percent of its average annual flow is contributed by ground water.

Figure B–1. The ground-water component of streamflow was estimated from a streamflow hydrograph for the Homochitto River in Mississippi, using a method developed by the institute of Hydrology, United Kingdom. (Institute of Hydrology, 1980, Low flow studies: Wallingford, Oxon, United Kingdom, Research Report No. 1.)



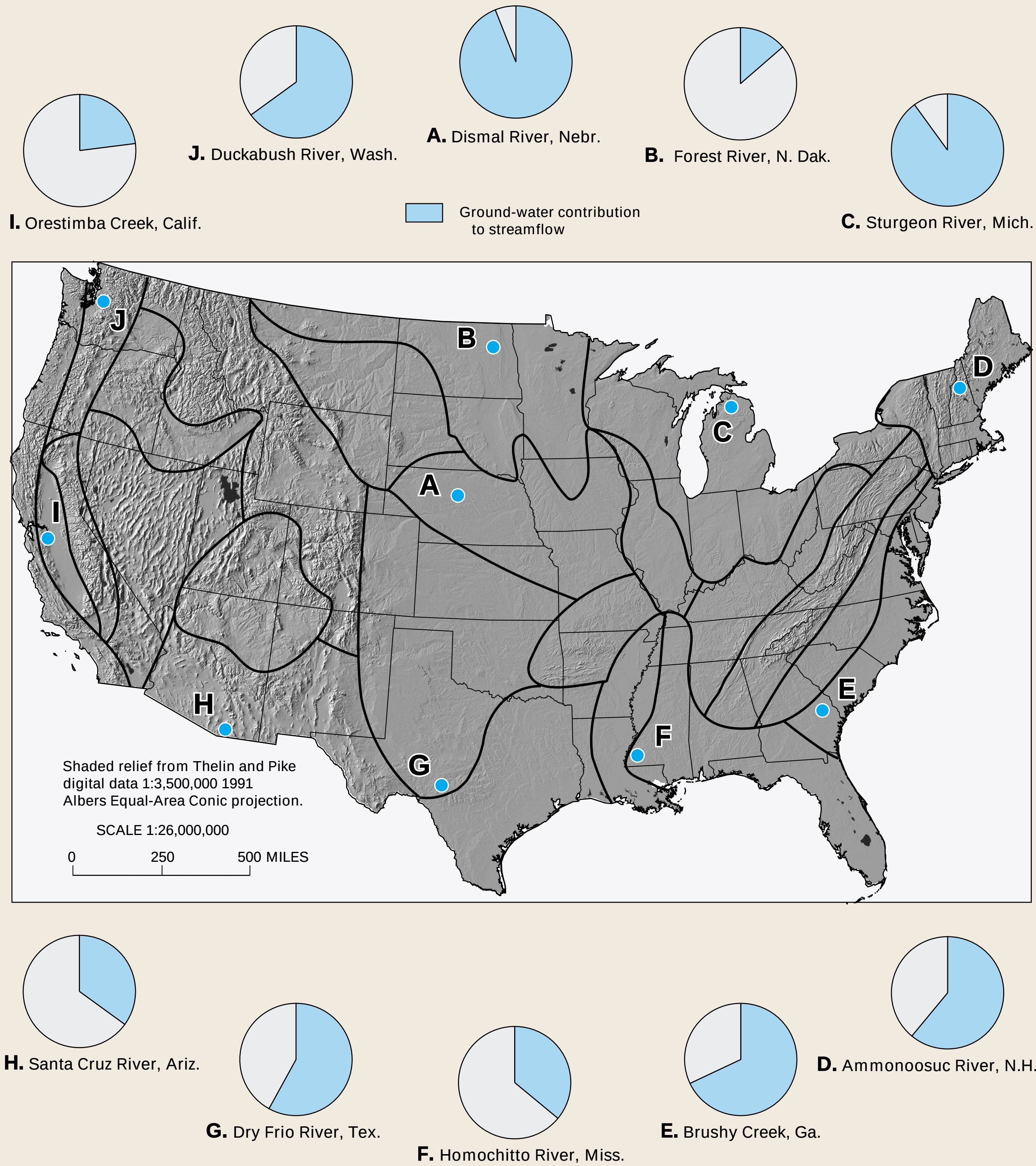


Figure B–2. In the conterminous United States, 24 regions were delineated where the interactions of ground water and surface water are considered to have similar characteristics. The estimated ground-water contribution to streamflow is shown for specific streams in 10 of the regions.

C

The Effect of Ground-Water Withdrawals on Surface Water

Withdrawing water from shallow aquifers that are directly connected to surface-water bodies can have a significant effect on the movement of water between these two water bodies. The effects of pumping a single well or a small group of wells on the hydrologic regime are local in scale. However, the effects of many wells withdrawing water from an aquifer over large areas may be regional in scale.

Withdrawing water from shallow aquifers for public and domestic water supply, irrigation, and industrial uses is widespread. Withdrawing water from shallow aquifers near surface-water bodies can diminish the available surface-water supply by capturing some of the ground-water flow that otherwise would have discharged to surface water or by inducing flow from surface water into the surrounding aquifer system. An analysis of the sources of water to a pumping well in a shallow aquifer that discharges to a stream is provided here to gain insight into how a pumping well can change the quantity and direction of flow between the shallow aquifer and the stream. Furthermore, changes in the direction of flow between the two water bodies can affect transport of contaminants associated with the moving water. Although a stream is used in the example, the results apply to all surface-water bodies, including lakes and wetlands.

A ground-water system under predevelopment conditions is in a state of dynamic equilibrium—for example, recharge at the water table is equal to ground-water discharge to a stream (Figure C–1*A*). Assume a well is installed and is pumped continually at a rate, Q_1. After a new state of dynamic equilibrium is achieved, inflow to the ground-water system from recharge will equal outflow to the stream plus the withdrawal from the well. In this new equilibrium, some of the ground water that would have discharged to the stream is intercepted by the well, and a ground-water divide, which is a line separating directions of flow, is established locally between the well and the stream (Figure C–1*B*). If the well is pumped at a higher rate, Q_2, at a later time a new equilibrium is reached. Under this condition, the ground-water divide between the well and the stream is no longer present and withdrawals from the well induce movement of water from the stream into the aquifer (Figure C–1*C*). Thus, pumpage reverses the hydrologic condition of the stream in this reach from a ground-water discharge feature to a ground-water recharge feature.

In the hydrologic system depicted in Figures C–1*A* and C–1*B*, the quality of the stream water generally will have little effect on the quality of the shallow ground water. However, in the case of the well pumping at the higher rate, Q_2 (Figure C–1*C*), the quality of the stream water, which locally recharges the shallow aquifer, can affect the quality of ground water between the well and the stream as well as the quality of the ground water withdrawn from the well.

This hypothetical withdrawal of water from a shallow aquifer that discharges to a nearby surface-water body is a simplified but compelling illustration of the concept that ground water and surface water are one resource. In the long term, the quantity of ground water withdrawn is approximately equal to the reduction in streamflow that is potentially available to downstream users.

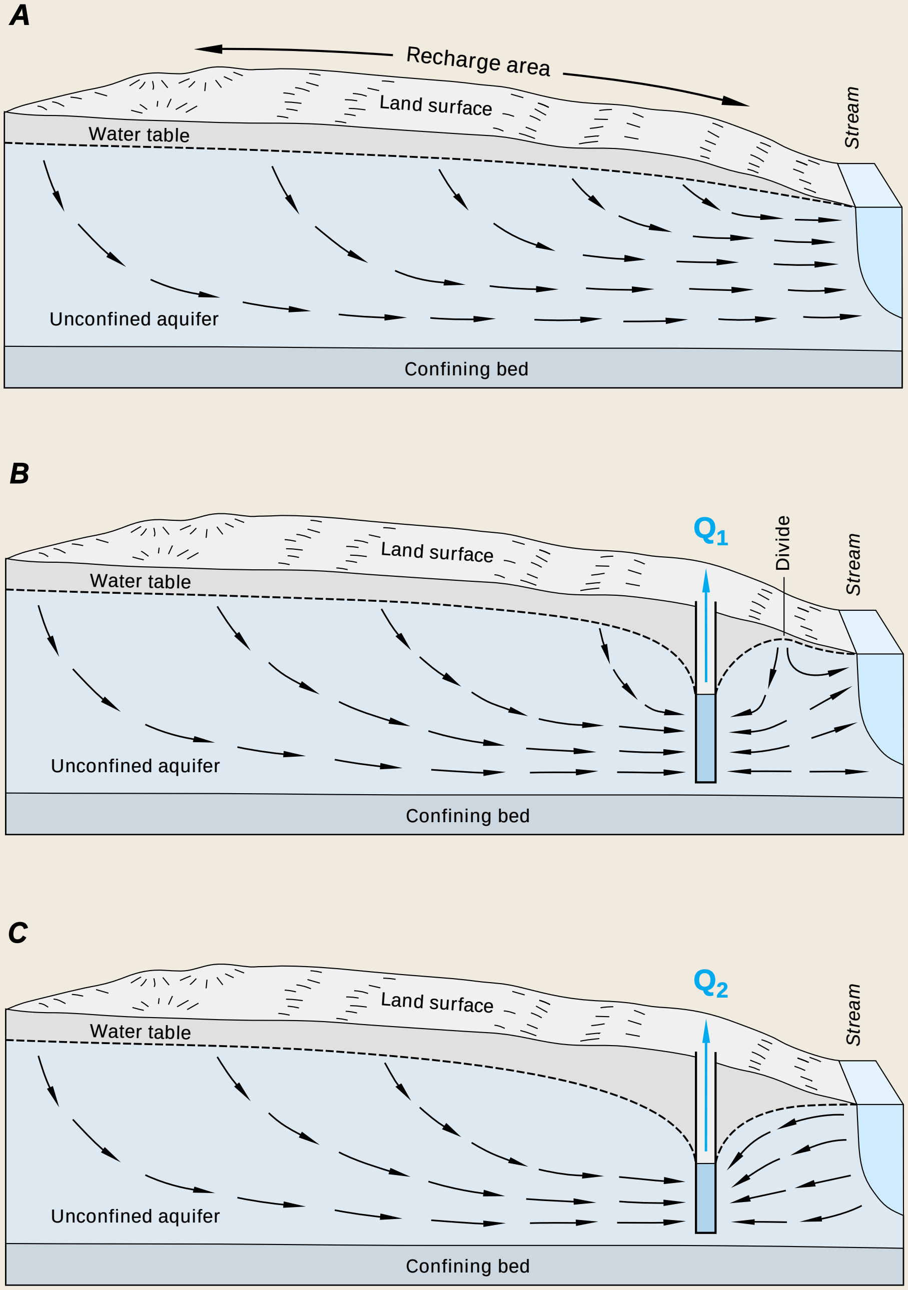


Figure C–1. In a schematic hydrologic setting where ground water discharges to a stream under natural conditions (A), placement of a well pumping at a rate (Q_1) near the stream will intercept part of the ground water that would have discharged to the stream (B). If the well is pumped at an even greater rate (Q_2), it can intercept additional water that would have discharged to the stream in the vicinity of the well and can draw water from the stream to the well (C).

Where streamflow is generated in headwaters areas, the changes in streamflow between gaining and losing conditions may be particularly variable (Figure 13). The headwaters segment of streams can be completely dry except during storm events or during certain seasons of the year when snowmelt or precipitation is sufficient to maintain continuous flow for days or weeks. During these times, the stream will lose water to the unsaturated zone beneath its bed. However, as the water table rises through recharge in the headwaters area, the losing reach may become a gaining reach as the water table rises above the level of the stream. Under these conditions, the point where ground water first contributes to the stream gradually moves upstream.

Some gaining streams have reaches that lose water to the aquifer under normal conditions of streamflow. The direction of seepage through the bed of these streams commonly is related to abrupt changes in the slope of the streambed (Figure 14*A*) or to meanders in the stream channel (Figure 14*B*). For example, a losing stream reach usually is located at the downstream end of pools in pool and riffle streams (Figure 14*A*), or upstream from channel bends in meandering streams (Figure 14*B*). The subsurface zone where stream water flows through short segments of its adjacent bed and banks is referred to as the hyporheic zone. The size and geometry of hyporheic zones surrounding streams vary greatly in time and space. Because of mixing between ground water and surface water in the hyporheic zone, the chemical and biological character of the hyporheic zone may differ markedly from adjacent surface water and ground water.

Ground-water systems that discharge to streams can underlie extensive areas of the land surface (Figure 15). As a result, environmental conditions at the interface between ground water and surface water reflect changes in the broader landscape. For example, the types and numbers of organisms in a given reach of streambed result, in part, from interactions between water in the hyporheic zone and ground water from distant sources.

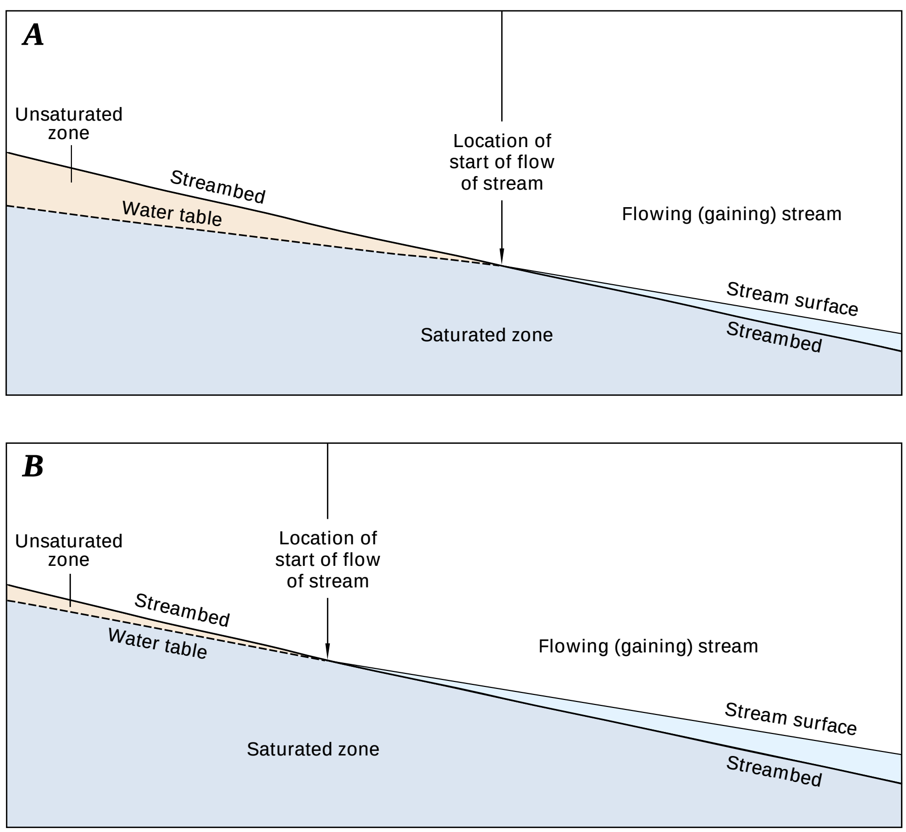


Figure ***13.*** *The location where perennial streamflow begins in a channel can vary depending on the distribution of recharge in headwaters areas. Following dry periods (A), the start of streamflow will move upchannel during wet periods as the ground-water system becomes more saturated (B).*

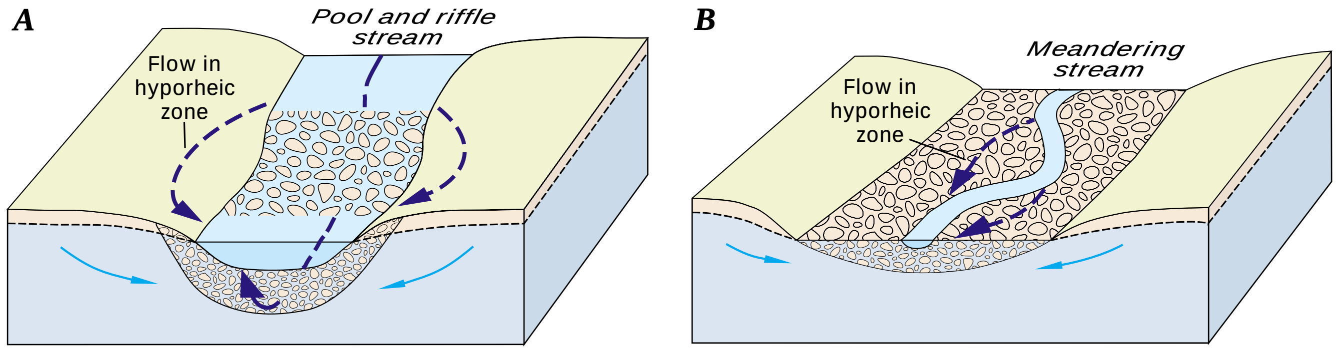


Figure 14. Surface-water exchange with ground water in the hyporheic zone is associated with abrupt changes in streambed slope (A) and with stream meanders (B).

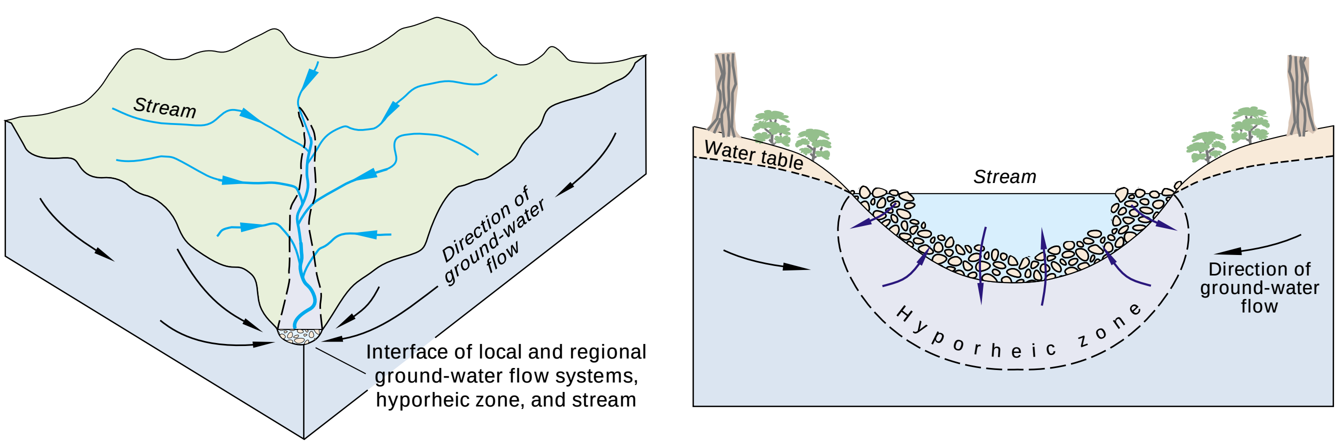


Figure 15. Streambeds and banks are unique environments because they are where ground water that drains much of the subsurface of landscapes interacts with surface water that drains much of the surface of landscapes.

INTERACTION OF GROUND WATER AND LAKES

Lakes interact with ground water in three basic ways: some receive ground-water inflow throughout their entire bed; some have seepage loss to ground water throughout their entire bed; but perhaps most lakes receive ground-water inflow through part of their bed and have seepage loss to ground water through other parts (Figure 16). Although these basic interactions are the same for lakes as they are for streams, the interactions differ in several ways.

The water level of natural lakes, that is, those not controlled by dams, generally does not change as rapidly as the water level of streams; therefore, bank storage is of lesser importance in lakes than it is in streams. Evaporation generally has a greater effect on lake levels than on stream levels because the surface area of lakes is generally larger and less shaded than many reaches of streams, and because lake water is not replenished as readily as a reach of a stream. Lakes can be present in many different parts of the landscape and can have complex ground-water flow systems associated with them. This is especially true for lakes in glacial and dune terrain, as is discussed in a later section of this Circular. Furthermore, lake sediments commonly have greater volumes of organic deposits than streams. These poorly permeable organic deposits can affect the distribution of seepage and biogeochemical exchanges of water and solutes more in lakes than in streams.

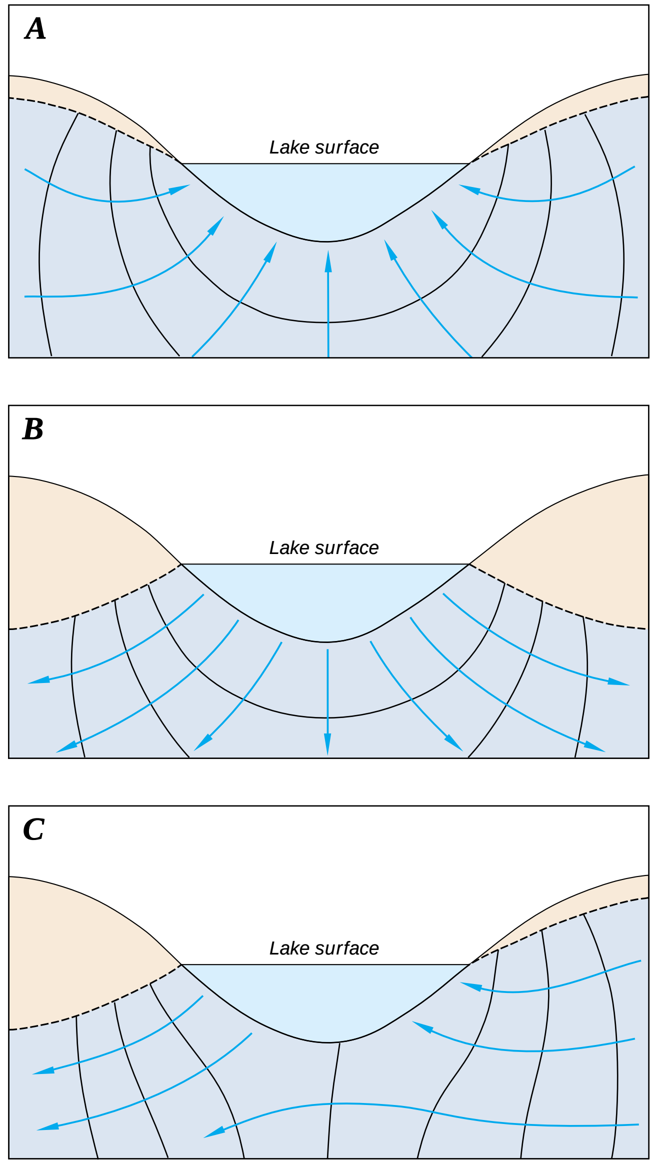


Figure 16. Lakes can receive ground-water inflow (A), lose water as seepage to ground water (B), or both

Reservoirs are human-made lakes that are designed primarily to control the flow and distribution of surface water. Most reservoirs are constructed in stream valleys; therefore, they have some characteristics both of streams and lakes. Like streams, reservoirs can have widely fluctuating levels, bank storage can be significant, and they commonly have a continuous flushing of water through them. Like lakes, reservoirs can have significant loss of water by evaporation, significant cycling of chemical and biological materials within their waters, and extensive biogeochemical exchanges of solutes with organic sediments.

"Lakes and wetlands can receive ground-water inflow throughout their entire bed, have outflow throughout their entire bed, or have both inflow and outflow at different localities"

INTERACTION OF GROUND WATER AND WETLANDS

Wetlands are present in climates and landscapes that cause ground water to discharge to land surface or that prevent rapid drainage of water from the land surface. Similar to streams and lakes, wetlands can receive ground-water inflow, recharge ground water, or do both. Those wetlands that occupy depressions in the land surface have interactions with ground water similar to lakes and streams. Unlike streams and lakes, however, wetlands do not always occupy low points and depressions in the landscape (Figure 17*A*); they also can be present on slopes (such as fens) or even on drainage divides (such as some types of bogs). Fens are wetlands that commonly receive ground-water discharge (Figure 17*B*); therefore, they receive a continuous supply of chemical constituents dissolved in the ground water. Bogs are wetlands that occupy uplands (Figure 17*D*) or extensive flat areas, and they receive much of their water and chemical constituents from precipitation. The distribution of major wetland areas in the United States is shown in Figure 18.

In areas of steep land slopes, the water table sometimes intersects the land surface, resulting in ground-water discharge directly to the land surface. The constant source of water at these seepage faces (Figure 17*B*) permits the growth of wetland plants. A constant source of ground water to wetland plants is also provided to parts of the landscape that are downgradient from breaks in slope of the water table (Figure 17*B*), and where subsurface discontinuities in geologic units cause upward movement of ground water (Figure 17*A*). Many wetlands are present along streams, especially slow-moving streams. Although these riverine wetlands (Figure 17*C*) commonly receive ground-water discharge, they are dependent primarily on the stream for their water supply.

Wetlands in riverine and coastal areas have especially complex hydrological interactions because they are subject to periodic water-level changes. Some wetlands in coastal areas are affected by very predictable tidal cycles. Other coastal wetlands and riverine wetlands are more affected by seasonal water-level changes and by flooding. The combined effects of precipitation, evapotranspiration, and interaction with surface water and ground water result in a pattern of water depths in wetlands that is distinctive.

Hydroperiod is a term commonly used in wetland science that refers to the amplitude and frequency of water-level fluctuations. Hydroperiod affects all wetland characteristics, including the type of vegetation, nutrient cycling, and the types of invertebrates, fish, and bird species present.

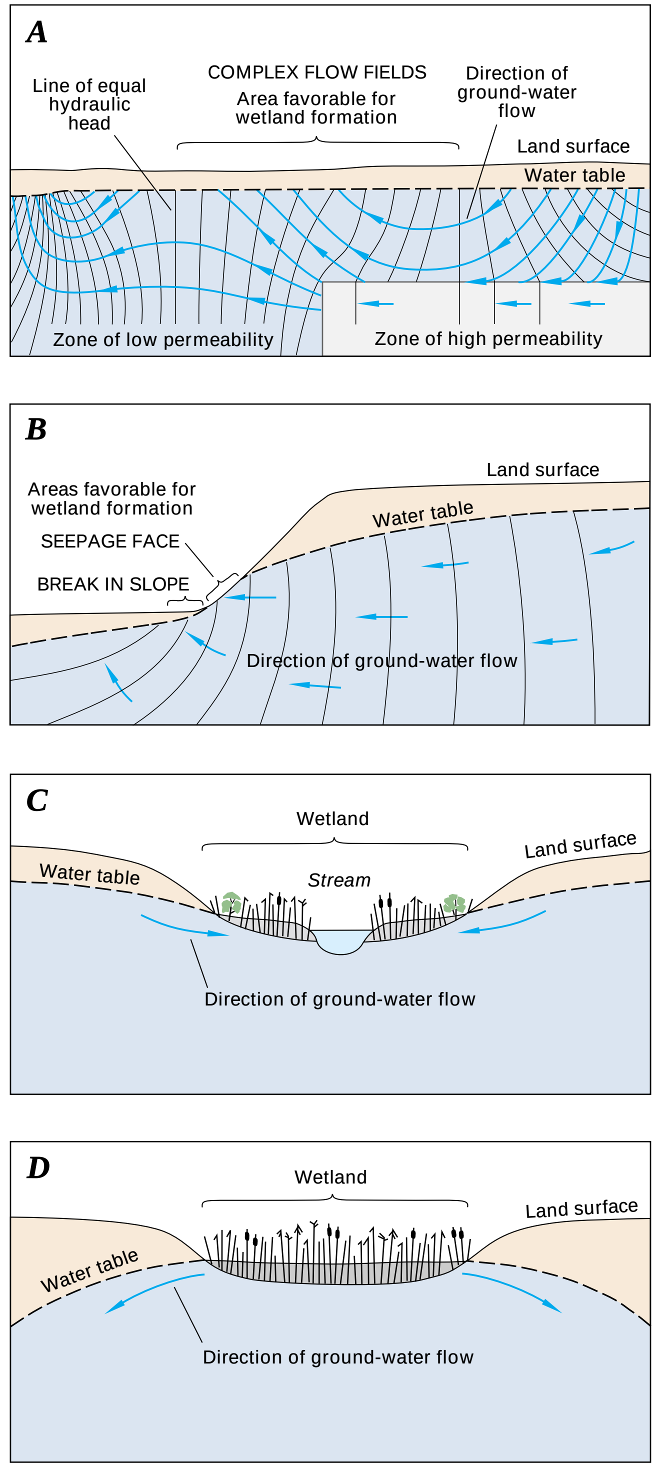


Figure 17. The source of water to wetlands can be from ground-water discharge where the land surface is underlain by complex ground-water flow fields (A), from ground-water discharge at seepage faces and at breaks in slope of the water table (B), from streams (C), and from precipitation in cases where wetlands have no stream inflow and ground-water gradients slope away from the wetland (D).

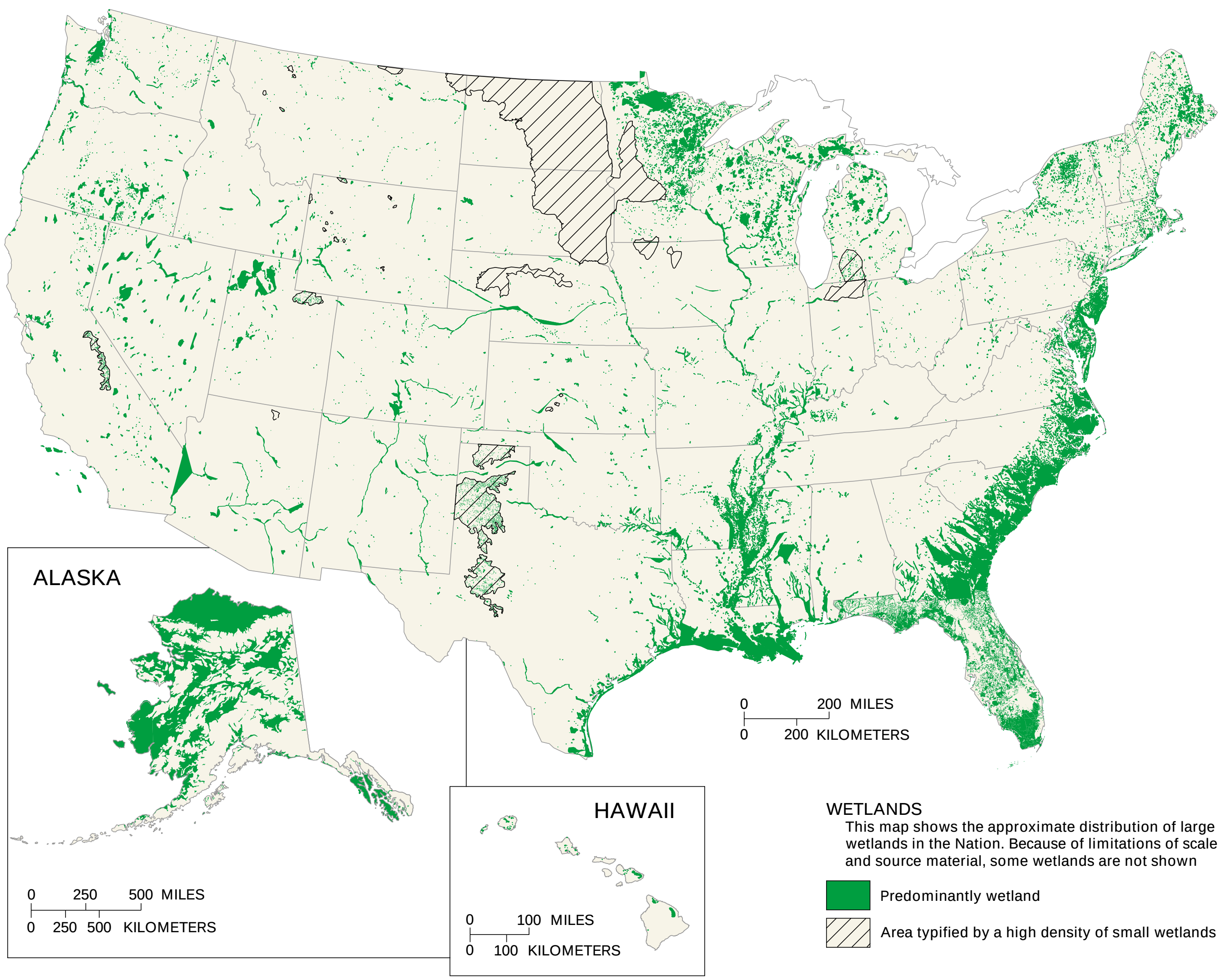


*Figure **18**. Wetlands are present throughout the Nation, but they cover the largest areas in the glacial terrain of the north-central United States, coastal terrain along the Atlantic and gulf coasts, and riverine terrain in the lower Mississippi River Valley.*

A major difference between lakes and wetlands, with respect to their interaction with ground water, is the ease with which water moves through their beds. Lakes commonly are shallow around their perimeter where waves can remove fine-grained sediments, permitting the surface water and ground water to interact freely. In wetlands, on the other hand, if fine-grained and highly decomposed organic sediments are present near the wetland edge, the transfer of water and solutes between ground water and surface water is likely to be much slower.

Another difference in the interaction between ground water and surface water in wetlands compared to lakes is determined by rooted vegetation in wetlands. The fibrous root mat in wetland soils is highly conductive to water flow; therefore, water uptake by roots of emergent plants results in significant interchange between surface water and pore water of wetland sediments. The water exchanges in this upper soil zone even if exchange between surface water and ground water is restricted at the base of the wetland sediments.

Chemical Interactions of Ground Water and Surface Water

EVOLUTION OF WATER CHEMISTRY IN DRAINAGE BASINS

Two of the fundamental controls on water chemistry in drainage basins are the type of geologic materials that are present and the length of time that water is in contact with those materials. Chemical reactions that affect the biological and geochemical characteristics of a basin include (1) acid-base reactions, (2) precipitation and dissolution of minerals, (3) sorption and ion exchange, (4) oxidation-reduction reactions, (5) biodegradation, and (6) dissolution and exsolution of gases (see Box D). When water first infiltrates the land surface, microorganisms in the soil have a significant effect on the evolution of water chemistry. Organic matter in soils is degraded by microbes, producing high concentrations of dissolved carbon dioxide (CO_2). This process lowers the pH by increasing the carbonic acid (H_2CO_3) concentration in the soil water. The production of carbonic acid starts a number of mineral-weathering reactions, which result in bicarbonate (HCO_3^-) commonly being the most abundant anion in the water. Where contact times between water and minerals in shallow ground-water flow paths are short, the dissolved-solids concentration in the water generally is low. In such settings, limited chemical changes take place before ground water is discharged to surface water.

“Two of the fundamental controls on water chemistry in drainage basins are the type of geologic materials that are present and the length of time that water is in contact with those materials”

In deeper ground-water flow systems, the contact time between water and minerals is much longer than it is in shallow flow systems. As a result, the initial importance of reactions relating to microbes in the soil zone may be superseded over time by chemical reactions between minerals and water (geochemical weathering). As weathering progresses, the concentration of dissolved solids increases. Depending on the chemical composition of the minerals that are weathered, the relative abundance of the major inorganic chemicals dissolved in the water changes (see Box E).

Surface water in streams, lakes, and wetlands can repeatedly interchange with nearby ground water. Thus, the length of time water is in contact with mineral surfaces in its drainage basin can continue after the water first enters a stream, lake, or wetland. An important consequence of these continued interchanges between surface water and ground water is their potential to further increase the contact time between water and chemically reactive geologic materials.

CHEMICAL INTERACTIONS OF GROUND WATER AND SURFACE WATER IN STREAMS, LAKES, AND WETLANDS

Ground-water chemistry and surface-water chemistry cannot be dealt with separately where surface and subsurface flow systems interact. The movement of water between ground water and surface water provides a major pathway for chemical transfer between terrestrial and aquatic systems (see Box F). This transfer of chemicals affects the supply of carbon, oxygen, nutrients such as nitrogen and phosphorus, and other chemical constituents that enhance biogeochemical processes on both sides of the interface. This transfer can ultimately affect the biological and chemical characteristics of aquatic systems downstream.

"The movement of water between ground water and surface water provides a major pathway for chemical transfer between terrestrial and aquatic systems"

D

Some Common Types of Biogeochemical Reactions Affecting Transport of Chemicals in Ground Water and Surface Water

ACID-BASE REACTIONS

Acid-base reactions involve the transfer of hydrogen ions (H^+) among solutes dissolved in water, and they affect the effective concentrations of dissolved chemicals through changes in the H^+ concentration in water. A brief notation for H^+ concentration (activity) is pH, which represents a negative logarithmic scale of the H^+ concentration. Smaller values of pH represent larger concentrations of H^+, and larger values of pH represent smaller concentrations of H^+. Many metals stay dissolved when pH values are small; increased pH causes these metals to precipitate from solution.

PRECIPITATION AND DISSOLUTION OF MINERALS

Precipitation reactions result in minerals being formed (precipitated) from ions that are dissolved in water. An example of this type of reaction is the precipitation of iron, which is common in areas of ground-water seeps and springs. At these locations, the solid material iron hydroxide is formed when iron dissolved in ground water comes in contact with oxygen dissolved in surface water. The reverse, or dissolution reactions, result in ions being released into water by dissolving minerals. An example is the release of calcium ions (Ca^{++}) and bicarbonate ions (HCO_3^-) when calcite ($CaCO_3$) in limestone is dissolved.

SORPTION AND ION EXCHANGE

Sorption is a process in which ions or molecules dissolved in water (solutes) become attached to the surfaces (or near-surface parts) of solid materials, either temporarily or permanently. Thus, solutes in ground water and surface water can be sorbed either to the solid materials that comprise an aquifer or streambed or to particles suspended in ground water or surface water. The attachments of positively charged ions to clays and of pesticides to solid surfaces are examples of sorption. Release of sorbed chemicals to water is termed desorption.

When ions attached to the surface of a solid are replaced by ions that were in water, the process is known as ion exchange. Ion exchange is the process that takes place in water softeners; ions that contribute to water hardness—calcium and magnesium—are exchanged for sodium on the surface of the solid. The result of this process is that the amount of calcium and magnesium in the water declines and the amount of sodium increases. The opposite takes place when saltwater enters an aquifer; some of the sodium in the saltwater is exchanged for calcium sorbed to the solid material of the aquifer.

OXIDATION-REDUCTION REACTIONS

Oxidation-reduction (redox) reactions take place when electrons are exchanged among solutes. In these reactions, oxidation (loss of electrons) of certain elements is accompanied by the reduction (gain of electrons) of other elements.

For example, when iron dissolved in water that does not contain dissolved oxygen mixes with water that does contain dissolved oxygen, the iron and oxygen interact by oxidation and reduction reactions. The result of the reactions is that the dissolved iron loses electrons (the iron is oxidized) and oxygen gains electrons (the oxygen is reduced). In this case, the iron is an electron donor and the oxygen is an electron acceptor. Bacteria can use energy gained from oxidation-reduction reactions as they decompose organic material. To accomplish this, bacterially mediated oxidation-reduction reactions use a sequence of electron acceptors, including oxygen, nitrate, iron, sulfate, and carbon dioxide. The presence of the products of these reactions in ground water and surface water can be used to identify the dominant oxidation-reduction reactions that have taken place in those waters. For example, the bacterial reduction of sulfate (SO_4^{2-}) to sulfide (HS^-) can result when organic matter is oxidized to CO_2.

BIODEGRADATION

Biodegradation is the decomposition of organic chemicals by living organisms using enzymes. Enzymes are specialized organic compounds made by living organisms that speed up reactions with other organic compounds. Microorganisms degrade (transform) organic chemicals as a source of energy and carbon for growth. Microbial processes are important in the fate and transport of many organic compounds. Some compounds, such as petroleum hydrocarbons, can be used directly by microorganisms as food sources and are rapidly degraded in many situations. Other compounds, such as chlorinated solvents, are not as easily assimilated. The rate of biodegradation of an organic chemical is dependent on its chemical structure, the environmental conditions, and the types of microorganisms that are present. Although biodegradation commonly can result in complete degradation of organic chemicals to carbon dioxide, water, and other simple products, it also can lead to intermediate products that are of environmental concern. For example, deethylatrazine, an intermediate degradation product of the pesticide atrazine (see Box P), commonly is detected in water throughout the corn-growing areas of the United States.

DISSOLUTION AND EXSOLUTION OF GASES

Gases are directly involved in many geochemical reactions. One of the more common gases is carbon dioxide (CO_2). For example, stalactites can form in caves when dissolved CO_2 exsolves (degasses) from dripping ground water, causing pH to rise and calcium carbonate to precipitate. In soils, the microbial production of CO_2 increases the concentration of carbonic acid (H_2CO_3), which has a major control on the solubility of aquifer materials. Other gases commonly involved in chemical reactions are oxygen, nitrogen, hydrogen sulfide (H_2S), and methane (CH_4). Gases such as chlorofluorocarbons (CFCs) and radon are useful as tracers to determine the sources and rates of ground-water movement (see Box G).

E

Evolution of Ground-Water Chemistry from Recharge to Discharge Areas in the Atlantic Coastal Plain

Changes in the chemical composition of ground water in sediments of the Atlantic Coastal Plain (Figure E–1) provide an example of the chemical evolution of ground water in a regional flow system. In the shallow regime, infiltrating water comes in contact with gases in the unsaturated zone and shallow ground water. As a result of this contact, localized, short-term, fast reactions take place that dissolve minerals and degrade organic material. In the deep regime, long-term, slower chemical reactions, such as precipitation and dissolution of minerals and ion-exchange, add or remove solutes. These natural processes and reactions commonly produce a predictable sequence of hydrochemical facies. In the Atlantic Coastal Plain, ground water evolves from water containing abundant bicarbonate ions and small concentrations of dissolved solids near the point of recharge to water containing abundant chloride ions and large concentrations of dissolved solids where it discharges into streams, estuaries, and the Atlantic Ocean.

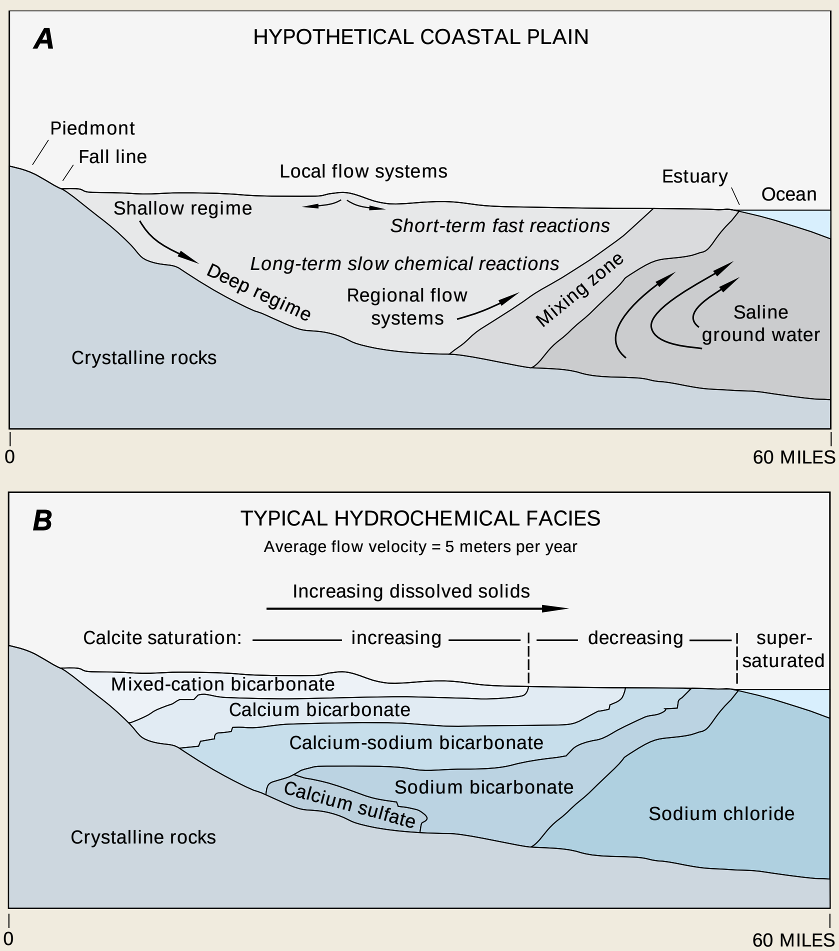


Figure E–1. In a coastal plain, such as along the Atlantic Coast of the United States, the interrelations of different rock types, shallow and deep ground-water flow systems (regimes), and mixing with saline water (A) results in the evolution of a number of different ground-water chemical types (B). (Modified from Back, William, Baedecker, M.J., and Wood, W.W., 1993, Scales in chemical hydrogeology—A historical perspective, in Alley, W.M., ed., Regional Ground-Water Quality: New York, van Nostrand Reinhold, p. 111–129.) (Reprinted by permission of John Wiley & Sons, Inc.)

Many streams are contaminated. Therefore, the need to determine the extent of the chemical reactions that take place in the hyporheic zone is widespread because of the concern that the contaminated stream water will contaminate shallow ground water (see Box G). Streams offer good examples of how interconnections between ground water and surface water affect chemical processes. Rough channel bottoms cause stream water to enter the streambed and to mix with ground water in the hyporheic zone. This mixing establishes sharp changes in chemical concentrations in the hyporheic zone.

A zone of enhanced biogeochemical activity usually develops in shallow ground water as a result of the flow of oxygen-rich surface water into the subsurface environment, where bacteria and geochemically active sediment coatings are abundant (Figure 19). This input of oxygen to the streambed stimulates a high level of activity by aerobic (oxygen-using) microorganisms if dissolved oxygen is readily available. It is not uncommon for dissolved oxygen to be completely used up in hyporheic flow paths at some distance into the streambed, where anaerobic microorganisms dominate microbial activity. Anaerobic bacteria can use nitrate, sulfate, or other solutes in place of oxygen for metabolism. The result of these processes is that many solutes are highly reactive in shallow ground water in the vicinity of streambeds.

The movement of nutrients and other chemical constituents, including contaminants, between ground water and surface water is affected by biogeochemical processes in the hyporheic zone. For example, the rate at which organic contaminants biodegrade in the hyporheic zone can exceed rates in stream water or in ground water away from the stream. Another example is the removal of dissolved metals in the hyporheic zone. As water passes through the hyporheic zone, dissolved metals are removed by precipitation of metal oxide coatings on the sediments.

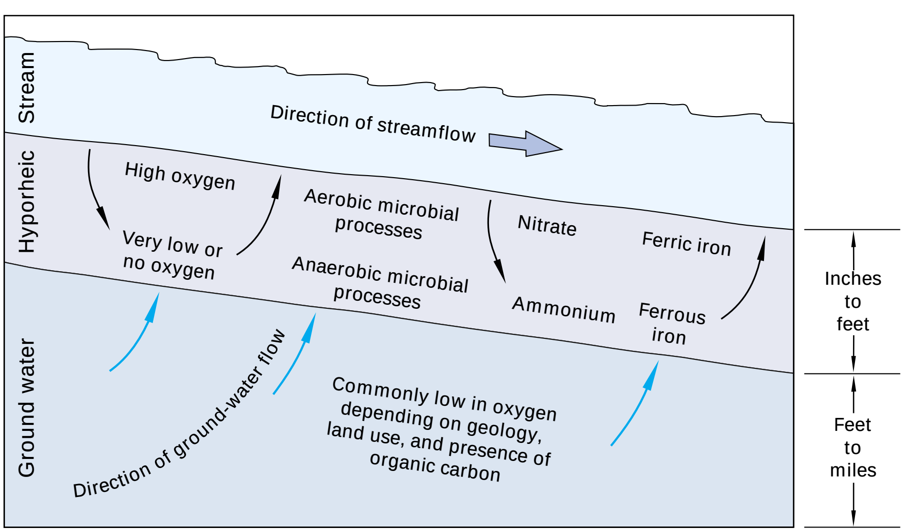


Figure 19. Microbial activity and chemical transformations commonly are enhanced in the hyporheic zone compared to those that take place in ground water and surface water. This diagram illustrates some of the processes and chemical transformations that may take place in the hyporheic zone. Actual chemical interactions depend on numerous factors including aquifer mineralogy, shape of the aquifer, types of organic matter in surface water and ground water, and nearby land use.

F

The Interface Between Ground Water and Surface Water as an Environmental Entity

In the bed and banks of streams, water and solutes can exchange in both directions across the streambed. This process, termed hyporheic exchange, creates subsurface environments that have variable proportions of water from ground water and surface water. Depending on the type of sediment in the streambed and banks, the variability in slope of the streambed, and the hydraulic gradients in the adjacent ground-water system, the hyporheic zone can be as much as several feet in depth and hundreds of feet in width. The dimensions of the hyporheic zone generally increase with increasing width of the stream and permeability of streambed sediments.

The importance of the hyporheic zone was first recognized when higher than expected abundances of aquatic insects were found in sediments where concentrations of oxygen were high. Caused by stream-water input, the high oxygen concentrations in the hyporheic zone make it possible for organisms to live in the pore spaces in the sediments, thereby providing a refuge for those organisms. Also, spawning success of salmon is greater where flow from the stream brings oxygen into contact with eggs that were deposited within the coarse sediment.

The hyporheic zone also can be a source of nutrients and algal cells to streams that foster the recovery of streams following catastrophic storms. For example, in a study of the ecology of Sycamore Creek in Arizona, it was found that the algae that grew in the top few inches of streambed sediment were quickest to recover following storms in areas where water in the sediments moved upward (Figure F–1). These algae recovered rapidly following storms because concentrations of dissolved nitrogen were higher in areas of the streambed where water moved upward than in areas where water moved downward. Areas of streambed where water moved upward are, therefore, likely to be the first areas to return to more normal ecological conditions following flash floods in desert streams.

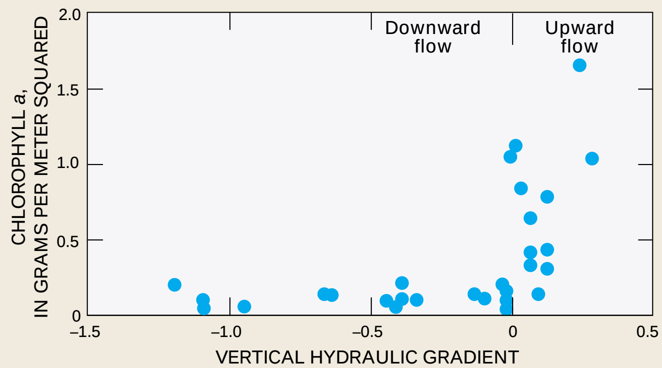


Figure F–1. Abundance of algae in streambed sediments, as indicated by concentration of chlorophyll a, *was markedly greater in areas where water moved upward through the sediments than in areas where water moved downward through the sediments in Sycamore Creek in Arizona. (Modified from Valett, H.M., Fisher, S.G., Grimm, N.B., and Camill, P., 1994, Vertical hydrologic exchange and ecologic stability of a desert stream ecosystem: Ecology, v. 75, p. 548–560.) (Reprinted with permission.)*

Hyporheic zones also serve as sites for nutrient uptake. A study of a coastal mountain stream in northern California indicated that transport of dissolved oxygen, dissolved carbon, and dissolved nitrogen in stream water into the hyporheic zone stimulated uptake of nitrogen by microbes and algae attached to sediment. A model simulation of nitrogen uptake (Figure F–2) indicated that both the physical process of water exchange between the stream and the hyporheic zone and the biological uptake of nitrate in the hyporheic zone affected the concentration of dissolved nitrogen in the stream.

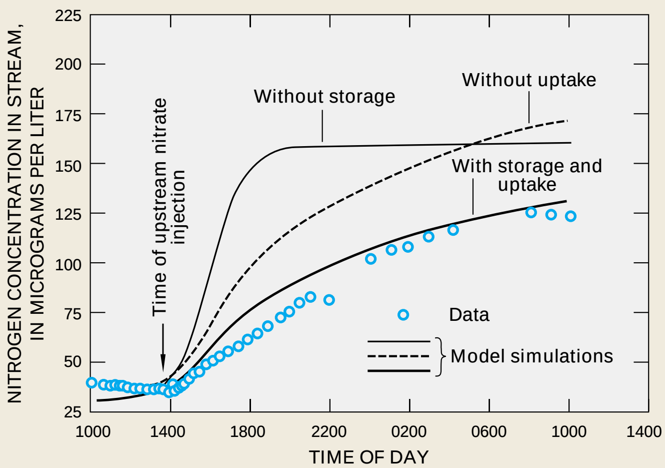


Figure F–2. Nitrate injected into Little Lost Man Creek in northern California was stored and taken up by algae and microbes in the hyporheic zone. (Modified from Kim, B.K.A., Jackman, A.P., and Triska, F.J., 1992, Modeling biotic uptake by periphyton and transient hyporheic storage of nitrate in a natural stream: Water Resources Research, v. 28, no.10, p. 2743–2752.)

The importance of biogeochemical processes that take place at the interface of ground water and surface water in improving water quality for human consumption is shown by the following example. Decreasing metal concentrations (Figure F–3) in drinking-water wells adjacent to the River Glatt in Switzerland was attributed to the interaction of the river with subsurface water. The improvement in ground-water quality started with improved sewage-treatment plants, which lowered phosphate in the river. Lower phosphate concentrations lowered the amount of algal production in the river, which decreased the amount of dissolved organic carbon flowing into the riverbanks. These factors led to a decrease in the bacteria-caused dissolution of manganese and cadmium that were present as coatings on sediment in the aquifer. The result was substantially lower dissolved metal concentrations in ground water adjacent to the river, which resulted in an unexpected improvement in the quality of drinking water.

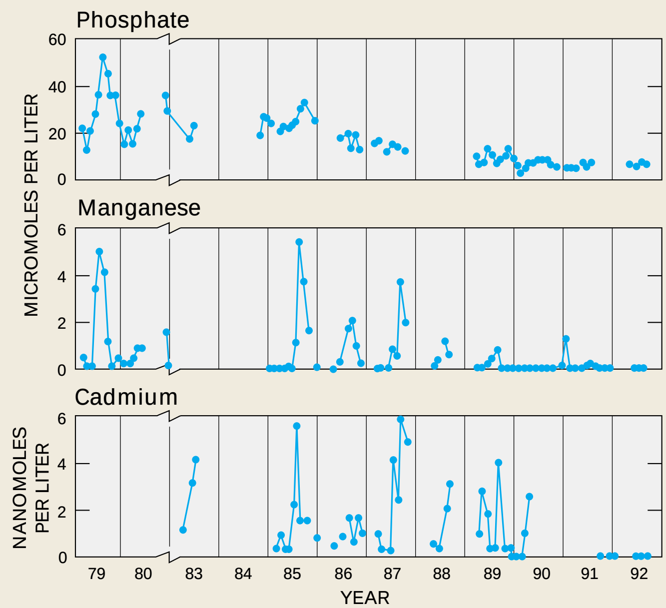
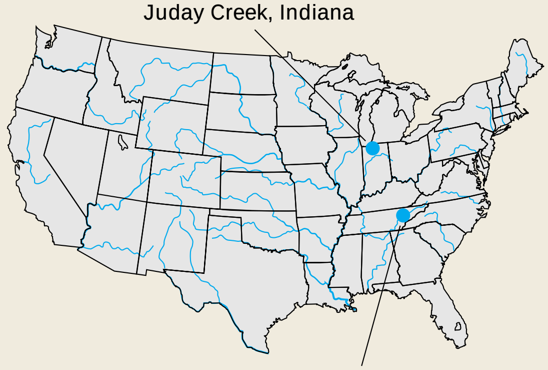


Figure F–3. A decline in manganese and cadmium concentrations after 1990 in drinking-water wells near the River Glatt in Switzerland was attributed to decreased phosphate in the river and hydrologic and biogeochemical interactions between river water and ground water. (Modified from von Gunten, H.R., and Lienert, Ch., 1993, Decreased metal concentrations in ground water caused by controls on phosphate emissions: Nature, v. 364, p. 220–222.) (Reprinted with permission from Nature, Macmillan Magazines Limited.)

G

Use of Environmental Tracers to Determine the Interaction of Ground Water and Surface Water

Environmental tracers are naturally occurring dissolved constituents, isotopes, or physical properties of water that are used to track the movement of water through watersheds. Useful environmental tracers include (1) common dissolved constituents, such as major cations and anions; (2) stable isotopes of oxygen (^{18}O) and hydrogen (^{2}H) in water molecules; (3) radioactive isotopes such as tritium (^{3}H) and radon (^{222}Rn); and (4) water temperature. When used in simple hydrologic transport calculations, environmental tracers can be used to (1) determine source areas of water and dissolved chemicals in drainage basins, (2) calculate hydrologic and chemical fluxes between ground water and surface water, (3) calculate water ages that indicate the length of time water and dissolved chemicals have been present in the drainage basin (residence times), and (4) determine average rates of chemical reactions that take place during transport. Some examples are described below.



Major cations and anions have been used as tracers in studies of the hydrology of small watersheds to determine the sources of water to streamflow during storms (see Figure G–1). In addition, stable isotopes of oxygen and hydrogen, which are part of water molecules, are useful for determining the mixing of waters from different source areas because of such factors as (1) differences in the isotopic composition of precipitation among recharge areas, (2) changes in the isotopic composition of shallow subsurface water caused by evaporation, and (3) temporal variability in the isotopic composition of precipitation relative to ground water.

Radioactive isotopes are useful indicators of the time that water has spent in the ground-water system. For example, tritium (^{3}H) is a well-known radioactive isotope of hydrogen that had peak concentrations in precipitation in the mid-1960s as a result of above-ground nuclear-bomb testing conducted at that time. Chlorofluorocarbons (CFCs), which are industrial chemicals that are present in ground water less than 50 years old, also can be used to calculate ground-water age in different parts of a drainage basin.

^{222}Radon is a chemically inert, radioactive gas that has a half-life of only 3.83 days. It is produced naturally in ground water as a product of the radioactive decay of ^{226}radium in uranium-bearing rocks and sediment. Several studies have documented that radon can be used to identify locations of

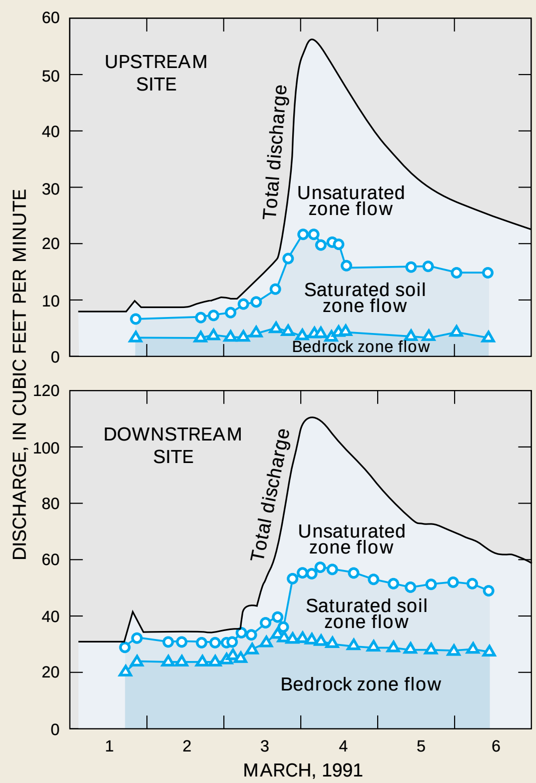


Figure G–1. The relative contributions of different subsurface water sources to streamflow in a stream in Tennessee were determined by analyzing the relative concentrations of calcium and sulfate. Note that increases in bedrock zone (ground water) flow appear to contribute more to the stormflow response at the downstream site than to the stormflow response at the upstream site in this small watershed. (Modified from Mulholland, P.J., 1993, Hydrometric and stream chemistry evidence of three storm flowpaths in Walker Branch Watershed: Journal of Hydrology, v. 151, p. 291–316.) (Reprinted with permission from Elsevier Science-NL, Amsterdam, The Netherlands.)

significant ground-water input to a stream, such as from springs. Radon also has been used to determine stream-water movement to ground water. For example, radon was used in a study in France to determine stream-water loss to ground water as a result of ground-water withdrawals. (See Figure G–2.)

An example of using stream-water temperature and sediment temperature for mapping gaining and losing reaches of a stream is shown in Figure G–3. In gaining reaches of the stream, sediment temperature and stream-water temperature are markedly different. In losing reaches of the stream, the diurnal fluctuations of temperature in the stream are reflected more strongly in the sediment temperature.

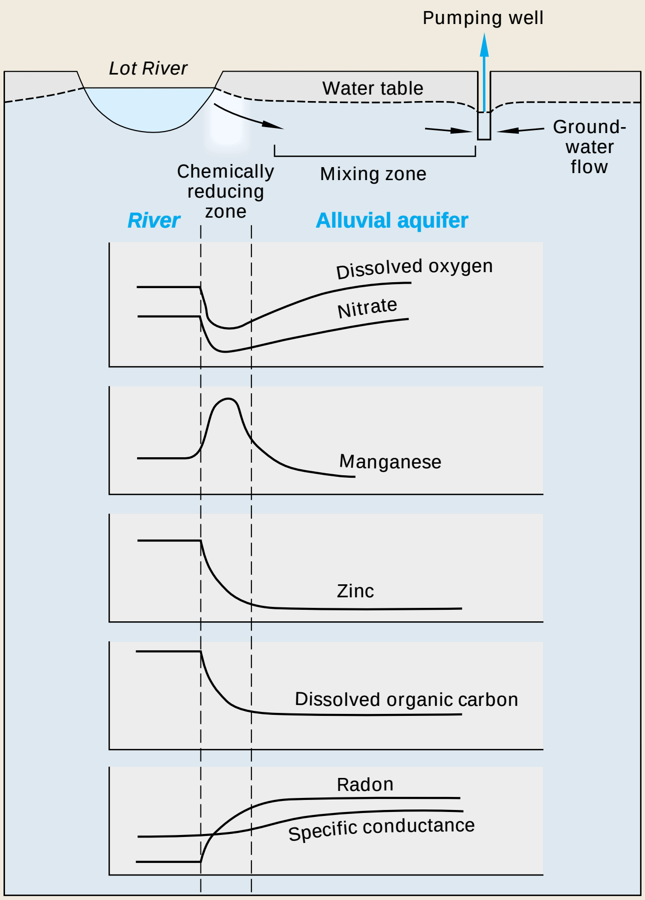


Figure G–2. Sharp changes in chemical concentrations were detected over short distances as water from the Lot River in France moved into its contiguous alluvial aquifer in response to pumping from a well. Specific conductance of water was used as an environmental tracer to determine the extent of mixing of surface water with ground water, and radon was used to determine the inflow rate of stream water. Both pieces of information were then used to calculate the rate at which dissolved metals reacted to form solid phases during movement of stream water toward the pumping well. (Modified from Bourg, A.C.M., and Bertin, C., 1993, Biogeochemical processes during the infiltration of river water into an alluvial aquifer: Environmental Science and Technology, v. 27, p. 661–666.) (Reprinted with permission from the American Chemical Society.)

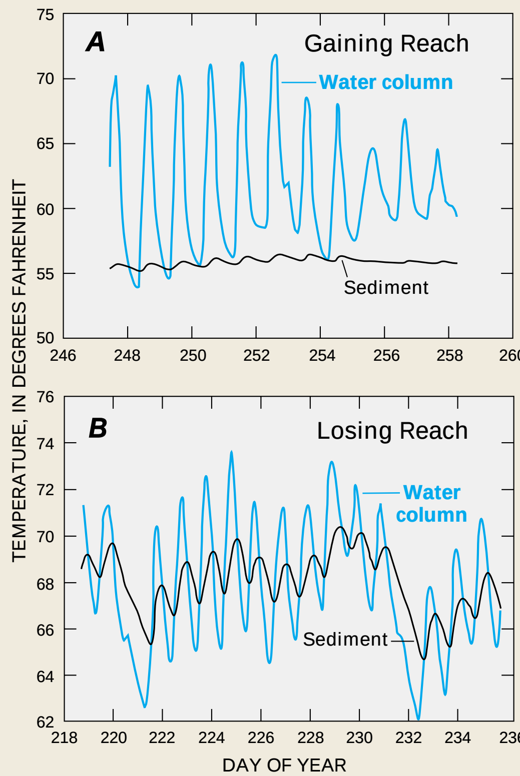


Figure G–3. Ground-water temperatures generally are more stable than surface-water temperatures. Therefore, gaining reaches of Juday Creek in Indiana are characterized by relatively stable sediment temperatures compared to stream-water temperatures (A). Conversely, losing reaches are characterized by more variable sediment temperatures caused by the temperature of the inflowing surface water (B). (Modified from Silliman, S.E., and Booth, D.F., 1993, Analysis of time series measurements of sediment temperature for identification of gaining versus losing portions of Juday Creek, Indiana: Journal of Hydrology, v. 146, p. 131–148.) (Reprinted with permission from Elsevier Science-NL, Amsterdam, The Netherlands.)

Lakes and wetlands also have distinctive biogeochemical characteristics with respect to their interaction with ground water. The chemistry of ground water and the direction and magnitude of exchange with surface water significantly affect the input of dissolved chemicals to lakes and wetlands. In general, if lakes and wetlands have little interaction with streams or with ground water, input of dissolved chemicals is mostly from precipitation; therefore, the input of chemicals is minimal. Lakes and wetlands that have a considerable amount of ground-water inflow generally have large inputs of dissolved chemicals. In cases where the input of dissolved nutrients such as phosphorus and nitrogen exceeds the output, primary production by algae and wetland plants is large. When this large amount of plant material dies, oxygen is used in the process of decomposition. In some cases the loss of oxygen from lake water can be large enough to kill fish and other aquatic organisms.

The magnitude of surface-water inflow and outflow also affects the retention of nutrients in wetlands. If lakes or wetlands have no stream outflow, retention of chemicals is high. The tendency to retain nutrients usually is less in wetlands that are flushed substantially by throughflow of surface water. In general, as surface-water inputs increase, wetlands vary from those that strongly retain nutrients to those that both import and export large amounts of nutrients. Furthermore, wetlands commonly have a significant role in altering the chemical form of dissolved constituents. For example, wetlands that have throughflow of surface water tend to retain the chemically oxidized forms and release the chemically reduced forms of metals and nutrients.

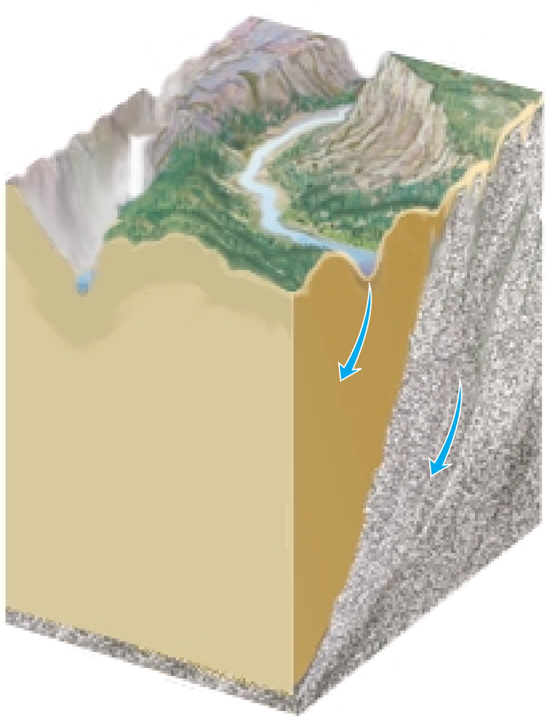
"The chemistry of ground water and the direction and magnitude of exchange with surface water significantly affect the input of dissolved chemicals to lakes and wetlands"

Interaction of Ground Water and Surface Water in Different Landscapes

Ground water is present in virtually all landscapes. The interaction of ground water with surface water depends on the physiographic and climatic setting of the landscape. For example, a stream in a wet climate might receive ground-water inflow, but a stream in an identical physiographic setting in an arid climate might lose water to ground water. To provide a broad and unified perspective of the interaction of ground water and surface water in different landscapes, a conceptual landscape (Figure 2) is used as a reference. Some common features of the interaction for various parts of the conceptual landscape are described below. The five general types of terrain discussed are mountainous, riverine, coastal, glacial and dune, and karst.

MOUNTAINOUS TERRAIN

The hydrology of mountainous terrain (area M of the conceptual landscape, Figure 2) is characterized by highly variable precipitation and water movement over and through steep land slopes. On mountain slopes, macropores created by burrowing organisms and by decay of plant roots have the capacity to transmit subsurface flow downslope quickly. In addition, some rock types underlying soils may be highly weathered or fractured and may transmit significant additional amounts of flow through the subsurface. In some settings this rapid flow of water results in hillside springs.



A general concept of water flow in mountainous terrain includes several pathways by which precipitation moves through the hillside to a stream (Figure 20). Between storm and snowmelt periods, streamflow is sustained by discharge from the ground-water system (Figure 20*A*). During intense storms, most water reaches streams very rapidly by partially saturating and flowing through the highly conductive soils. On the lower parts of hillslopes, the water table sometimes rises to the land surface during storms, resulting in overland flow (Figure 20*B*). When this occurs, precipitation on the saturated area adds to the quantity of overland flow. When storms or snowmelt persist in mountainous areas, near-stream saturated areas can expand outward from streams to include areas higher on the hillslope. In some settings, especially in arid regions, overland flow can be generated when the rate of rainfall exceeds the infiltration capacity of the soil (Figure 20*C*).

Near the base of some mountainsides, the water table intersects the steep valley wall some distance up from the base of the slope (Figure 21, left side of valley). This results in perennial

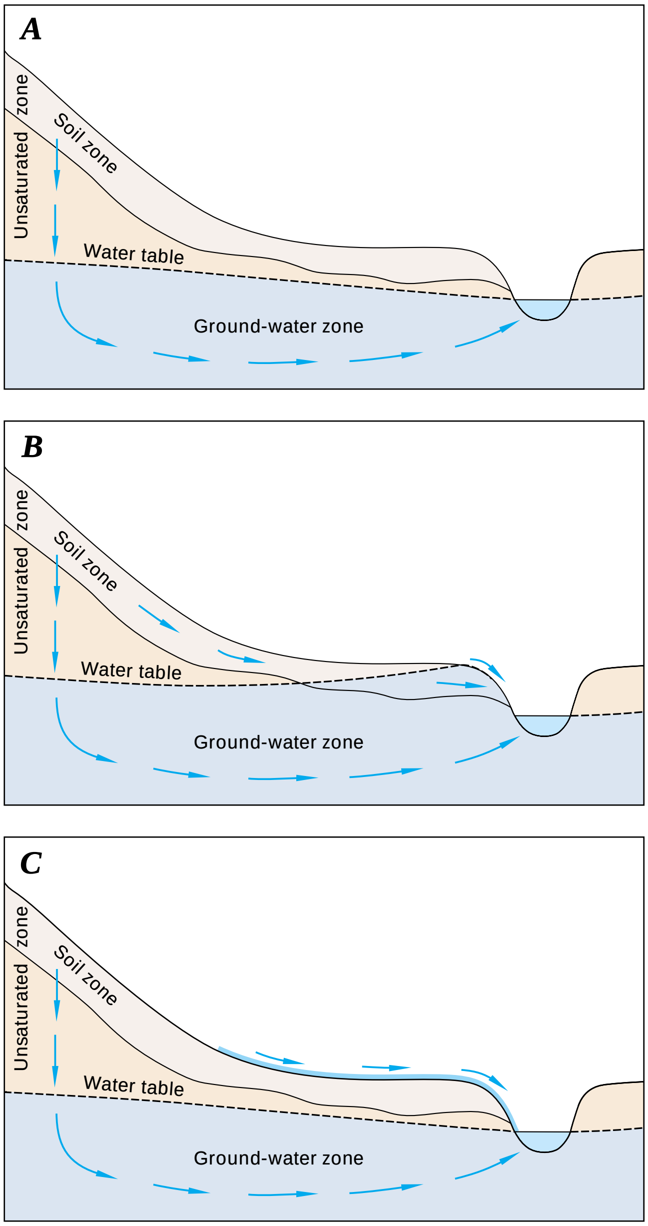


Figure **20.** *Water from precipitation moves to mountain streams along several pathways. Between storms and snowmelt periods, most inflow to streams commonly is from ground water (A). During storms and snowmelt periods, much of the water inflow to streams is from shallow flow in saturated macropores in the soil zone. If infiltration to the water table is large enough, the water table will rise to the land surface and flow to the stream is from ground water, soil water, and overland runoff (B). In arid areas where soils are very dry and plants are sparse, infiltration is impeded and runoff from precipitation can occur as overland flow (C). (Modified from Dunne, T., and Leopold, L.B., 1978, Water in environmental planning: San Francisco, W.H. Freeman.) (Used with permission.)*

discharge of ground water and, in many cases, the presence of wetlands. A more common hydrologic process that results in the presence of wetlands in some mountain valleys is the upward discharge of ground water caused by the change in slope of the water table from being steep on the valley side to being relatively flat in the alluvial valley (Figure 21, right side of valley). Where both of these water-table conditions exist, wetlands fed by ground water, which commonly are referred to as fens, can be present.

Another dynamic aspect of the interaction of ground water and surface water in mountain settings is caused by the marked longitudinal component of flow in mountain valleys. The high gradient of mountain streams, coupled with the coarse texture of streambed sediments, results in a strong down-valley component of flow accompanied by frequent exchange of stream water with water in the hyporheic zone (Figure 14) (see Box H). The driving force for water exchange between a stream and its hyporheic zone is created by the surface water flowing over rough streambeds, through pools and riffles, over cascades, and around boulders and logs. Typically, the stream enters the hyporheic zone at the downstream end of pools and then flows beneath steep sections of the stream (called riffles), returning to the stream at the upstream end of the next pool (Figure 14*A*). Stream water also may enter the hyporheic zone upstream from channel meanders, causing stream water to flow through a gravel bar before reentering the channel downstream (Figure 14*B*).

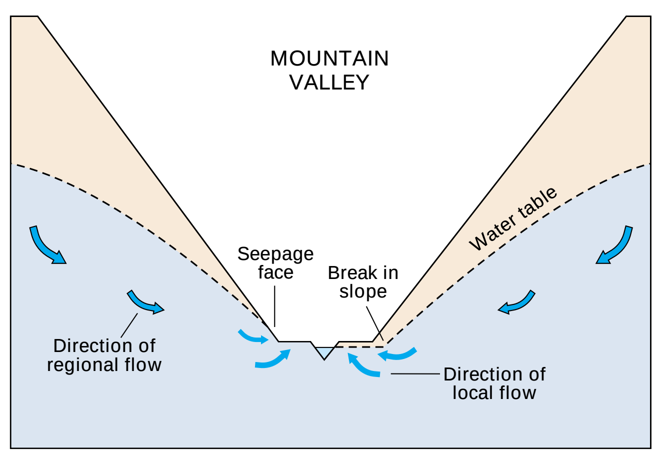


Figure **21**. *In mountainous terrain, ground water can discharge at the base of steep slopes (left side of valley), at the edges of flood plains (right side of valley), and to the stream.*

Streams flowing from mountainous terrain commonly flow across alluvial fans at the edges of the valleys. Most streams in this type of setting lose water to ground water as they traverse the highly permeable alluvial fans. This process has long been recognized in arid western regions, but it also has been documented in humid regions, such as the Appalachian Mountains. In arid and semiarid regions, seepage of water from the stream can be the principal source of aquifer recharge. Despite its importance, ground-water recharge from losing streams remains a highly uncertain part of the water balance of aquifers in these regions. Promising new methods of estimating ground-water recharge, at least locally, along mountain fronts are being developed—these methods include use of environmental tracers, measuring vertical temperature profiles in streambeds, measuring hydraulic characteristics of streambeds, and measuring the difference in hydraulic head between the stream and the underlying aquifer.

The most common natural lakes in mountainous terrain are those that are dammed by rock sills or glacial deposits high in the mountains. Termed cirque lakes, they receive much of their water from snowmelt. However, they interact with ground water much like the processes shown in Figure 21, and they can be maintained by ground water throughout the snow-free season.

The geochemical environment of mountains is quite diverse because of the effects of highly variable climate and many different rock and soil types on the evolution of water chemistry. Geologic materials can include crystalline, volcanic, and sedimentary rocks and glacial deposits. Sediments can vary from those having well-developed soil horizons to stream alluvium that has no soil development. During heavy precipitation, much water flows through shallow flow paths, where it interacts with microbes and soil gases. In the deeper flow through fractured bedrock, longer term geochemical interactions of ground water with minerals determine the chemistry of water that eventually discharges to streams. Base flow of streams in mountainous terrain is derived by drainage from saturated alluvium in valley bottoms and from drainage of bedrock fractures. Mixing of these chemically different water types results in geochemical reactions that affect the chemistry of water in streams. During downstream transport in the channel, stream water mixes with ground water in the hyporheic zone. In some mountain streams, the volume of water in the hyporheic zone is considerably larger than that in the stream channel. Chemical reactions in hyporheic zones can, in some cases, substantially alter the water chemistry of streams (Figure 19).

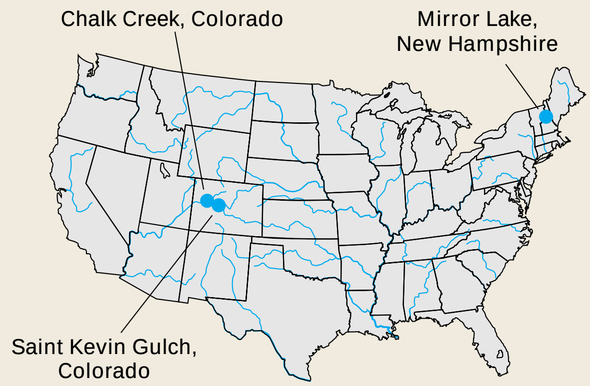
H

Field Studies of Mountainous Terrain

The steep slopes and rocky characteristics of mountainous terrain make it difficult to determine interactions of ground water and surface water. Consequently, few detailed hydrogeologic investigations of these interactions have been conducted in mountainous areas. Two examples are given below.

A field and modeling study of the Mirror Lake area in the White Mountains of New Hampshire indicated that the sizes of ground-water flow systems contributing to surface-water bodies were considerably larger than their topographically defined watersheds. For example, much of the ground water in the fractured bedrock that discharges to Mirror Lake passes beneath the local flow system associated with Norris Brook (Figure H–1). Furthermore, a more extensive deep ground-water flow system that discharges to the Pemigewasset River passes beneath flow systems associated with both Norris Brook and Mirror Lake.

Studies in mountainous terrain have used tracers to determine sources of ground water to streams (see Box G). In addition to revealing processes of water exchange between ground water and stream water, solute tracers have proven useful for defining the limits of the hyporheic zone surrounding mountain streams. For example, solute tracers such as chloride or bromide ions are injected into the stream to artificially raise concentrations above natural background concentrations. The locations and amounts of ground-water inflow are determined from a simple dilution model. The extent that tracers move into the hyporheic zone can be estimated by the models and commonly is verified by sampling wells placed in the study area.



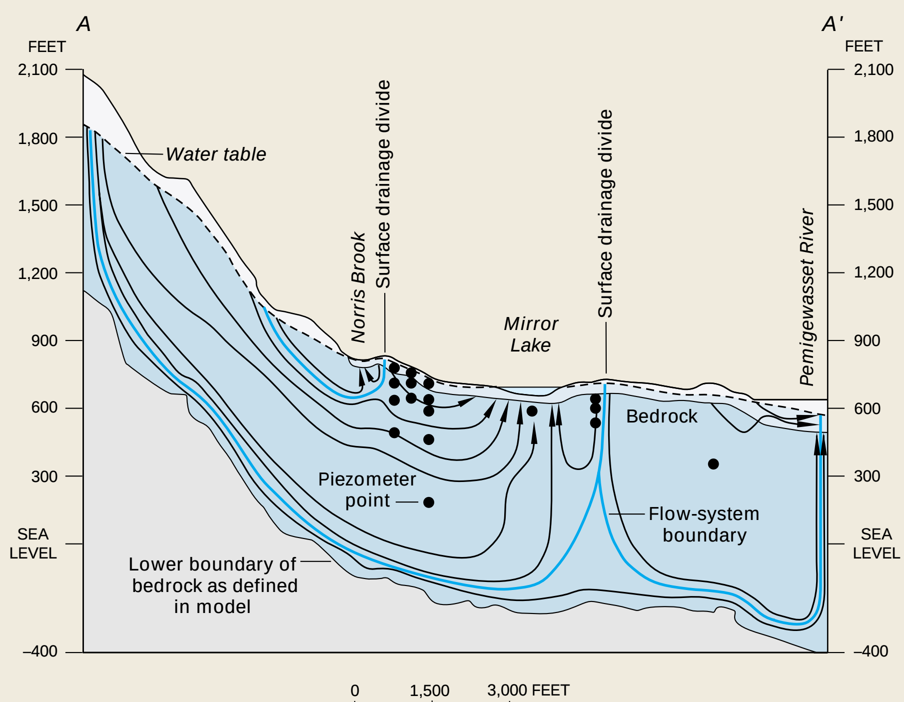


Figure H–1. Ground-water flow systems in the Mirror Lake area extend beyond the topographically defined surface-water watersheds. (Modified from Harte, P.T., and Winter, T.C., 1996, Factors affecting recharge to crystalline rock in the Mirror Lake area, Grafton County, New Hampshire: in Morganwalp, D.W., and Aronson, D.A., eds., U.S. Geological Survey Toxic Substances Hydrology Program—Proceedings of Technical Meeting, Colorado Springs, Colorado, September 20–24, 1993: U.S. Geological Survey Water-Resources Investigations Report 94-4014, p. 141–150.)

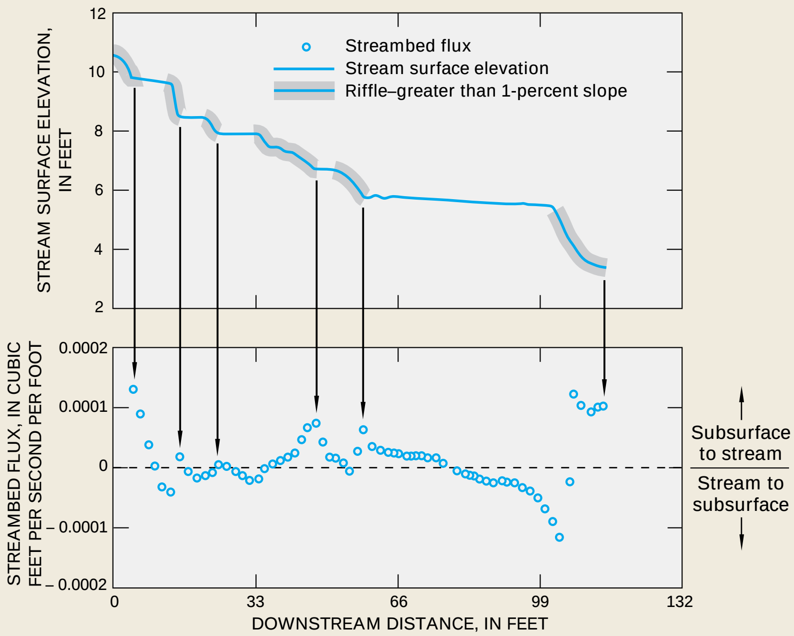


Figure H–2. In mountain streams characterized by pools and riffles, such as at Saint Kevin Gulch in Colorado, inflow of water from the hyporheic zone to the stream was greatest at the downstream end of riffles. (Modified from Harvey, J.W., and Bencala, K.E., 1993, The effect of streambed topography on surface-subsurface water exchange in mountain catchments: Water Resources Research, v. 29, p. 89–98.)

A study in Colorado indicated that hyporheic exchange in mountain streams is caused to a large extent by the irregular topography of the streambed, which creates pools and riffles characteristic of mountain streams. Ground water enters streams most readily at the upstream end of deep pools, and stream water flows into the subsurface beneath and to the side of steep sections of streams (riffles) (Figure H–2). Channel irregularity, therefore, is an important control on the location of ground-water inflow to streams and on the size of the hyporheic zone in mountain streams because changes in slope determine the length and depth of hyporheic flow paths.

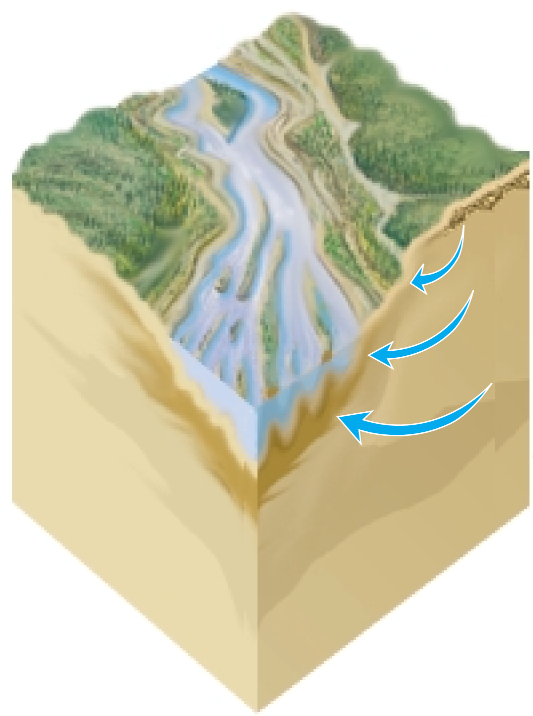
The source and fate of metal contaminants in streams receiving drainage from abandoned mines can be determined by using solute tracers. In addition to surface drainage from mines, a recent study of Chalk Creek in Colorado indicated that contaminants were being brought to the stream by ground-water inflow. The ground water had been contaminated from mining activities in the past and is now a new source of contamination to the stream. This nonpoint ground-water source of contamination will very likely be much more difficult to clean up than the point source of contamination from the mine tunnel.

RIVERINE TERRAIN

In some landscapes, stream valleys are small and they commonly do not have well-developed flood plains (area R of the conceptual landscape, Figure 2) (see Box I). However, major rivers (area V of the reference landscape, Figure 2) have valleys that usually become increasingly wider downstream. Terraces, natural levees, and abandoned river meanders are common landscape features in major river valleys, and wetlands and lakes commonly are associated with these features.

The interaction of ground water and surface water in river valleys is affected by the interchange of local and regional ground-water flow systems with the rivers and by flooding and evapotranspiration. Small streams receive ground-water inflow primarily from local flow systems, which usually have limited extent and are highly variable seasonally. Therefore, it is not unusual for small streams to have gaining or losing reaches that change seasonally.

For larger rivers that flow in alluvial valleys, the interaction of ground water and surface water usually is more spatially diverse than it is for smaller streams. Ground water from regional flow systems discharges to the river as well as at various places across the flood plain (Figure 22). If terraces are present in the alluvial valley, local ground-water flow systems may be associated with each terrace, and lakes and wetlands may be formed because of this source of ground water. At some locations, such as at the valley wall and at the river, local and regional ground-water flow systems may discharge in close proximity. Furthermore, in large alluvial valleys, significant down-valley components of flow in the streambed and in the shallow alluvium also may be present (see Box I).



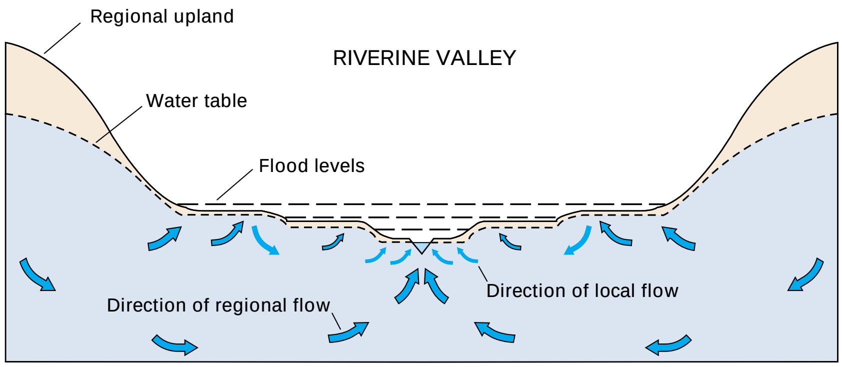


Figure 22. In broad river valleys, small local ground-water flow systems associated with terraces overlie more regional ground-water flow systems. Recharge from flood waters superimposed on these ground-water flow systems further complicates the hydrology of river

Added to this distribution of ground-water discharge from different flow systems to different parts of the valley is the effect of flooding. At times of high river flows, water moves into the ground-water system as bank storage (Figure 11). The flow paths can be as lateral flow through the river-bank (Figure 12*B*) or, during flooding, as vertical seepage over the flood plain (Figure 12*C*). As flood waters rise, they cause bank storage to move into higher and higher terraces.

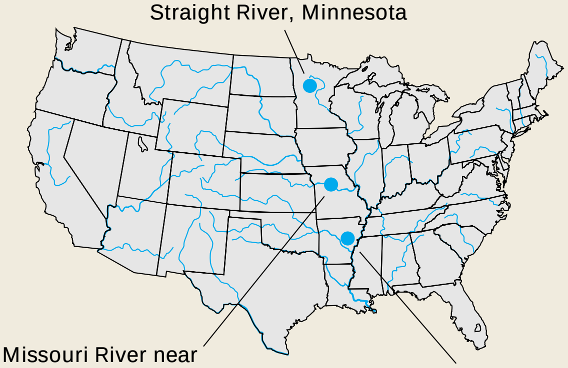
The water table generally is not far below the land surface in alluvial valleys. Therefore, vegetation on flood plains, as well as at the base of some terraces, commonly has root systems deep enough so that the plants can transpire water directly from ground water. Because of the relatively stable source of ground water, particularly in areas of ground-water discharge, the vegetation can transpire water near the maximum potential transpiration rate, resulting in the same effect as if the water were being pumped by a well (see Figure 7). This large loss of water can result in drawdown of the water table such that the plants intercept some of the water that would otherwise flow to the river, wetland, or lake. Furthermore, in some settings it is not uncommon during the growing season for the pumping effect of transpiration to be significant enough that surface water moves into the subsurface to replenish the transpired ground water.

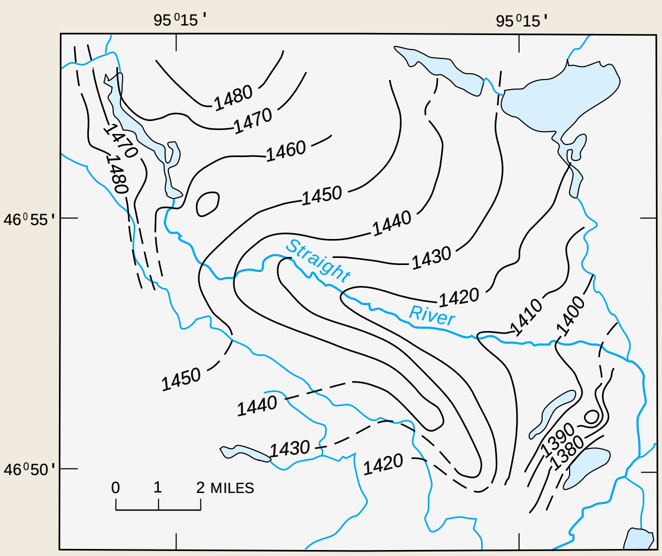
Riverine alluvial deposits range in size from clay to boulders, but in many alluvial valleys, sand and gravel are the predominant deposits. Chemical reactions involving dissolution or precipitation of minerals (see Box D) commonly do not have a significant effect on water chemistry in sand and gravel alluvial aquifers because the rate of water movement is relatively fast compared to weathering rates. Instead, sorption and desorption reactions and oxidation/reduction reactions related to the activity of microorganisms probably have a greater effect on water chemistry in these systems. As in small streams, biogeochemical processes in the hyporheic zone may have a significant effect on the chemistry of ground water and surface water in larger riverine systems. Movement of oxygen-rich surface water into the subsurface, where chemically reactive sediment coatings are abundant, causes increased chemical reactions related to activity of microorganisms. Sharp gradients in concentration of some chemical constituents in water, which delimit this zone of increased biogeochemical activity, are common near the boundary between ground water and surface water. In addition, chemical reactions in the hyporheic zone can cause precipitation of some reactive solutes and contaminants, thereby affecting water quality.

Field Studies of Riverine Terrain

Streams are present in virtually all landscapes, and in some landscapes, they are the principal surface-water features. The interaction of ground water with streams varies in complexity because they vary in size from small streams near headwaters areas to large rivers flowing in large alluvial valleys, and also because streams intersect ground-water flow systems of greatly different scales. Examples of the interaction of ground water and surface water for small and large riverine systems are presented below.

The Straight River, which runs through a sand plain in central Minnesota, is typical of a small stream that does not have a flood plain and that derives most of its water from ground-water inflow. The water-table contours near the river bend sharply upstream (Figure I–1), indicating that ground water moves directly into the river. It is estimated from base-flow studies (see Box B) that, on an annual basis, ground water accounts for more than 90 percent of the water in the river.





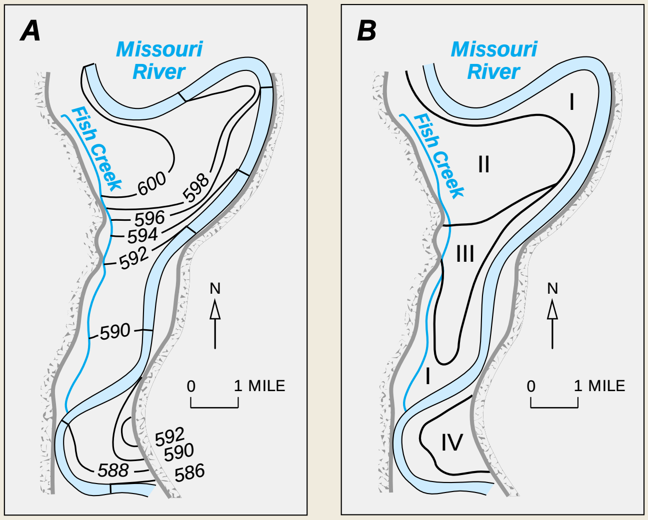
EXPLANATION

—1420— WATER-TABLE CONTOUR—Shows altitude of the water table in feet above sea level. Dashed where approximately located. Contour interval 10 feet

Figure I–1. Small streams, such as the Straight River in Minnesota, commonly do not have flood plains. The flow of ground water directly into the river is indicated by the water-table contours that bend sharply upstream. (Modified from Stark, J.R., Armstrong, D.S., and Zwilling, D.R., 1994, Stream-aquifer interactions in the Straight River area, Becker and Hubbard Counties, Minnesota: U.S. Geological Survey Water-Resources Investigations Report 94–4009, 83 p.)

In contrast, the results of a study of the lower Missouri River Valley indicate the complexity of ground-water flow and its interaction with streams in large alluvial valleys. Configuration of the water table in this area indicates that ground water flows into the river at right angles in some reaches, and it flows parallel to the river in others (Figure I–2*A*). This study also resulted in a map that showed patterns of water-table fluctuations with respect to proximity to the river (Figure I–2*B*). This example shows the wide variety of ground-water flow conditions that can be present in large alluvial valleys.

Another study of part of a large alluvial valley provides an example of the presence of smaller scale flow conditions. The Cache River is a stream within the alluvial valley of the Mississippi River Delta system in eastern Arkansas. In a study of the Black Swamp, which lies along a reach of the river, a number of wells and piezometers were installed to determine the interaction of ground water with the swamp and the river. By measuring hydraulic head at different depths in the



EXPLANATION

—590— WATER-TABLE CONTOUR—Shows altitude of water table in feet above sea level. Contour interval 2 feet

Figure I–2. In flood plains of large rivers, such as the Missouri River near Glasgow, Missouri, patterns of ground-water movement (A) and water-table fluctuations (B) can be complex. Zone I is an area of rapidly fluctuating water levels, zone II is an area of long-term stability, zone III is an area of down-valley flow, and zone IV is a persistent ground-water high. (Modified from Grannemann, N.G., and Sharp, J.M., Jr., 1979, Alluvial hydrogeology of the lower Missouri River: Journal of Hydrology, v. 40, p. 85–99.) (Reprinted with permission from Elsevier Science-NL, Amsterdam, The Netherlands.)

alluvium, it was possible to construct a hydrologic section through the alluvium (Figure I–3), showing that the river receives ground-water discharge from both local and regional ground-water flow systems. In addition, the section also shows the effect of the break in slope associated with the terrace at the edge of the swamp, which causes ground water from a local flow system to discharge into the edge of the swamp rather than to the river.

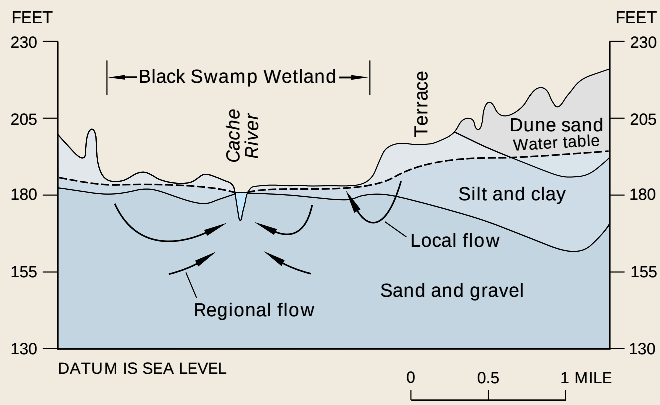


Figure I–3. The Cache River in Arkansas provides an example of contributions to a river from regional and local ground-water flow systems. In addition, a small local ground-water flow system associated with a terrace discharges to the wetland at the edge of the flood plain. (Modified from Gonthier, G.J., 1996, Ground-water flow conditions within a bottomland hardwood wetland, eastern Arkansas: Wetlands, v. 16, no. 3, p. 334–346.) (Used with permission.)

COASTAL TERRAIN

Coastal terrain, such as that along the east-central and southern coasts of the United States, extends from inland scarps and terraces to the ocean (area C of the conceptual landscape, Figure 2). This terrain is characterized by (1) low scarps and terraces that were formed when the ocean was higher than at present; (2) streams, estuaries, and lagoons that are affected by tides; (3) ponds that are commonly associated with coastal sand dunes; and (4) barrier islands. Wetlands cover extensive areas in some coastal terrains (see Figure 18).

The interaction of ground water and surface water in coastal terrain is affected by discharge of ground water from regional flow systems and from local flow systems associated with scarps and terraces (Figure 23), evapotranspiration, and tidal flooding. The local flow systems associated with scarps and terraces are caused by the configuration of the water table near these features (see Box J). Where the water table has a downward break in slope near the top of scarps and terraces, downward components of ground-water flow are present; where the water table has an upward break in slope near the base of these features, upward components of ground-water flow are present.

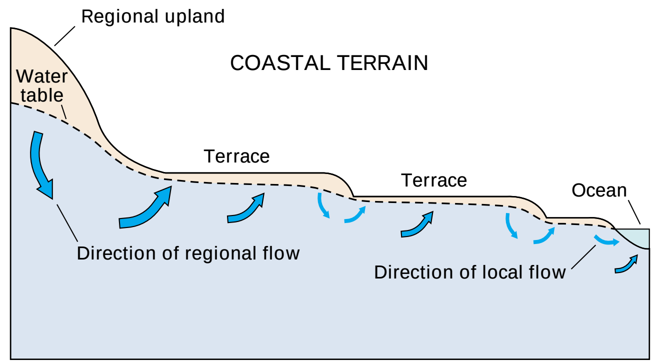
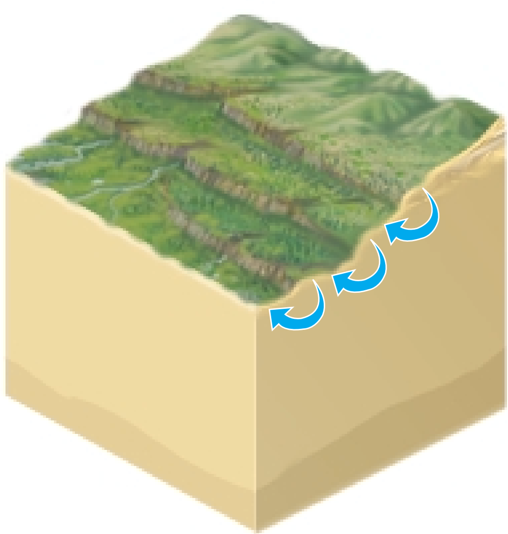


Figure 23. In coastal terrain, small local ground-water flow cells associated with terraces overlie more regional ground-water flow systems. In the tidal zone, saline and brackish surface water mixes with fresh ground water from local and regional flow systems.



Evapotranspiration directly from ground water is widespread in coastal terrain. The land surface is flat and the water table generally is close to land surface; therefore, many plants have root systems deep enough to transpire ground water at nearly the maximum potential rate. The result is that evapotranspiration causes a significant water loss, which affects the configuration of ground-water flow systems as well as how ground water interacts with surface water.

In the parts of coastal landscapes that are affected by tidal flooding, the interaction of ground water and surface water is similar to that in alluvial valleys affected by flooding. The principal difference between the two is that tidal flooding is more predictable in both timing and magnitude than river flooding. The other significant difference is in water chemistry. The water that moves into bank storage from rivers is generally fresh, but the water that moves into bank storage from tides generally is brackish or saline.

Estuaries are a highly dynamic interface between the continents and the ocean, where discharge of freshwater from large rivers mixes with saline water from the ocean. In addition, ground water discharges to estuaries and the ocean, delivering nutrients and contaminants directly to coastal waters. However, few estimates of the location and magnitude of ground-water discharge to coasts have been made.

In some estuaries, sulfate-rich regional ground water mixes with carbonate-rich local ground water and with chloride-rich seawater, creating sharp boundaries that separate plant and wildlife communities. Biological communities associated with these sharp boundaries are adapted to different hydrochemical conditions, and they undergo periodic stresses that result from inputs of water having different chemistry. The balance between river inflow and tides causes estuaries to retain much of the particulate and dissolved matter that is transported in surface and subsurface flows, including contaminants.

"Ground water discharges to estuaries and the ocean, delivering nutrients and contaminants directly to coastal waters"

J

Field Studies of Coastal Terrain

Along the Atlantic, Gulf of Mexico, and Arctic Coasts of the United States, broad coastal plains are transected by streams, scarps, and terraces. In some parts of these regions, local ground-water flow systems are associated with scarps and terraces, and freshwater wetlands commonly are present. Other parts of coastal regions are affected by tides, resulting in very complex flow and biogeochemical processes.

Underlying the broad coastal plain of the mid-Atlantic United States are sediments 600 or more feet thick. The sands and clays were deposited in stratigraphic layers that slope gently from west to east. Ground water moves regionally toward the east in the more permeable sand layers. These aquifers are separated by discontinuous layers of clay that restrict vertical ground-water movement. Near land surface, local ground-water flow systems are associated with changes in land slope, such as at major scarps and at streams.

Studies of the Dismal Swamp in Virginia and North Carolina provide examples of the interaction of ground water and wetlands near a coastal scarp. The Suffolk Scarp borders the west side of Great Dismal Swamp. Water-table wells and deeper piezometers placed across the scarp indicated a downward component of ground-water flow in the upland and an upward component of ground-water flow in the lowland at the edge of the swamp (Figure J–1*A*). However, at the edge of the swamp the direction of flow changed several times between May and October in 1982 because transpiration of ground water lowered the water table below the water level of the deep piezometer (Figure J–1*B*).

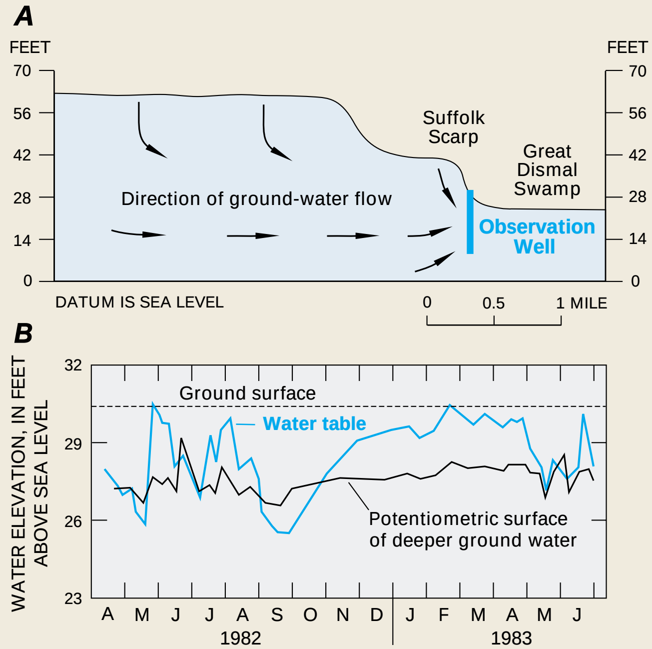
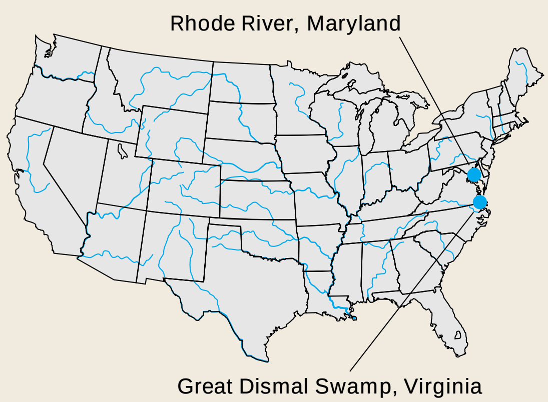


Figure J–1. Ground-water discharge at the edge of the Great Dismal Swamp in Virginia provides an example of local ground-water flow systems associated with coastal scarps (A). The vertical components of flow can change direction seasonally, partly because evapotranspiration discharges shallower ground water during part of the year (B). (Modified from Carter, Virginia, 1990, The Great Dismal Swamp—An illustrated case study, chapter 8, in Lugo, A.E., Brinson, Mark, and Brown, Sandra, eds., Ecosystems of the world, 15: Forested wetlands, Elsevier, Amsterdam, p. 201–211.) (Reprinted with permission from Elsevier Science-NL, Amsterdam, The Netherlands.)



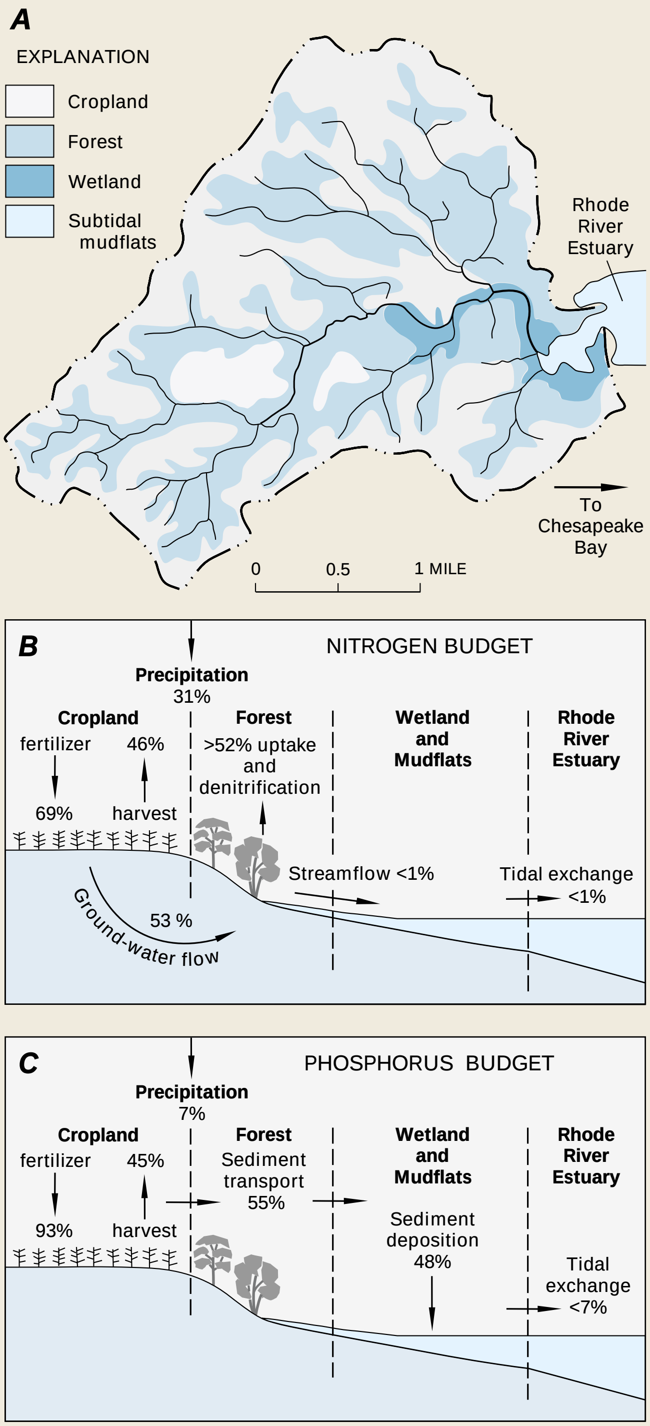


Figure J–2. Forests and wetlands separate cropland from streams in the Rhode River watershed in Maryland (A). More than half of the nitrogen applied to cropland is transported by ground water toward riparian forests and wetlands (B). More than half of the total phosphorus applied to cropland is transported by streams to wetlands and mudflats, where most is deposited in sediments (C). (Modified from Correll, D.L., Jordan, T.E., and Weller, D.E., 1992, Nutrient flux in a landscape—Effects of coastal land use and terrestrial community mosaic on nutrient transport to coastal waters: Estuaries, v. 15, no. 4, p. 431–442.) (Reprinted by permission of the Estuarine Research Federation.)

The gentle relief and sandy, well-drained soils of coastal terrain are ideal for agriculture. Movement of excess nutrients to estuaries are a particular problem in coastal areas because the slow rate of flushing of coastal bays and estuaries can cause them to retain nutrients. At high concentrations, nutrients can cause increased algal production, which results in overabundance of organic matter. This, in turn, can lead to reduction of dissolved oxygen in surface water to the extent that organisms are killed throughout large areas of estuaries and coastal bays.

Movement of nutrients from agricultural fields has been documented for the Rhode River watershed in Maryland (Figure J–2). Application of fertilizer accounts for 69 percent of nitrogen and 93 percent of phosphorus input to this watershed (Figure J–2*B* and J–2*C*). Almost all of the nitrogen that is not removed by harvested crops is transported in ground water and is taken up by trees in riparian forests and wetlands or is denitrified to nitrogen gas in ground water before it reaches streams. On the other hand, most of the phosphorus not removed by harvested crops is attached to soil particles and is transported only during heavy precipitation when sediment from fields is transported into streams and deposited in wetlands and subtidal mudflats at the head of the Rhode River estuary. Whether phosphorus is retained in sediments or is released to the water column depends in part on whether sediments are exposed to oxygen. Thus, the uptake of nutrients and their storage in riparian forests, wetlands, and subtidal mudflats in the Rhode River watershed has helped maintain relatively good water quality in the Rhode River estuary.

In other areas, however, agricultural runoff and input of nutrients have overwhelmed coastal systems, such as in the northern Gulf of Mexico near the mouth of the Mississippi River. The 1993 flood in the Mississippi River system delivered an enormous amount of nutrients to the Gulf of Mexico. Following the flood, oxygen-deficient sediments created areas of black sediment devoid of animal life in parts of the northern Gulf of Mexico.

GLACIAL AND DUNE TERRAIN

Glacial and dune terrain (area G of the conceptual landscape, Figure 2) is characterized by a landscape of hills and depressions. Although stream networks drain parts of these landscapes, many areas of glacial and dune terrain do not contribute runoff to an integrated surface drainage network. Instead, surface runoff from precipitation falling on the landscape accumulates in the depressions, commonly resulting in the presence of lakes and wetlands. Because of the lack of stream outlets, the water balance of these “closed” types of lakes and wetlands is controlled largely by exchange of water with the atmosphere (precipitation and evapotranspiration) and with ground water (see Box K).

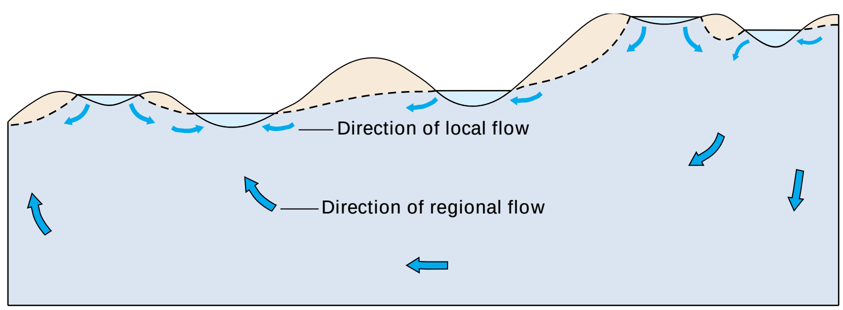
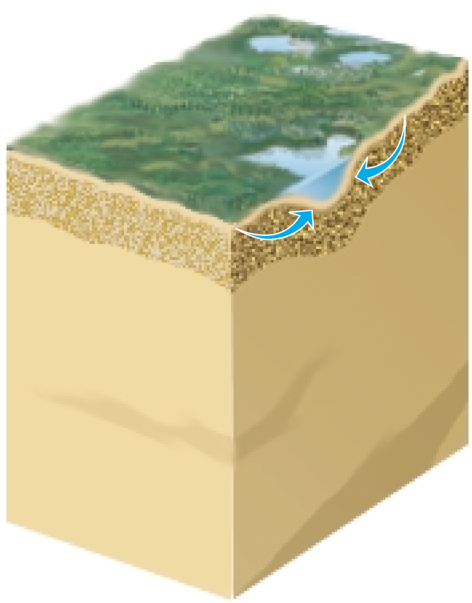


Figure 24. In glacial and dune terrain, local, intermediate, and regional ground-water flow systems interact with lakes and wetlands. It is not uncommon for wetlands that recharge local ground-water flow systems to be present in lowlands and for wetlands that receive discharge from local ground water to be present in uplands.



Lakes and wetlands in glacial and dune terrain can have inflow from ground water, outflow to ground water, or both (Figure 16). The interaction between lakes and wetlands and ground water is determined to a large extent by their position with respect to local and regional ground-water flow systems. A common conception is that lakes and wetlands that are present in topographically high areas recharge ground water, and that lakes and wetlands that are present in low areas receive discharge from ground water. However, lakes and wetlands underlain by deposits having low permeability can receive discharge from local ground-water flow systems even if they are located in a regional ground-water recharge area. Conversely, they can lose water to local ground-water flow systems even if they are located in a regional ground-water discharge area (Figure 24).

Lakes and wetlands in glacial and dune terrain underlain by highly permeable deposits commonly have ground-water seepage into one side and seepage to ground water on the other side. This relation is relatively stable because the water-table gradient between surface-water bodies in this type of setting is relatively constant. However, the boundary between inflow to the lake or wetland and outflow from it, termed the hinge line, can move up and down along the shoreline. Movement of the hinge line between inflow and outflow is a result of the changing slope of the water table in response to changes in ground-water recharge in the adjacent uplands.

Transpiration directly from ground water has a significant effect on the interaction of lakes and wetlands with ground water in glacial and dune terrain. Transpiration from ground water (Figure 7) has perhaps a greater effect on lakes and wetlands underlain by low-permeability deposits than in any other landscape. The lateral movement of ground water in low-permeability deposits may not be fast enough to supply the quantity of water at the rate it is removed by transpiration, resulting in deep and steep-sided cones of depression. These cones of depression commonly are present around the perimeter of the lakes and wetlands (Figure 7 and Box K).

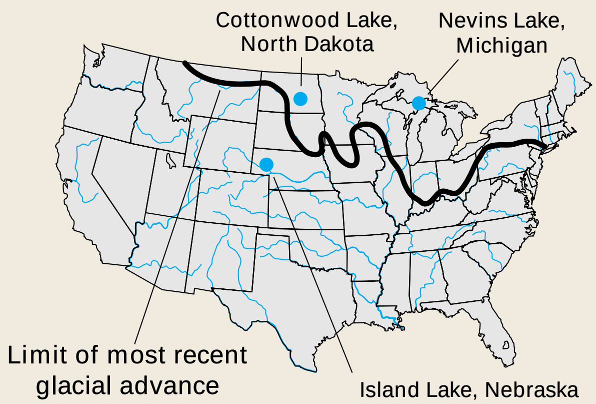
In the north-central United States, cycles in the balance between precipitation and evapotranspiration that range from 5 to 30 years can result in large changes in water levels, chemical concentrations, and major-ion water type of individual wetlands. In some settings, repeated cycling of water between the surface and subsurface in the same locale results in evaporative concentration of solutes and eventually in mineral precipitation in the subsurface. In addition, these dynamic hydrological and chemical conditions can cause significant changes in the types, number, and distribution of wetland plants and invertebrate animals within wetlands. These changing hydrological conditions that range from seasons to decades are an essential process for rejuvenating wetlands that provide ideal habitat and feeding conditions for migratory waterfowl.

“The hydrological and chemical characteristics of lakes and wetlands in glacial and dune terrain are determined to a large extent by their position with respect to local and regional ground-water flow systems”

Field Studies of Glacial and Dune Terrain

Glacial terrain and dune terrain are characterized by land-surface depressions, many of which contain lakes and wetlands. Although much of the glacial terrain covering the north-central United States (see index map) has low topographic relief, neighboring lakes and wetlands are present at a sufficiently wide range of altitudes to result in many variations in how they interact with ground water, as evidenced by the following examples.

The Cottonwood Lake area, near Jamestown, North Dakota, is within the prairie-pothole region of North America. The hydrologic functions of these small depressional wetlands are highly variable in space and time. With respect to spatial variation, some wetlands recharge ground water, some receive ground-water inflow and have outflow to ground water, and some receive ground-water discharge. Wetland P1 provides an example of how their functions can vary in time. The wetland receives ground-water discharge most of the time; however, transpiration of ground water by plants around the perimeter of the wetland can cause water to seep from the wetland. Seepage from wetlands commonly is assumed to be ground-water recharge, but in cases like Wetland P1, the water is actually lost to transpiration. This process results in depressions in the water table around the perimeter of the wetland at certain times, as shown in



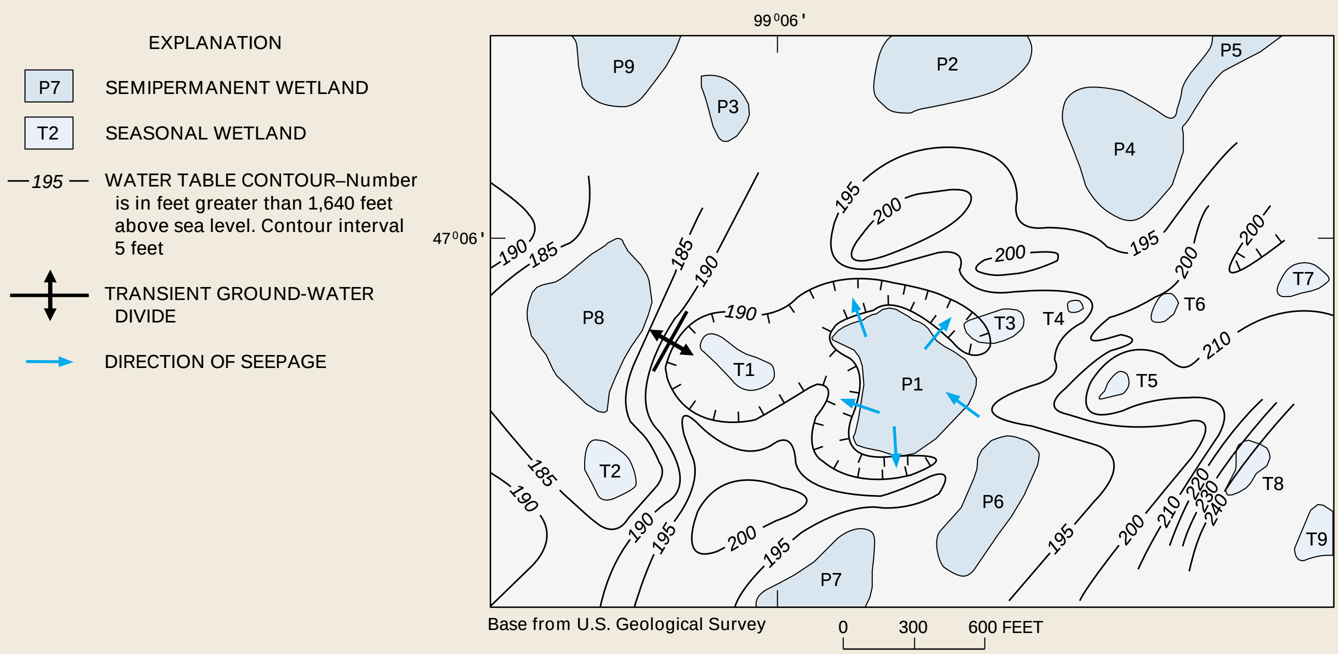


Figure K–1. Transpiration directly from ground water causes cones of depression to form by late summer around the perimeter of prairie pothole Wetland P1 in the Cottonwood Lake area in North Dakota. (Modified from Winter, T.C., and Rosenberry, D.O., 1995, The interaction of ground water with prairie pothole wetlands in the Cottonwood Lake area, east-central North Dakota, 1979–1990: Wetlands, v. 15, no. 3, p. 193–211.) (Used with permission.)

Figure K–1. Transpiration-induced depressions in the water table commonly are filled in by recharge during the following spring, but then form again to some extent by late summer nearly every year.

Nevins Lake, a closed lake in the Upper Peninsula of Michigan, illustrates yet another type of interaction of lakes with ground water in glacial terrain. Water-chemistry studies of Nevins Lake indicated that solutes such as calcium provide an indicator of ground-water inflow to the lake. Immediately following spring snowmelt, the mass of dissolved calcium in the lake increased rapidly because of increased ground-water inflow. Calcium then decreased steadily throughout the summer and early fall as the lake received less ground-water inflow (Figure K–2). This pattern varied annually depending on the amount of ground-water recharge from snowmelt and spring rains. The chemistry of water in the pores of the lake sediments was used to determine the spatial variability in the direction of seepage on the side of the lake that had the most ground-water inflow. Seepage was always out of the lake at the sampling site farthest from shore and was always upward into the lake at the site nearest to shore. Flow reversals were documented at sites located at intermediate distances from shore.

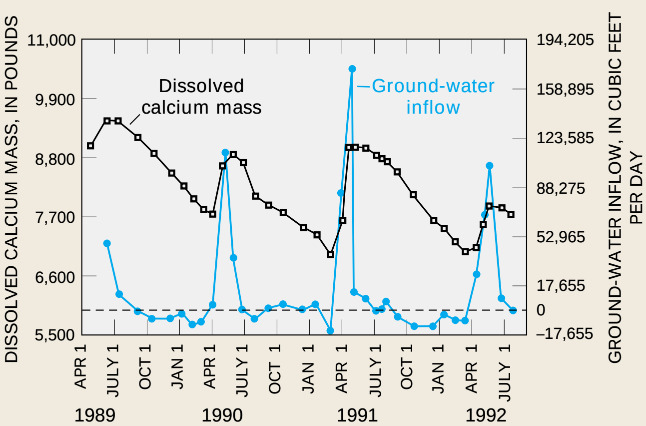


Figure K–2. A large input of ground water during spring supplies the annual input of calcium to Nevins Lake in the Upper Peninsula of Michigan. (Modified from Krabbenhoft, D.P., and Webster, K.E., 1995, Transient hydrogeological controls on the chemistry of a seepage lake: Water Resources Research, v. 31, no. 9, p. 2295–2305.)

Dune terrain also commonly contains lakes and wetlands. Much of the central part of western Nebraska, for example, is covered by sand dunes that have lakes and wetlands in most of the lowlands between the dunes. Studies of the interaction of lakes and wetlands with ground water at the Crescent Lake National Wildlife Refuge indicate that most of these lakes have seepage inflow from ground water and seepage outflow to ground water. The chemistry of inflowing ground water commonly has an effect on lake water chemistry. However, the chemistry of lake water can also affect ground water in areas of seepage from lakes. In the Crescent Lake area, for example, plumes of lake water were detected in ground water downgradient from the lakes, as indicated by the plume of dissolved organic carbon downgradient from Roundup Lake and Island Lake (Figure K–3).

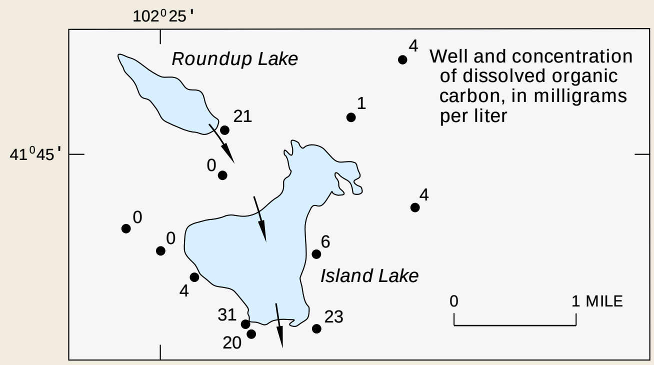
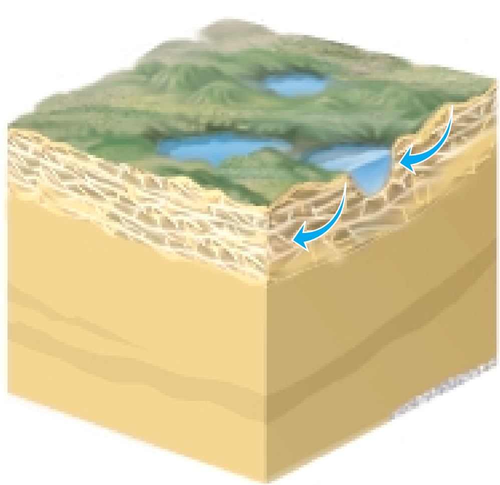


Figure K–3. Seepage from lakes in the sandhills of Nebraska causes plumes of dissolved organic carbon to be present in ground water on the downgradient sides of the lakes. (Modified from LaBaugh, J.W., 1986, Limnological characteristics of selected lakes in the Nebraska sandhills, U.S.A., and their relation to chemical characteristics of adjacent ground water: Journal of Hydrology, v. 86, p. 279–298.) (Reprinted with permission of Elsevier Science-NL, Amsterdam, The Netherlands.)

KARST TERRAIN

Karst may be broadly defined as all landforms that are produced primarily by the dissolution of rocks, mainly limestone and dolomite. Karst terrains (area K of the conceptual landscape, Figure 2) are characterized by (1) closed surface depressions of various sizes and shapes known as sinkholes, (2) an underground drainage network that consists of solution openings that range in size from enlarged cracks in the rock to large caves, and (3) highly disrupted surface drainage systems, which relate directly to the unique character of the underground drainage system.

Dissolution of limestone and dolomite guides the initial development of fractures into solution holes that are diagnostic of karst terrain. Perhaps nowhere else is the complex interplay between hydrology and chemistry so important to changes in landform. Limestone and dolomite weather quickly, producing calcium and magnesium carbonate waters that are relatively high in ionic strength. The increasing size of solution holes allows higher ground-water flow rates across a greater surface area of exposed minerals, which stimulates the dissolution process further, eventually leading to development of caves. Development of karst terrain also involves biological processes. Microbial production of carbon dioxide in the soil affects the carbonate equilibrium of water as it recharges ground water, which then affects how much mineral dissolution will take place before solute equilibrium is reached.



Ground-water recharge is very efficient in karst terrain because precipitation readily infiltrates through the rock openings that intersect the land surface. Water moves at greatly different rates through karst aquifers; it moves slowly through fine fractures and pores and rapidly through solution-enlarged fractures and conduits. As a result, the water discharging from many springs in karst terrain may be a combination of relatively slow-moving water draining from pores and rapidly moving storm-derived water. The slow-moving component tends to reflect the chemistry of the aquifer materials, and the more rapidly moving water associated with recent rainfall tends to reflect the chemical characteristics of precipitation and surface runoff.

Water movement in karst terrain is especially unpredictable because of the many paths ground water takes through the maze of fractures and solution openings in the rock (see Box L). Because of the large size of interconnected openings in well-developed karst systems, karst terrain can have true underground streams. These underground streams can have high rates of flow, in some places as great as rates of flow in surface streams. Furthermore, it is not unusual for medium-sized streams to disappear into the rock openings, thereby completely disrupting the surface drainage system, and to reappear at the surface at another place. Seeps and springs of all sizes are characteristic features of karst terrains. Springs having sufficiently large ground-water recharge areas commonly are the source of small- to medium-sized streams and constitute a large part of tributary flow to larger streams. In addition, the location where the streams emerge can change, depending on the spatial distribution of ground-water recharge in relation to individual precipitation events. Large spring inflows to streams in karst terrain contrast sharply with the generally more diffuse ground-water inflow characteristic of streams flowing across sand and gravel aquifers.

Because of the complex patterns of surface-water and ground-water flow in karst terrain, many studies have shown that surface-water drainage divides and ground-water drainage divides do not coincide. An extreme example is a stream that disappears in one surface-water basin and reappears in another basin. This situation complicates the identification of source areas for water and associated dissolved constituents, including contaminants, in karst terrain.

Water chemistry is widely used for studying the hydrology of karst aquifers. Extensive tracer studies (see Box G) and field mapping to locate points of recharge and discharge have been used to estimate the recharge areas of springs, rates of ground-water movement, and the water balance of aquifers. Variations in parameters such as temperature, hardness, calcium/magnesium ratios, and other chemical characteristics have been used to identify areas of ground-water recharge, differentiate rapid- and slow-moving ground-water flow paths, and compare springflow characteristics in different regions. Rapid transport of contaminants within karst aquifers and to springs has been documented in many locations. Because of the rapid movement of water in karst aquifers, water-quality problems that might be localized in other aquifer systems can become regional problems in karst systems.

Some landscapes considered to be karst terrain do not have carbonate rocks at the land surface. For example, in some areas of the southeastern United States, surficial deposits overlie carbonate rocks, resulting in a "mantled" karst terrain. Lakes and wetlands in mantled karst terrain interact with shallow ground water in a manner similar to that in sandy glacial and dune terrains. The difference between how lakes and wetlands interact with ground water in sandy glacial and dune terrain and how they interact in the mantled karst is related to the buried carbonate rocks. If dissolution of the buried carbonate rocks causes slumpage of an overlying confining bed, such that water can move freely through the confining bed, the lakes and wetlands also can be affected by changing hydraulic heads in the aquifers underlying the confining bed (see Box L).

L

Field Studies of Karst Terrain

Karst terrain is characteristic of regions that are underlain by limestone and dolomite bedrock. In many karst areas, the carbonate bedrock is present at land surface, but in other areas it may be covered by other deposits and is referred to as “mantled” karst. The Edwards Aquifer in south-central Texas is an example of karst terrain where the limestones and dolomites are exposed at land surface (Figure L–1). In this outcrop area, numerous solution cavities along vertical joints and sinkholes provide an efficient link between the land surface and the water table. Precipitation on the outcrop area tends to infiltrate rapidly into the ground, recharging ground water. In addition, a considerable amount of recharge to the aquifer is provided by losing streams that cross the outcrop area. Even the largest streams that originate to the north are dry in the outcrop area for most of the year. The unusual highway signs in this area go beyond local pride in a prolific water supply—they reflect a clear understanding of how vulnerable this water supply is to contamination by human activities at the land surface.

Just as solution cavities are major avenues for ground-water recharge, they also are focal points for ground-water discharge from karst aquifers. For example, springs near the margin of the Edwards Aquifer provide a continuous source of water for streams to the south.

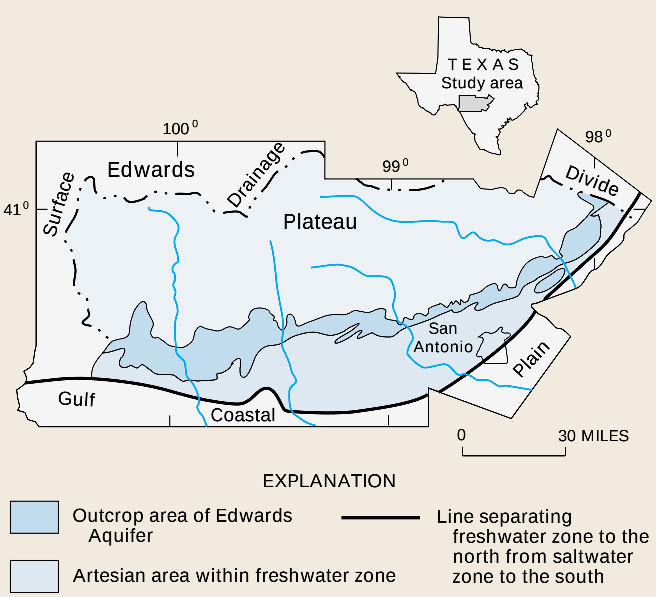


Figure L–1. A large area of karst terrain is associated with the Edwards Aquifer in south-central Texas. Large streams lose a considerable amount of water to ground water as they traverse the outcrop area of the Edwards Aquifer. (Modified from Brown, D.S., and Patton, J.T., 1995, Recharge to and discharge from the Edwards Aquifer in the San Antonio area, Texas, 1995: U.S. Geological Survey Open-File Report 96–181, 2 p.)

An example of mantled karst can be found in north-central Florida, a region that has many sinkhole lakes. In this region, unconsolidated deposits overlie the highly soluble limestone of the Upper Floridan aquifer. Most land-surface depressions containing lakes in Florida are formed when unconsolidated surficial deposits slump into sinkholes that form in the underlying limestone. Thus, although the lakes are not situated directly in limestone, the sinkholes in the bedrock underlying lakes commonly have a significant effect on the hydrology of the lakes.

Lake Barco is one of numerous lakes occupying depressions in northern Florida. Results of a study of the interaction of Lake Barco with ground water indicated that shallow ground water flows into the northern and northeastern parts of the lake, and lake water seeps out to shallow ground water in the western and southern parts (Figure L–2*A*). In addition, ground-water flow is downward beneath most of Lake Barco (Figure L–2*B*).

The studies of lake and ground-water chemistry included the use of tritium, chlorofluorocarbons (CFCs), and isotopes of oxygen (see Box G). The results indicated significant differences in the chemistry of (1) shallow ground water flowing into Lake Barco, (2) Lake Barco water, (3) shallow ground water downgradient from Lake Barco, and (4) deeper ground water beneath Lake Barco. Oxygen-rich lake water moving through the organic-rich lake sediments is reduced, resulting in discharge of oxygen-depleted water into the ground water beneath Lake Barco. This downward-moving ground water may have an undesired effect on the chemical quality of ground water in the underlying Upper Floridan aquifer, which is the principal source of water supply for the region. The patterns of ground-water movement determined from hydraulic-head data were corroborated by chemical tracers. For example, the dates that ground water in different parts of the flow system was recharged, as determined from CFC dating, show a fairly consistent increase in the length of time since recharge with depth (Figure L–2*C*).

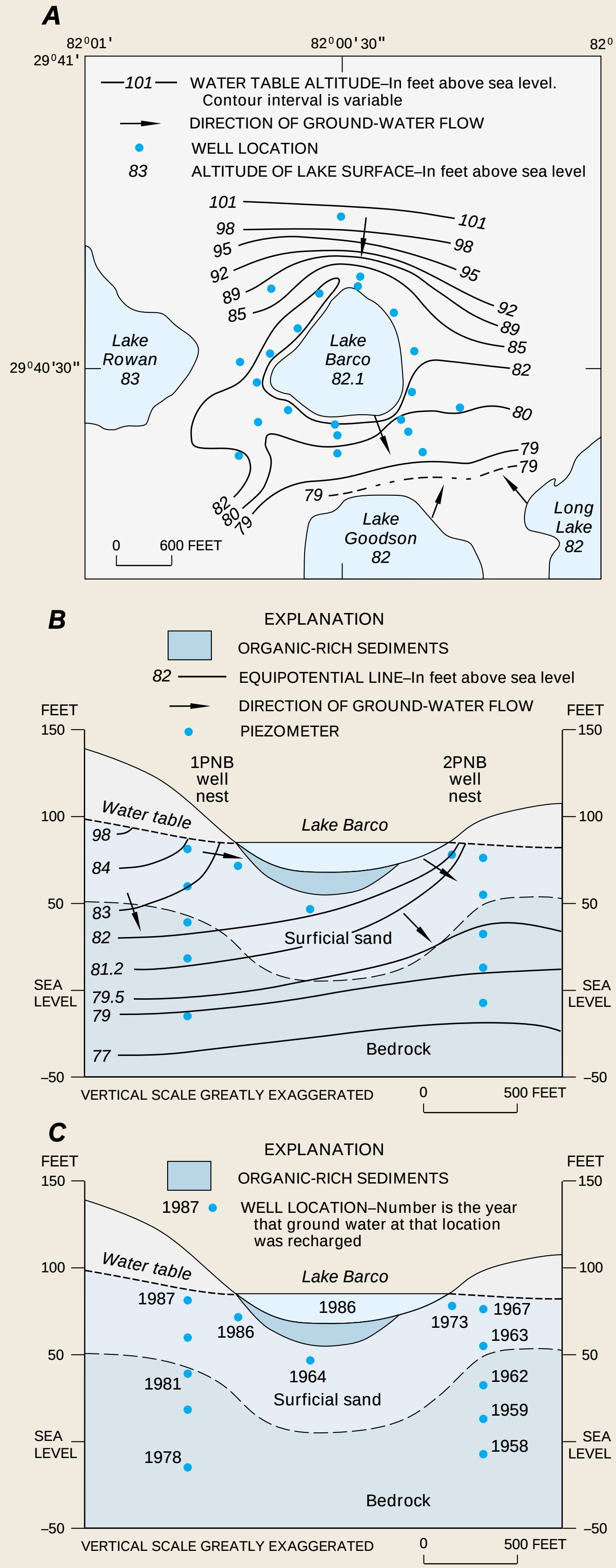


Figure L–2. Lake Barco, in northern Florida, is a flow-through lake with respect to ground water (A and B). The dates that ground water in different parts of the ground-water system was recharged indicate how long it takes water to move from the lake or water table to a given depth (C). (Modified from Katz, B.G., Lee, T.M., Plummer, L.N., and Busenberg, E., 1995, Chemical evolution of groundwater near a sinkhole lake, northern Florida, 1. Flow patterns, age of groundwater, and influence of lake water leakage: Water Resources Research, v. 31, no. 6, p. 1549–1564.)

EFFECTS OF HUMAN ACTIVITIES ON THE INTERACTION OF GROUND WATER AND SURFACE WATER

Human activities commonly affect the distribution, quantity, and chemical quality of water resources. The range in human activities that affect the interaction of ground water and surface water is broad. The following discussion does not provide an exhaustive survey of all human effects but emphasizes those that are relatively widespread. To provide an indication of the extent to which humans affect the water resources of virtually all landscapes, some of the most relevant structures and features related to human activities are superimposed on various parts of the conceptual landscape (Figure 25).

The effects of human activities on the quantity and quality of water resources are felt over a wide range of space and time scales. In the following discussion, "short term" implies time scales from hours to a few weeks or months, and "long term" may range from years to decades. "Local scale" implies distances from a few feet to a few thousand feet and areas as large as a few square miles, and "subregional and regional scales" range from tens to thousands of square miles. The terms point source and nonpoint source with respect to discussions of contamination are used often; therefore, a brief discussion of the meaning of these terms is presented in Box M.

Agricultural Development

Agriculture has been the cause of significant modification of landscapes throughout the world. Tillage of land changes the infiltration and runoff characteristics of the land surface, which affects recharge to ground water, delivery of water and sediment to surface-water bodies, and evapotranspiration. All of these processes either directly or indirectly affect the interaction of ground water and surface water. Agriculturalists are aware of the substantial negative effects of agriculture on water resources and have developed methods to alleviate some of these effects. For example, tillage practices have been modified to maximize retention of water in soils and to minimize erosion of soil from the land into surface-water bodies. Two activities related to agriculture that are particularly relevant to the interaction of ground water and surface water are irrigation and application of chemicals to cropland.

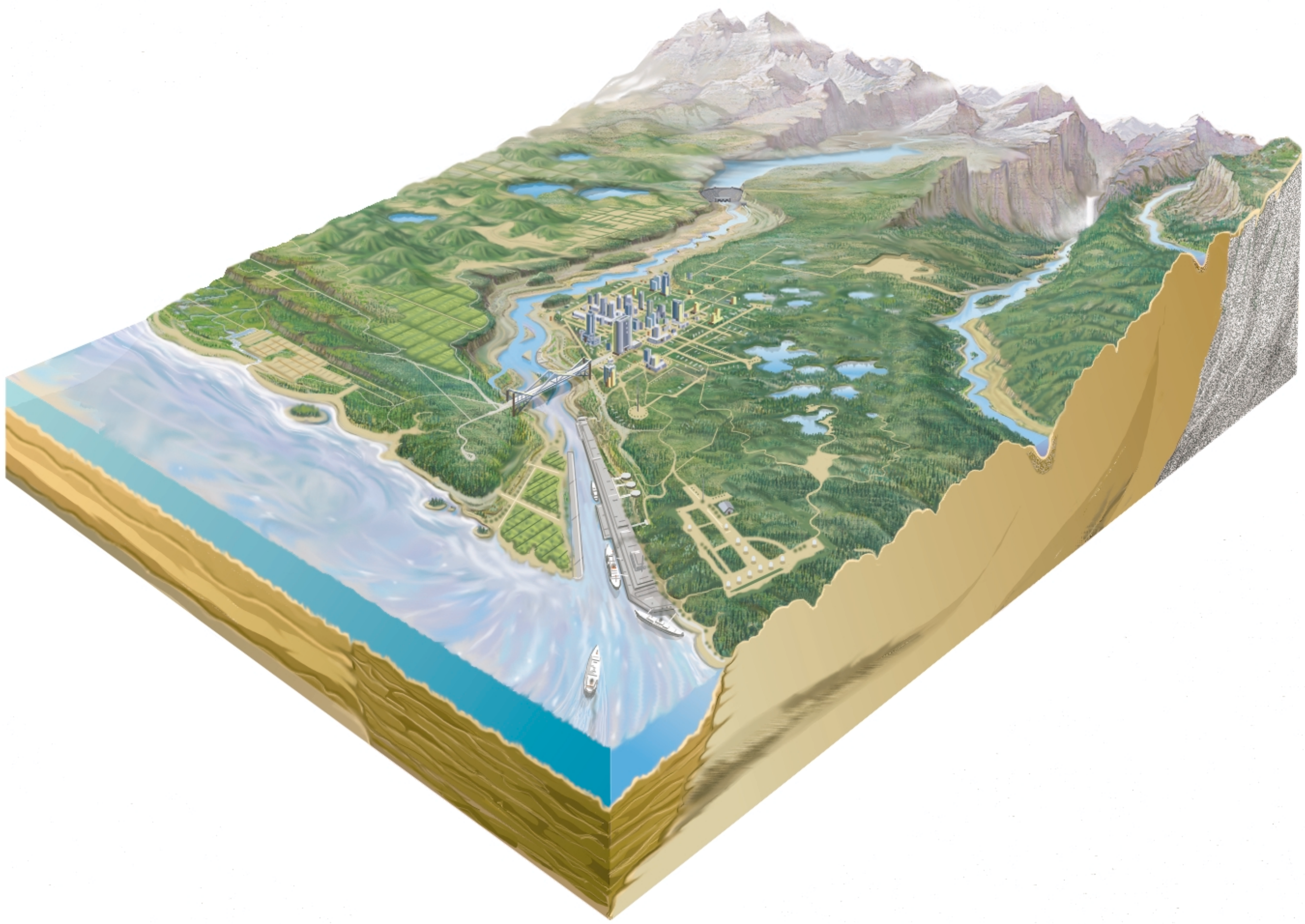


Figure ***25.*** *Human activities and structures, as depicted by the distribution of various examples in the conceptual landscape, affect the interaction of ground water and surface water in all types of landscapes.*

M

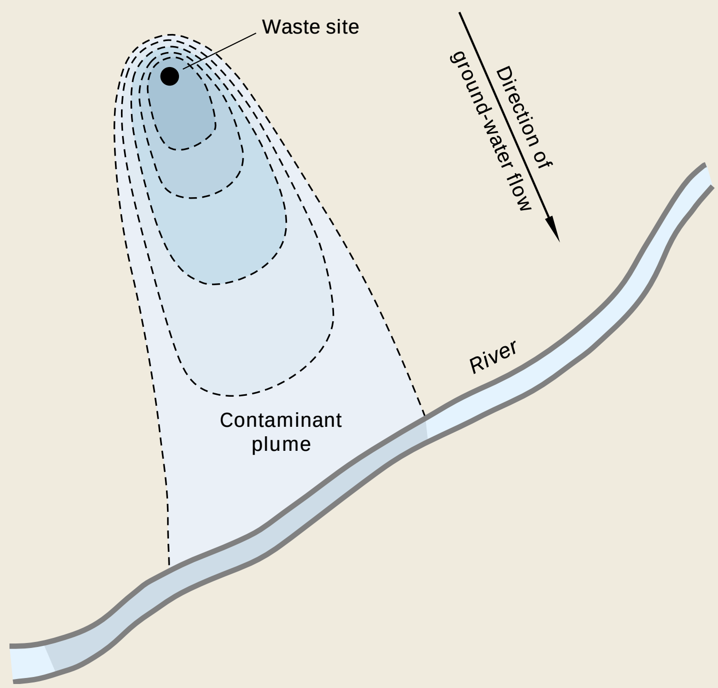
Point and Nonpoint Sources of Contaminants

Contaminants may be present in water or in air as a result of natural processes or through mechanisms of displacement and dispersal related to human activities. Contaminants from point sources discharge either into ground water or surface water through an area that is small relative to the area or volume of the receiving water body. Examples of point sources include discharge from sewage-treatment plants, leakage from gasoline storage tanks, and seepage from landfills (Figure M–1).

Nonpoint sources of contaminants introduce contaminants to the environment across areas that are large compared to point sources, or nonpoint sources may consist of multiple, closely spaced point sources. A nonpoint source of contamination that can be present anywhere, and affect large areas, is deposition from the atmosphere, both by precipitation (wet deposition) or by dry fallout (dry deposition). Agricultural fields, in aggregate, represent large areas through which fertilizers and pesticides can be released to the environment.

The differentiation between point and nonpoint sources of contamination is arbitrary to some extent and may depend in part on the scale at which a problem is considered. For example, emissions from a single smokestack is a point source, but these emissions may be meaningless in a regional analysis of air pollution. However, a fairly even distribution of tens or hundreds of smokestacks might be considered as a nonpoint source. As another example, houses in suburban areas that do not have a combined sewer system have individual septic tanks. At the local scale, each septic tank may be considered as point source of contamination to shallow ground water. At the regional scale, however, the combined contamination of ground water from all the septic tanks in a suburban area may be considered a nonpoint source of contamination to a surface-water body.

Figure M–1. The transport of contamination from a point source by ground water can cause contamination of surface water, as well as extensive contamination of ground water.



IRRIGATION SYSTEMS

Surface-water irrigation systems represent some of the largest integrated engineering works undertaken by humans. The number of these systems greatly increased in the western United States in the late 1840s. In addition to dams on streams, surface-water irrigation systems include (1) a complex network of canals of varying size and carrying capacity that transport water, in many cases for a considerable distance, from a surface-water source to individual fields, and (2) a drainage system to carry away water not used by plants that may be as extensive and complex as the supply system. The drainage system may include underground tile drains. Many irrigation systems that initially used only surface water now also use ground water. The pumped ground water commonly is used directly as irrigation water, but in some cases the water is distributed through the system of canals.

Average quantities of applied water range from several inches to 20 or more inches of water per year, depending on local conditions, over the entire area of crops. In many irrigated areas, about 75 to 85 percent of the applied water is lost to evapotranspiration and retained in the crops (referred to as consumptive use). The remainder of the water either infiltrates through the soil zone to recharge ground water or it returns to a local surface-water body through the drainage system (referred to as irrigation return flow). The quantity of irrigation water that recharges ground water usually is large relative to recharge from precipitation because large irrigation systems commonly are in regions of low precipitation and low natural recharge. As a result, this large volume of artificial recharge can cause the water table to rise (see Box N), possibly reaching the land surface in some areas and waterlogging the fields. For this reason, drainage systems that maintain the level of the water table below the root zone of the crops, generally 4 to 5 feet below the land surface, are an essential component of some irrigation systems. The permanent rise in the water table that is maintained by continued recharge from irrigation return flow commonly results in an increased outflow of shallow ground water to surface-water bodies downgradient from the irrigated area.

N

Effects of Irrigation Development on the Interaction of Ground Water and Surface Water

Nebraska ranks second among the States with respect to the area of irrigated acreage and the quantity of water used for irrigation. The irrigation water is derived from extensive supply systems that use both surface water and ground water (Figure N–1). Hydrologic conditions in different parts of Nebraska provide a number of examples of the broad-scale effects of irrigation development on the interactions of ground water and surface water. As would be expected, irrigation systems based on surface water are always located near streams. In general, these streams are perennial and (or) have significant flow for at least part of the year. In contrast, irrigation systems based on ground water can be located nearly anywhere that has an adequate ground-water resource. Areas of significant rise and decline in ground-water levels due to irrigation systems are shown in Figure N–2. Ground-water levels rise in some areas irrigated with surface water and decline in some areas irrigated with ground water. Rises in ground-water levels near streams result in increased ground-water inflow to gaining streams or decreased flow from the stream to ground water for losing streams. In some areas, it is possible that a stream that was losing water before development of irrigation could become a gaining stream following irrigation. This effect of surface-water irrigation probably caused the rises in ground-water levels in areas F and G in south-central Nebraska (Figure N–2).

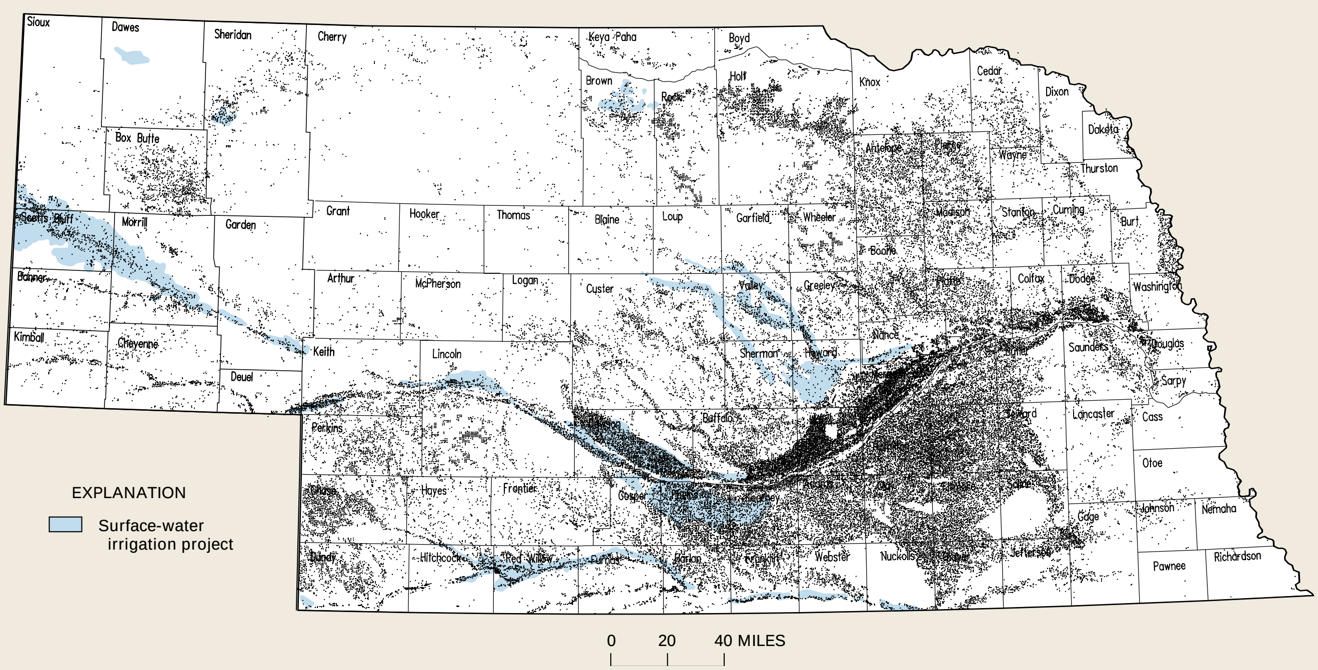


Figure N–1. Nebraska is one of the most extensively irrigated States in the Nation. The irrigation water comes from both ground-water and surface-water sources. Dots are irrigation wells. (Map provided by the University of Nebraska, Conservation and Survey Division.)

Average annual precipitation ranges from less than 15 inches in western Nebraska to more than 30 inches in eastern Nebraska. A large concentration of irrigation wells is present in area E (Figure N–2). The ground-water withdrawals by these wells caused declines in ground-water levels that could not be offset by recharge from precipitation and the presence of nearby flowing streams. In this area, the with-drawals cause decreases in ground-water discharge to the streams and (or) induce flow from the streams to shallow ground water. In contrast, the density of irrigation wells in areas A, B, and C is less than in area E, but water-level declines in these three western areas are similar to area E. The similar decline caused by fewer wells in the west compared to the east is related to less precipitation, less ground-water recharge, and less streamflow available for seepage to ground water.

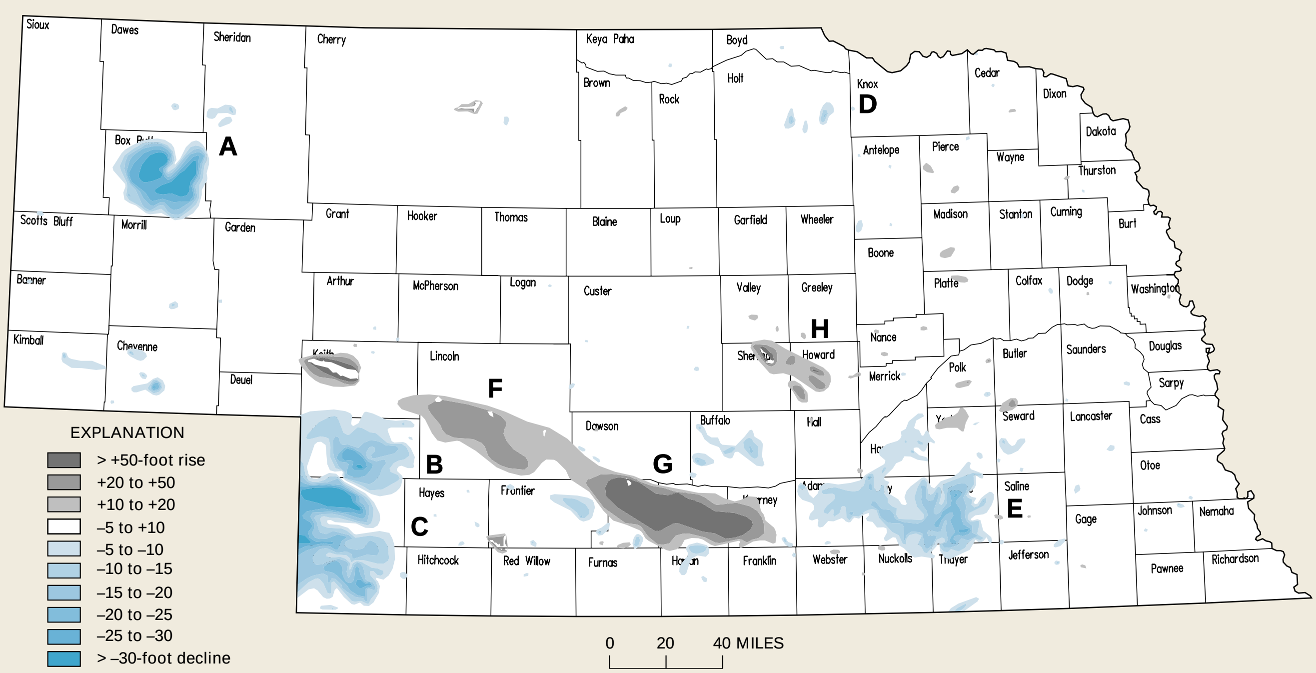


Figure N–2. The use of both ground water and surface water for irrigation in Nebraska has resulted in significant rises and declines of ground-water levels in different parts of the State. (Map provided by the University of Nebraska, Conservation and Survey Division.)

Although early irrigation systems made use of surface water, the development of large-scale sprinkler systems in recent decades has greatly increased the use of ground water for irrigation for several reasons: (1) A system of supply canals is not needed, (2) ground water may be more readily available than surface water, and (3) many types of sprinkler systems can be used on irregular land surfaces; the fields do not have to be as flat as they do for gravity-flow, surface-water irrigation. Whether ground water or surface water was used first to irrigate land, it was not long before water managers recognized that development of either water resource could affect the other. This is particularly true in many alluvial aquifers in arid regions where much of the irrigated land is in valleys.

Significant changes in water quality accompany the movement of water through agricultural fields. The water lost to evapotranspiration is relatively pure; therefore, the chemicals that are left behind precipitate as salts and accumulate in the soil zone. These continue to increase as irrigation continues, resulting in the dissolved-solids concentration in the irrigation return flows being significantly higher in some areas than that in the original irrigation water. To prevent excessive buildup of salts in the soil, irrigation water in excess of the needs of the crops is required to dissolve and flush out the salts and transport them to the ground-water system. Where these dissolved solids reach high concentrations, the artificial recharge from irrigation return flow can result in degradation of the quality of ground water and, ultimately, the surface water into which the ground water discharges.

"Whether ground water or surface water was used first to irrigate land, it was not long before water managers recognized that development of either water resource could affect the other"

USE OF AGRICULTURAL CHEMICALS

Applications of pesticides and fertilizers to cropland can result in significant additions of contaminants to water resources. Some pesticides are only slightly soluble in water and may attach (sorb) to soil particles instead of remaining in solution; these compounds are less likely to cause contamination of ground water. Other pesticides, however, are detected in low, but significant, concentrations in both ground water and surface water. Ammonium, a major component of fertilizer and manure, is very soluble in water, and increased concentrations of nitrate that result from nitrification of ammonium commonly are present in both ground water and surface water associated with agricultural lands (see Box O). In addition to these nonpoint sources of water contamination, point sources of contamination are common in agricultural areas where livestock are concentrated in small areas, such as feedlots. Whether the initial contamination is present in ground water or surface water is somewhat immaterial because the close interaction of the two sometimes results in both being contaminated (see Box P).

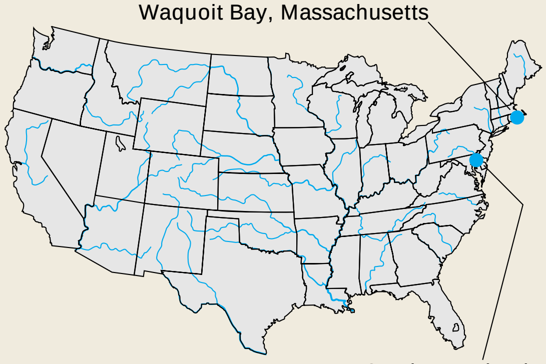
"Whether the initial contamination is present in ground water or surface water is somewhat immaterial because the close interaction of the two sometimes results in both being contaminated"

O

Effects of Nitrogen Use on the Quality of Ground Water and Surface Water

Nitrate contamination of ground water and surface water in the United States is widespread because nitrate is very mobile in the environment. Nitrate concentrations are increasing in much of the Nation's water, but they are particularly high in ground water in the midcontinent region of the United States. Two principal chemical reactions are important to the fate of nitrogen in water: (1) fertilizer ammonium can be nitrified to form nitrate, which is very mobile as a dissolved constituent in shallow ground water, and (2) nitrate can be denitrified to produce nitrogen gas in the presence of chemically reducing conditions if a source of dissolved organic carbon is available.

High concentrations of nitrate can contribute to excessive growth of aquatic plants, depletion of oxygen, fishkills, and general degradation of aquatic habitats. For example, a study of Waquoit Bay in Massachusetts linked the decline in eelgrass beds since 1950 to a progressive increase in nitrate input due to expansion of domestic septic-field developments in the drainage basin (Figure O–1). Loss of eelgrass is a concern because this aquatic plant stabilizes sediment and provides ideal habitat for juvenile fish and other fauna in coastal bays and estuaries. Larger nitrate concentrations supported algal growth that caused turbidity and shading, which contributed to the decline of eelgrass.



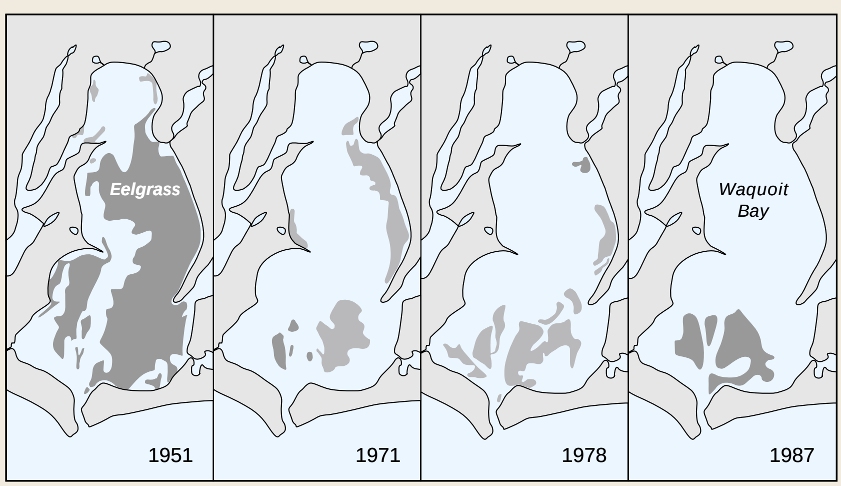


Figure O–1. The areal extent of eelgrass in Waquoit Bay, Massachusetts, decreased markedly between 1951 and 1987 because of increased inputs of nitrogen related to domestic septic-field developments. (Modified from Valiela, I., Foreman, K., LaMontagne, M., Hersh, D., Costa, J., Peckol, P., DeMeo-Andeson, B., D'Avanzo, C., Babione, M., Sham, C.H., Brawley, J., and Lajtha, K., 1992, Couplings of watersheds and coastal waters—Sources and consequences of nutrient enrichment in Waquoit Bay, Massachusetts: Estuaries, v. 15, no. 4, p. 433–457.) (Reprinted by permission of the Estuarine Research Federation.)

Significant denitrification has been found to take place at locations where oxygen is absent or present at very low concentrations and where suitable electron-donor compounds, such as organic carbon, are available. Such locations include the interface of aquifers with silt and clay confining beds and along riparian zones adjacent to streams. For example, in a study on the eastern shore of Maryland, nitrogen isotopes and other environmental tracers were used to show that the degree of denitrification that took place depended on the extent of interaction between ground-water and the chemically reducing sediments near or below the bottom of the Aquia Formation. Two drainage basins were studied: Morgan Creek and Chesterville Branch (Figure O–2). Ground-water discharging beneath both streams had similar nitrate concentration when recharged. Significant denitrification took place in the Morgan Creek basin where a large fraction of local ground-water flow passed through the reducing sediments, which are present at shallow depths (3 to 10 feet) in this area. Evidence for the denitrification included decreases in nitrate concentrations along the flow path to Morgan Creek and enrichment of the ^{15}N isotope. Much less denitrification took place in the Chesterville Branch basin because the top of the reducing sediments are deeper (10 to 20 feet) in this area and a smaller fraction of ground-water flow passed through those sediments.

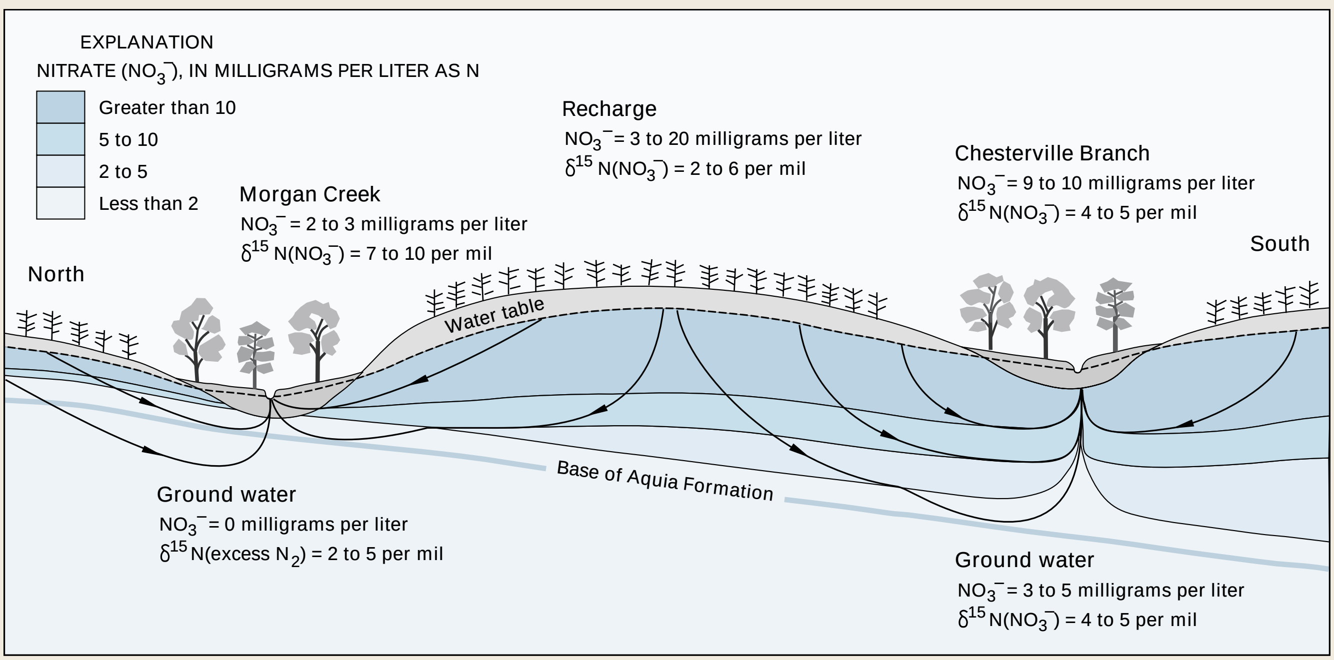


Figure O–2. Denitrification had a greater effect on ground water discharging to Morgan Creek than to Chesterville Branch in Maryland because a larger fraction of the local flow system discharging to Morgan Creek penetrated the reduced calcareous sediments near or below the bottom of the Aquia Formation than the flow system associated with the Chesterville Branch. (Modified from Bolke, J.K., and Denver, J.M., 1995, Combined use of ground-water dating, chemical, and isotopic analyses to resolve the history and fate of nitrate contamination in two agricultural watersheds, Atlantic coastal plain, Maryland: Water Resources Research, v. 31, no. 9, p. 2319–2337.)

P

Effects of Pesticide Application to Agricultural Lands on the Quality of Ground Water and Surface Water

Pesticide contamination of ground water and surface water has become a major environmental issue. Recent studies indicate that pesticides applied to cropland can contaminate the underlying ground water and then move along ground-water flow paths to surface water. In addition, as indicated by the following examples, movement of these pesticides between surface water and ground water can be dynamic in response to factors such as bank storage during periods of high runoff and ground-water withdrawals.

A study of the sources of atrazine, a widely used herbicide detected in the Cedar River and its associated alluvial aquifer in Iowa, indicated that ground water was the major source of atrazine in the river during base-flow conditions. In addition, during periods of high streamflow, surface water containing high concentrations of atrazine moved into the bank sediments and alluvial aquifer, then slowly discharged back to the river as the river level declined. Reversals of flow related to bank storage were documented using data for three sampling periods (Figure P–1). The first sampling (Figure P–1*A*) was before atrazine was applied to cropland, when concentrations in the river and aquifer were relatively low. The second sampling (Figure P–1*B*) was after atrazine was applied to cropland upstream. High streamflow at this time caused the river stage to peak almost 6 feet above its base-flow level, which caused the herbicide to move with the river water into the aquifer. By the third sampling date (Figure P–1*C*), the hydraulic gradient between the river and the alluvial aquifer had reversed again, and atrazine-contaminated water discharged back into the river.

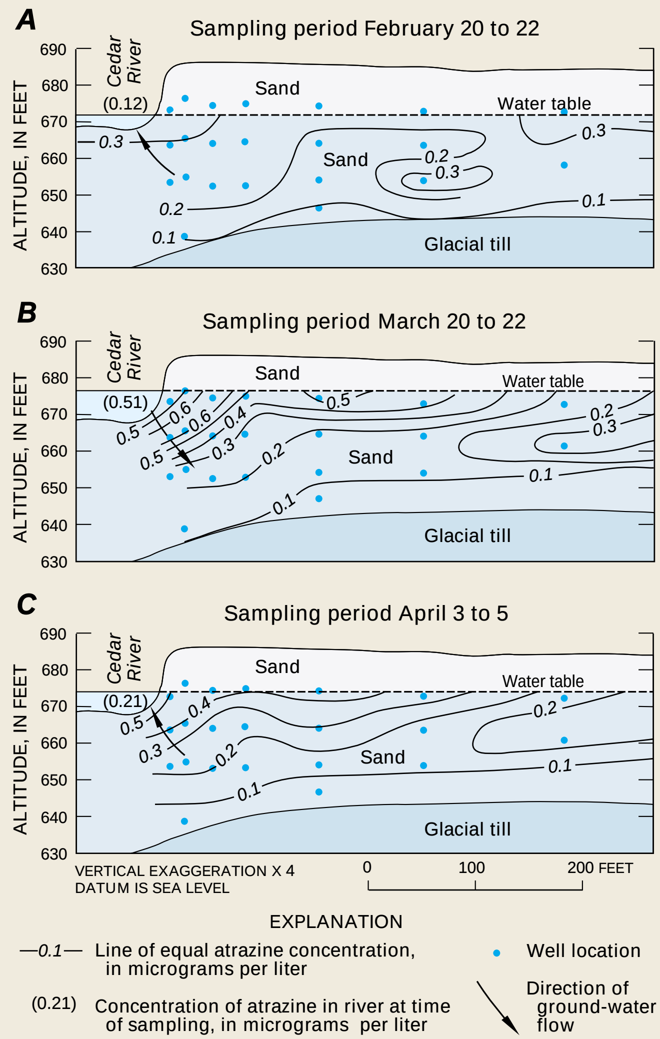


Figure P–1. Concentrations of atrazine increased in the Cedar River in Iowa following applications of the chemical on agricultural areas upstream from a study site. During high streamflow (B), the contaminated river water moved into the alluvial aquifer as bank storage, contaminating ground water. After the river level declined (C), part of the contaminated ground water returned to the river. (Modified from Squillace, P.J., Thurman, E.M., and Furlong, E.T., 1993, Groundwater as a nonpoint source of atrazine and deethylatrazine in a river during base flow conditions: Water Resources Research, v. 29, no. 6, p. 1719–1729.)

In a second study, atrazine was detected in ground water in the alluvial aquifer along the Platte River near Lincoln, Nebraska. Atrazine is not applied in the vicinity of the well field, so it was suspected that ground-water withdrawals at the well field caused contaminated river water to move into the aquifer. To define the source of the atrazine, water samples were collected from monitoring wells located at different distances from the river near the well field. The pattern of concentrations of atrazine in the ground water indicated that peak concentrations of the herbicide showed up sooner in wells close to the river compared to wells farther away (Figure P–2). Peak concentrations of atrazine in ground water were much higher and more distinct during periods of large ground-water withdrawals (July and August) than during periods of much smaller withdrawals (May to early June).

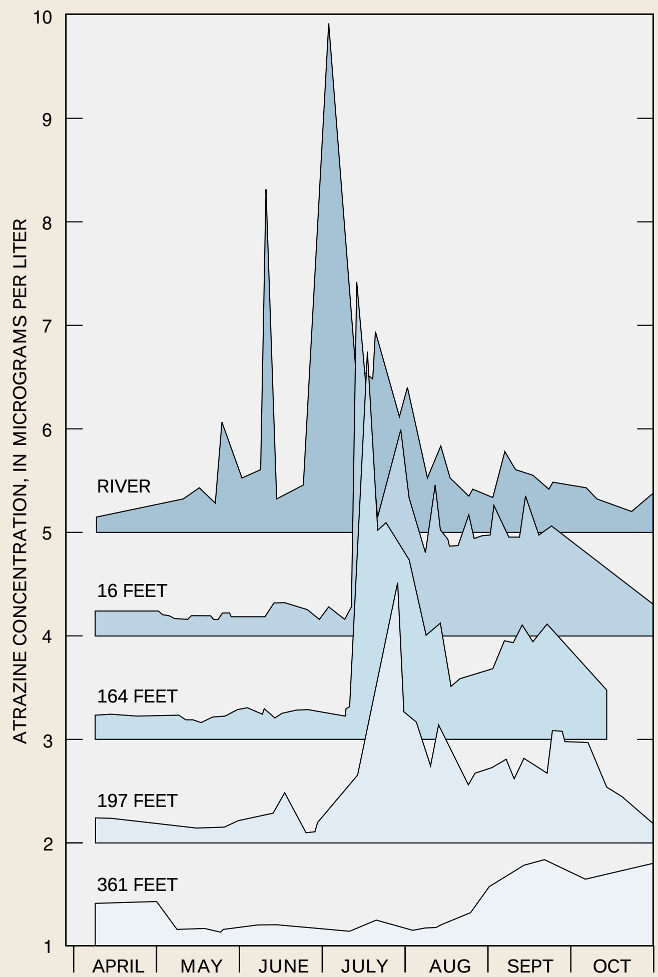


Figure P–2. Pumping of municipal water-supply wells near Lincoln, Nebraska, has induced Platte River water contaminated with atrazine to flow into the aquifer. Distances shown are from river to monitoring well. (Modified from Duncan, D., Pederson, D.T., Shepherd, T.R., and Carr, J.D., 1991, Atrazine used as a tracer of induced recharge: Ground Water Monitoring Review, v. 11, no. 4, p. 144–150.) (Used with permission.)

Urban and Industrial Development

Point sources of contamination to surface-water bodies are an expected side effect of urban development. Examples of point sources include direct discharges from sewage-treatment plants, industrial facilities, and stormwater drains. These facilities and structures commonly add sufficient loads of a variety of contaminants to streams to strongly affect the quality of the stream for long distances downstream. Depending on relative flow magnitudes of the point source and of the stream, discharge from a point source such as a sewage-treatment plant may represent a large percentage of the water in the stream directly downstream from the source. Contaminants in streams can easily affect ground-water quality, especially where streams normally seep to ground water, where ground-water withdrawals induce seepage from the stream, and where floods cause stream water to become bank storage.

Point sources of contamination to ground water can include septic tanks, fluid storage tanks, landfills, and industrial lagoons. If a contaminant is soluble in water and reaches the water table, the contaminant will be transported by the slowly moving ground water. If the source continues to supply the contaminant over a period of time, the distribution of the dissolved contaminant will take a characteristic "plumelike" shape (see Box M). These contaminant plumes commonly discharge into a nearby surface-water body. If the concentration of contaminant is low and the rate of discharge of plume water also is small relative to the volume of the receiving surface-water body, the discharging contaminant plume will have only a small, or perhaps unmeasurable, effect on the quality of the receiving surface-water body. Furthermore, biogeochemical processes may decrease the concentration of the contaminant as it is transported through the shallow ground-water system and the hyporheic zone. On the other hand, if the discharge of the contaminant plume is large or has high concentrations of contaminant, it could significantly affect the quality of the receiving surface-water body.

"Contaminants in streams can easily affect ground-water quality, especially where streams normally seep to ground water, where ground-water withdrawals induce seepage from the stream, and where floods cause stream water to become bank storage"

Drainage of the Land Surface

In landscapes that are relatively flat, have water ponded on the land surface, or have a shallow water table, drainage of land is a common practice preceding agricultural and urban development. Drainage can be accomplished by constructing open ditches or by burying tile drains beneath the land surface. In some glacial terrain underlain by deposits having low permeability, drainage of lakes and wetlands can change the areal distribution of ground-water recharge and discharge, which in turn can result in significant changes in the biota that are present and in the chemical and biological processes that take place in wetlands. Furthermore, these changes can ultimately affect the baseflow to streams, which in turn affects riverine ecosystems. Drainage also alters the water-holding capacity of topographic depressions as well as the surface runoff rates from land having very low slopes. More efficient runoff caused by drainage systems results in decreased recharge to ground water and greater contribution to flooding.

Drainage of the land surface is common in regions having extensive wetlands, such as coastal, riverine, and some glacial-lake landscapes. Construction of artificial drainage systems is extensive in these regions because wetland conditions generally result in deep, rich, organic soils that are much prized for agriculture. In the most extensive artificially drained part of the Nation, the glacial terrain of the upper Midwest, it is estimated that more than 50 percent of the original wetland areas have been destroyed. In Iowa alone, the destruction exceeds 90 percent. Although some wetlands were destroyed by filling, most were destroyed by drainage.

Modifications to River Valleys

CONSTRUCTION OF LEVEES

Levees are built along riverbanks to protect adjacent lands from flooding. These structures commonly are very effective in containing smaller magnitude floods that are likely to occur regularly from year to year. Large floods that occur much less frequently, however, sometimes overtop or breach the levees, resulting in widespread flooding. Flooding of low-lying land is, in a sense, the most visible and extreme example of the interaction of ground water and surface water. During flooding, recharge to ground water is continuous; given sufficient time, the water table may rise to the land surface and completely saturate the shallow aquifer (see Figure 12). Under these conditions, an extended period of drainage from the shallow aquifer takes place after the floodwaters recede. The irony of levees as a flood protection mechanism is that if levees fail during a major flood, the area, depth, and duration of flooding in some areas may be greater than if levees were not present.

CONSTRUCTION OF RESERVOIRS

The primary purpose of reservoirs is to store water for uses such as public water supply, irrigation, flood attentuation, and generation of electric power. Reservoirs also can provide opportunities for recreation and wildlife habitat. Water needs to be stored in reservoirs because streamflow is highly variable, and the times when streamflow is abundant do not necessarily coincide with the times when the water is needed. Streamflow can vary daily in response to individual storms and seasonally in response to variation in weather patterns.

The effects of reservoirs on the interaction of ground water and surface water are greatest near the reservoir and directly downstream from it. Reservoirs can cause a permanent rise in the water table that may extend a considerable distance from the reservoir, because the base level of the stream, to which the ground-water gradients had adjusted, is raised to the higher reservoir levels. Near the dam, reservoirs commonly lose water to shallow ground water, but this water commonly returns to the river as base flow directly downstream from the dam. In addition, reservoirs can cause temporary bank storage at times when reservoir levels are high. In some cases, this temporary storage of surface water in the ground-water system has been found to be a significant factor in reservoir management (see Box Q).

Human-controlled reservoir releases and accumulation of water in storage may cause high flows and low flows to differ considerably in magnitude and timing compared to natural flows. As a result, the environmental conditions in river valleys downstream from a dam may be altered as organisms try to adjust to the modified flow conditions. For example, the movement of water to and from bank storage under controlled conditions would probably be much more regular in timing and magnitude compared to the highly variable natural flow conditions, which probably would lead to less biodiversity in river systems downstream from reservoirs. The few studies that have been made of riverine ecosystems downstream from a reservoir indicate that they are different from the pre-reservoir conditions, but much more needs to be understood about the effects of reservoirs on stream channels and riverine ecosystems downstream from dams.

REMOVAL OF NATURAL VEGETATION

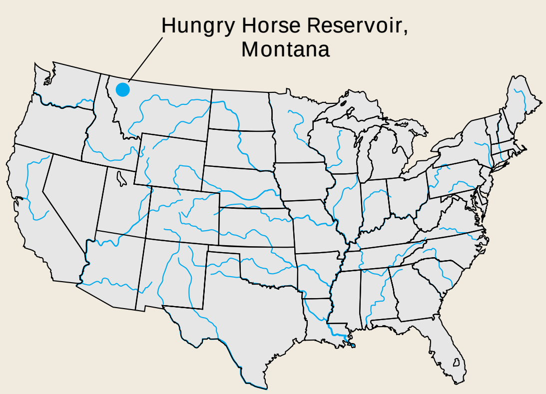
To make land available for agriculture and urban growth, development sometimes involves cutting of forests and removal of riparian vegetation and wetlands. Forests have a significant role in the hydrologic regime of watersheds. Deforestation tends to decrease evapotranspiration, increase storm runoff and soil erosion, and decrease infiltration to ground water and base flow of streams. From the viewpoint of water-resource quality and management, the increase in storm runoff and soil erosion and the decrease in base flow of streams are generally viewed as undesirable.

In the western United States, removal of riparian vegetation has long been thought to result in an increase in streamflow. It commonly is believed that the phreatophytes in alluvial valleys transpire ground water that otherwise would flow to the river and be available for use (see Box R). Some of the important functions of riparian vegetation and riparian wetlands include preservation of aquatic habitat, protection of the land from erosion, flood mitigation, and maintenance of water quality. Destruction of riparian vegetation and wetlands removes the benefits of erosion control and flood mitigation, while altering aquatic habitat and chemical processes that maintain water quality.

Q

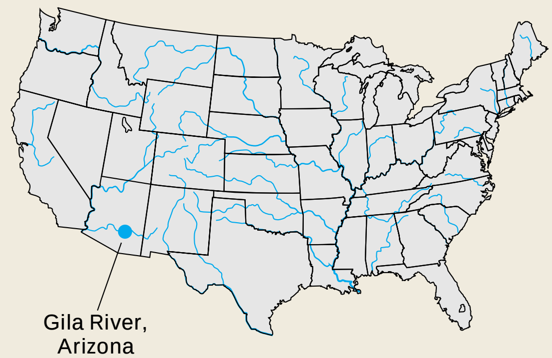
Effects of Surface-Water Reservoirs on the Interaction of Ground Water and Surface Water

The increase of water levels in reservoirs causes the surface water to move into bank storage. When water levels in reservoirs are decreased, this bank storage will return to the reservoir. Depending on the size of the reservoir and the magnitude of fluctuation of the water level of the reservoir, the amount of water involved in bank storage can be large. A study of bank storage associated with Hungry Horse Reservoir in Montana, which is part of the Columbia River system, indicated that the amount of water that would return to the reservoir from bank storage after water levels are lowered is large enough that it needs to be considered in the reservoir management plan for the Columbia River system. As a specific example, if the water level of the reservoir is raised 100 feet, held at that level for a year, then lowered 100 feet, the water that would drain back to the reservoir during a year would be equivalent to an additional 3 feet over the reservoir surface. (Information from Simons, W.D., and Rorabaugh, M.I., 1971, Hydrology of Hungry Horse Reservoir, northwestern Montana: U.S. Geological Survey Professional Paper 682.)



Effects of the Removal of Flood-Plain Vegetation on the Interaction of Ground Water and Surface Water

In low-lying areas where the water table is close to land surface, such as in flood plains, transpiration directly from ground water can reduce ground-water discharge to surface water and can even cause surface water to recharge ground water (see Figure 7). This process has attracted particular attention in arid areas, where transpiration by phreatophytes on flood plains of western rivers can have a significant effect on streamflows. To assess this effect, a study was done on transpiration by phreatophytes along a reach of the Gila River upstream from San Carlos Reservoir in Arizona. During the first few years of the 10-year study, the natural hydrologic system was monitored using observation wells, streamflow gages, and meteorological instruments. Following this initial monitoring period, the phreatophytes were removed from the flood plain and the effects on streamflow were evaluated. The average effect of vegetation removal over the entire study reach was that the Gila River changed from a continually losing river for most years before clearing to a gaining stream during some months for most years following clearing. Specifically, average monthly values of gain or loss from the stream indicated that before clearing, the river lost water to ground water during all months for most years. After clearing, the river gained ground-water inflow during March through June and during September for most years (Figure R–1).



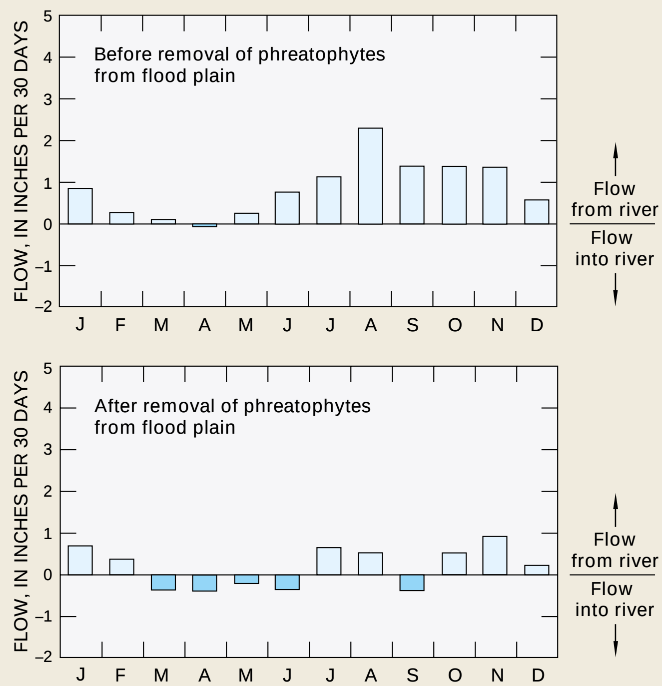


Figure R–1. Removal of phreatophytes from the flood plain along a losing reach of the Gila River in Arizona resulted in the river receiving ground-water inflow during some months of the year. (Modified from Culler, R.C., Hanson, R.L., Myrick, R.M., Turner, R.M., and Kipple, F.P., 1982, Evapotranspiration before and after clearing phreatophytes, Gila River flood plain, Graham County, Arizona: U.S. Geological Professional Paper 655–P.)

Modifications to the Atmosphere

ATMOSPHERIC DEPOSITION

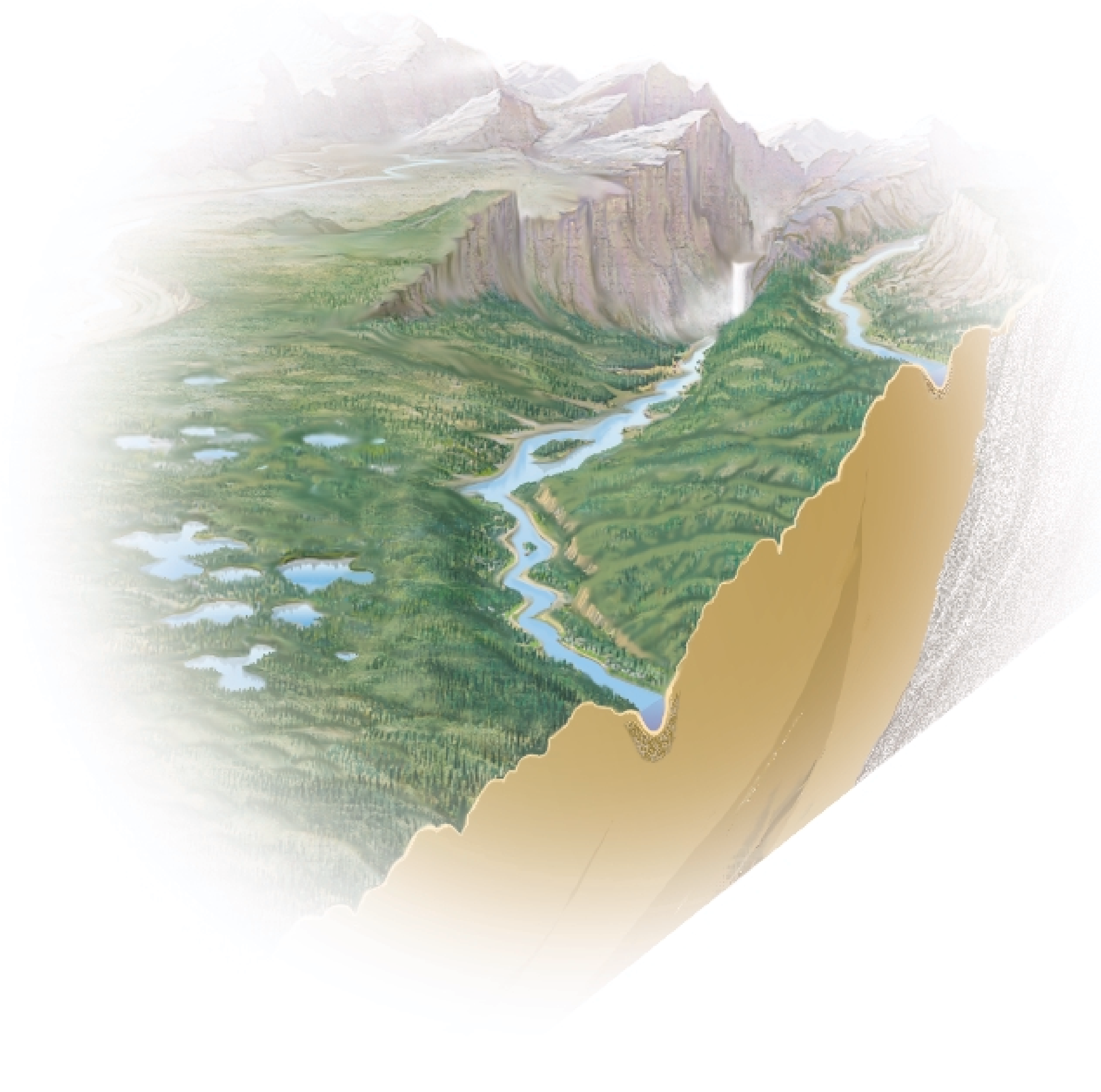
Atmospheric deposition of chemicals, such as sulfate and nitrate, can cause some surface-water bodies to become acidic. Concern about the effects of acidic precipitation on aquatic ecosystems has led to research on the interaction of ground water and surface water, especially in small headwaters catchments. It was clear when the problem was first recognized that surface-water bodies in some environments were highly susceptible to acidic precipitation, whereas in other environments they were not. Research revealed that the interaction of ground water and surface water is important to determining the susceptibility of a surface-water body to acidic precipitation (see Box S). For example, if a surface-water body received a significant inflow of ground water, chemical exchange while the water passed through the subsurface commonly neutralized the acidic water, which can reduce the acidity of the surface water to tolerable levels for aquatic organisms. Conversely, if runoff of acidic precipitation was rapid and involved very little flow through the ground-water system, the surface-water body was highly vulnerable and could become devoid of most aquatic life.

"The interaction of ground water and surface water is important to determining the susceptibility of a surface-water body to acidic precipitation"

GLOBAL WARMING

The concentration of gases, such as carbon dioxide (CO_2) and methane, in the atmosphere has a significant effect on the heat budget of the Earth's surface and the lower atmosphere. The increase in concentration of CO_2 in the atmosphere of about 25 percent since the late 1700s generally is thought to be caused by the increase in burning of fossil fuels. At present, the analysis and prediction of "global warming" and its possible effects on the hydrologic cycle can be described only with great uncertainty. Although the physical behavior of CO_2 and other greenhouse gases is well understood, climate systems are exceedingly complex, and long-term changes in climate are embedded in the natural variability of the present global climate regime.

Surficial aquifers, which supply much of the streamflow nationwide and which contribute flow to lakes, wetlands, and estuaries, are the aquifers most sensitive to seasonal and longer term climatic variation. As a result, the interaction of ground water and surface water also will be sensitive to variability of climate or to changes in climate. However, little attention has been directed at determining the effects of climate change on shallow aquifers and their interaction with surface water, or on planning how this combined resource will be managed if climate changes significantly.



Effects of Atmospheric Deposition on the Quality of Ground Water and Surface Water

In areas where soils have little capacity to buffer acids in water, acidic precipitation can be a problem because the infiltrating acidic water can increase the solubility of metals, which results in the flushing of high concentrations of dissolved metals into surface water. Increased concentrations of naturally occurring metals such as aluminum may be toxic to aquatic organisms. Studies of watersheds have indicated that the length of subsurface flow paths has an effect on the degree to which acidic water is buffered by flow through the subsurface. For example, studies of watersheds in England have indicated that acidity was higher in streams during storms when more of the subsurface flow moved through the soil rather than through the deeper flow paths (Figure S–1). Moreover, in a study of the effects of acid precipitation on lakes in the Adirondack Mountains of New York, the length of time that water was in contact with deep subsurface materials was the most important factor affecting acidity because contact time determined the amount of buffering that could take place (Figure S–2).

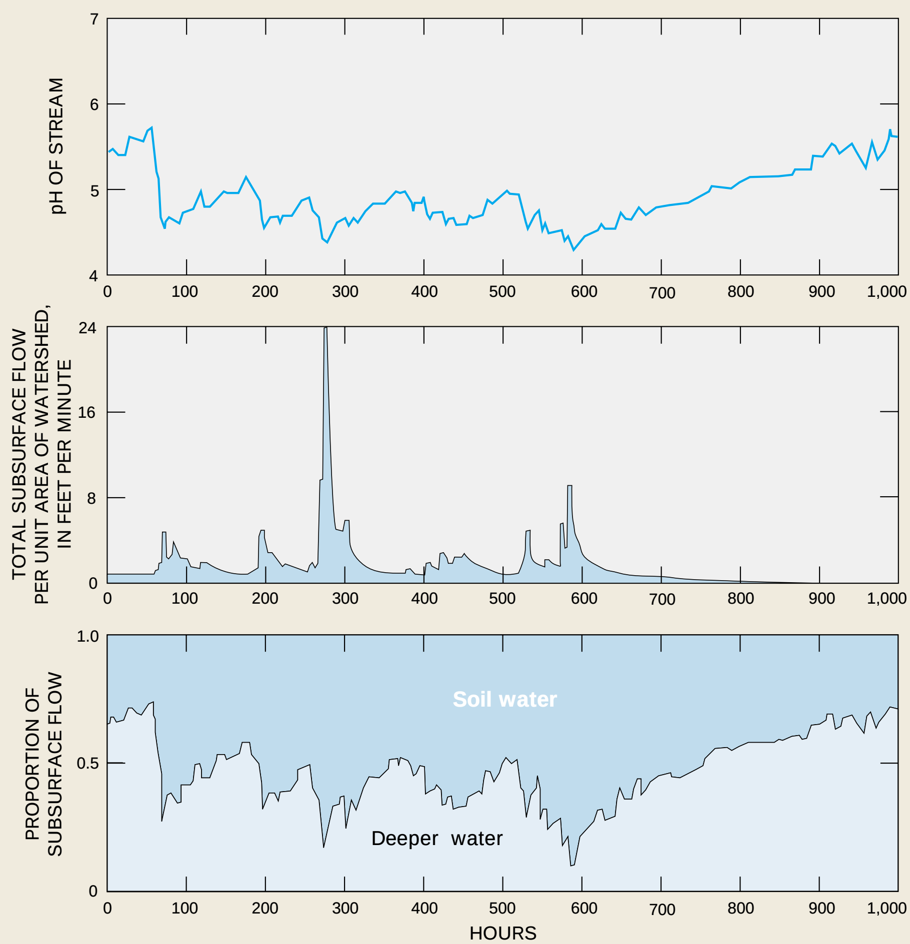


Figure S–1. Acidity is higher (pH is lower) in streams when most of the flow is contributed by shallow soil water because the water has had less time to be neutralized by contact with minerals compared to water that has traversed deeper flow paths. (Modified from Robson, A., Beven, K.J., and Neal, C., 1992, Towards identifying sources of subsurface flow—A comparison of components identified by a physically based runoff model and those determined by chemical mixing techniques: Hydrological Processes, v. 6, p. 199–214.) (Reprinted with permission from John Wiley & Sons Limited.)

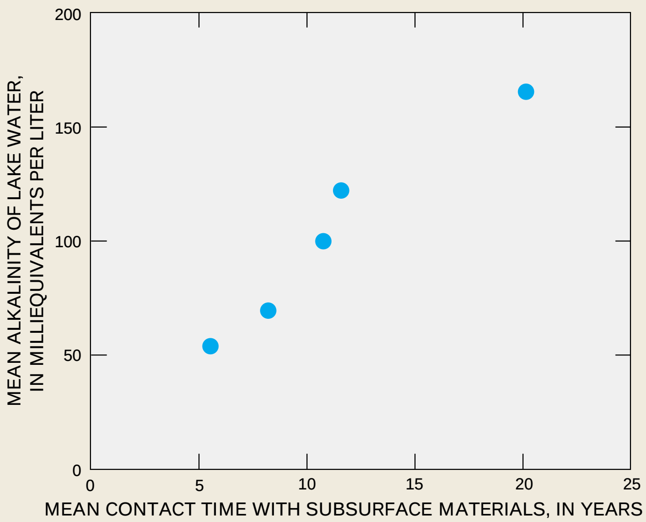


Figure S–2. The longer water is in contact with deep subsurface materials in a watershed, the higher the alkalinity in lakes receiving that water. (Modified from Wolock, D.M., Hornberger, G.M., Beven, K.J., and Campbell, W.G., 1989, The relationship of catchment topography and soil hydraulic characteristics to lake alkalinity in the northeastern United States: Water Resources Research, v. 25, p. 829–837.)

CHALLENGES AND OPPORTUNITIES

The interaction of ground water and surface water involves many physical, chemical, and biological processes that take place in a variety of physiographic and climatic settings. For many decades, studies of the interaction of ground water and surface water were directed primarily at large alluvial stream and aquifer systems. Interest in the relation of ground water to surface water has increased in recent years as a result of widespread concerns related to water supply; contamination of ground water, lakes, and streams by toxic substances (commonly where not expected); acidification of surface waters caused by atmospheric deposition of sulfate and nitrate; eutrophication of lakes; loss of wetlands due to development; and other changes in aquatic environments. As a result, studies of the interaction of ground water and surface water have expanded to include many other settings, including headwater streams, lakes, wetlands, and coastal areas.

Issues related to water management and water policy were presented at the beginning of this report. The following sections address the need for greater understanding of the interaction of ground water and surface water with respect to the three issues of water supply, water quality, and characteristics of aquatic environments.

Water Supply

Water commonly is not present at the locations and times where and when it is most needed. As a result, engineering works of all sizes have been constructed to distribute water from places of abundance to places of need. Regardless of the scale of the water-supply system, development of either ground water or surface water can eventually affect the other. For example, whether the source of irrigation water is ground water or surface water, return flows from irrigated fields will eventually reach surface water either through ditches or through ground-water discharge. Building dams to store surface water or diverting water from a stream changes the hydraulic connection and the hydraulic gradient between that body of surface water and the adjacent ground water, which in turn results in gains or losses of ground water. In some landscapes, development of ground water at even a great distance from surface water can reduce the amount of ground-water inflow to surface water or cause surface water to recharge ground water.

The hydrologic system is complex, from the climate system that drives it, to the earth materials that the water flows across and through, to the modifications of the system by human activities. Much research and engineering has been devoted to the development of water resources for water supply. However, most past work has concentrated on either surface water or ground water without much concern about their interrelations. The need to understand better how development of one water resource affects the other is universal and will surely increase as development intensifies.

Water Quality

For nearly every type of water use, whether municipal, industrial, or agricultural, water has increased concentrations of dissolved constituents or increased temperature following its use. Therefore, the water quality of the water bodies that receive the discharge or return flow are affected by that use. In addition, as the water moves downstream, additional water use can further degrade the water quality. If irrigation return flow, or discharge from a municipal or industrial plant, moves downstream and is drawn back into an aquifer because of ground-water withdrawals, the ground-water system also will be affected by the quality of that surface water.

Application of irrigation water to cropland can result in the return flow having poorer quality because evapotranspiration by plants removes some water but not the dissolved salts. As a result, the dissolved salts can precipitate as solids, increasing the salinity of the soils. Additional application of water dissolves these salts and moves them farther downgradient in the hydrologic system. In addition, application of fertilizers and pesticides to cropland can result in poor-quality return flows to both ground water and surface water. The transport and fate of contaminants caused by agricultural practices and municipal and industrial discharges are a widespread concern that can be addressed most effectively if ground water and surface water are managed as a single resource.

Water scientists and water managers need to design data-collection programs that examine the effects of biogeochemical processes on water quality at the interface between surface water and near-surface sediments. These processes can have a profound effect on the chemistry of ground water recharging surface water and on the chemistry of surface water recharging ground water. Repeated exchange of water between surface water and near-surface sediments can further enhance the importance of these processes. Research on the interface between ground water and surface water has increased in recent years, but only a few stream environments have been studied, and the transfer value of the research results is limited and uncertain.

The tendency for chemical contaminants to move between ground water and surface water is a key consideration in managing water resources. With an increasing emphasis on watersheds as a focus for managing water quality, coordination between watershed-management and ground-water-protection programs will be essential to protect the quality of drinking water. Furthermore, ground-water and surface-water interactions have a major role in affecting chemical and biological processes in lakes, wetlands, and streams, which in turn affect water quality throughout the hydrologic system. Improved scientific understanding of the interconnections between hydrological and biogeochemical processes will be needed to remediate contaminated sites, to evaluate applications for waste-discharge permits, and to protect or restore biological resources.

Characteristics of Aquatic Environments

The interface between ground water and surface water is an areally restricted, but particularly sensitive and critical niche in the total environment. At this interface, ground water that has been affected by environmental conditions on the terrestrial landscape interacts with surface water that has been affected by environmental conditions upstream. Furthermore, the chemical reactions that take place where chemically distinct surface water meets chemically distinct ground water in the hyporheic zone may result in a biogeochemical environment that in some cases could be used as an indicator of changes in either terrestrial or aquatic ecosystems. The ability to understand this interface is challenging because it requires the focusing of many different scientific and technical disciplines at the same, areally restricted locality. The benefit of this approach to studying the interface of ground water and surface water could be the identification of useful biological or chemical indicators of adverse or positive changes in larger terrestrial and aquatic ecosystems.

Wetlands are a type of aquatic environment present in most landscapes; yet, in many areas, their perceived value is controversial. The principal characteristics and functions of wetlands are determined by the water and chemical balances that maintain them. These factors in large part determine the value of a wetland for flood control, nutrient retention, and wildlife habitat. As a result, they are especially sensitive to changing hydrological conditions. When the hydrological and chemical balances of a wetland change, the wetland can take on a completely different function, or it may be destroyed. Generally, the most devastating impacts on wetlands result from changes in land use. Wetlands commonly are drained to make land available for agricultural use or filled to make land available for urban and industrial development. Without understanding how wetlands interact with ground water, many plans to use land formerly occupied by wetlands fail. For example, it is operationally straightforward to fill in or drain a wetland, but the ground-water flow system that maintains many wetlands may continue to discharge at that location. Many structures and roads built on former wetlands and many wetland restoration or construction programs fail for this reason. Saline soils in many parts of the central prairies also result from evaporation of ground water that continues to discharge to the land surface after the wetlands were drained.

Riparian zones also are particularly sensitive to changes in the availability and quality of ground water and surface water because these ecosystems commonly are dependent on both sources of water. If either water source changes, riparian zones may be altered, changing their ability to provide aquatic habitat, mitigate floods and erosion, stabilize shorelines, and process chemicals, including contaminants. Effective management of water resources requires an understanding of the role of riparian zones and their dependence on the interaction of ground water and surface water.

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A Primer on Water Quality

What is in the water?

Is it safe for drinking? Can fish and other aquatic life thrive in streams and lakes that are affected by human activities? What is the water quality? To answer these questions, it is helpful to understand what "water quality" means, how it is determined, and the natural processes and human activities that affect water quality.

What do we mean by "water quality"?

Water quality can be thought of as a measure of the suitability of water for a particular use based on selected physical, chemical, and biological characteristics. To determine water quality, scientists first measure and analyze characteristics of the water such as temperature, dissolved mineral content, and number of bacteria. Selected characteristics are then compared to numeric standards and guidelines to decide if the water is suitable for a particular use.

How is water quality measured?

Some aspects of water quality can be determined right in the stream or at the well. These include temperature, acidity (pH), dissolved oxygen, and electrical conductance (an indirect indicator of dissolved minerals in the water). Analyses of individual chemicals generally are done at a laboratory.

Why do we have water-quality standards and guidelines?

Standards and guidelines are established to protect water for designated uses such as drinking, recreation, agricultural irrigation, or protection and maintenance of aquatic life. Standards for drinking-water quality ensure that public drinking-water supplies are as safe as possible. The U.S. Environmental Protection Agency (USEPA) and the States are responsible for establishing the standards for constituents in water that have been shown to pose a risk to human health. Other standards protect aquatic life, including fish, and fish-eating wildlife such as birds.

How do natural processes affect water quality?

Natural water quality varies from place to place, with the seasons, with climate, and with the types of soils and rocks through which water moves. When water from rain or snow moves over the land and through the ground, the water may dissolve minerals in rocks and soil, percolate through organic material such as roots and leaves, and react with algae, bacteria, and other microscopic organisms.

Water may also carry plant debris and sand, silt, and clay to rivers and streams making the water appear "muddy" or ***turbid***. When water evaporates from lakes and streams, dissolved minerals are more concentrated in the water that remains. Each of these natural processes changes the water quality and potentially the water use.

What is naturally in the water?

The most common dissolved substances in water are minerals or salts that, as a group, are referred to as ***dissolved solids***. Dissolved solids include ***common constituents*** such as calcium, sodium, bicarbonate, and chloride; plant ***nutrients*** such as nitrogen and phosphorus; and ***trace elements*** such as selenium, chromium, and arsenic.

In general, the common constituents are not considered harmful to human health, although some constituents can affect the taste, smell, or clarity of water. Plant nutrients and trace elements in water can be harmful to human health and aquatic life if they exceed standards or guidelines.

Dissolved gases such as oxygen and radon are common in natural waters. Adequate oxygen levels in water are a necessity for fish and other aquatic life. Radon gas can be a threat to human health when it exceeds drinking-water standards.

How do human activities affect water quality?

Urban and industrial development, farming, mining, combustion of fossil fuels, stream-channel alteration, animal-feeding operations, and other human activities can change the quality of natural waters. As an example of the effects of human activities on water quality, consider nitrogen and phosphorus fertilizers that are applied to crops and lawns. These plant nutrients can be dissolved easily in rainwater or snowmelt runoff. Excess nutrients carried to streams and lakes encourage abundant growth of algae, which leads to low oxygen in the water and the possibility of fish kills.

Chemicals such as pharmaceutical drugs, dry-cleaning solvents, and gasoline that are used in urban and industrial activities have been found in streams and ground water. After decades of use, pesticides are now widespread in streams and ground water, though they rarely exceed the existing standards and guidelines established to protect human health. Some pesticides have not been used for 20 to 30 years, but they are still detected in fish and streambed sediment at levels that pose a potential risk to human health, aquatic life, and fish-eating wildlife.

There are so many chemicals in use today that determining the risk to human health and aquatic life is a complex task. In addition, mixtures of chemicals typically are found in water, but health-based standards and guidelines have not been established for chemical mixtures.

What about bacteria, viruses, and other pathogens in water?

The quality of water for drinking cannot be assured by chemical analyses alone. The presence of ***bacteria*** in water, which are normally found in the intestinal tracts of humans and animals, signal that disease-causing pathogens may be present. Giardia and cryptosporidium are pathogens that have been found occasionally in public-water supplies and have caused illness in a large number of people in a few locations. Pathogens can enter our water from leaking septic tanks, wastewater-treatment discharge, and animal wastes.

How can I find out more about my water quality?

Contact your local water supplier and ask for information on the water quality in your area. The USEPA requires public-water suppliers to provide water-quality data to the public on an annual basis in an understandable format. State agencies that deal with health, environmental quality, or water resources also can provide information on the quality of your water. Additional resources can be found on the Internet at:
http://water.usgs.gov/nawqa
http://www.epa.gov/safewater

–Gail E. Cordy

USGS Images Links Files Recording Time Stamp Symbols

Quality of Ground Water

For the Nation as a whole, the chemical and biological character of ground water is acceptable for most uses. The quality of ground water in some parts of the country, particularly shallow ground water, is changing as a result of human activities. Ground water is less susceptible to bacterial pollution than surface water because the soil and rocks through which ground water flows screen out most of the bacteria. Bacteria, however, occasionally find their way into ground water, sometimes in dangerously high concentrations. But freedom from bacterial pollution alone does not mean that the water is fit to drink. Many unseen dissolved mineral and organic constituents are present in ground water in various concentrations. Most are harmless or even beneficial; though occurring infrequently, others are harmful, and a few may be highly toxic.

Water is a solvent and dissolves minerals from the rocks with which it comes in contact. Ground water may contain dissolved minerals and gases that give it the tangy taste enjoyed by many people. Without these minerals and gases, the water would taste flat. The most common dissolved mineral substances are sodium, calcium, magnesium, potassium, chloride, bicarbonate, and sulfate. In water chemistry, these substances are called common constituents.

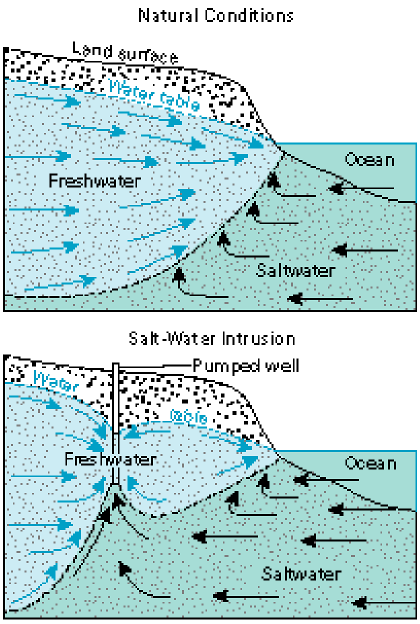
Water typically is not considered desirable for drinking if the quantity of dissolved minerals exceeds 1,000 mg/L (milligrams per liter). Water with a few thousand mg/L of dissolved minerals is classed as slightly saline, but it is sometimes used in areas where less-mineralized water is not available. Water from some wells and springs contains very large concentrations of dissolved minerals and cannot be tolerated by humans and other animals or plants. Many parts of the Nation are underlain at depth by highly saline ground water that has only very limited uses.

Dissolved mineral constituents can be hazardous to animals or plants in large concentrations; for example, too much sodium in the water may be harmful to people who have heart trouble. Boron is a mineral that is good for plants in small amounts, but is toxic to some plants in only slightly larger concentrations.

Water that contains a lot of calcium and magnesium is said to be hard. The hardness of water is expressed in terms of the amount of calcium carbonate-the principal constituent of limestone-or equivalent minerals that would be formed if the water were evaporated. Water is considered soft if it contains 0 to 60 mg/L of hardness, moderately hard from 61 to 120 mg/L, hard between 121 and 180 mg/L, and very hard if more than 180 mg/L. Very hard water is not desirable for many domestic uses; it will leave a scaly deposit on the inside of pipes, boilers, and tanks. Hard water can be softened at a fairly reasonable cost, but it is not always desirable to remove all the minerals that make water hard. Extremely soft water is likely to corrode metals, although it is preferred for laundering, dishwashing, and bathing.

Ground water, especially if the water is acidic, in many places contains excessive amounts of iron. Iron causes reddish stains on plumbing fixtures and clothing. Like hardness, excessive iron content can be reduced by treatment. A test of the acidity of water is pH, which is a measure of the hydrogen-ion concentration. The pH scale ranges from 0 to 14. A pH of 7 indicates neutral water; greater than 7, the water is basic; less than 7, it is acidic. A one unit change in pH represents a 10-fold difference in hydrogen-ion concentration. For example, water with a pH of 6 has 10 times more hydrogen-ions than water with a pH of 7. Water that is basic can form scale; acidic water can corrode. According to U.S. Environmental Protection Agency criteria, water for domestic use should have a pH between 5.5 and 9.

In recent years, the growth of industry, technology, population, and water use has increased the stress upon both our land and water resources. Locally, the quality of ground water has been degraded. Municipal and industrial wastes and chemical fertilizers, herbicides, and pesticides not properly contained have entered the soil, infiltrated some aquifers, and degraded the ground-water quality. Other pollution problems include sewer leakage, faulty septic-tank operation, and landfill leachates. In some coastal areas, intensive pumping of fresh ground water has caused salt water to intrude into fresh-water aquifers.



How intensive ground-water pumping can cause salt-water intrusion in coastal aquifers.

In recognition of the potential for pollution, biological and chemical analyses are made routinely on municipal and industrial water supplies. Federal, State, and local agencies are taking steps to increase water-quality monitoring. Analytical techniques have been refined so that early warning can be given, and plans can be implemented to mitigate or prevent water-quality hazards.

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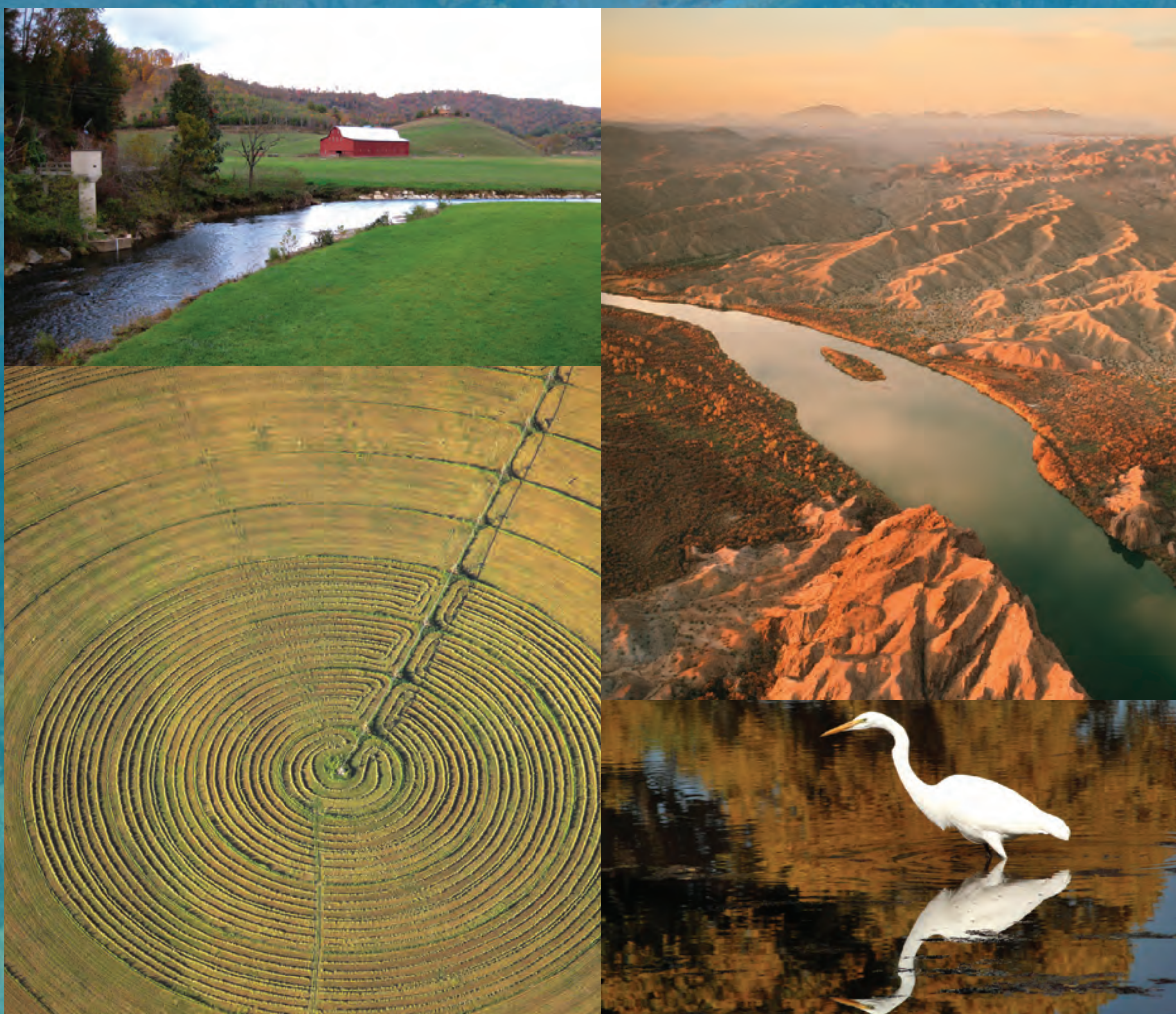
Groundwater Resources Program

Streamflow Depletion by Wells—Understanding and Managing the Effects of Groundwater Pumping on Streamflow



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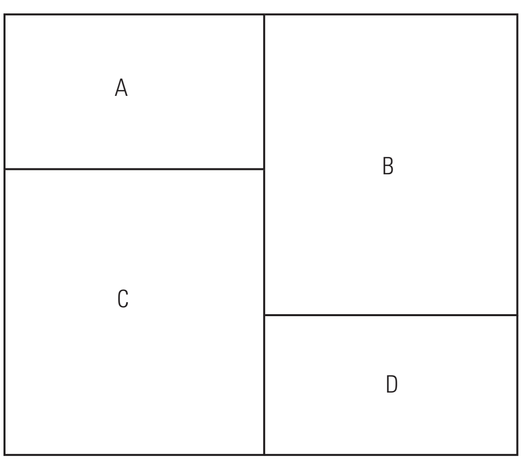

Cover. *A*, U.S. Geological Survey streamgage along the Watauga River near Sugar Grove, North Carolina. Photograph by J. Curtis Weaver, U.S. Geological Survey. *B,* Colorado River above Nortons Landing, Arizona. Photograph by Michael Collier. *C*, Circular irrigation system, Parshall, Colorado. Photograph by Michael Collier. *D*, Great Egret, Upper San Pedro Basin, Arizona. Photograph by Bob Herrmann. Background photograph Republican River below McCook, Nebraska. Photograph by Michael Collier.

Streamflow Depletion by Wells—Understanding and Managing the Effects of Groundwater Pumping on Streamflow

By Paul M. Barlow and Stanley A. Leake

Photograph by Robert F. Breault, U.S. Geological Survey

Wyoming Pond on the Wood River, Pawcatuck River Basin, Rhode Island.

Groundwater Resources Program

Circular 1376

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Foreword

Groundwater provides drinking water for millions of Americans and is the primary source of water to irrigate cropland in many of the Nation’s most productive agricultural regions. Withdrawals in many aquifers throughout the United States have led to significant groundwater-level declines, resulting in growing concerns about sustainability and higher pumping costs. The U.S. Geological Survey’s (USGS) Groundwater Resources Program has been instrumental in documenting groundwater declines and in developing groundwater-flow models for use in sustainably managing withdrawals.

Groundwater withdrawals also can lead to a reduction in streamflow, affecting both human uses and ecosystems. The first clear articulation of the effects of groundwater pumping on surface water was by the well-known USGS hydrologist C.V. Theis. In a paper published in 1940 entitled "The Source of Water Derived from Wells," Theis pointed out that pumped groundwater initially comes from reductions in aquifer storage. As pumping continues, the effects of groundwater withdrawals can spread to distant connected streams, lakes, and wetlands through decreased rates of discharge from the aquifer to these surface-water systems. In some settings, increased rates of aquifer recharge also occur in response to pumping, including recharge from the connected surface-water features. Associated with this decrease in groundwater discharge to surface waters is an increased rate of aquifer recharge. Pumping-induced increased inflow to and decreased outflow from an aquifer is now called "streamflow depletion" or "capture."

Groundwater discharge is a significant component of streamflow, with groundwater contributing as much as 90 percent of annual streamflow volume in some parts of the country. In order to effectively manage the entire water resource for multiple competing uses, hydrologists and resource managers must understand the effects (magnitude, timing, and locations) of groundwater pumping on rivers, streams, springs, wetlands, and groundwater-dependent vegetation.

This circular, developed as part of the USGS Groundwater Resources Program, presents concepts relating to streamflow depletion, methods for quantifying depletion, and common misconceptions regarding depletion. Approaches for monitoring, understanding, and managing streamflow depletion also are described. The report is written for a wide audience interested in the development, management, and protection of the Nation's water resources.

The Groundwater Resources Program provides objective scientific information and develops the interdisciplinary understanding necessary to assess and quantify the availability of the Nation's groundwater resources. Detailed assessments of regional aquifers have been completed in seven of the Nation’s major aquifers, with several additional assessments ongoing or planned. The research and understanding developed through this program for issues such as streamflow depletion can provide the Nation’s water-resource managers with the tools and information needed to manage this important natural resource.

Jerad D. Bales
Associate Director for Water (Acting)
U.S. Geological Survey

Contents

Boxes

Facing page: Rio Grande near Velarde, New Mexico. (Photograph by Michael Collier)

Conversion Factors and Datum

Inch/Pound to SI

Multiply	By	To obtain
	Length	
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
acre	4,047	square meter (m^2)
square foot (ft^2)	0.09290	square meter (m^2)
square inch (in^2)	6.452	square centimeter (cm^2)
square mile (mi^2)	2.590	square kilometer (km^2)
	Volume	
acre-foot (acre-ft)	1,233	cubic meter (m^3)
cubic foot (ft^3)	0.02832	cubic meter (m^3)
gallon (gal)	3.785	liter (L)
million gallons (Mgal)	3,785	cubic meter (m^3)
	Flow rate	
acre-foot per year (acre-ft/yr)	0.001233	cubic hectometer per year (hm^3/yr)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
cubic foot per day (ft^3/d)	0.02832	cubic meter per day (m^3/d)
cubic foot per second per mile [(ft^3/s)/mi]	0.01760	cubic meter per second per kilometer [(m^3/s)/km]
cubic foot per second per square mile [(ft^3/s)/mi^2]	0.01093	cubic meter per second per square kilometer [(m^3/s)/km^2]
foot per second (ft/s)	0.3048	meter per second (m/s)
foot per day (ft/d)	0.3048	meter per day (m/d)
foot per day per foot [(ft/d)/ft]	1	meter per day per meter [(m/d)/m]
foot squared per day (ft^2/d)	0.09290	meter squared per day (m^2/d)
inch per year (in/yr)	25.4	millimeter per year (mm/yr)
gallon per minute (gal/min)	0.06309	liter per second (L/s)
million gallons per day (Mgal/d)	0.04381	cubic meter per second (m^3/s)

The following additional conversions for acre-foot per year (acre-ft/yr) are based on 365.25 days per year:

1 cubic foot per second (ft^3/s) is equal to 724.5 acre-ft/yr

1 million gallons per day (Mgal/d) is equal to 1,121.0 acre-ft/yr

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows: °F=(1.8×°C)+32

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows: °C=(°F–32)/1.8

*Transmissivity: The standard unit for transmissivity is cubic foot per day per square foot times foot of aquifer thickness [(ft^3/d)/ft^2]ft. In this report, the mathematically reduced form, foot squared per day (ft^2/d), is used for convenience.

Altitude, as used in this report, refers to distance above the vertical datum.

Streamflow Depletion by Wells—Understanding and Managing the Effects of Groundwater Pumping on Streamflow

By Paul M. Barlow and Stanley A. Leake

Introduction

Groundwater is an important source of water for many human needs, including public supply, agriculture, and industry. With the development of any natural resource, however, adverse consequences may be associated with its use. One of the primary concerns related to the development of groundwater resources is the effect of groundwater pumping on streamflow. Groundwater and surface-water systems are connected, and groundwater discharge is often a substantial component of the total flow of a stream. Groundwater pumping reduces the amount of groundwater that flows to streams and, in some cases, can draw streamflow into the underlying groundwater system. Streamflow reductions (or depletions) caused by pumping have become an important water-resource management issue because of the negative impacts that reduced flows can have on aquatic ecosystems, the availability of surface water, and the quality and aesthetic value of streams and rivers.

Scientific research over the past seven decades has made important contributions to the basic understanding of the processes and factors that affect streamflow depletion by wells. Moreover, advances in methods for simulating groundwater systems with computer models provide powerful tools for estimating the rates, locations, and timing of streamflow depletion in response to groundwater pumping and for evaluating alternative approaches for managing streamflow depletion. The primary objective of this report is to summarize these scientific insights and to describe the various field methods and modeling approaches that can be used to understand and manage streamflow depletion. A secondary objective is to highlight several misconceptions concerning streamflow depletion and to explain why these misconceptions are incorrect.

Lower Colorado River and adjacent farmland in the Yuma, Arizona, area. Diversion structure in upper right is Morelos Dam, the main point of delivery of water to Mexico. The “Law of the River” recognizes that water can be withdrawn from the Colorado River by “underground pumping.” (Photograph by Andy Pernick, Bureau of Reclamation)

Characteristics of Groundwater Systems and Groundwater Interactions with Streamflow

This section provides brief descriptions of several terms and concepts that contribute to an understanding of streamflow depletion by wells. For a more extensive discussion of these concepts, the reader is referred to texts on groundwater, hydrogeology, and hydrology by Freeze and Cherry (1979), Linsley and others (1982), Heath (1983), Domenico and Schwartz (1990), and Fetter (2001).

Aquifers and Groundwater Flow

The pores, fractures, and other voids that are present in the sediments and rocks that lie close to the Earth's surface are partially to completely filled with water. In most locations, an unsaturated zone in which both water and air fill the voids exists immediately beneath the land surface (fig. 1). At greater depths, the voids become fully saturated with water. The top of the saturated zone is referred to as the water table, and the water within the saturated zone is groundwater.

Although voids beneath the water table are filled with water, the ability of subsurface materials to store and transmit water varies substantially. The term aquifer refers to subsurface deposits and geologic formations that are capable of yielding usable quantities of water to a well or spring, whereas a confining layer (or confining bed, such as illustrated in figure 1) refers to a low-permeability deposit or geologic formation that restricts the movement of groundwater (Heath, 1983). An aquifer can refer to a single geologic layer (or unit), a complete geologic formation, or groups of geologic formations (Freeze and Cherry, 1979).

Most aquifers are classified as either confined or unconfined. A confined aquifer is one that lies between two confining layers, whereas an unconfined aquifer is one in which the uppermost boundary is the water table (fig. 1). Unconfined aquifers are often referred to as water-table aquifers, and both terms are used interchangeably in this report. As illustrated in figure 1, unconfined aquifers typically are located near land surface and confined aquifers are located at depth. Because of their proximity to land surface and associated surface waters, unconfined aquifers are often of interest in problems concerning streamflow depletion by wells; however, pumping from confined aquifers also can cause depletion. The fact that flow paths exist from deep confined aquifers upward to shallow aquifers means that changes in water levels from pumping (that is, drawdown) in deep confined aquifers also propagate to shallow aquifers with connected streams. An additional term, "leaky aquifer," is sometimes used to refer to an aquifer that receives inflow from adjacent low-permeability beds, although it is actually the adjacent beds that leak water to the aquifer (Freeze and Cherry, 1979).

In many areas of the United States, groundwater systems are composed of a vertical sequence of aquifers in which an upper, unconfined aquifer is underlain by a series of one or more confining beds and confined aquifers, such as is illustrated in figure 1. In many other areas, however, the groundwater system consists of a single, often unconfined, aquifer underlain by geologic formations, such as crystalline rock, whose permeabilities are so low that the formation can be assumed to be impermeable to groundwater flow. Aquifers of this type are used throughout the report to illustrate many of the factors that affect streamflow depletion by wells.

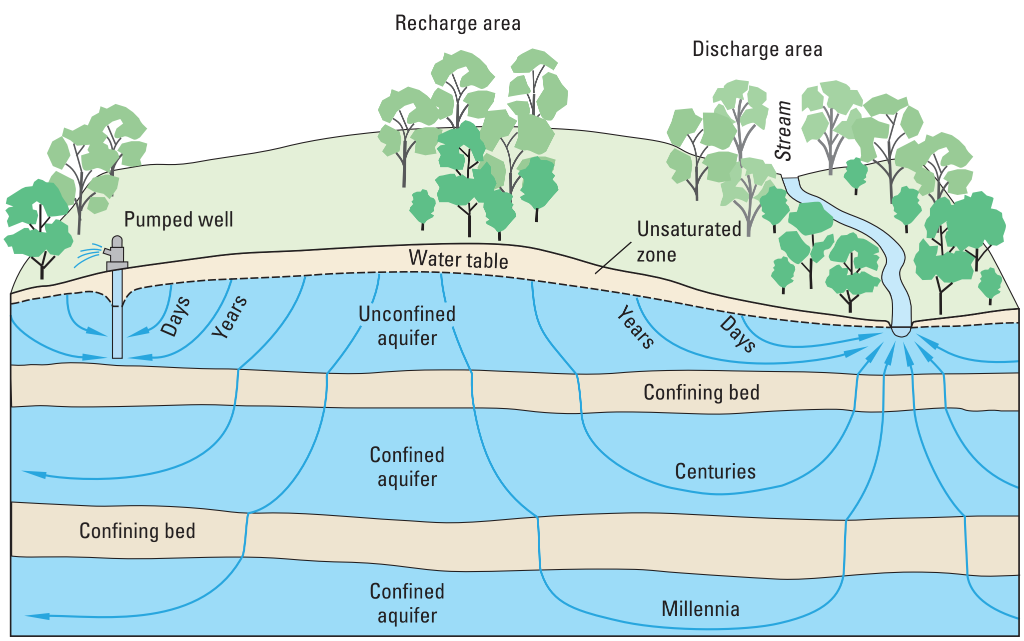


Figure 1. Groundwater flow paths in a multi-aquifer groundwater system. Groundwater flows from recharge areas at the water table to discharge locations at the stream and well. The residence time of groundwater can range from days to millennia (modified from Winter and others, 1998).

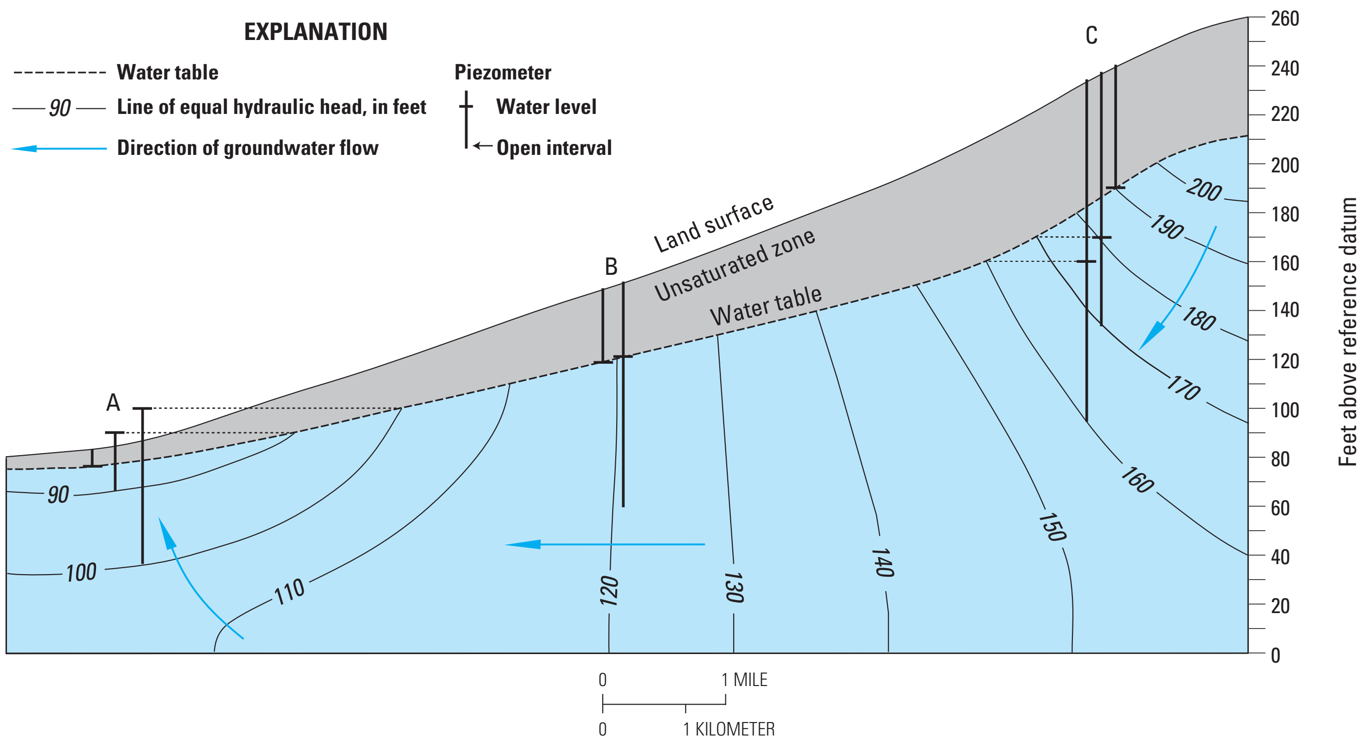


Figure 2. Distribution of hydraulic-head contours (groundwater levels) showing groundwater-flow directions in a vertical section of a hypothetical water-table aquifer. Groundwater levels are measured in piezometers, which are a type of observation well having a very short, open interval to the aquifer at the bottom of the well. The head measurements at the group of three piezometers completed at different depths at location C indicate downward groundwater flow at that location, whereas head measurements at the piezometers at locations B and A indicate lateral and upward flow at those locations, respectively (modified from Winter and others, 1998).

Groundwater moves continuously through aquifers from areas of groundwater recharge to areas of groundwater discharge. Such flow is illustrated by the flow paths in figure 1. The upper, unconfined aquifer shown in figure 1 is recharged by water that infiltrates across the land surface and then moves downward through the unsaturated zone to the water table to become groundwater. The source of groundwater recharge typically is precipitation (rain or melted snow) but can also originate from anthropogenic sources such as infiltration of irrigation return flow and septic-system wastewater. The accretion of water at the top of the saturated zone causes the water table to rise, and as a result, the saturated thickness of the unconfined aquifer increases. As recharge diminishes or ceases, the water table will decline and the saturated thickness decrease.

Groundwater commonly discharges to streams and wells, as illustrated in figure 1, but it can also discharge to springs, lakes, and ponds; to estuaries and directly to oceans; and by evaporation and plant transpiration in low-lying areas where the water table lies close to land surface, such as in wetlands or near streams. The residence time of water in a groundwater system can range from days to a few years for water recharged close to discharge boundaries, to millennia for water that travels along deep flow paths through low-permeability materials.

Directions of groundwater flow are determined from measurements of the altitude of groundwater levels made in wells. The water-level altitudes must be determined relative to a common datum plane, such as the National Geodetic Vertical Datum of 1929 (commonly referred to as “sea level;” Heath, 1983). Groundwater levels are equivalent to hydraulic heads and reflect the total potential energy of the groundwater system at the point of measurement. In a manner similar to flow in other potential fields (such as in electrical or thermal systems), groundwater flows from locations of higher potential energy to locations of lower potential energy and, therefore, in the direction of decreasing hydraulic head (fig. 2).

The rate of groundwater flow in a particular direction is dependent on the hydraulic conductivity of the aquifer, which is described in the next section, and the gradient of the hydraulic head in the direction of interest. The hydraulic gradient, which is equal to the change in head over a unit distance, can be determined from pairs of water-level measurements or from water-level contours drawn for a horizontal or vertical section of an aquifer. The hydraulic gradient between the 130 and 120 feet (ft) contours shown in figure 2, for example, is approximately 10 feet per mile, as determined by the change in hydraulic head between the two contours divided by the approximate distance between the contours along the flow line.

Groundwater systems are referred to as being in either a steady-state or a transient condition (fig. 3). A steady-state system is one in which groundwater levels and flow rates within and along the boundaries of the system are constant with time, and the rate of storage change within the flow system is zero. A transient system is one in which groundwater levels and flow rates change with time and are accompanied by changes in groundwater storage. Transient conditions occur in response to changes in flow rates along the boundaries of a groundwater system, such as short-term and long-term fluctuations in recharge rates, or changes in flow rates at points within a groundwater system, such as fluctuations in pumping rates. Although steady-state flow conditions, such as illustrated in figure 3*A*, rarely occur for real-world hydrologic conditions, it is often acceptable to assume that steady-state conditions exist if the fluctuations in water levels and storage changes are relatively small or if there is an interest in an evaluation of the long-term average condition of the flow system. Many studies of regional aquifer systems, for example, are conducted with the assumption that steady-state conditions occurred prior to large-scale groundwater development. During the predevelopment period, average rates of natural recharge and discharge to the aquifers are assumed to have been in long-term balance. Another term that is sometimes used to refer to the state of a groundwater system is dynamic equilibrium (or steady-oscillatory; Maddock and Vionnet, 1998), in which water levels and flow rates are variable over a period of time (such as a year) but vary in a pattern that is the same from one period to the next (fig. 3*C*).

Hydraulic Properties of Aquifers, Confining Layers, and Streambed Sediments

The flow and storage of water in a groundwater system depend strongly on the hydraulic properties of the aquifers and confining layers that make up the system. These properties, which are summarized in table 1, also affect the timing, locations, and rates of streamflow depletion.

Hydraulic conductivity, often denoted by the symbol K, is a property that describes the rate of flow of a volume of water through a unit area of aquifer under a unit gradient of hydraulic head (Heath, 1983). The measurement units of K are length per time, such as feet per day (ft/d). The value of hydraulic conductivity at a particular location depends on the characteristics of the porous material, such as the size and arrangement of the pores and fractures, and the density and viscosity of the water within the porous material. Hydraulic-conductivity

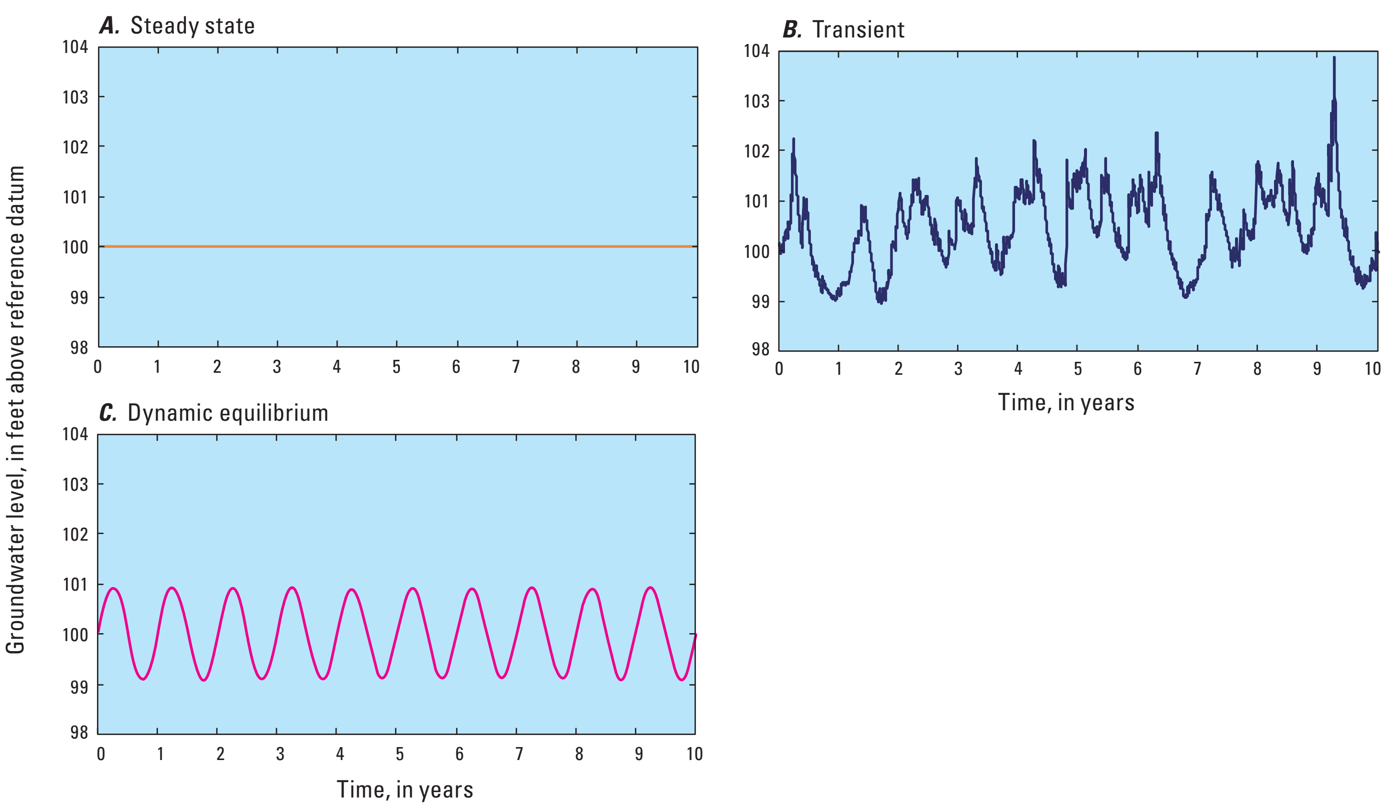


Figure 3. Hydrologic conditions at a hypothetical observation well at which groundwater-level measurements indicate the state of the groundwater system. *A, Steady-state system:* Groundwater levels at the well do not change during the 10-year period. *B, Transient system:* Groundwater levels fluctuate with time, with the highest water levels generally occurring in the early spring and lowest water levels in the late summer and fall. *C, System in dynamic equilibrium:* Groundwater levels fluctuate throughout the year but in a pattern that is the same from one year to the next.

Table 1. Aquifer properties that influence the timing of streamflow depletion.

Aquifer property	Symbol used	Units	Definition	Application
Saturated thickness	b	Length	The vertical thickness of the sediments in which pores are fully saturated	Any aquifer system
Hydraulic conductivity	K	Length/time	Rate of groundwater flow per unit area under a unit hydraulic gradient	Any aquifer system
Transmissivity	T	Length^2/time	Rate of groundwater flow per unit width under a unit hydraulic gradient $(T = K \times b)$	Aquifer systems dominated by horizontal flow
Specific storage	S_s	1/length	Volume of water released from or taken into storage per unit volume of aquifer per unit change in head	Confined aquifers
Storage coefficient	S	Dimensionless	Volume of water released from or taken into storage per unit surface area of aquifer per unit change in head normal to that surface $(S = S_s \times b)$	Confined aquifers
Specific yield	S_y	Dimensionless	Ratio of volume of water drainable by gravity from saturated aquifer material to the total volume of that material	Unconfined aquifers
Hydraulic diffusivity	D	Length^2/time	Ratio of the transmissivity to the storage properties of an aquifer: T/S, K/S_s, or T/S_y	Aquifer systems dominated by horizontal flow

values have a range of more than 12 to 13 orders of magnitude and are relatively large (~1 to 10,000 ft/d) for the unconsolidated sands and gravels and karstic limestones that typically constitute aquifers and relatively small (~1×10^{-8} to 0.1 ft/d) for clays, silts, and shales that typically constitute confining layers (Freeze and Cherry, 1979; Heath, 1983).

An aquifer in which the values of hydraulic conductivity differ from one location to another is said to be heterogeneous, whereas one in which the hydraulic conductivity is everywhere the same is said to be homogeneous. Although no natural aquifer is strictly homogeneous with respect to K, aquifer response to stress may in some cases be represented using a homogeneous equivalent K. For example, alluvial aquifers commonly include discontinuous beds of clay of low K distributed within sand of higher K. Even though the contrast in the hydraulic conductivity between the clay and sand may be orders of magnitude, the response to pumping may be approximated using a homogeneous K if the distribution of clay beds is uniform throughout the aquifer.

Unless specified differently, K refers to hydraulic conductivity in the horizontal direction. A more specific designation of horizontal hydraulic conductivity is K_h, and, similarly, vertical hydraulic conductivity commonly is designated as K_v. Because of the presence of low-permeability interbeds in many aquifers, K_h can be greater than K_v by a factor of 10 or more.

For groundwater systems that are dominated by horizontal flow, the transmissivity (T) at each location in an aquifer can be expressed as the product of the hydraulic conductivity and saturated thickness at that location: $T = K \times b$. Because the water table of an unconfined aquifer rises and falls in response to hydraulic stresses, such as recharge and pumping, the saturated thickness and transmissivity also vary in response to the changing water table. This complication is often of little consequence for thick aquifers where water-table fluctuations are relatively small, but may be important near pumping wells where water-table declines are a significant fraction of the initial saturated thickness. In such situations, and also in the case where pumping wells draw water from deep within an unconfined aquifer, vertical components of groundwater flow may be too large to ignore and the concept of transmissivity less useful.

The dominant process by which water is released from storage differs substantially between confined and unconfined systems (Heath, 1983). In confined aquifers and confining layers, water is released from storage by compression of the matrix of solid materials that form the deposit and by expansion of the water contained within the pores of the deposit. The storage capacities of confined aquifers and confining units are described by the hydraulic properties of specific storage (S_s) and storage coefficient (S), which are related by saturated thickness: $S = S_s \times b$. The storage properties of confined aquifers and confining units are relatively small; typical values of the storage coefficient of confined aquifers range from 5×10^{-5} to 5×10^{-3} (Freeze and Cherry, 1979). In contrast, the primary component of storage in an unconfined aquifer (or a confining layer that contains a water table) is drainage of water stored in the pores of the aquifer that is released as the water table declines. Water is also released from unconfined aquifers by compression of the aquifer matrix and expansion of the water, but these sources of stored water are small compared to drainage at the water table and typically are ignored. The storage capacity of an unconfined aquifer is described by its specific yield *(S_y)*. The specific yields of unconfined aquifers are much larger than the storage coefficients of confined aquifers, typically between 0.01 and 0.30 (Freeze and Cherry, 1979).

Another hydraulic property that is not widely used in groundwater studies but has relevance to streamflow depletion is aquifer hydraulic diffusivity *(D)*, which relates the transmissive and storage properties of an aquifer. Because of its importance to the timing and rates of streamflow depletion, it is described in detail in Box A.

Hydraulic properties of streambed and streambank materials may be different from those of the underlying aquifer or confining layer. The properties that are most important to the flow of water across the streambed and streambank materials are the hydraulic conductivity *(K_s)* and thickness *(d_s)* of the streambed sediments. In most analyses, the storage properties of these sediments are considered to be negligible.

Groundwater and Streamflow

Streams and rivers are commonly the primary locations of groundwater discharge, and groundwater discharge is often the primary component of streamflow. Groundwater is discharged through saturated streambed and streambank sediments, or permeable bedrock adjacent to the stream, where the altitude of the water table is greater than the altitude of the stream surface (fig. 4*A*). Conversely, streamflow seeps into the underlying groundwater system where the altitude of the stream surface is greater than the altitude of the adjoining water table (fig. 4*B*). Stream reaches that receive groundwater discharge are called gaining reaches and those that lose water to the underlying aquifer are called losing reaches. The rate at which water flows between a stream and adjoining aquifer depends on the hydraulic gradient between the two water bodies and also on the hydraulic conductivity of geologic materials that may be located at the groundwater/surface-water interface. A thick, silty streambed, for example, will tend to reduce the rate of flow between a stream and aquifer compared to a thin, sandy or gravelly streambed. In some cases, however, discharge from the aquifer to the stream is controlled by the rate at which groundwater must leave the aquifer. In this situation, the presence of a thick, silty streambed will tend to increase the hydraulic gradient between a stream and

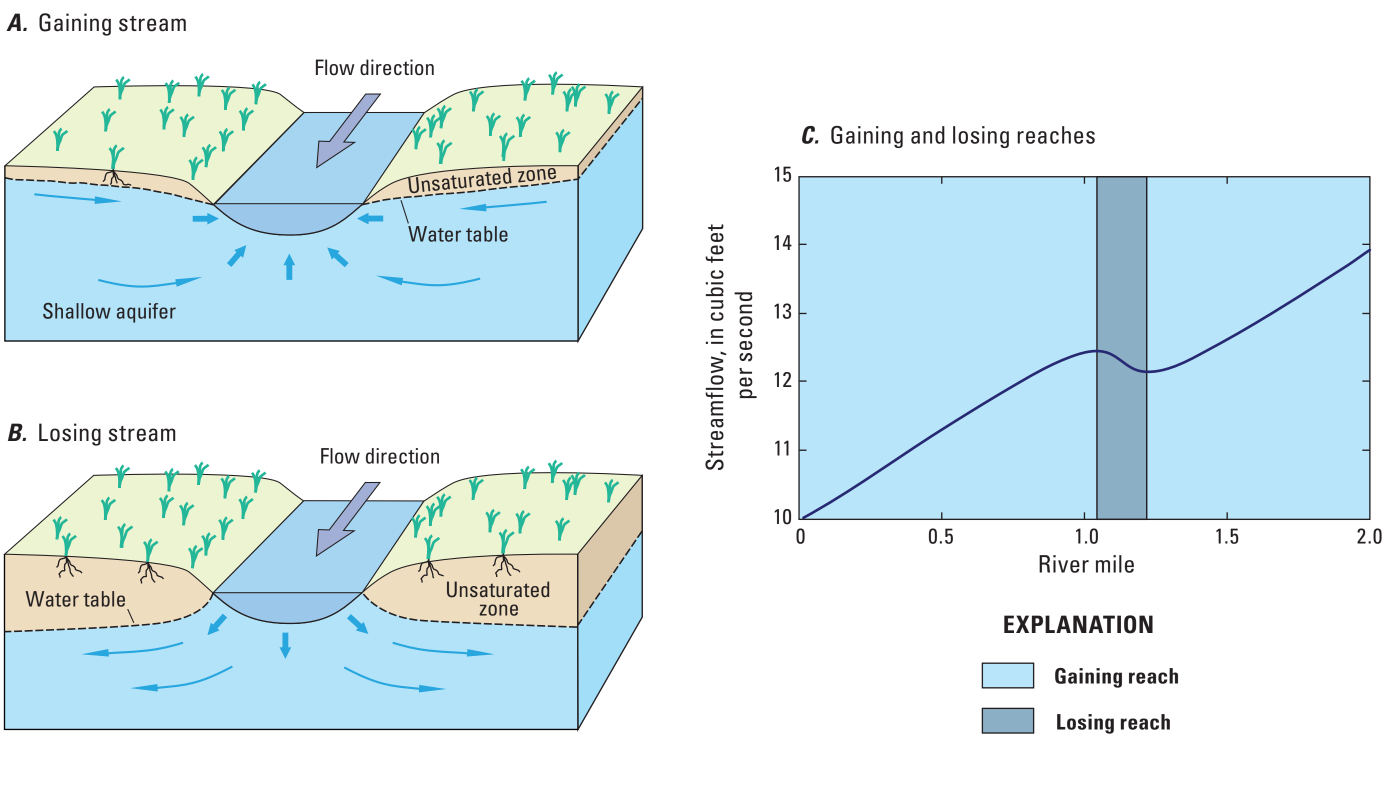


Figure 4. *A*, Gaining stream reaches receive water from the groundwater system, whereas, *B*, losing reaches lose water to the groundwater system. *C*, Streamflow increases along the gaining reaches of a river and streamflow decreases along the losing reaches of a river when there is no direct surface-water runoff to the river (parts *A* and *B* modified from Winter and others, 1998).

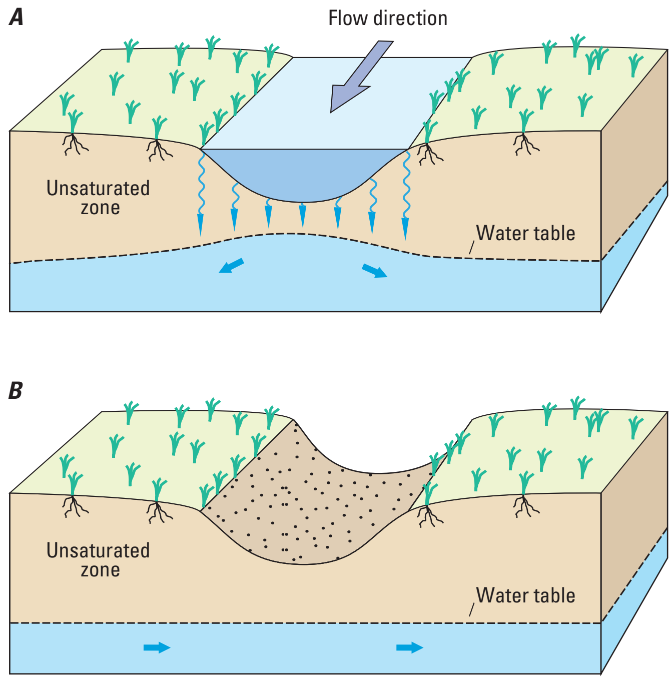


Figure 5. Disconnected stream reaches are separated from the groundwater system by an unsaturated zone. In *A*, streamflow is a source of recharge to the underlying groundwater system, but in *B*, streamflow and groundwater recharge have ceased (modified from Winter and others, 1998).

aquifer compared to the presence of a thin, sandy or gravelly bed, but will not affect the total amount of groundwater that is discharged to the stream.

The graph in figure 4*C* illustrates the effects of gaining and losing conditions on streamflow during a period of no direct surface-water runoff to the river. The graph shows that the rate of streamflow increases along gaining reaches and decreases along losing reaches. The graph also demonstrates that a stream can have both gaining and losing reaches simultaneously. Moreover, because precipitation rates, pumping rates, and other hydrologic stresses vary with time, it is possible for a particular stream reach to switch from a gaining to a losing condition or from a losing to a gaining condition from one period of time to the next.

Losing reaches occur under conditions in which the underlying sediments are fully saturated, as shown in figure 4*B*, or for conditions in which the sediments are unsaturated, as shown in figure 5*A*. A losing stream reach that is underlain by an unsaturated zone is said to be disconnected from the underlying aquifer (Winter and others, 1998). Some stream reaches are ephemeral (that is, they periodically become dry), and, as a consequence, flows between the stream and underlying aquifer may periodically cease (fig. 5*B*).

The sources of water to streams are generally recognized to result from four processes (Linsley and others, 1982): precipitation that falls directly onto a stream, which is a relatively small component of total streamflow; surface runoff (or overland flow) that travels over the land surface

Groundwater discharge from a basaltic-rock aquifer adjacent to the Metolius River, Deschutes River Basin, Oregon.

Box A: Hydraulic Diffusivity

Two of the most important factors that control the timing and rates of streamflow depletion are distance of the pumping well from connected surface waters and the hydraulic diffusivity of the aquifer. Distance to surface waters is easily understood, but hydraulic diffusivity is a less familiar property. Hydraulic diffusivity, D, is defined for confined aquifers as $D = T/S$, where T and S are the more familiar properties of transmissivity and storage coefficient, respectively.

The concept of aquifer diffusivity is strictly applicable to settings where water-level declines (drawdowns) from groundwater pumping propagate horizontally—but not vertically—to connected streams and other surface-water features. This condition implies that the saturated thickness of the aquifer remains constant over time, which is not the case for unconfined aquifers where the water table falls in response to pumping. Nevertheless, it is often acceptable to assume that changes in saturated thickness caused by pumping are relatively small (for example, less than 10 percent of the predevelopment saturated thickness) and that vertical groundwater-flow components within the aquifer are small compared to horizontal components. Under these assumptions, the hydraulic diffusivity of an unconfined aquifer is defined with respect to specific yield, S_y, as $D = T/S_y$.

Hydraulic stresses propagate faster through aquifers with higher values of hydraulic diffusivity than through aquifers with lower values of hydraulic diffusivity. It is important to understand that it is the ratio of T and S (or S_y) that controls the timing of depletion and not the values of T and S individually. For example, the rate of depletion at any given time caused by a pumping well in a system with a transmissivity of 10,000 feet squared per day (ft^2/d) and a storage coefficient of 0.01 would be the same as in a system with a transmissivity of 1,000 ft^2/d and a storage coefficient of 0.001, assuming all other factors are equal. As illustrated in table A–1 for representative confined and unconfined aquifers with equal transmissivity, the hydraulic diffusivity of confined aquifers is typically several orders of magnitude greater than that for unconfined aquifers. This difference results from the much larger storage capacity of the unconfined aquifer (as represented by the value of specific yield) compared to that of the confined aquifer (as represented by the storage coefficient).

Higher values of hydraulic diffusivity increase the speed at which responses to stresses such as pumping propagate through an aquifer to connected streams. Streamflow depletion therefore generally will occur much more rapidly in confined aquifers than in unconfined aquifers (fig. A–1). Each of the responses shown in figure A–1 illustrates the slower and damped response to a pumping stress in an unconfined aquifer with a relatively low hydraulic diffusivity compared to the faster response to the same stress in a confined aquifer with a relatively high hydraulic diffusivity. The responses shown in the figure are characteristic of streamflow depletion from pumping, but hydraulic diffusivity similarly affects groundwater-level responses to stresses other than pumping, such as recharge and changes in surface-water stage.

A final point concerning the propagation of hydraulic stresses within an aquifer is that the rate of propagation of a hydraulic perturbation is not the same as the velocity with which a volume of groundwater actually travels through an aquifer or the associated residence time of groundwater in the aquifer. Groundwater movement is nearly always substantially slower than the propagation of hydraulic stresses through most types of aquifers, particularly those that are the source of most large-scale groundwater withdrawals.

Table A–1. Example transmissivity, storage property, and resulting hydraulic diffusivity of a confined and unconfined aquifer.

[Saturated thickness *(b)* of both aquifers is 100 feet, hydraulic conductivity *(K)* is 100 feet per day, and specific storage (S_s) is 1×10^{-6} feet^{-1}; –, not applicable]

Aquifer type	Transmissivity $(K \times b)$ [feet squared per day]	Storage coefficient $(S_s \times b)$ [dimensionless]	Specific yield [dimensionless]	Hydraulic diffusivity [feet squared per day]
Confined	10,000	0.0001	–	1×10^8
Unconfined	10,000	–[1]	0.1	1×10^5

[1]Although storage changes related to the product of S_s and b apply in unconfined aquifers, this property can be ignored in analyses of responses to pumping if the product is much smaller than specific yield.

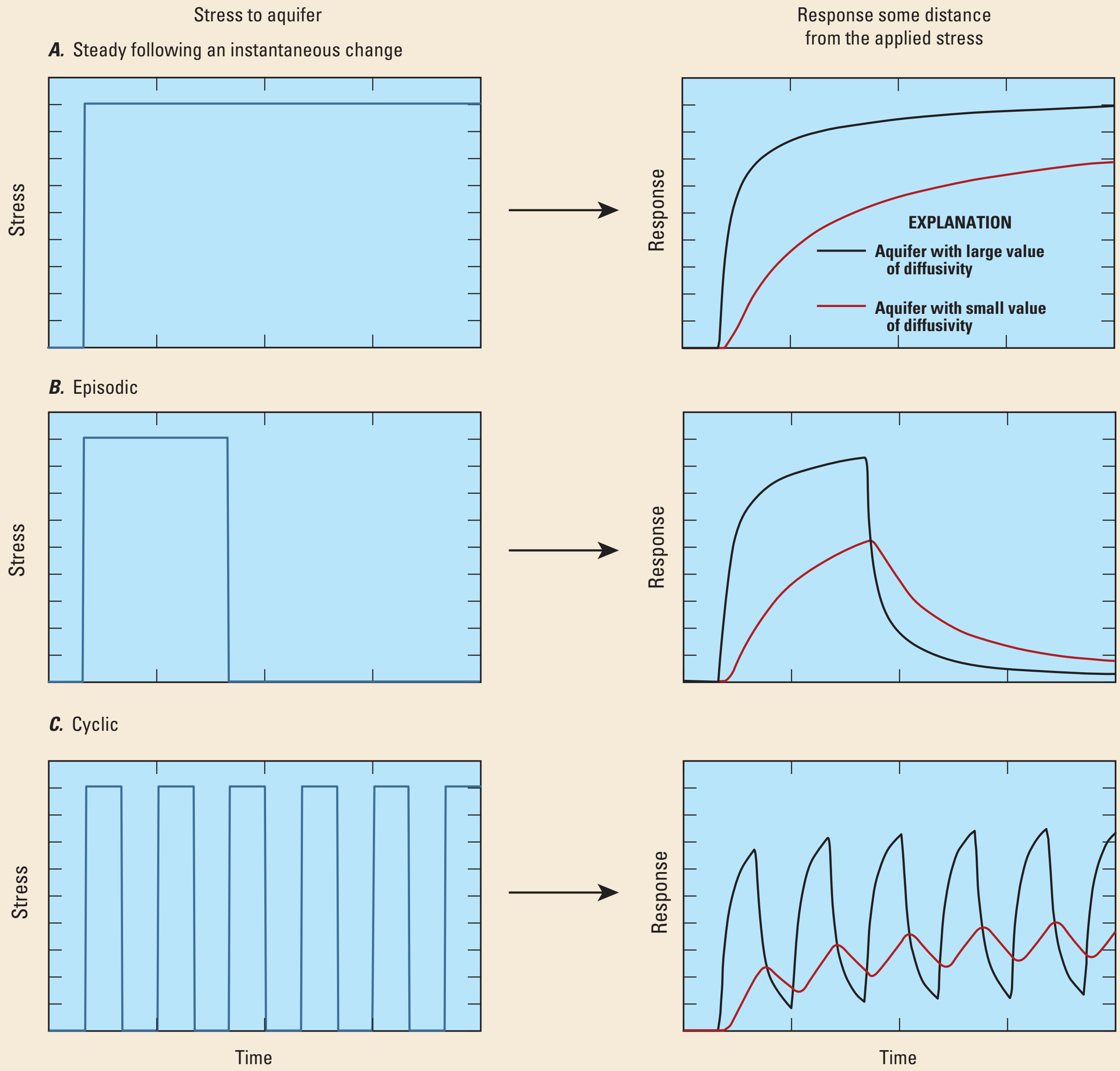


Figure A–1. Groundwater-system response to different types of stresses for two values of hydraulic diffusivity—a relatively large value representative of confined aquifers and a relatively small value representative of unconfined aquifers. Stresses to the aquifer could be pumping at a well or recharge to an aquifer. The responses shown are characteristic streamflow-depletion responses to pumping, but also could be water-level responses to pumping or recharge. For the hypothetical situation shown, the pumping stresses and streamflow-depletion responses would be in units of volume per time (such as cubic feet per second). Other types of stresses and resulting responses could have different measurement units; for example, recharge rates typically are reported in units of length per time (such as inches per year) and water levels in units of length (such as feet). [Rates of streamflow depletion were calculated by using a computer program described in Reeves (2008); hydraulic diffusivity of confined and unconfined aquifers are 100,000 and 10,000 feet squared per day, respectively.]

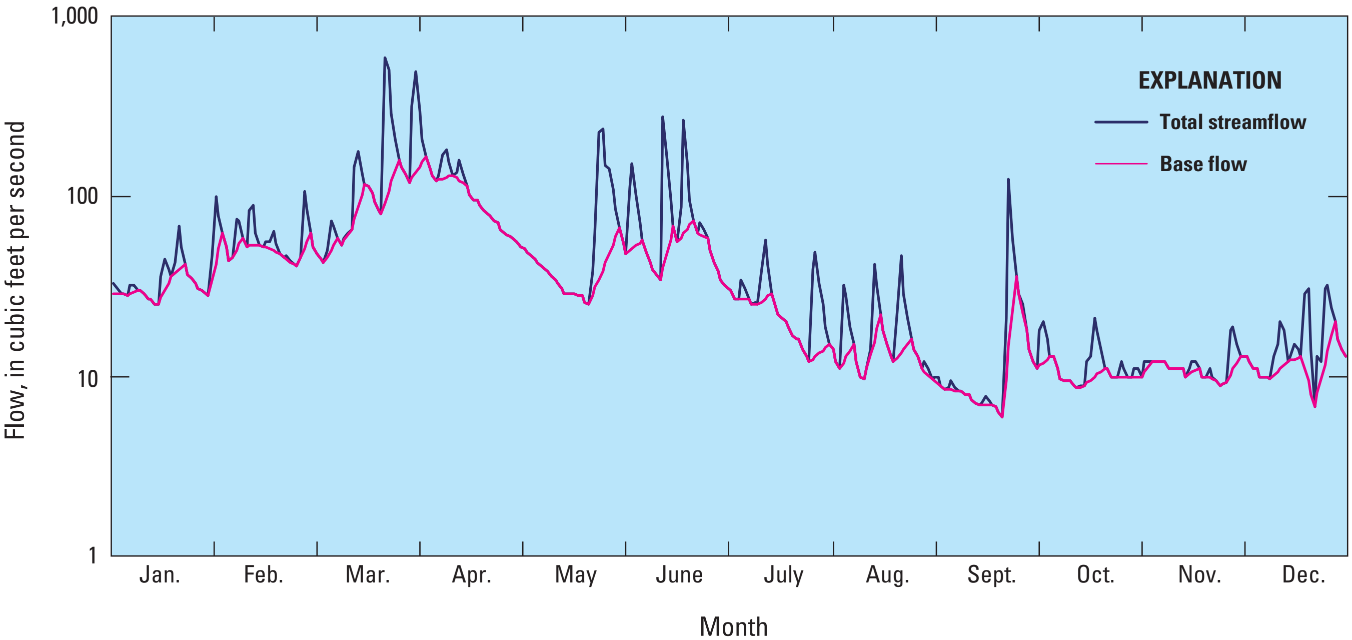


Figure 6. Total streamflow and the estimated base-flow component of streamflow for the Hunt River near East Greenwich, Rhode Island, 2001. Temporally varying rates of precipitation, evaporation, and plant transpiration within the watershed result in highly variable rates of daily and seasonal streamflow conditions. During periods of streamflow decline, such as occurred from mid April to mid May, streamflow consists nearly entirely of base flow. The direct-runoff component of streamflow is the difference between total streamflow and base flow. (Data available from U.S. Geological Survey National Water Information System Web Interface, *http://waterdata.usgs.gov/nwis*; base flow estimated by the PART computer program documented in Rutledge, 1998.)

to a stream channel; interflow (or subsurface storm flow) that moves through the upper soil layers to a stream channel; and groundwater discharge, which is commonly referred to as base flow. Surface runoff and interflow are important during storm events, and their contributions typically are combined into a single term called the direct-runoff component of streamflow. Groundwater on the other hand is most important for sustaining the flow of a stream during periods between storms and during dry times of the year.

The proportion of streamflow that is contributed by groundwater discharge varies across physiographic and climatic settings (Winter and others, 1998). Base-flow contributions can be estimated for some streams by analysis of streamflow hydrographs, such as is illustrated for the Hunt River in Rhode Island (fig. 6). During periods of streamflow decline (recession) that follow storms, streamflow in the river consists nearly entirely of groundwater discharge, but groundwater discharge also contributes to streamflow during and shortly after periods of high flow. The average long-term base-flow component of the Hunt River was estimated to be nearly 81 percent of the total flow in the river (Barlow and Dickerman, 2001). This large contribution of groundwater discharge is typical for rivers of the Northeastern United States that are underlain by highly permeable sand and gravel deposits that facilitate high rates of groundwater recharge and low rates of direct runoff. The contribution of groundwater discharge to streamflow is lower for basins underlain by less-permeable materials.

Streamflow Response to Groundwater Pumping

This section describes the fundamental processes and factors that affect the timing, rates, and locations of streamflow depletion. Unless otherwise stated, two important assumptions are made throughout this discussion—first, that the stream and underlying aquifer remain hydraulically connected by a continuous saturated zone, and second, that the stream does not become dry. These assumptions may not be valid for extreme cases of large-scale groundwater development and limited streamflow where groundwater levels have been drawn down below the bottom of the streambed. When the stream cannot supply the quantity of water pumped, the stream may eventually lose all of its water to the aquifer and become ephemeral. Even if flow remains in the stream, once groundwater levels decrease below the streambed, an unsaturated zone may develop near the locations of pumping that disconnects the groundwater and surface-water systems, at which time the flow rate between the groundwater and surface-water systems in the affected areas will no longer respond to pumping. Brunner and others (2011) provide a summary of several of the issues related to disconnected systems and the factors that influence the dynamics of disconnection; Su and others (2007) and Zhang and others (2011) provide examples of the effects of pumping on the formation of disconnected systems.

Time Response of Streamflow Depletion During Pumping

As stated by Theis (1940) in his seminal work on the source of water derived from wells, knowledge of the influence of time is fundamental to understanding the effects of groundwater development on aquifers and hydraulically connected surface waters. When a well begins to pump water from an aquifer, groundwater levels around the well decline, creating what is called a "cone of depression" in the water levels around the well. These water-level declines are largest at the well and decrease to effectively zero decline at some radial distance from the well (fig. 7). The hydraulic gradient that is established within the cone of depression forces water to move from the aquifer into the well. Initially, all of the water pumped by the well comes from water stored in the aquifer. The cone of depression generally deepens and expands laterally with increased pumping time. Because the hydraulic diffusivity of confined aquifers is relatively large, the cone of depression that forms around a well in a confined aquifer expands rapidly away from a well. In contrast, because the hydraulic diffusivity of unconfined aquifers is relatively small, the cone of depression around a well pumping from an unconfined aquifer expands slowly outward from the well.

The release of water from aquifer storage continues to be the only source of water to the well until the cone of depression reaches one or more areas of the aquifer from which water can be captured. Captured water consists of two possible sources—a reduction in the natural discharge (or outflow) rate of groundwater from the aquifer or an increase in the natural or artificial recharge (or inflow) rate to the aquifer. The primary sources of captured discharge are groundwater that would otherwise have flowed to streams, drains, lakes, or oceans, as well as reductions in groundwater evapotranspiration in low-lying areas such as riparian zones and wetlands. Figure 7*C* illustrates the capture of groundwater that would otherwise have discharged to the bounding stream. Groundwater discharge to the stream is reduced because groundwater levels at the stream-aquifer boundary have been lowered by pumping, which reduces the hydraulic gradient from the

Groundwater pumped for flood irrigation of a rice field. Groundwater withdrawals from the Mississippi River alluvial aquifer to support agriculture in the Mississippi Delta region have resulted in groundwater-level declines and reductions in groundwater discharge to many Delta streams (Barlow and Clark, 2011).

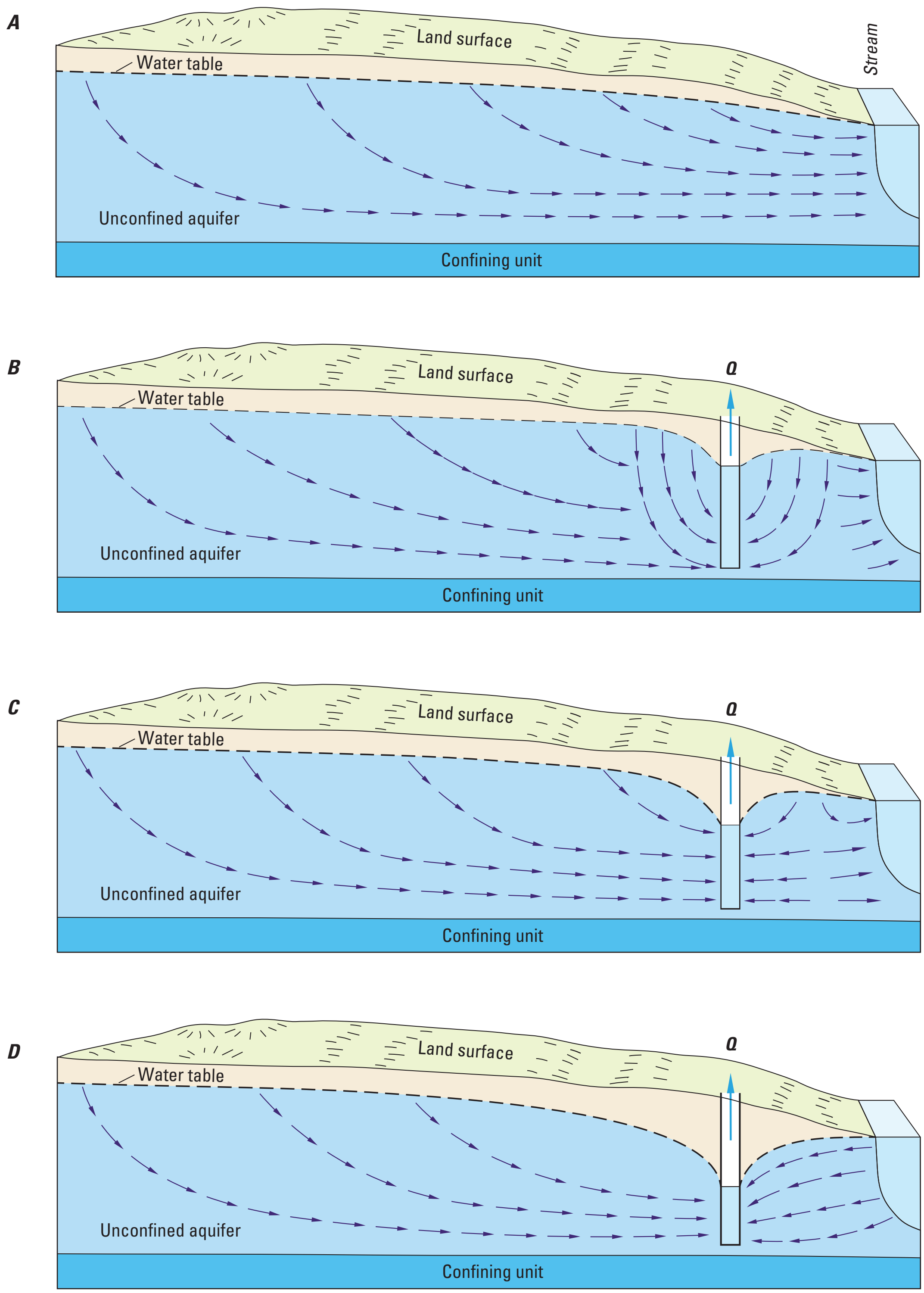


Figure 7. Effects of pumping from a hypothetical water-table aquifer that discharges to a stream. *A,* Under natural conditions, recharge at the water table is equal to discharge at the stream. *B*, Soon after pumping begins, all of the water pumped by the well is derived from water released from groundwater storage. *C,* As the cone of depression expands outward from the well, the well begins to capture groundwater that would otherwise have discharged to the stream. *D*, In some circumstances, the pumping rate of the well may be large enough to cause water to flow from the stream to the aquifer, a process called induced infiltration of streamflow. Streamflow depletion is equal to the sum of captured groundwater discharge and induced infiltration (modified from Heath, 1983; Alley and others, 1999). [*Q*, pumping rate at well]

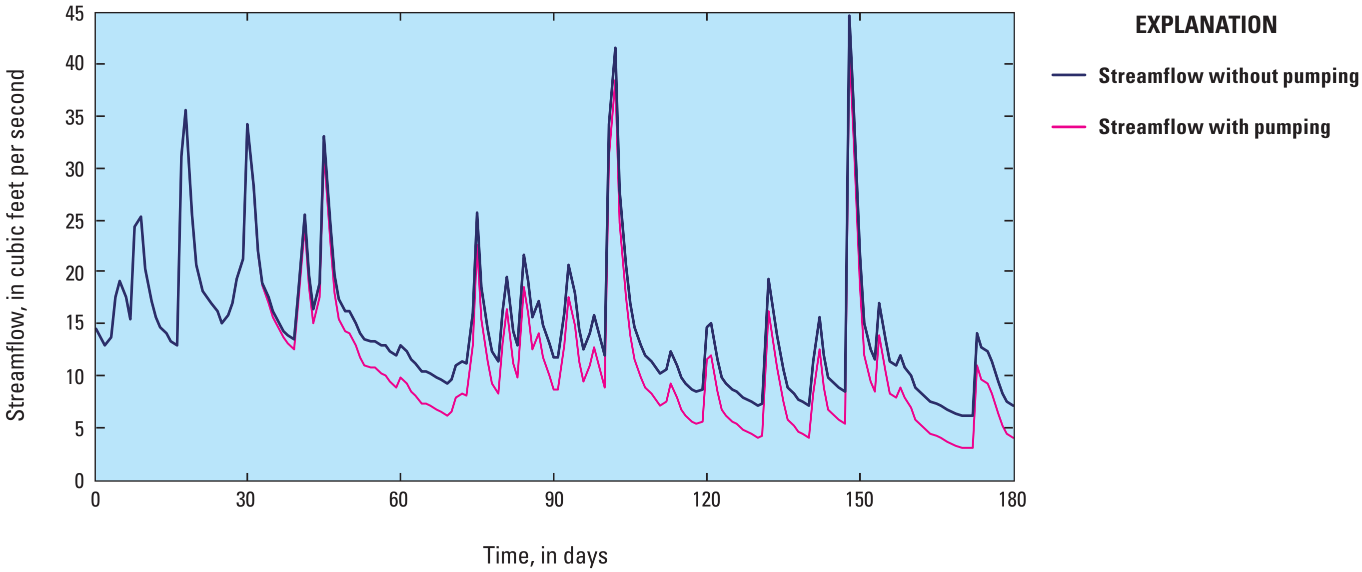


Figure 8. Effects of groundwater pumping on a hypothetical streamflow hydrograph. Top curve shows daily streamflow without pumping at a nearby well. Lower curve shows daily streamflow with pumping from a well located near the stream at a rate of 2.0 million gallons per day (about 3.1 cubic feet per second) beginning at day 30. After about day 60, the total decrease in streamflow each day is equal to the pumping rate of the well.

aquifer to the stream; however, there is no reversal in the gradient toward the stream, and the stream remains gaining. An example of captured recharge is induced leakage from streams, drains, or lakes. For example, if the reductions in groundwater levels near a hydraulically connected stream are large enough, the hydraulic gradient at the stream-aquifer interface will be reversed, and streamflow will be induced to flow into the aquifer toward the well (fig. 7*D*). This process is referred to as induced infiltration of streamflow and results in the stream becoming losing within the reach of stream in which the gradient has been reversed. Captured groundwater discharge to streams and induced infiltration of streamflow both result in reductions in the total amount of streamflow; as a result, the two processes are combined into the single term streamflow depletion. Reductions in streamflow that result from pumping at a hypothetical well are illustrated for a representative streamflow hydrograph in figure 8. The lower curve on the graph illustrates that streamflow continues to rise and fall in response to precipitation events, but the rates of streamflow are lower than those that would occur in the absence of pumping. For the hypothetical conditions shown, the amount of streamflow reduction at any point in time is equal to the pumping rate of the well after about 60 days of pumping.

The time response of the sources of water to a hypothetical well is illustrated by the curves in figure 9. For this example aquifer, the only sources of water to the well are groundwater released from aquifer storage and streamflow depletion in a nearby stream. Groundwater storage is the primary source of water to the well soon after pumping begins, but its contribution to the well's withdrawal declines with time. The time at which more than half of the pumping rate of the well is supplied by streamflow depletion is designated on the figure as the time to reach a depletion-dominated supply (t_{dds}). If the well pumps for an extended period of time, the source of water pumped by the well will be entirely from depletion, with no further contributions from groundwater storage. When this occurs, water levels no longer decline in response to pumping, the cone of depression does not expand any further, and the aquifer is in a new state of equilibrium in which the pumping rate of the well is equal to the amount of streamflow depletion. The time that is required for a new state of equilibrium to be attained has been called the "time to full capture" and can range from a matter of days to decades and even centuries (Bredehoeft and Durbin, 2009; Walton, 2010). In some aquifers, however, a new equilibrium may never be reached if the total pumping rate from the aquifer exceeds the rate at which water can be captured. In other aquifers, the time to reach full capture, as expressed as 100 percent of the pumping rate of the well, is so long that for practical purposes it is not meaningful. In those cases, it may be preferable to define full capture as a value somewhat less than 100 percent, such as 99 percent or 95 percent.

The factors that control the time response of streamflow depletion to pumping are the geologic structure, dimensions, and hydraulic properties of the groundwater system; the locations and hydrologic conditions along the boundaries of the groundwater system, including the streams; and the horizontal and vertical distances of wells from the streams. The effects of these factors will be illustrated in different ways throughout this report, beginning with a discussion of two of the most important variables—the distance of a pumping well from a nearby stream and the hydraulic diffusivity of an aquifer.

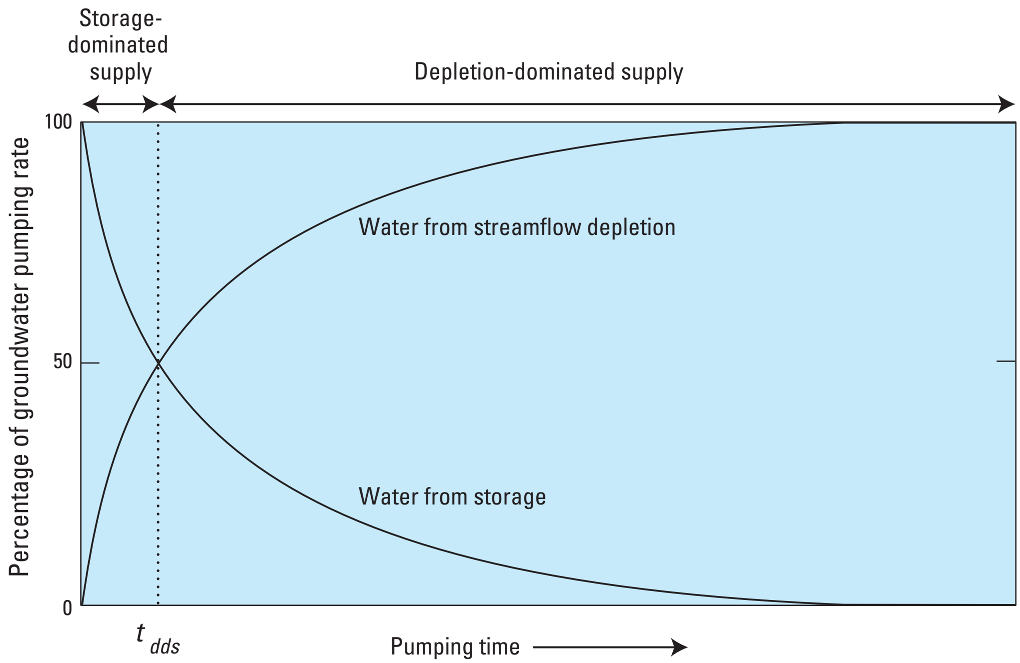


Figure 9. Relation of storage change and streamflow depletion as sources of pumped groundwater through time for a hypothetical well. Initially, the source of water (or supply) to the well is dominated by reductions in aquifer storage. At later times, streamflow depletion is the dominant source of supply. The condition of more than half of the pumping rate coming from streamflow depletion is designated as depletion-dominated supply, and variable t_{dds} is the time to reach the condition of depletion-dominated supply for a particular pumping location.

Jenkins (1968a, b) introduced a term that is widely applied in streamflow-depletion problems called the "stream depletion factor" (or *SDF*) to quantify the relation between these two variables. The stream depletion factor for a well pumping at a particular location in an aquifer is defined as

$$SDF = \frac{d^2}{D},$$

where *d* is the shortest distance between the pumped well and nearby stream, and *D* is the hydraulic diffusivity of the aquifer. Values of *SDF* have units of time.

For a given pumping location, the value of *SDF* is a relative measure of how rapidly streamflow depletion occurs in response to a new pumping stress. Streamflow depletion will occur relatively quickly in response to pumping from wells with a low value of *SDF* and relatively slowly in response to wells with a high value of *SDF*. A high value of hydraulic diffusivity, for example, will result in a relatively low value of *SDF* and, as described and illustrated in Box A, a relatively fast response of streamflow depletion to pumping. The effects of well distance on streamflow depletion are illustrated in figure 10 for two hypothetical wells pumping from the same aquifer. Because well A is located much farther from the stream than well B, the time necessary for the cone of depression formed by pumping at well A to reach the stream is much longer than that for well B, and as a result, groundwater-storage depletion is a source of water to the well for a longer period of time. In contrast, the cone of depression formed by pumping at well B reaches the stream much sooner than that for well A, and streamflow depletion becomes the primary source of water to the well much sooner than for well A.

The presence of streambed and streambank sediments that impede the flow of water at the stream-aquifer interface also can affect the response of streamflow to pumping (fig. 11). These bed sediments often consist of fine-grained deposits and organic materials that have a lower hydraulic conductivity (permeability) than the surrounding aquifer materials. The effect of these sediments is to extend the time to full capture and to reduce the amount of streamflow depletion that occurs at any given time relative to a condition in which the low-permeability sediments are absent. For example, for the simulated conditions shown in the graph in figure 11, 65 percent of the water withdrawn by the well after 60 days of pumping consists of streamflow depletion for the condition with no resistance to flow at the stream-aquifer interface, whereas only 53 percent of the well's withdrawal rate consists of streamflow depletion after 60 days of pumping for the condition in which streambed and streambank materials with lower permeability than the aquifer are present at the stream-aquifer interface.

Conditions that do not affect the timing of depletion also are worth noting. First, in most aquifer systems, the timing of streamflow depletion is independent of the pumping rate at the well. If the pumping does not cause system changes such as large reductions in aquifer thickness or the drying up of streams or wetlands, depletion at any given time is proportional to the pumping rate. Depletion, therefore, can be expressed as a fraction (or percentage) of the pumping rate at a well, as described in Box B. Moreover, the fraction

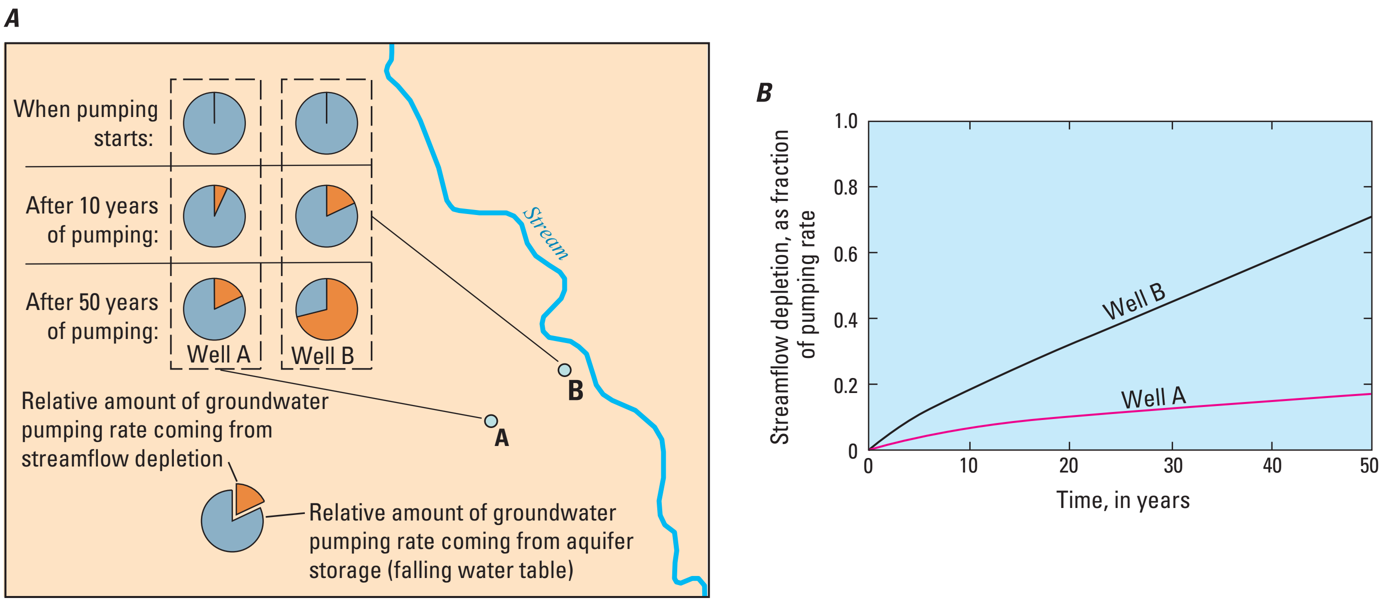


Figure 10. *A,* Sources of pumped groundwater at two hypothetical well locations for pumping times of 10 and 50 years. *B,* Streamflow depletion is a much larger source of water to well B than to well A during the 50-year pumping period because well B is much closer to the stream (modified from Leake and Haney, 2010).

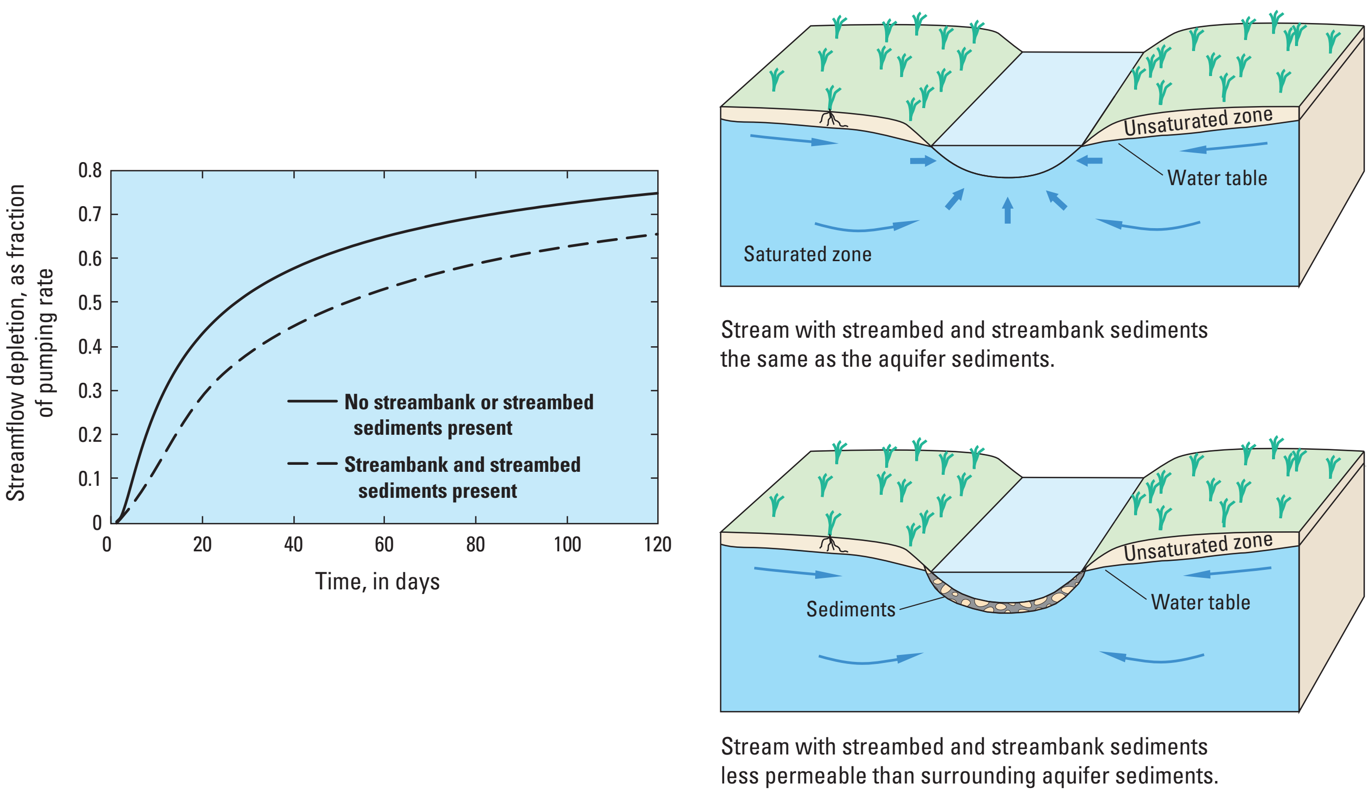


Figure 11. Streamflow depletion resulting from a well pumping 500 feet from a stream at a rate of 250 gallons per minute. The presence of streambed and streambank materials with lower permeability than the surrounding aquifer reduces the amount of streamflow depletion during the 120 days of pumping. [Rates of streamflow depletion were calculated by using a computer program described in Reeves (2008); hydraulic diffusivity of aquifer is 10,000 feet squared per day and streambed leakance, which represents resistance between the stream and aquifer, is 200 feet.]

Box B: Ways to Express Streamflow Depletion

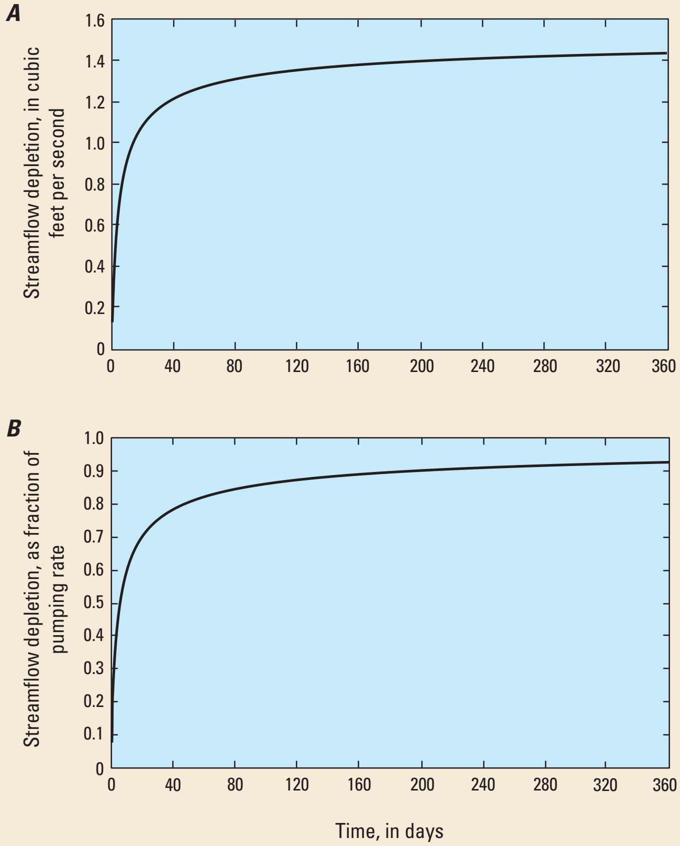


Figure B–1. Streamflow depletion resulting from pumping at a well located 250 feet from a stream. The well is pumped at a rate of 1 million gallons per day (about 1.55 cubic feet per second). In graph *A*, streamflow depletion is expressed as a rate, in cubic feet per second; in graph *B*, depletion is expressed as a fraction of the pumping rate at the well, which is a dimensionless quantity. [Rates of streamflow depletion were calculated by using a computer program described in Reeves (2008); hydraulic diffusivity of the aquifer is 10,000 feet squared per day.]

Different approaches are used to quantitatively express the effects of groundwater pumping on streamflow. Some of these approaches are described and illustrated here to provide background for the discussions in the remainder of the report.

Change in streamflow rate

The most common way to describe streamflow depletion has been to report the change in the instantaneous flow rate of the stream, which is expressed in units of volume of streamflow per unit of time, such as cubic feet per second (ft^3/s), million gallons per day (Mgal/d), or acre-foot per year (acre-ft/yr). A related approach is to report the rate of streamflow depletion as a fraction of the pumping rate of the well, which is a dimensionless quantity.

These two approaches are illustrated in figure B–1, where rates of streamflow depletion are shown for a pumping rate of 1.0 Mgal/d at a well located 250 feet from a stream. The streamflow depletion that results from pumping the well is shown in units of cubic feet per second, which is the unit most often used in reporting streamflow. In these units, the pumping rate of the well is 1.55 ft^3/s, and the rate of streamflow depletion caused by pumping at the well is shown in the top graph of figure B–1 to approach this rate asymptotically. The bottom graph shows streamflow-depletion rates as a fraction of the pumping rate at the well for the same pumping conditions. In this case, the reporting unit is dimensionless, and the curve on the graph asymptotically approaches a value of 1.0.

Cumulative volume of streamflow depletion

Another approach used to describe streamflow depletion is the cumulative (or total) volume of streamflow that occurs over a specified period of time. In this approach, the units used are volumes of streamflow that are depleted, such as cubic feet, million gallons, or acre-feet. Because rates of streamflow depletion change over time, in order to calculate the total volume depleted over a period of time it is necessary to sum the volumes of depletion that occur over shorter time intervals within the full period of interest. For example, if one wants to determine the total volume of depletion over a 1-year period, an approach would be to sum the individual volumes of depletion that occur each day. These volumes could be calculated by multiplying the daily rates of streamflow depletion by the 1-day time interval. Volumes of depletion also can be expressed as a dimensionless fraction of the total volume of water pumped over the period of interest.

These concepts are illustrated in figure B–2 for the same pumping conditions described for figure B–1. Because the pumping rate at the well is constant at 1.0 Mgal/d, the cumulative amount of groundwater pumped increases linearly with time and is equal to 360 Mgal at the end of the 360-day pumping period (top curve in fig. B–2*A*). However, as shown in the graph, at any particular time, the total volume of streamflow depletion is less than the total volume of water pumped because of the delayed effect of the response of the stream to pumping at the well. The volume of streamflow depletion as a dimensionless fraction of total groundwater pumped is shown in the bottom graph of figure B–2. It should be noted that the dimensionless curve shown in the bottom graph of figure B–2 is not equal to the dimensionless curve in figure B–1 because the underlying responses (that is, rates of streamflow depletion as opposed to volumes of streamflow depletion) are different.

A closer look at where depletion occurs

Some situations may require detailed analyses of individual stream reaches subject to depletion. This is particularly true if depletion-related changes in water chemistry or temperature are of concern or if a goal is to maintain a minimum base flow in a critical stream reach. For these analyses, depletion can be reported as the instantaneous rate of depletion per unit length of stream, such as in units of cubic feet per second per mile. Detailed reach-by-reach estimates of depletion can be calculated with numerical groundwater-flow models to gain insight into where pumping-induced infiltration from the stream to the aquifer might occur. An example of such an analysis is shown in figure 15*A*.

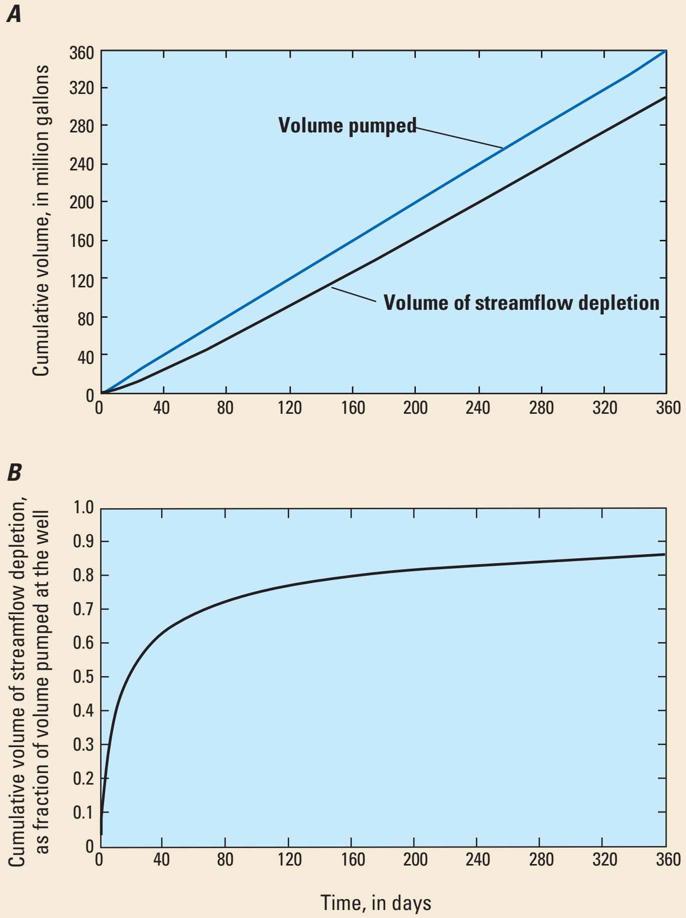


Figure B–2. Cumulative volume of streamflow depletion resulting from pumping at a well located 250 feet from a stream. The well is pumped at a rate of 1 million gallons per day. In graph *A*, streamflow depletion is expressed as the total (cumulative) volume of depletion that has occurred since the initiation of pumping, in million gallons; in graph *B*, the cumulative volume of depletion is expressed as a fraction of the cumulative volume of groundwater pumped at the well, which is a dimensionless quantity. [Volumes of streamflow depletion were calculated from the rates of streamflow depletion shown in figure B–1.]

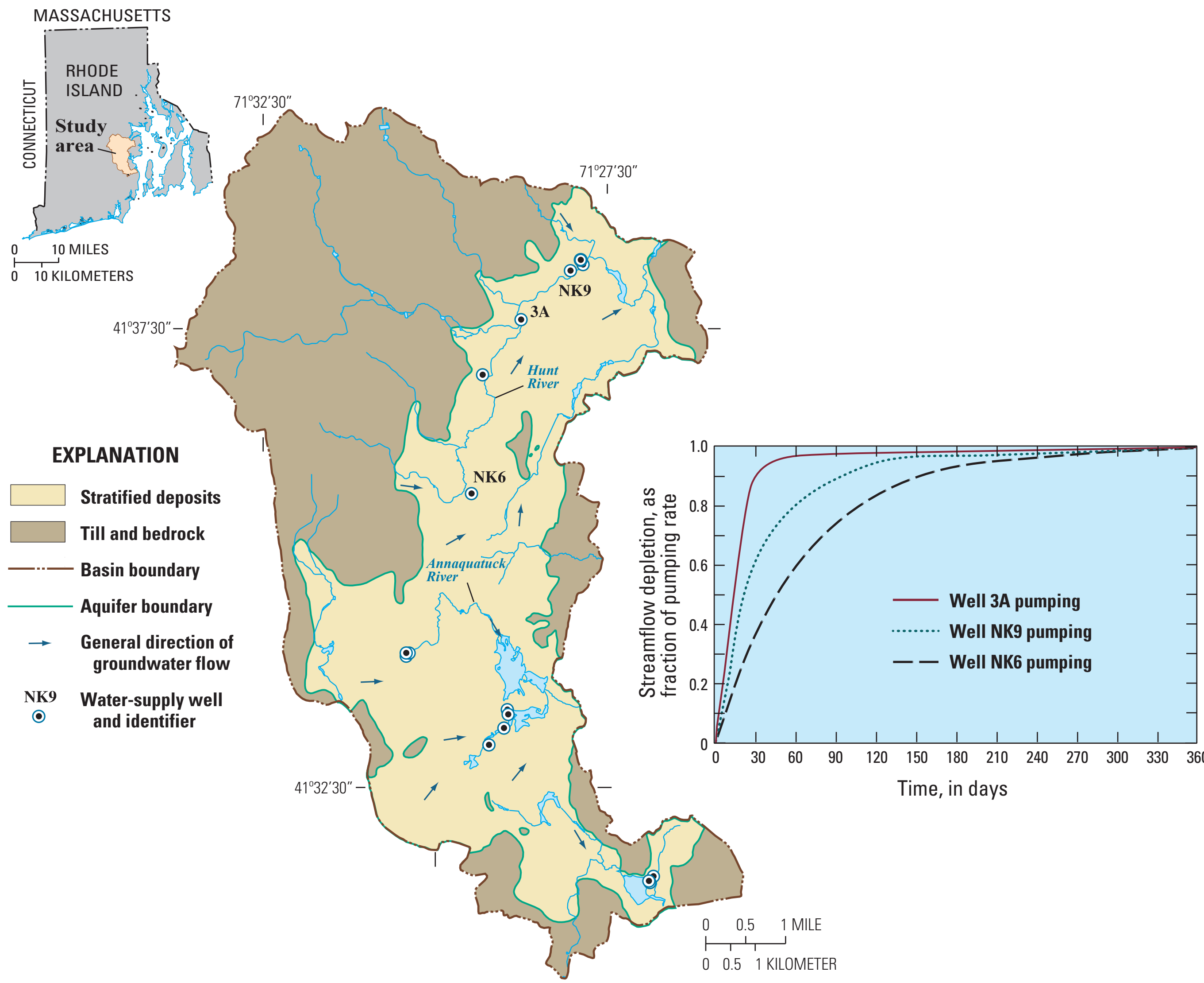


Figure 12. Streamflow depletion for three wells pumping from the unconfined-aquifer system of the Hunt River Basin, Rhode Island (map and streamflow-depletion data modified from Barlow and Dickerman, 2001).

of streamflow depletion computed for one pumping rate also can be applied to other pumping rates that do not cause substantial changes to the aquifer system. As noted in a later section of the report, the timing of depletion is also independent of rates and directions of groundwater flow in most aquifers. This means that depletion as a net effect on streamflow is the same whether a stream is gaining or losing, that features such as groundwater flow lines and divides have no influence on depletion, and that transient events such as changes in river stage or rates of aquifer recharge do not affect the timing of depletion by a pumping well (Leake, 2011).

Case studies from aquifers in the Eastern and Western United States illustrate the large differences in the timing of streamflow depletion that result from the variability in the scale of the two aquifer systems, proximity of the pumping wells to streams, and differences in the geology and hydraulic properties of the two aquifers. The case study from the Eastern United States is the 40 square mile (mi^2) stream-aquifer system of the Hunt River Basin of Rhode Island (fig. 12). The aquifer is typical of many of the glacially derived aquifers of the Northeastern United States that consist of stratified, unconsolidated sand and gravel sediments that are hydraulically connected to shallow streams, lakes, and ponds. The sediments were deposited by glacial meltwater within generally narrow river valleys bounded laterally and at depth by glacial till and bedrock. The sand and gravel deposits can have very high values of transmissivity, even though they are often no more than 100 to 150 ft thick at the deepest part of the valley. The aquifers typically are unconfined and have substantial storage capacities. Water-supply wells frequently are placed close to the streams where the valley depth and aquifer transmissivity are greatest. Thus, the distance from the wells to the groundwater-discharge boundaries at the streams is often less than a few hundred feet.

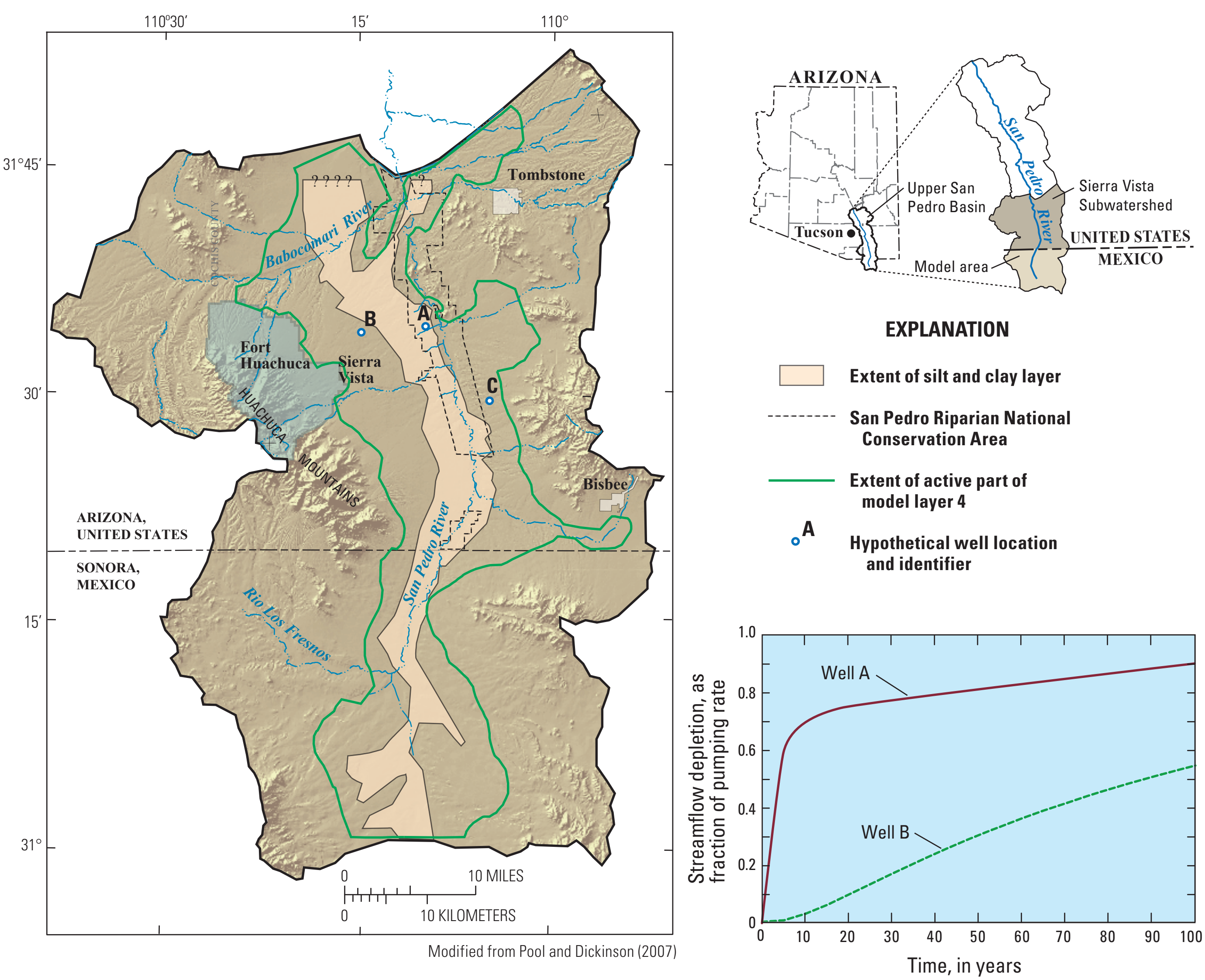
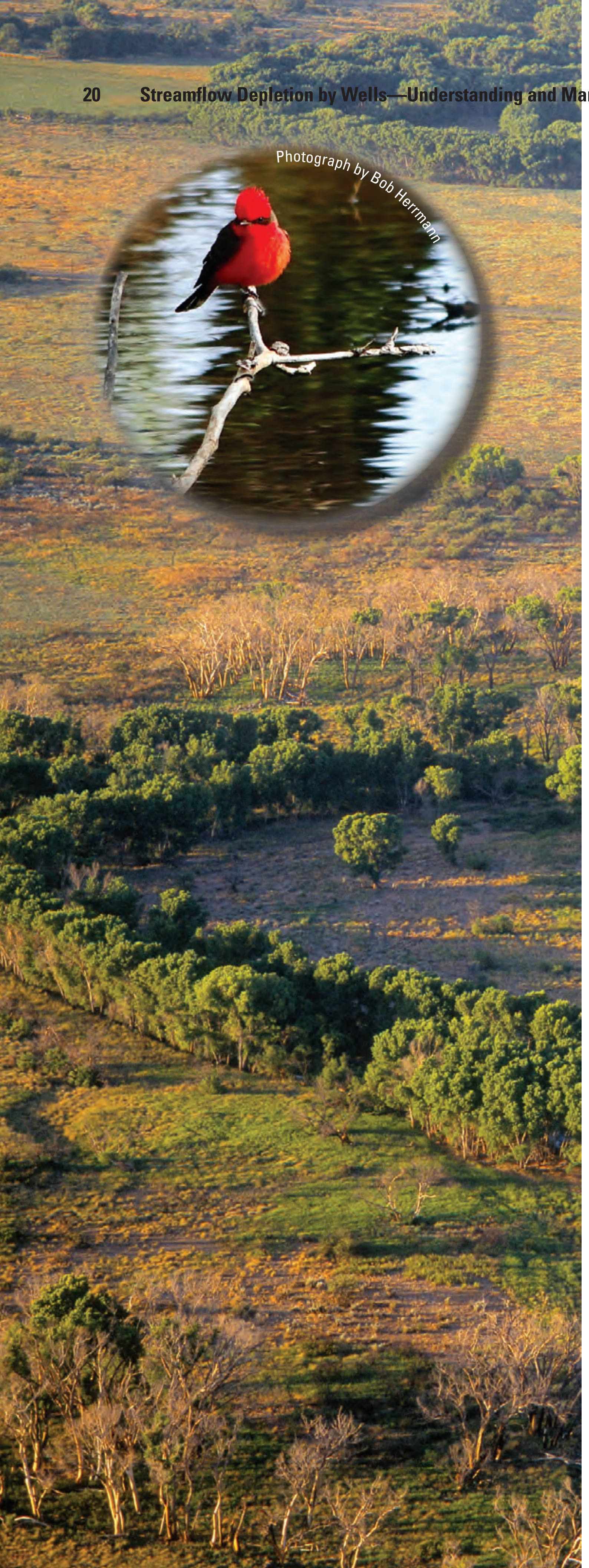


Figure 13. Streamflow depletion for hypothetical well locations A and B pumping from the Upper San Pedro Basin aquifer system, southern Arizona (modified from Leake, Pool, and Leenhouts, 2008.) [Well C is discussed later in the report.]

The distribution of water-supply wells in the Hunt River Basin is typical of wells in these river-valley aquifers (fig. 12). The majority of the wells are clustered along the Hunt and Annaquatucket Rivers, where the transmissivities of the aquifer are largest (Barlow and Dickerman, 2001). Nearly all of the wells are within about 500 ft of a stream from which groundwater that would otherwise have discharged to the stream is captured or streamflow is drawn into the aquifer by the process of induced infiltration. Because of the close proximity of the wells to the streams and the relatively high transmissivity of the aquifer near the wells, the time response of streamflow depletion to pumping is relatively fast, as illustrated by the streamflow-depletion curves calculated by a numerical groundwater-flow model of the basin for three wells that pump near the Hunt River (fig. 12). Each of the three wells captures more than 90 percent of its withdrawal from streamflow depletion within 180 days of the start of pumping, and the time to reach a depletion-dominated supply is less than 50 days for each well.

In contrast to the narrow and relatively shallow alluvial-valley aquifer settings of the Northeast, many aquifers of the Western United States extend over hundreds to thousands of square miles and are hundreds of feet thick. An example groundwater system of the West is that within the Upper San Pedro Basin that extends from northern Sonora, Mexico, into southern Arizona (fig. 13). The watershed covers an area of about 1,700 mi^2. Groundwater discharge sustains perennial reaches in the San Pedro River and tributaries, as well as narrow bands of groundwater-dependent vegetation adjacent to streams. The riparian area provides year-round habitat for aquatic and terrestrial wildlife species, and also is an important corridor for birds migrating between Mexico and the United States. The San Pedro Riparian National Conservation Area, managed by the Bureau of Land Management, was established in 1988 to protect and enhance this desert ecosystem.



The primary aquifer within the Upper San Pedro Basin comprises thick alluvial deposits that occupy a structural basin that lies between rocks in the surrounding mountains (Pool and Dickinson, 2007; Leake, Pool, and Leenhouts, 2008). The basin-fill deposits are subdivided into upper, highly permeable and lower, less permeable parts that are collectively as much as 1,700 ft thick. An extensive silt and clay layer that vertically spans parts of the upper and lower basin fill separates the aquifer into deep confined and shallow unconfined sections. The areal extent of the silt and clay layer is shown in figure 13. Groundwater within the Upper San Pedro Basin generally flows from recharge areas near the mountains to areas near the San Pedro River where it discharges to the stream and springs or is evaporated or transpired by riparian vegetation. A portion of the groundwater flow is intercepted upgradient from the streams by pumped wells.

Graphs of streamflow depletion for two wells pumping within the San Pedro Basin in figure 13 illustrate the large difference in response times for pumping from this system compared to that of the Hunt River Basin. Response times for streamflow depletion in the San Pedro River Basin are measured in years and decades, whereas those for the Hunt River are measured in days and months. For example, in contrast to wells pumping in the Hunt River Basin, the time required to reach depletion-dominated supply is about 5 years for well A and nearly 90 years for well B. The long response times for the San Pedro Basin result from the relatively large distances of hypothetical wells A and B from the San Pedro River (about 1.5 miles (mi) for well A and 6 mi for well B) and the specific characteristics of the groundwater system of the San Pedro River Basin, including its large areal extent, the thickness of the basin-fill sediments, and the presence of the silt and clay confining unit, all of which increase the time during which the wells draw from aquifer storage. These long response times have implications to monitoring and managing streamflow depletion in these aquifer settings—a topic that will be discussed later in the report.

The discussion in this section on the time response of streamflow depletion to pumping is based on concepts of the source of water to pumped wells that have been presented in literature over a period of more than 70 years, including those by Theis (1940), Lohman (1972), Bredehoeft and others (1982), Heath (1983), Alley and others (1999), Bredehoeft (2002), and Bredehoeft and Durbin (2009). These concepts are also relevant to the related topics of groundwater budgets and groundwater sustainability.

San Pedro River below Hereford, Arizona. The riparian zone along the river provides abundant food, water, and cover for hundreds of species of birds, including the Vermilion Flycatcher. (Background photograph by Michael Collier)

Distribution of Streamflow Depletion Along Stream Reaches

The cone of depression that forms around a well extends outward in all directions from the well, and, as a result, groundwater pumping affects streams and stream reaches that are both upgradient to and downgradient from the location of withdrawal. Some stream reaches will be affected more than others, depending on the distance of the well from the reach and the three-dimensional distribution and hydraulic properties of the geologic materials that compose the groundwater system and adjoining streambeds. Steep hydraulic gradients at the stream-aquifer interface created by the pumping may cause some stream reaches to become losing, while other reaches remain gaining. Streamflow depletion increases in the downstream direction of a basin, and if depletion is the only source of water to the pumped well, the rate of depletion over time will tend to approach the pumping rate of the well in the direction of the outflow point (or points) of the basin.

These concepts are illustrated by the results of numerical simulations for two different aquifers, the first a hypothetical groundwater system representative of river-valley aquifers of the Northeastern United States and the second a real-world aquifer in northern Arizona. The hypothetical system consists of a single stream that receives groundwater discharge along its entire length from a hydraulically connected unconfined aquifer (fig. 14; based on Barlow, 1997). The unconsolidated sand and gravel deposits that fill the valley range in saturated thickness from about 40 ft along the boundaries of the valley to a maximum of about 100 ft in the center of the valley. For simplicity, the hydraulic properties of the aquifer and streambed sediments are homogeneous. The aquifer is bounded at depth by impermeable bedrock. The primary source of water to the groundwater system is recharge at the water table, but groundwater also flows into the river valley from the surrounding uplands and along the northern boundary of the simulated area. Groundwater leaves the system primarily as discharge to the stream but also along the southern boundary of the simulated area.

The rate of groundwater discharge to the stream is constant along its entire length in the absence of pumping (fig. 15*A*), which results in a linear increase in streamflow from zero cubic foot per second (ft^3/s) at the upstream end of the simulated basin to 6.1 ft^3/s at the outflow point of the basin (fig. 15*B*). The uniform rate of groundwater discharge to the stream results from the symmetry of the system and assumed homogeneity of the hydraulic properties of the aquifer and streambed materials.

The effects of pumping at three well locations are evaluated for steady-state flow conditions; that is, for conditions in which groundwater levels are no longer declining, aquifer-storage depletion is no longer occurring, and streamflow depletion is the only source of water to the wells. The three wells are located midway between the northern and southern boundaries of the system at distances of 300 ft (well A), 700 ft (well B), and 1,400 ft (well C) from the stream (fig. 14).

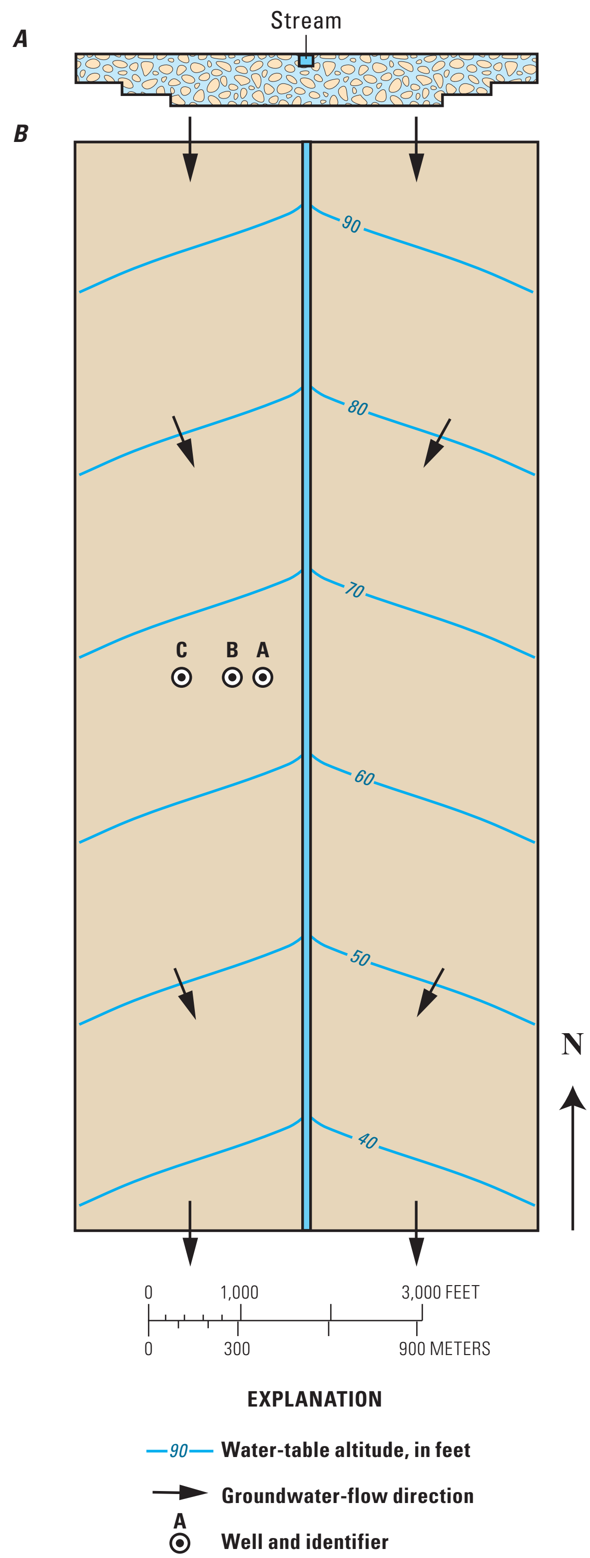


Figure 14. *A*, Cross section of a hypothetical river-valley aquifer with a shallow stream. *B*, Plan view of the water-table altitude and groundwater-flow directions in the aquifer with no pumping at the three wells. The stream receives groundwater discharge along its entire length (modified from Barlow, 1997).

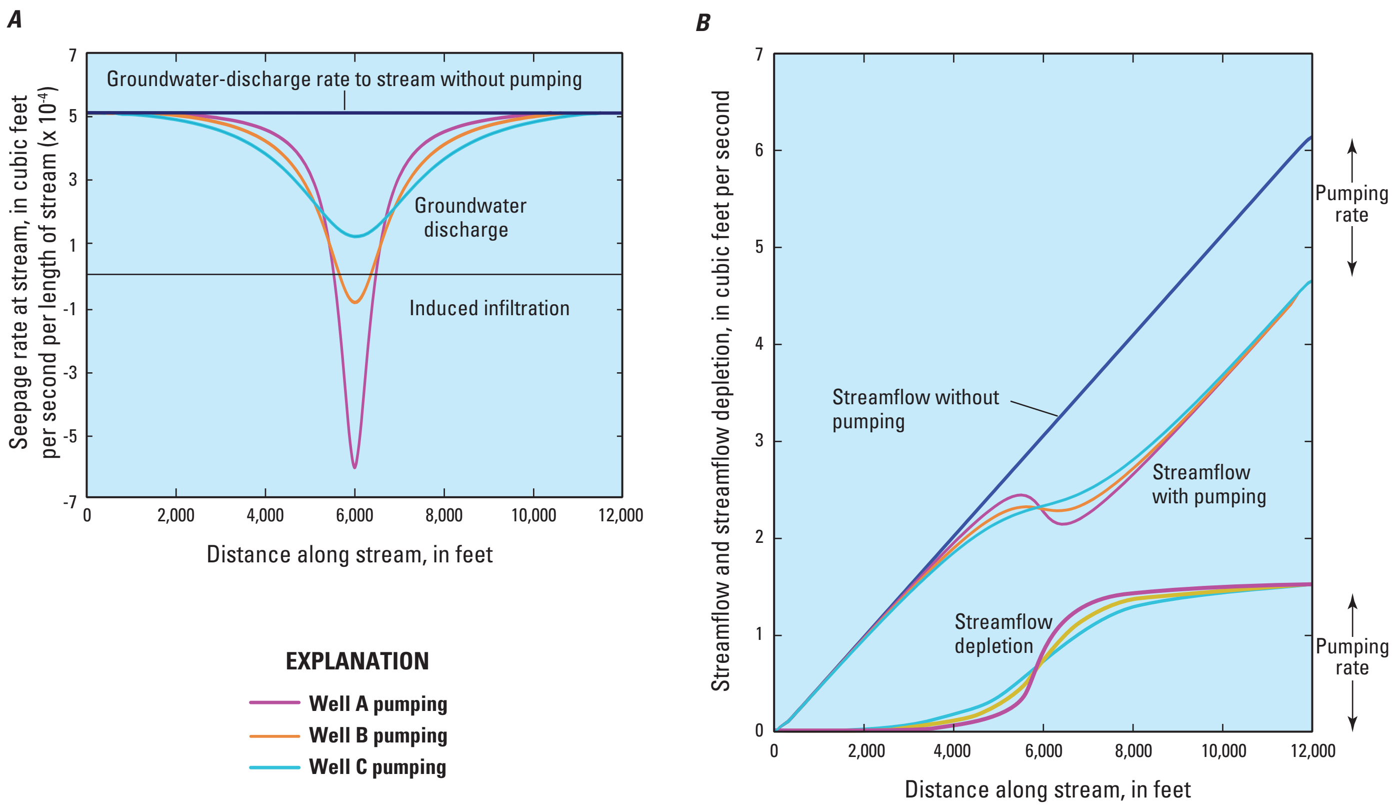


Figure 15. *A*, Rates of groundwater discharge (positive values) and induced infiltration (negative values) along the 12,000-foot reach of the stream shown in figure 14*B*: In the absence of pumping, the stream receives groundwater discharge at a uniform rate along its entire length. Pumping from wells A and B, which are located 300 feet and 700 feet from the stream, respectively, cause induced infiltration along part of the stream, whereas pumping at well C, which is located 1,400 feet from the stream, does not. Reaches that are gaining coincide with locations of groundwater discharge, whereas reaches that are losing coincide with locations of induced infiltration. *B,* Streamflow and streamflow depletion along the stream: In the absence of pumping, there is a linear increase in streamflow along the entire stream length. With pumping, streamflow depletion increases in the downstream direction and approaches the pumping rate of each well (1.55 cubic feet per second), regardless of the distance of each well from the stream. The results shown in these graphs are for steady-state flow conditions. Well locations are shown in figure 14. (Results from models documented in Barlow, 1997.)

Each well is pumped independently of the others at a rate of 1 million gallons per day (Mgal/d; 1.55 ft^3/s) in three separate simulations.

The graph in figure 15*A* shows the distribution and rates of streambed seepage along the stream for pumping at the three wells. Seepage rates greater than zero indicate groundwater discharge to the stream and gaining streamflow conditions, whereas seepage rates less than zero indicate induced infiltration of streamflow into the aquifer and losing streamflow conditions. The graph indicates that changes in streambed seepage rates are not confined to the reach of the stream that is immediately opposite to the wells (that is, at 6,000 ft along the stream), but instead extend both upgradient to and downgradient from the wells. The graph also indicates that induced-infiltration rates are largest for the well closest to the stream (well A) and decrease as the distance of the pumped well from the stream increases.

The graphs in figure 15*B* demonstrate that streamflow depletion also occurs in both the upgradient and downgradient directions from the pumped wells and that the amount of depletion asymptotically approaches the pumping rate of each well (1.55 ft^3/s) in the downstream direction, regardless of the distance of the pumped well from the stream. This results from the fact that for the conditions simulated (including the steady-state flow conditions) there are no other sources of water to the wells. As a consequence, all of the water pumped by each well must come from streamflow depletion, either as captured groundwater discharge or induced infiltration.

The change in the groundwater-discharge rates to the stream and resulting changes to streamflow that occur in response to pumping at the wells can be explained by the distribution of groundwater-level declines (drawdowns) that form around each pumped well (fig. 16). Because well A is closest to the stream, the drawdowns created at the well are larger

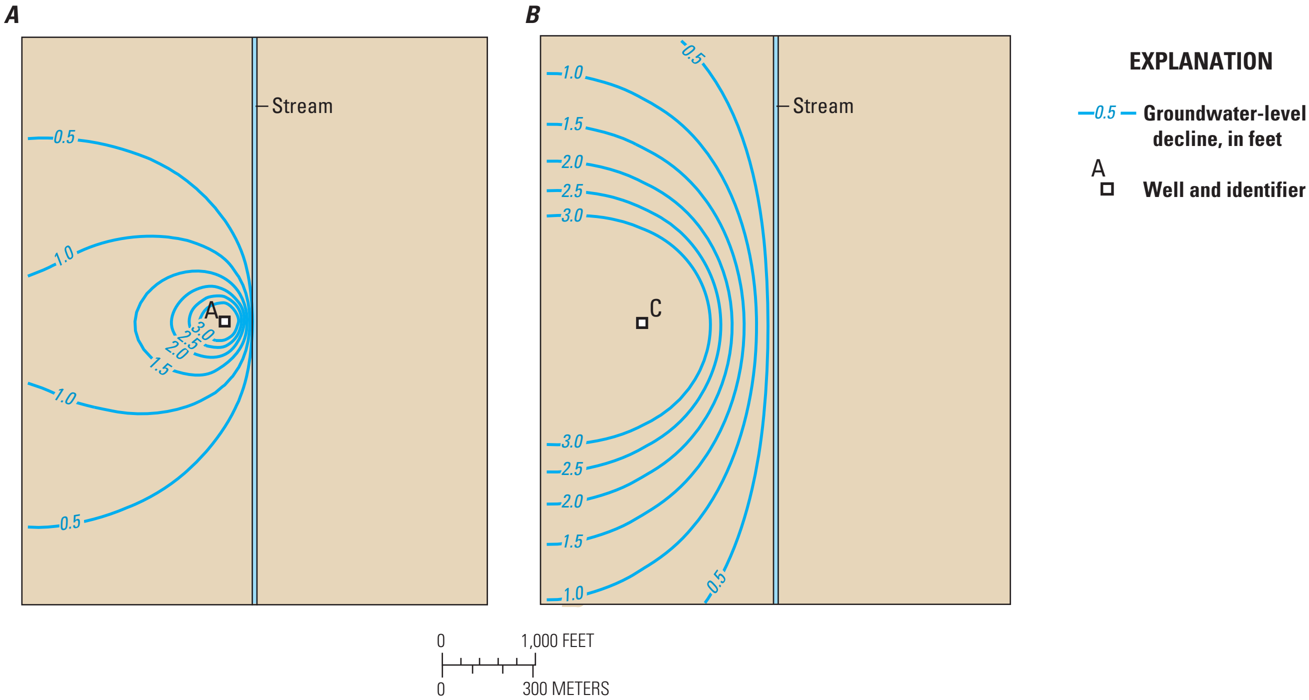


Figure 16. Groundwater-level declines (drawdowns) in the aquifer caused by, *A,* pumping at well A, and, *B,* pumping at well C. Well locations are shown in figure 14. (Results from models documented in Barlow, 1997.)

at the stream-aquifer boundary than those that are created by pumping at well C. As a result, the hydraulic gradients at the stream boundary and resulting rates of induced infiltration are largest for pumping at well A and smallest for pumping at well C. The symmetry of the seepage and streamflow-depletion rates shown in figure 15 results from the symmetry of the drawdown curves around each well, which results from the straight boundaries along the modeled aquifer and of the stream and the uniformity of the simulated aquifer sediments.

The real-world example considered here is from a study of the C aquifer in northeastern Arizona. Groundwater discharge from the C aquifer supports threatened and endangered fish species in some reaches of the Little Colorado River and its tributaries (Leake and others, 2005). The aquifer is named for the Coconino Sandstone, which is the principal water-bearing unit of the aquifer. The primary discharge area for the C aquifer in the Little Colorado River Basin is a series of springs in the lower reaches of the Little Colorado River, including Blue Spring. Discharge also occurs along various reaches of the tributaries to the Little Colorado River, such as the lower reaches of Clear and Chevelon Creeks (fig. 17); base-flow measurements made around the time of the C-aquifer study indicate groundwater discharge rates of about 5.6 and 2.7 ft^3/s, respectively, to the two reaches.

The C aquifer is the most productive aquifer in the Little Colorado River Basin and an important source of water for many users (Leake and others, 2005). Increased withdrawals from the aquifer have been proposed from a cluster of wells just south of Leupp, Arizona, to meet increased future demands (fig. 17). A numerical model of change in groundwater flow in the aquifer was developed to evaluate the potential effects of future withdrawals on groundwater discharge to perennial reaches in the Chevelon and Clear Creek drainages and to the Little Colorado River in the area below Blue Spring (fig. 17). Two withdrawal scenarios were simulated for a 101-year period that included 51 years of withdrawals followed by 50 years of no withdrawals. Scenario A simulates a nearly constant withdrawal rate of about 9.0 ft^3/s [about 6,500 acre-feet per year (acre-ft/yr)], and scenario B simulates a more complicated pumping pattern with a maximum withdrawal rate of about 15.9 ft^3/s (11,500 acre-ft/yr; fig. 18).

The time distribution of streamflow depletion is shown for all stream reaches in figure 19*A* and for only the lower Clear and Chevelon Creek reaches in figure 19*B*. All of the depletion curves shown in the figure indicate a gradual, steady increase in the streamflow-depletion rates for both scenarios, even though the withdrawal schedule for scenario B is quite variable. This damping of the pumping variability results from the large distances of the wells from the stream reaches of interest and from the diffusivity of the aquifer. Total streamflow depletion for all reaches at the end of the 51-year pumping period is about 0.31 ft^3/s for scenario A and 0.37 ft^3/s for scenario B (fig. 19*A*). Of the total depletion shown in figure 19*A* for the two scenarios, nearly all of the

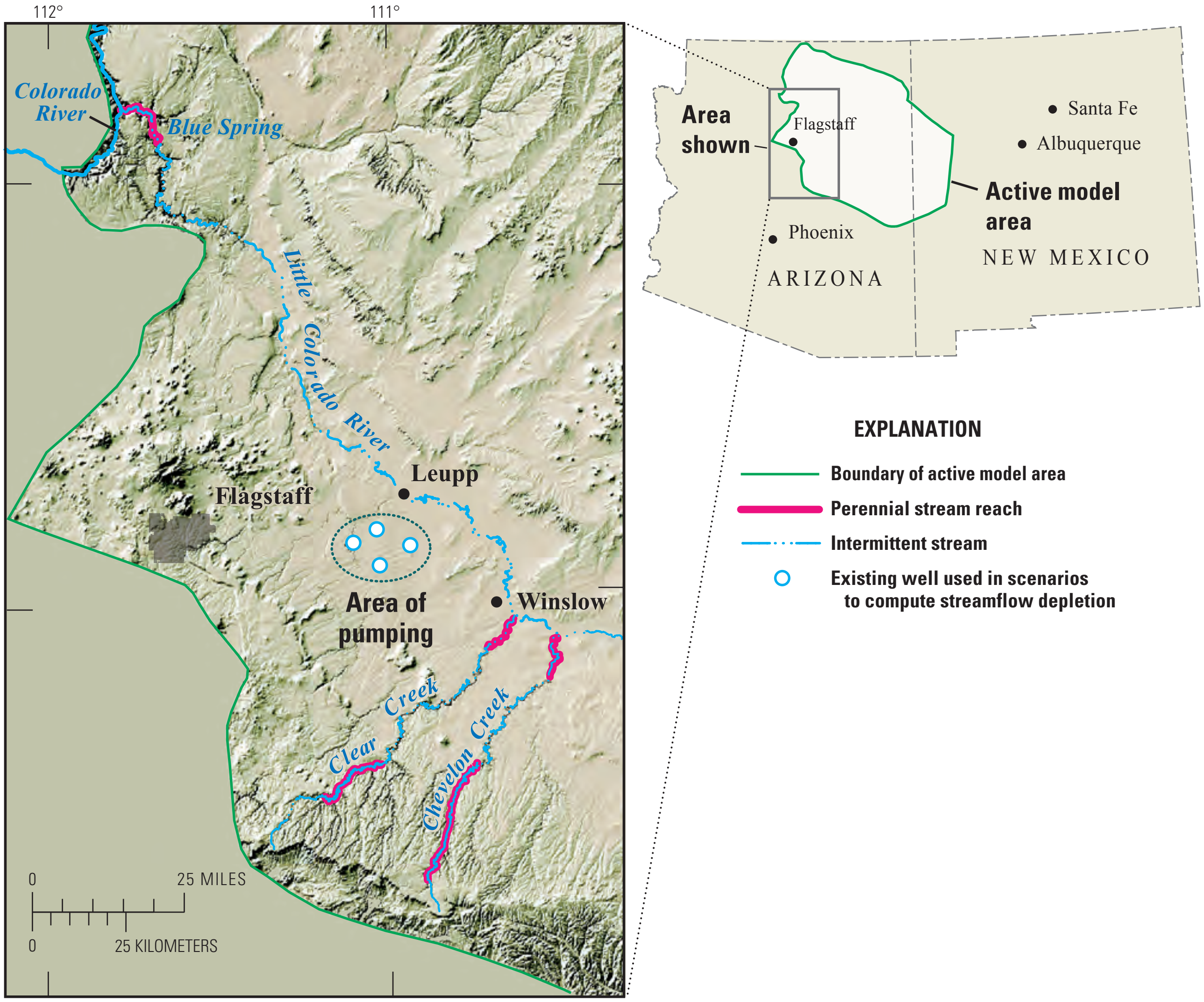


Figure 17. Locations of perennial stream reaches and some of the wells simulated in proposed withdrawal scenarios for the C aquifer, northeastern Arizona (modified from Leake and others, 2005).

depletion occurs in the two reaches that are closest to the pumping center, lower Clear Creek, which is about 25 mi from the wells, and lower Chevelon Creek, which is about 34 mi from the wells (fig. 19*B*).

The results shown in figure 19 indicate that the rates of depletion in all stream reaches after 51 years of pumping are relatively small compared to the maximum pumping rates for each scenario. For example, for scenario A, streamflow-depletion rates are 0.26 ft^3/s for lower Clear Creek and 0.05 ft^3/s for lower Chevelon Creek at the end of the pumping period (fig. 19*B*), yet the maximum pumping rate at the well cluster is about 9.0 ft^3/s for this scenario. These results indicate that nearly all of the water pumped by the wells during the pumping period is derived from reductions in aquifer storage and that the system is far from reaching a new steady-state condition.

The responses shown in the figure also indicate that streamflow depletion continues long after pumping stops. This results from the fact that the withdrawal locations are far from the perennial stream reaches—recovery from shutting off withdrawals takes time to reach distant parts of the outward-propagating cone of depression (Leake and others, 2005). Maximum streamflow-depletion rates for all reaches taken together (fig. 19*A*) occur at about year 95 for both withdrawal scenarios, about 44 years after pumping stops. For the lower Chevelon Creek reach, however, maximum depletion occurs even later in time, near the end of the 101-year simulation period (fig. 19*B*). Residual pumping effects on streamflow depletion are discussed in more detail in the section "Depletion after Pumping Stops" in the chapter on common misconceptions about streamflow depletion.

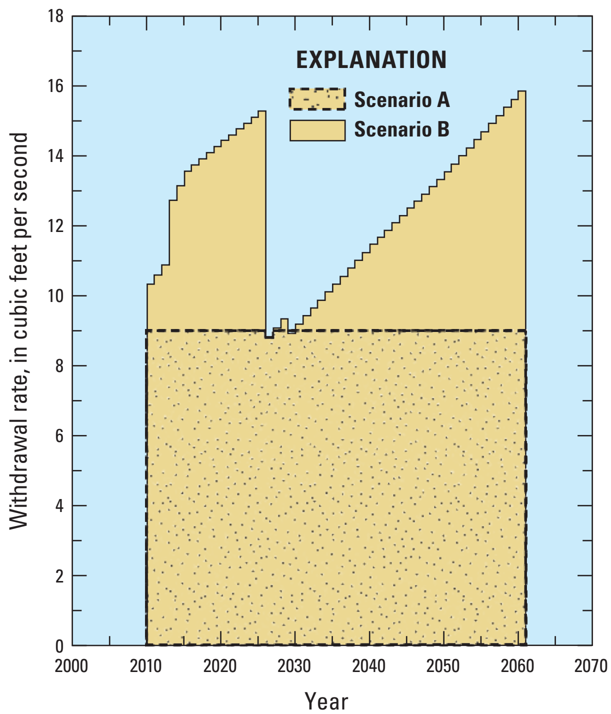


Figure 18. Withdrawal scenarios simulated for the C aquifer, northeastern Arizona (modified from Leake and others, 2005).

Lower Clear Creek near Winslow, Arizona. (Photograph by Robert J. Hart, U.S. Geological Survey)

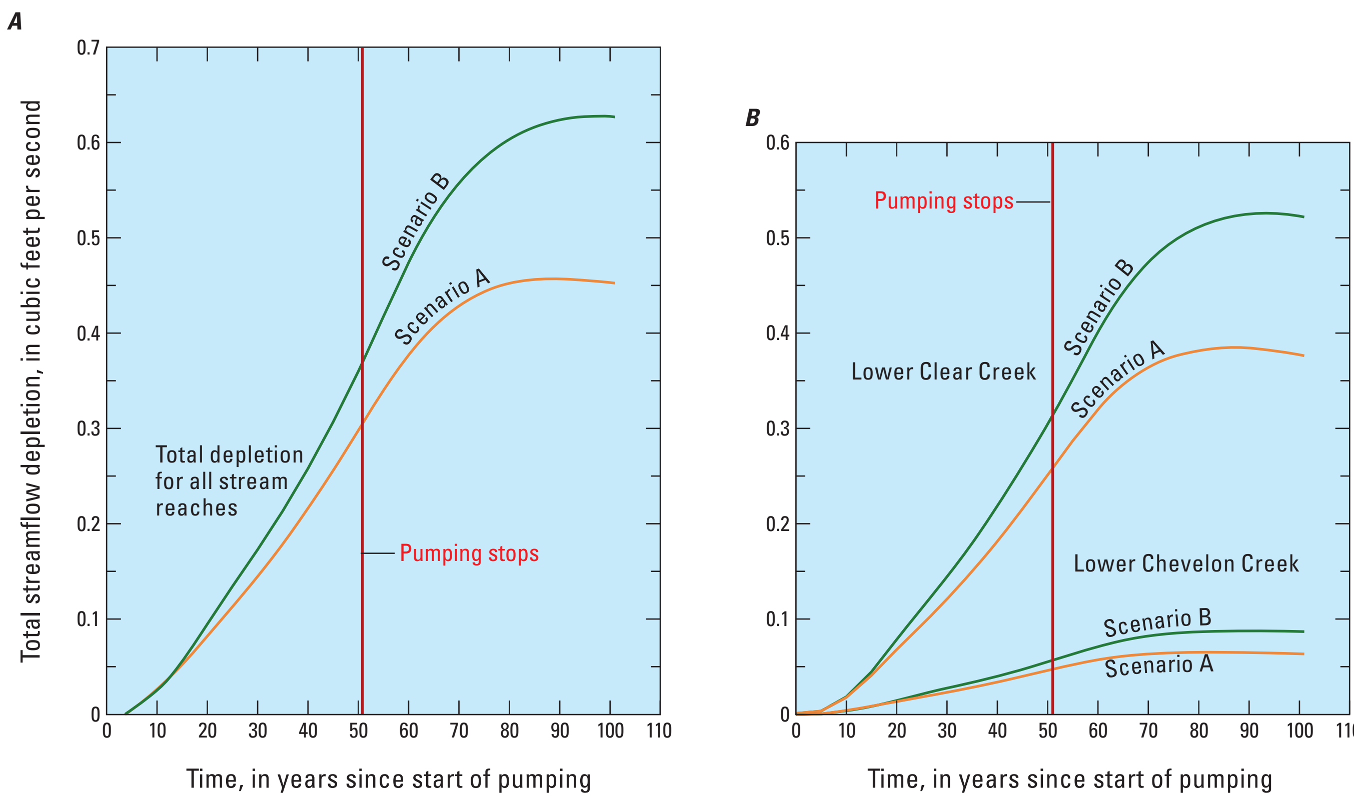


Figure 19. Streamflow depletion as a function of time for two scenarios of groundwater pumping from the C aquifer, northeastern Arizona. *A,* All stream reaches. *B,* The lower Clear and Chevelon Creeks. Withdrawals in both scenarios stop at the end of year 51, indicated by the vertical red lines (modified from Leake and others, 2005).

Variable and Cyclic Pumping Effects

Previous sections of this report have focused primarily on streamflow depletion for conditions in which pumping occurs at a single rate for an extended period of time. More commonly, however, pumping schedules vary with time, either in response to changing water-supply demands or for maintenance and overall operation of the water-supply system. Pumping schedules can vary on hourly and daily bases in response to short-term fluctuations in demands and over longer-term cycles in response to factors such as seasonal and annual climate variability and irrigation demands. Two examples of the effects of variable and cyclic pumping on streamflow depletion are described for two different water-supply settings—a well that pumps to meet daily fluctuations in public-supply demands and one that pumps on a seasonal pumping and nonpumping cycle to meet irrigation demands. The examples demonstrate that the overall effect of the diffusive properties of an aquifer are to dampen the variability and amplitude (range) of the pumping rates, such that the resulting rates of streamflow depletion are less variable and smaller in amplitude.

Groundwater withdrawals for primarily domestic and commercial uses in the Ipswich River Basin in eastern Massachusetts have caused substantial depletions of streamflow during summer low-flow periods (Zarriello and Ries, 2000). In the past, these depletions stressed aquatic communities and caused fish and mussel kills during dry years (Armstrong and others, 2001; Glennon, 2002). Pumping rates at one of the water-supply wells in the basin during a 9-year period illustrate the variability in withdrawals that occur in response to fluctuations in water-supply demands, which are generally highest during the spring and summer but then decrease during the fall and winter (fig. 20).

Photograph by David Armstrong, U.S. Geological Survey

Pool and dry river bed along the Ipswich River, Reading, Massachusetts, September 2005.

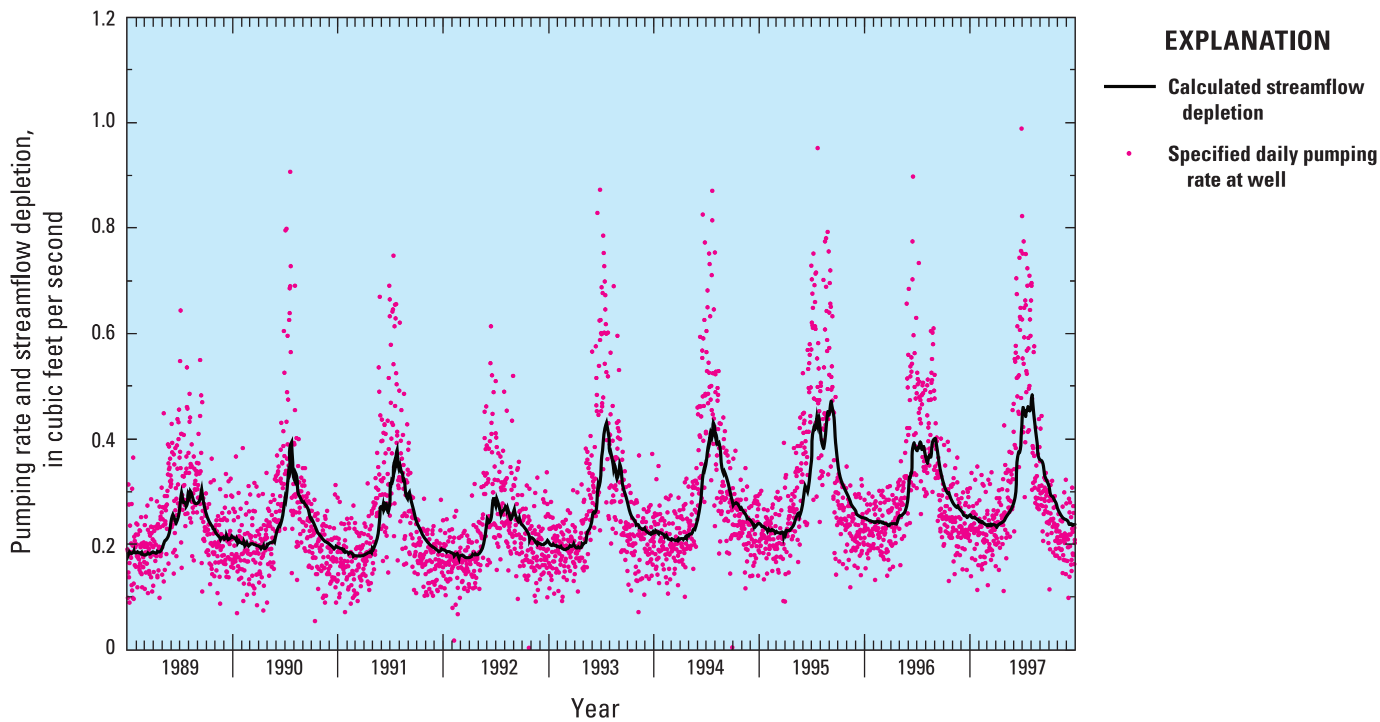


Figure 20. Daily pumping rates and model-calculated streamflow depletion for a well pumping about 500 feet from the Ipswich River, Massachusetts (modified from Barlow, 2000).

Rates of streamflow depletion in the Ipswich River that result from the daily pumping schedule also are shown in the figure and were calculated with an analytical model of streamflow depletion (Jenkins, 1968a; Barlow, 2000). As can be seen in figure 20, the range and variability of calculated streamflow-depletion rates are much less than those for the pumping rates at the well. The factors that cause reductions in the amplitude and variability of the pumping rates that are represented in the analytical model are the distance of the well from the river (about 500 ft) and the hydraulic diffusivity of the aquifer. Calculated streamflow depletion also exhibits an upward trend during the 9-year period, which is consistent with the upward trend in groundwater withdrawals.

Groundwater is a source of irrigation water to some of the most productive agricultural areas of the country, including California's Central Valley and the High Plains area of the Midwest. The hydrogeologic setting of many agricultural areas is often a river-valley system consisting of one or more streams that are in hydraulic connection with a shallow, unconfined aquifer. Pumping rates from these aquifers are largest during the irrigation season but then decrease sharply during the remainder of the year. The effect of cyclic pumping on streamflow depletion has been the subject of much research, and the remaining discussion draws on contributions by Jenkins (1968a), Wallace and others (1990), Darama (2001), Chen and Yin (2001), Kendy and Bredehoeft (2006), Bredehoeft and Kendy (2008), and Bredehoeft (2011a). An example of the effects of cyclic pumping at a hypothetical agricultural supply well placed at various distances from a stream is described here and is similar to examples of cyclic pumping provided by Bredehoeft and Kendy (2008) and Bredehoeft (2011a).

The annual pumping cycle for the hypothetical agricultural supply well is illustrated in the top graph of figure 21. The well withdraws water from an extensive, unconfined aquifer that is bounded on one side by a single river. Pumping to meet irrigation demands occurs from June through August of each year; the irrigation season is then followed by a 9-month period of no withdrawals. The effects of this annual pumping cycle on streamflow depletion are illustrated for a 15-year period of pumping at three wells located at different distances from the river—300 ft, 1,000 ft, and 3,000 ft. The total volume of water pumped at the well during each irrigation season is 365 Mgal. When averaged over the full year, the withdrawal rate at the well is 1.0 Mgal/d (about 1.5 ft^3/s), but because withdrawals only occur during the 3-month (92-day) period, the actual pumping rate is nearly 4 Mgal/d (about 6.1 ft^3/s) during the irrigation season (fig. 21*A*). For comparison, streamflow depletions resulting from the cyclic pumping pattern are contrasted with those resulting from a constant pumping rate at the well for the entire 15-year period of 1.0 Mgal/d.

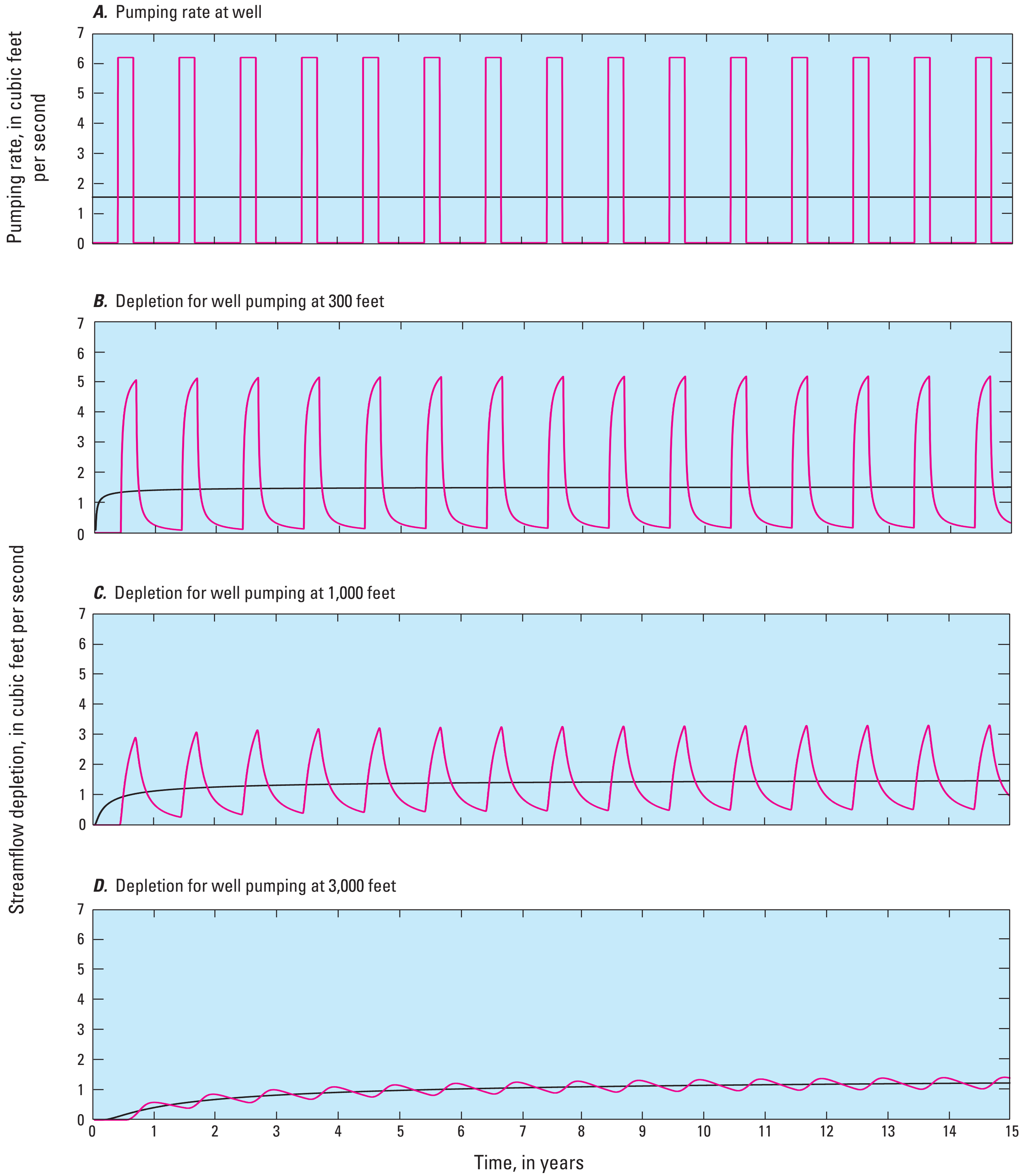


Figure 21. Patterns of streamflow depletion for both seasonal and constant pumping rates. *A*, The constant pumping rate, shown by the black line, is 1 million gallons per day (1.55 cubic feet per second); the seasonal pumping rate, shown by the magenta line, is approximately 4 million gallons per day (6.14 cubic feet per second) during June, July, and August. Depletion rates are shown for a well pumping at, *B,* 300 feet; *C*, 1,000 feet; and *D*, 3,000 feet from the river. Streamflow-depletion rates for the constant pumping rate are shown by the solid black lines and for the seasonal pumping rate by the magenta lines. The hydraulic diffusivity of the aquifer is 10,000 feet squared per day. [Rates of streamflow depletion were calculated by using a computer program described in Reeves (2008).]

The cyclic-pumping schedule results in cyclic patterns of streamflow depletion in the river, although the timing, rates, and range of depletion depend on the distance of the well from the river (fig. 21). The amplitude of the annual depletion rates is largest when the well is placed close to the river (that is, fig. 21*B*) but is substantially reduced as the distance of the well from the river is increased (fig. 21*C* and *D*). As noted by Jenkins (1968a), as the distance of the well from the river increases, the cyclic pumping pattern has an effect on streamflow depletion that closely resembles the constant pumping pattern. This effect is illustrated in the figure by contrasting the patterns of streamflow depletion for pumping at distances of 300 and 3,000 ft from the river. For pumping at 300 ft, the annual range of depletion in the 15th year is 5.0 ft^3/s, whereas it is only 0.4 ft^3/s for pumping at a distance of 3,000 ft from the river. The figure also shows that for a constant rate of pumping at each well, streamflow-depletion rates asymptotically approach the pumping rate at each well (1.5 ft^3/s), although this constant rate of depletion is attained much more slowly as the distance of the well from the river is increased. In contrast, depletions that result from the cyclic-pumping schedules asymptotically approach a condition of annual dynamic equilibrium, and this condition is attained most slowly for pumping at a distance of 3,000 ft from the river.

The maximum rate of depletion for the well at 300 ft occurs on August 31 of each year, the last day of pumping, and the minimum depletion rate occurs on May 31, just before the well begins to pump for the new irrigation season. In contrast, for pumping at a distance of 3,000 ft, the maximum rate of depletion in the first year does not occur until December 21, more than 3 months after the irrigation period ends; the minimum depletion rate in the first year occurs on July 12 and 13, about half-way through the new irrigation season. In later years, the maximum rate of depletion for pumping at this well shifts to December 1—still 3 months into the non-irrigation season—and the minimum depletion shifts to July 18–19. The dependence of the timing of the maximum and minimum depletion rates on the distance of the well from the river has important implications to the management of streamflow depletion, which will be discussed later in the report.

For some time after the initiation of pumping, groundwater storage is the primary source of water to the well, and on an annual basis, the volume of depletion is less than the annual volume withdrawn (365 Mgal). With time, however, the annual volume of depletion approaches the annual volume pumped at the well, regardless of the distance of the well from the river or the pattern of withdrawal (constant or cyclic; Wallace and others, 1990; Darama, 2001; Bredehoeft, 2011a). The time required for the annual volume of depletion to equal the annual volume pumped increases with distance of the well from the river. In addition to the distance of the well from the river, the time required for the system to reach a new equilibrium is also a function of the hydraulic diffusivity of the aquifer and the width of the river valley (Butler and others, 2001; Miller and others, 2007; Bredehoeft, 2011a).

In summary, the effect of cyclic pumping close to a stream is highly variable depletion through time, with a maximum that may approach the maximum pumping rate during periods of pumping. In contrast, the effect of cyclic pumping at greater distances from a stream is less-variable depletion through time, with maximum depletion that may only be slightly greater than the long-term average pumping rate.

Multiple Wells and Basinwide Analyses

The focus of this report thus far has been on the effects on streamflow depletion caused by individual wells pumping at different locations within a groundwater system. Typically, however, multiple wells withdraw water simultaneously from locations distributed throughout a groundwater basin. Many groundwater basins in the United States have hundreds and in some cases thousands of wells from which water is withdrawn. Considered individually, these wells may have small effects on streamflow, but when evaluated together on the scale of an entire basin, these wells can have substantial effects on streamflow. Moreover, basinwide groundwater development typically occurs over a period of several decades, and the resulting cumulative effects on streamflow depletion may not be fully realized for many years. As a result of the large number of wells and complex history of development, it is often necessary to take a basinwide perspective to assess the effects of groundwater withdrawals on streamflow depletion.

Such an approach was taken in a study of the effects of groundwater development on streamflow in the Elkhorn and Loup River Basins of central Nebraska (fig. 22). Groundwater withdrawals from thousands of wells in these basins are used to irrigate crops, and the number of acres irrigated with groundwater has risen sharply since the 1940s (fig. 23; Peterson and others, 2008; Stanton and others, 2010). Withdrawals in the basins occur from the High Plains aquifer, with most of the wells located outside of the largely undeveloped Sand Hills region (Peterson and others, 2008). Total groundwater withdrawals within the areas shown in figure 22 averaged about 1,700 Mgal/d in 2005.

Groundwater pumping has had substantial effects on streamflow throughout the Elkhorn and Loup River Basins. These effects are illustrated by the cumulative reductions in groundwater discharge (base flow) to selected river reaches within the basins, as determined by use of a groundwater model of the area (fig. 24). Depletions were relatively small prior to 1970, but have increased sharply since then as the number of wells and total amount of withdrawals have

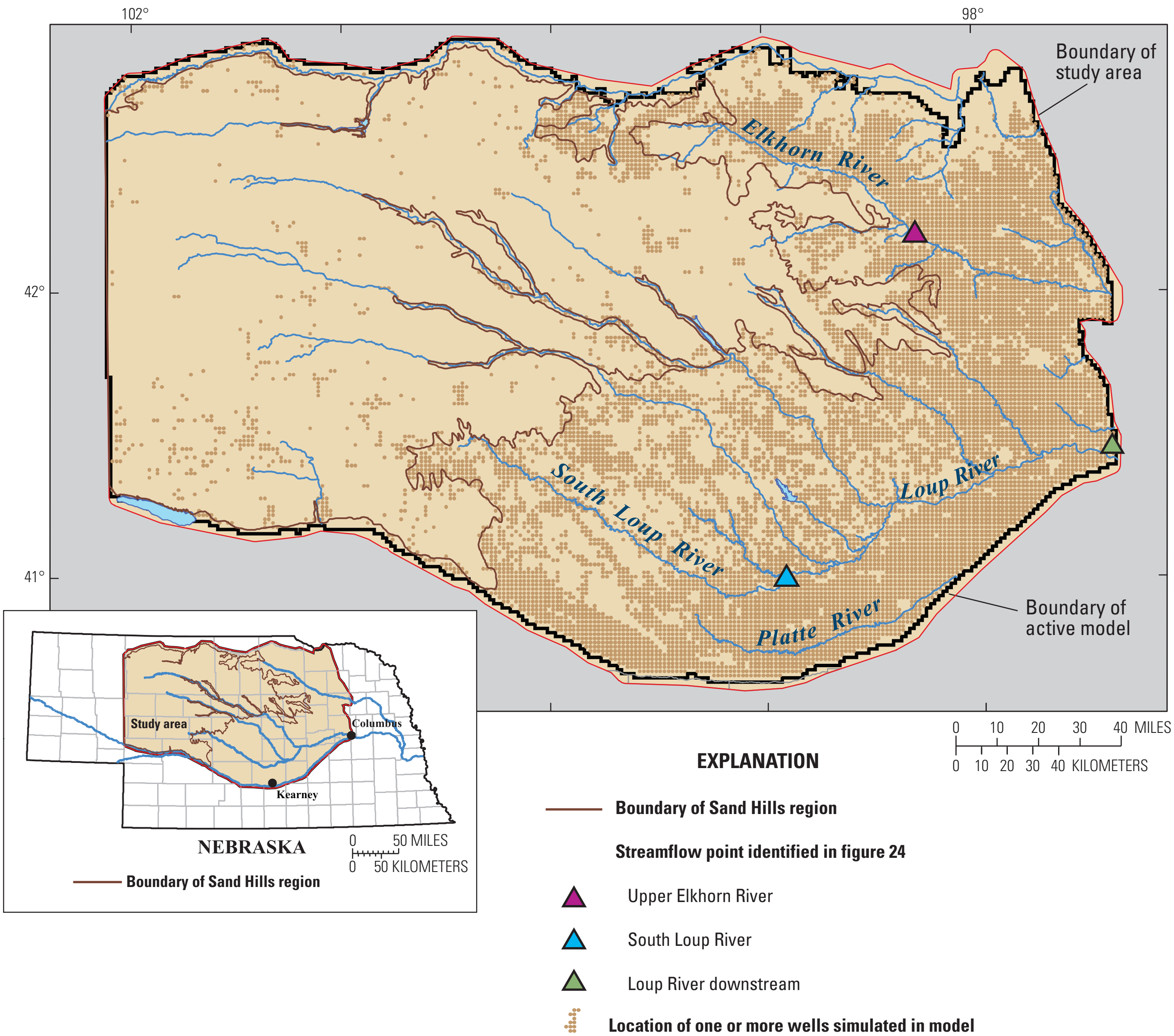


Figure 22. Locations of simulated pumping wells in parts of the Elkhorn and Loup River Basins, Nebraska, 2009. Locations of streamflow points identified in figure 24 are also shown (modified from Stanton and others, 2010).

increased. The effects of pumping have been largest for the lower reaches of the Loup River Basin, most likely because streams in those areas are in close proximity to extensive areas of irrigation (Peterson and others, 2008).

The basinwide effects of pumping in the Elkhorn and Loup River Basins over a period of several decades are representative of conditions that occur in groundwater basins throughout the United States. However, for the purpose of illustrating the underlying physical processes that occur when multiple wells pump from a groundwater system, it is useful to focus on just a few wells that withdraw water from a relatively simple aquifer system. As an example, the effects of a phased groundwater-development program in which three wells are developed over a 15-year period are evaluated by use of the hypothetical system described in the previous section of the report, in which a single stream is bounded by an areally extensive aquifer. Development within the hypothetical system is assumed to progress over time from areas closest to the stream to those distant from the stream: well A, which is located 300 ft from the stream, begins pumping in year 1; well B, located 1,000 ft from the stream, begins pumping in year 6; and well C, located 3,000 ft from the stream, in year 11. Each well pumps at a constant rate of 1 Mgal/d (1.55 ft^3/s), such that the total rate of pumping is 1 Mgal/d for the first 5 years

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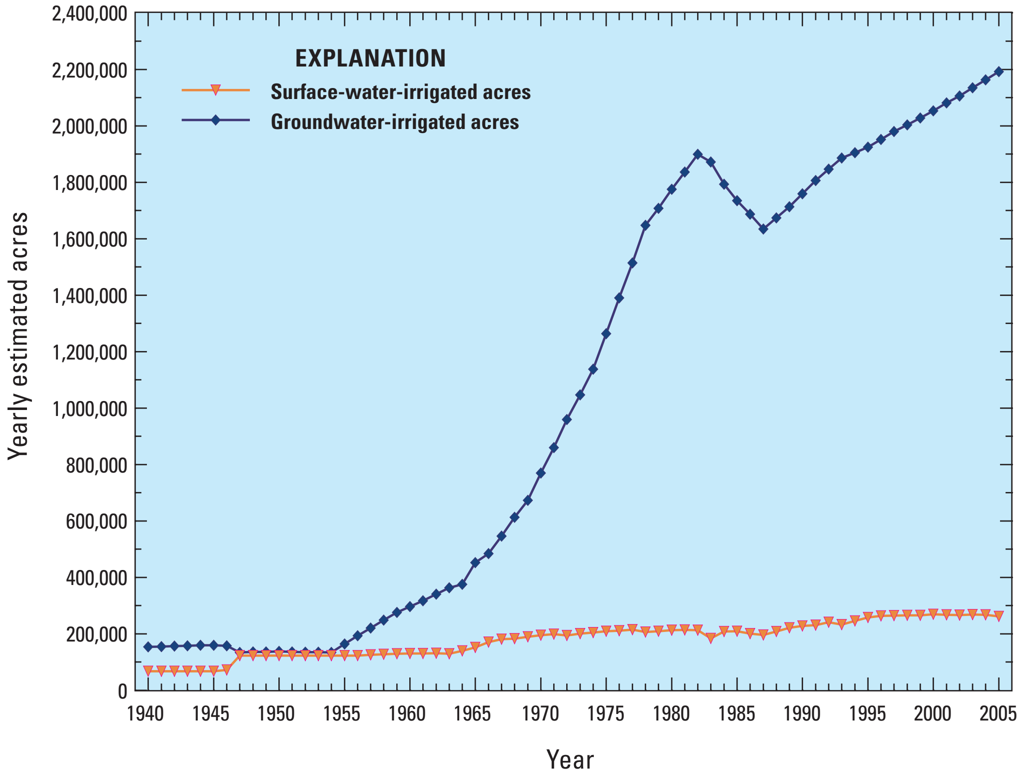


Figure 23. Estimates of acres of cropland irrigated by groundwater and surface water, 1940 through 2005, Elkhorn and Loup River Basins, Nebraska (modified from Stanton and others, 2010).

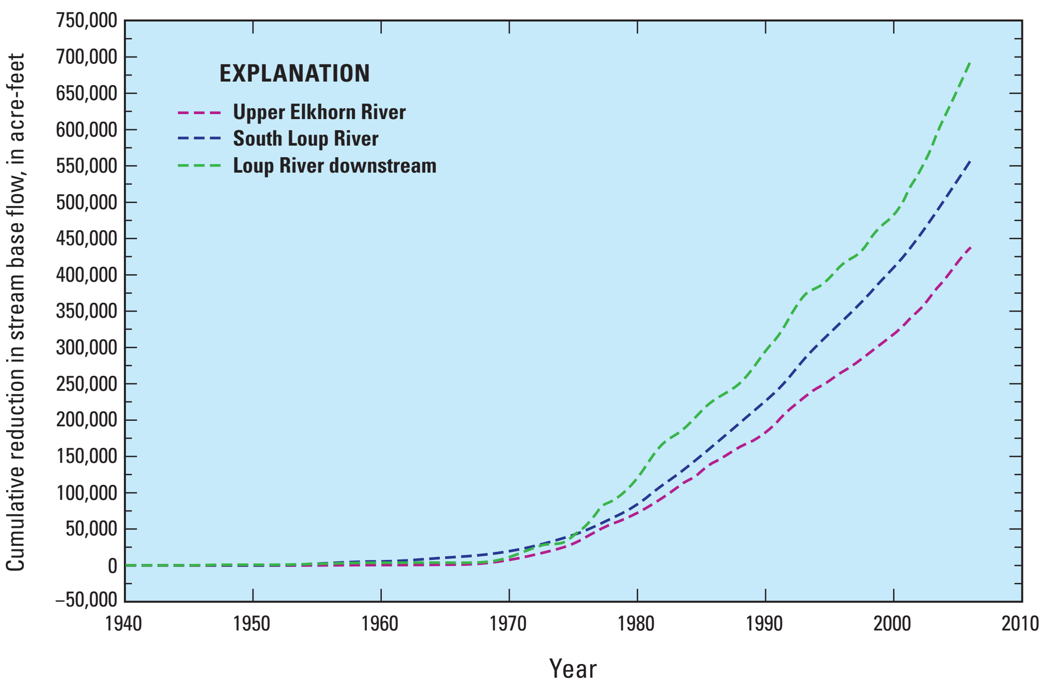


Figure 24. Model-calculated cumulative reductions in stream base flow caused by groundwater pumping, Elkhorn and Loup River Basins, Nebraska, 1940 through 2005. Locations of streamflow points shown in figure 22 (modified from Peterson and others, 2008).

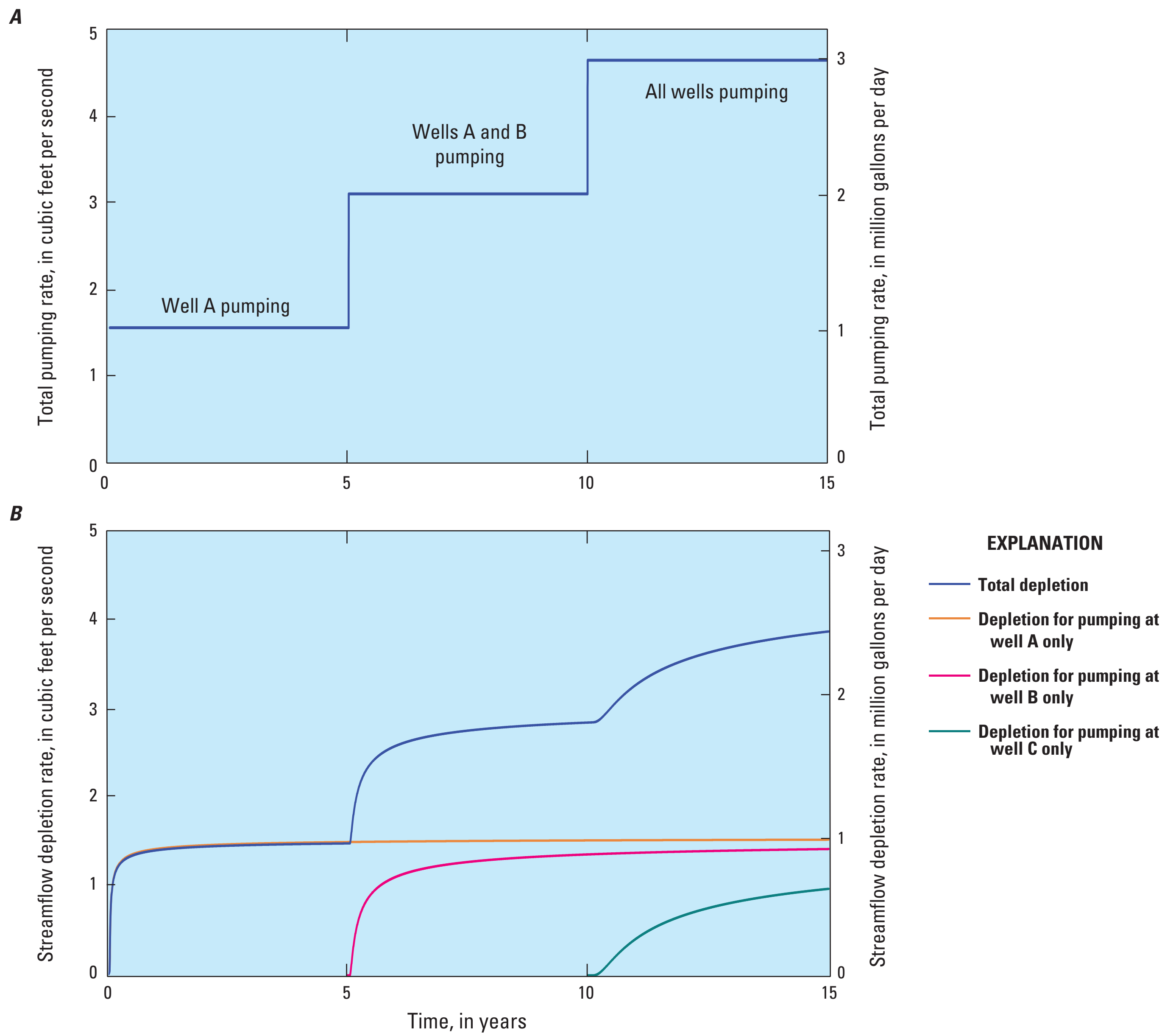


Figure 25. *A,* Total pumping rates. *B*, Streamflow-depletion rates for three wells pumping at a constant rate of 1 million gallons per day (1.55 cubic feet per second) for different lengths of time. Well A, located 300 feet from the stream, pumps for 15 years; well B, 1,000 feet from the stream, pumps from years 6 through 15; well C, 3,000 feet from the stream, pumps from years 11 through 15. [Rates of streamflow depletion were calculated by using a computer program described in Reeves (2008).]

of development, 2 Mgal/d for the middle 5-year period, and 3 Mgal/d for the last 5 years (fig. 25*A*).

Figure 25*B* shows streamflow depletion that occurs in response to pumping at each well individually, as well as the cumulative effects of pumping at all wells. The individual effects of pumping at each well are shown by the lower three curves in the figure, which indicate that streamflow depletion asymptotically approaches the pumping rate of each well, 1.55 ft^3/s (1.0 Mgal/d), regardless of the distance of the well from the stream. The cumulative effects of pumping at the wells, which are shown by the top curve on the graph, are additive—total depletion approaches a value of 1.55 ft^3/s for pumping at well A only, a value of 3.10 ft^3/s (2.0 Mgal/d) for pumping at wells A and B, and a value of 4.65 ft^3/s (3.0 Mgal/d) for pumping at all three wells, although the time at which this depletion rate would be fully realized occurs several years after the 15-year time frame evaluated here.

Pumped Wells and Recharge Wells

The practice of artificial recharge of water into aquifers is becoming an increasingly important component of many water-resource management programs. Artificial recharge is used as an alternative to surface-water reservoirs to store excess surface water and as a means to augment streamflows. Methods for artificially recharging an aquifer include direct injection by wells and infiltration by gravity in basins or ponds at the land surface. When water is injected into an aquifer at a recharge well, groundwater levels near the well increase, and groundwater flows outward from the resulting area of mounded water. If the aquifer is bounded by a stream, the rate of groundwater discharge to the stream will increase, and the timing and rate of streamflow accretion will be equal, but opposite in sign, to the timing and rate of streamflow depletion caused by pumping at the same location and rate (as long as the system responds linearly to pumping, which is discussed in the section on "Superposition Models"). This scenario is illustrated by the first two

Photograph by Michael Collier

Braided channel of the Platte River, Nebraska.

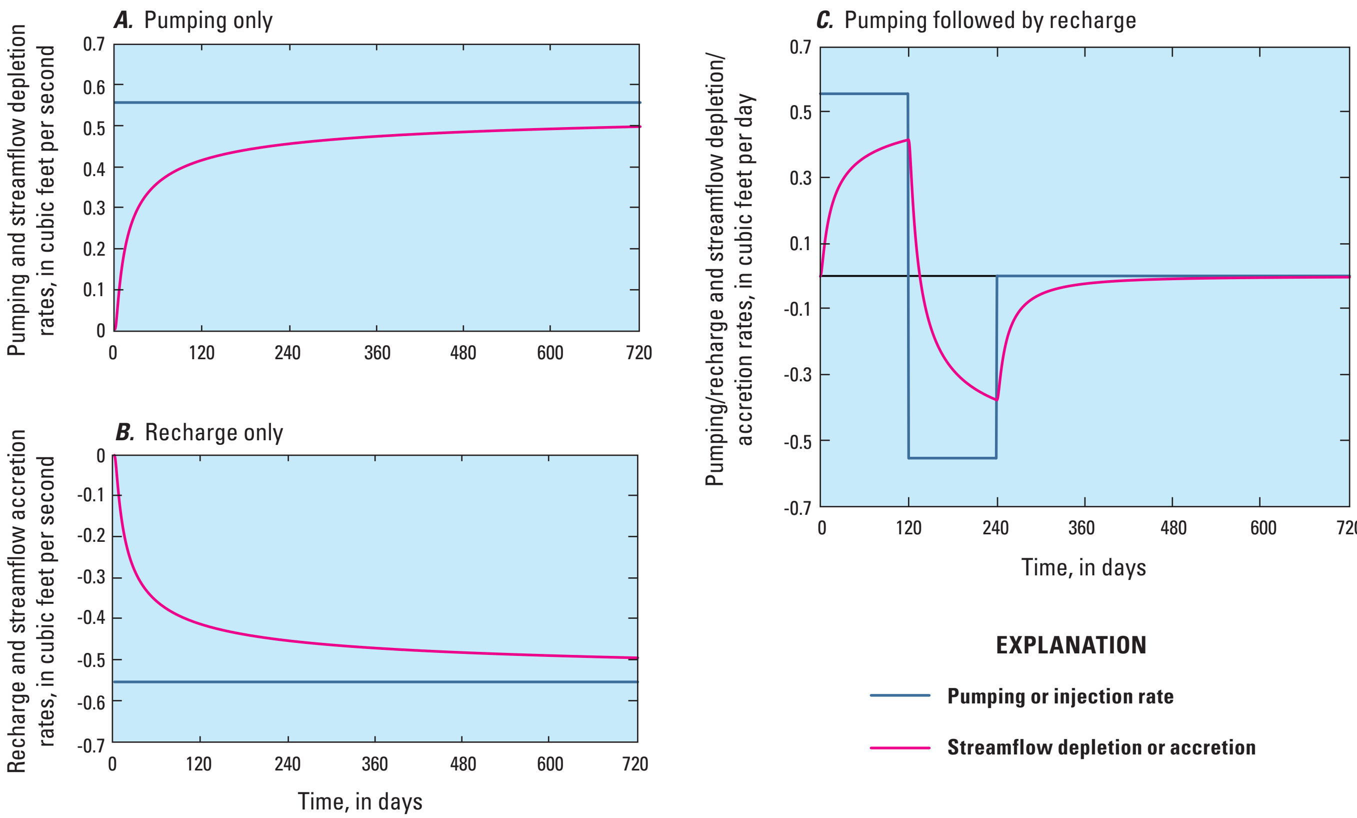


Figure 26. Injection of water into a recharge well increases streamflow, and the timing and rates of streamflow accretion are equal, but opposite in sign, to those of streamflow depletion caused by pumping. *A*, A well located 500 feet from a stream is pumped at a rate of 250 gallons per minute (0.56 cubic foot per second) for 720 days. *B*, The same well is recharged at a rate of 250 gallons per minute for 720 days. *C*, The well is pumped for 120 days, followed by a 120-day period of recharge. [Rates of streamflow depletion and accretion were calculated by using a computer program described in Reeves (2008).]

graphs in figure 26, which contrast streamflow depletion caused by pumping at a well located 500 ft from a stream at a rate of 250 gallons per minute (gal/min; fig. 26*A*) with streamflow accretion caused by recharging the aquifer at the same well at a rate of 250 gal/min (fig. 26*B*). The shape of the streamflow-depletion and streamflow-accretion curves are mirror images of one another, and each curve tends asymptotically toward the pumping or recharge rate of the well (± 0.56 ft^3/s or ± 250 gal/min). Because depletion has been represented as a positive quantity throughout this report, streamflow accretion is shown as a negative quantity in the figure, although it should be apparent that artificial recharge has a positive effect on streamflow. The results shown in the figure are based on the important assumption that the mound of groundwater that is formed by injection at the recharge well remains below land surface; should the mound reach land surface, surface-water runoff may occur, resulting in less water available for groundwater discharge to the stream.

Graph *C* in figure 26 illustrates the effects of a 120-day pumping period followed by a 120-day recharge period at the same well. As described in the previous section of the report for the case of multiple wells pumping from an aquifer, the combined effects of the pumping and recharge cycle on streamflow are additive. As a result, the period of streamflow depletion caused by pumping is followed by a period of streamflow accretion caused by recharge; ultimately, sometime after recharge ends, the effects of pumping and recharge at the well diminish to zero.

Streamflow Depletion and Water Quality

One of the important concerns associated with streamflow depletion by wells is the effect of reduced groundwater discharge on the quality of affected surface waters. Groundwater discharge affects the chemistry of surface water and plays an important role in regulating stream temperature, which is a critical water-quality property in determining the overall health of an aquatic ecosystem (Baron and others, 2002; Hayashi and Rosenberry, 2002; Stonestrom and Constantz, 2003; Risley and others, 2010). Because groundwater-temperature fluctuations are relatively small compared to daily and seasonal streamflow-temperature fluctuations, groundwater discharge at a nearly constant temperature provides a stable-temperature environment for fish and other aquatic organisms. Average shallow groundwater temperature at a particular location is approximately equal to mean annual air temperature, and, as a result, groundwater discharge is typically warmer than the receiving streamflow during the winter and cooler than the receiving streamflow during the summer. Groundwater discharge provides cool-water environments that protect fish from excessively warm stream temperatures during the summer, and conversely, relatively warm groundwater discharge can protect against freezing of the water during the winter (Hayashi and Rosenberry, 2002). Stark and others (1994) and Risley and others (2010) provide examples of the effects of pumping on stream temperatures. The work of Risley and others (2010) illustrates how reductions in the rates of groundwater discharge to streams caused by pumping can warm stream temperatures during the summer and cool stream temperatures during the winter.

For many issues related to the quantity of streamflow depletion, such as water-rights administration and instream-flow needs to sustain aquatic habitats, the distinction between the two components of depletion—captured groundwater discharge and induced infiltration of streamflow—is generally not of interest. For water-quality concerns, however, the relative contribution of captured groundwater discharge and induced infiltration have important implications to the resulting quality of the streamflow, groundwater, and pumped water. Where groundwater pumping is large enough to cause induced infiltration of streamflow, the quality of the induced surface water will affect the quality of water in the underlying aquifer and possibly that of the pumped wells themselves. Infiltrated surface water that has been contaminated by chemical pollutants or biological constituents such as *Giardia lamblia* and *Cryptosporidium,* therefore, can be a source of contamination to a groundwater system, potentially having adverse effects to the health of people ingesting water from the contaminated groundwater supply. The amount of surface-water contamination entering a water-supply well will depend on several factors, including the natural ability of the streambank and aquifer materials to filter contaminants from the polluted water (Bourg and Bertin, 1993; Macler, 1995). Natural "bank filtration" of surface-water contaminants as they move from a stream to a pumped well involves geochemical and biological processes that remove nutrients, organic carbon, and microbes from the contaminated water (National Research Council, 2008; Farnsworth and Hering, 2011). Numerous field studies of the distribution, transport, and fate of chemical and biological constituents within contaminated and uncontaminated aquifers have been done to establish hydraulic connections between surface-water sources and pumped groundwater and to test the effectiveness of bank filtration and other natural processes for reducing contaminant concentrations. Examples of these types of studies are available for many areas of Europe and the United States (Farnsworth and Hering, 2011), including Ohio (Sheets and others, 2002), Missouri (Kelly, 2002; Kelly and Rydlund, 2006), and Oregon (McCarthy and others, 1992).

Groundwater-temperature measurements can be an effective method to demonstrate the hydraulic connection that exists between groundwater and surface-water systems and to trace surface-water infiltration in groundwater systems (Stonestrom and Constantz, 2003; Anderson, 2005; Constantz, 2008). An example of the use of temperature measurements to demonstrate a hydraulic connection between surface water and pumped wells is provided by the results of a study conducted in 1960–61 along the Mohawk River near Schenectady, New York (fig. 27), where the aquifer consists of highly permeable sand and gravel deposits. Groundwater pumped from two well fields near the river averaged about 20 Mgal/d during the study period, with about 90 percent of the pumping occurring from the well field furthest from the river (Winslow, 1962). The temperature of the river on the measurement date (September 7, 1961) was 77 degrees Fahrenheit (°F), which was nearly 30 °F warmer than the average temperature of the groundwater in areas unaffected by induced infiltration. The warm river water, which was drawn into the aquifer by pumping at the production wells, became progressively cooler with distance from the river as it mixed with the cold groundwater.

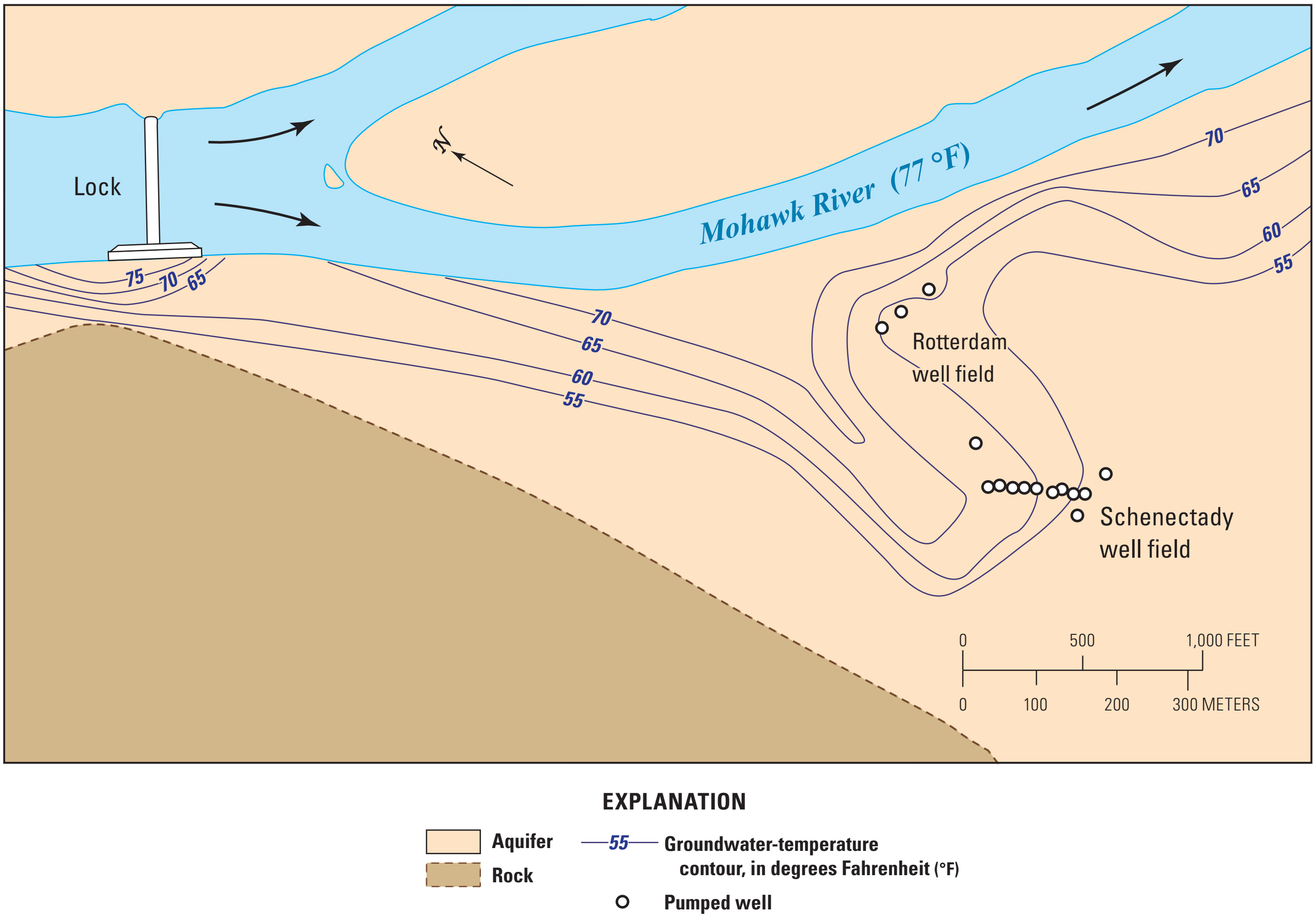


Figure 27. Groundwater-temperature contours in the vicinity of two well fields near the Mohawk River, New York, on September 7, 1961. Contours are based on measurements of groundwater temperature made at 60 observation wells. Temperature of the river on that date was 77 degrees Fahrenheit (modified from Winslow, 1962).

Some of the factors that affect the relative contributions of captured groundwater discharge and induced infiltration can be illustrated by one of the hypothetical stream-aquifer systems described previously and shown in figure 14. Several steady-state and transient simulations were done with the numerical model of the stream-aquifer system for pumping at a rate of 1.0 Mgal/d at wells located 100 ft, 300 ft, 700 ft, and 1,400 ft from the stream. Steady-state conditions were simulated to illustrate the maximum effects of pumping on streamflow. The long-term average recharge rate to the aquifer of 26.0 inches per year (in/yr) also was varied in these simulations to include a 25-percent increase in the recharge rate (32.5 in/yr) and a 25-percent decrease in the recharge rate (19.5 in/yr). For each simulation, the resulting rates of total streamflow depletion, captured groundwater discharge, and induced infiltration were determined at the outflow point of the basin (that is, the most downstream location on the stream in figure 14).

Results for the steady-state simulations are shown in figure 28. As shown by the uppermost curve in the figure, the total amount of streamflow depletion at the outflow point of the basin is the same for all of the simulations (and equal to the 1.0 Mgal/d pumping rate at each of the wells), regardless of either the distance of the well from the stream or the recharge rate to the aquifer. This results from the fact that at equilibrium, when aquifer storage is no longer a source of water to the wells, all of the water pumped by the wells must result in decreased streamflow, either by captured groundwater discharge or by induced infiltration. In contrast, the relative contributions of captured discharge and induced infiltration are a function of both the distance of the well from the stream and the recharge rate to the aquifer. As the well distance

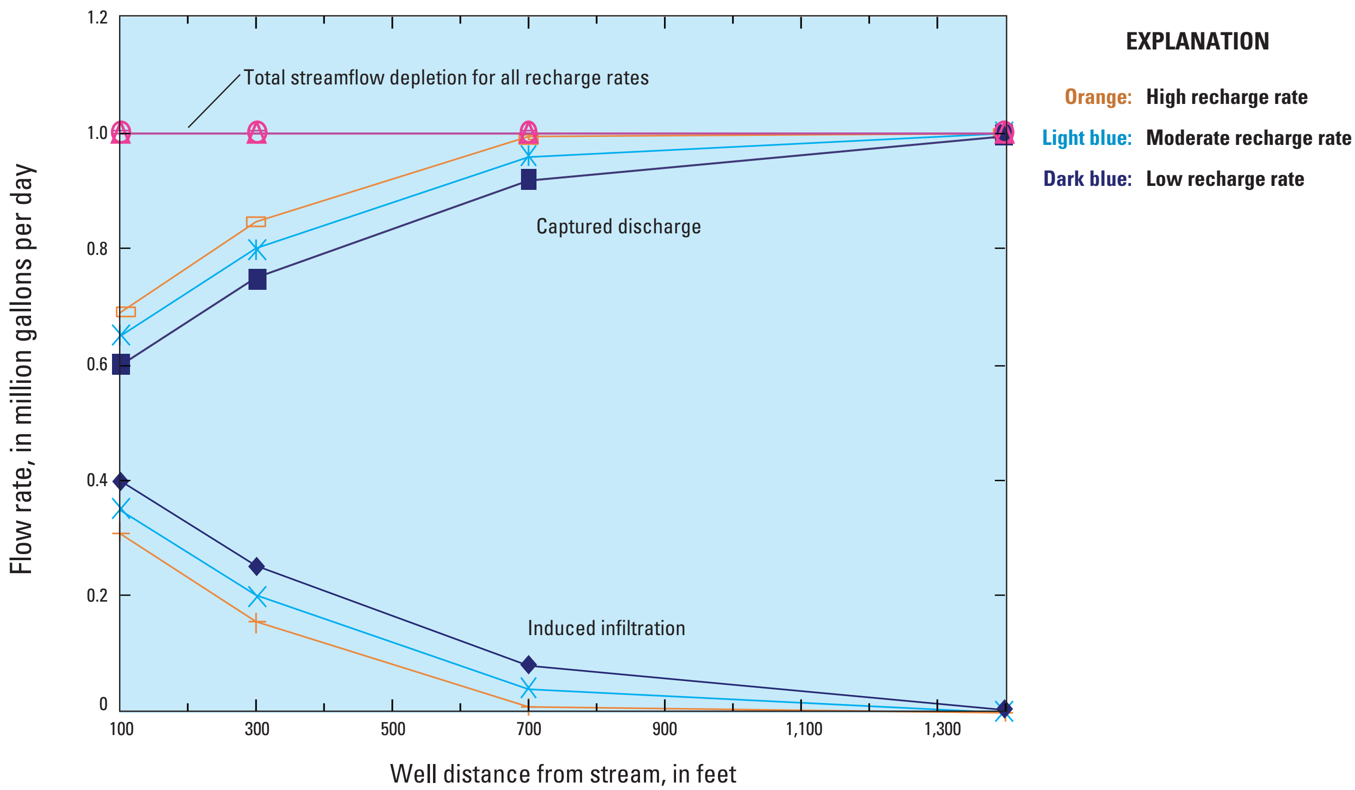


Figure 28. Rates of streamflow depletion, captured groundwater discharge, and induced infiltration at the outflow point of a basin for steady-state pumping conditions at wells located 100, 300, 700, and 1,400 feet from a stream. Each well is pumped independently of the others at a rate of 1.0 million gallons per day in 12 separate simulations. Three rates of recharge were simulated: a high recharge rate (32.5 inches per year), a moderate recharge rate (26.0 inches per year), and a low recharge rate (19.5 inches per year). Total streamflow depletion is equal to the sum of captured discharge and induced infiltration. As shown by the results along the top (pink) curve, at steady state, the total rate of streamflow depletion at the basin outflow point is equal to the pumping rate of each well and is independent of both the distance of each well from the stream and the recharge rate to the aquifer. Rates of captured groundwater discharge (middle three curves) and induced infiltration (bottom three curves), however, are a function of both well distance from the stream and recharge rate to the aquifer. (Results from numerical model shown in figure 14 of this report and documented in Barlow, 1997.)

from the stream increases, the proportion of induced infiltration decreases. Similarly, as the recharge rate to the aquifer increases, the proportion of induced infiltration also decreases. Note that at a well distance of 1,400 ft, the rate of induced infiltration for all recharge rates is essentially zero. These results illustrate that for some stream-aquifer systems, such as the extensive systems found in the Midwestern and Western United States in which pumping occurs miles from a stream, induced infiltration may not occur, and the water-quality concerns associated with streamflow depletion will be focused on the effects of reduced groundwater discharge on the thermal and water-quality conditions of the receiving streams. The results of additional simulations for transient-flow conditions were consistent with the steady-state simulations; specifically, the rate of recharge affects the relative contributions of captured discharge and induced infiltration but does not affect the total rate of streamflow depletion.

Other factors also affect the relative proportion of captured discharge and induced infiltration. These factors include the pumping rate of the well (with greater rates of induced infiltration occurring for higher pumping rates), the direction of groundwater flow in the aquifer prior to pumping, the distribution of aquifer boundaries near the well (including the presence of impermeable boundaries and other streams), the hydraulic properties of the aquifer and streambank materials, and the penetration depths of the pumped well and stream into the aquifer (Newsom and Wilson, 1988; Morrissey, 1989; Wilson, 1993; Conrad and Beljin, 1996; Chen, 2001; Chen and Yin, 2001; Chen and Shu, 2002; Chen and Chen, 2003; Chen and Yin, 2004; Gannett and Lite, 2004).

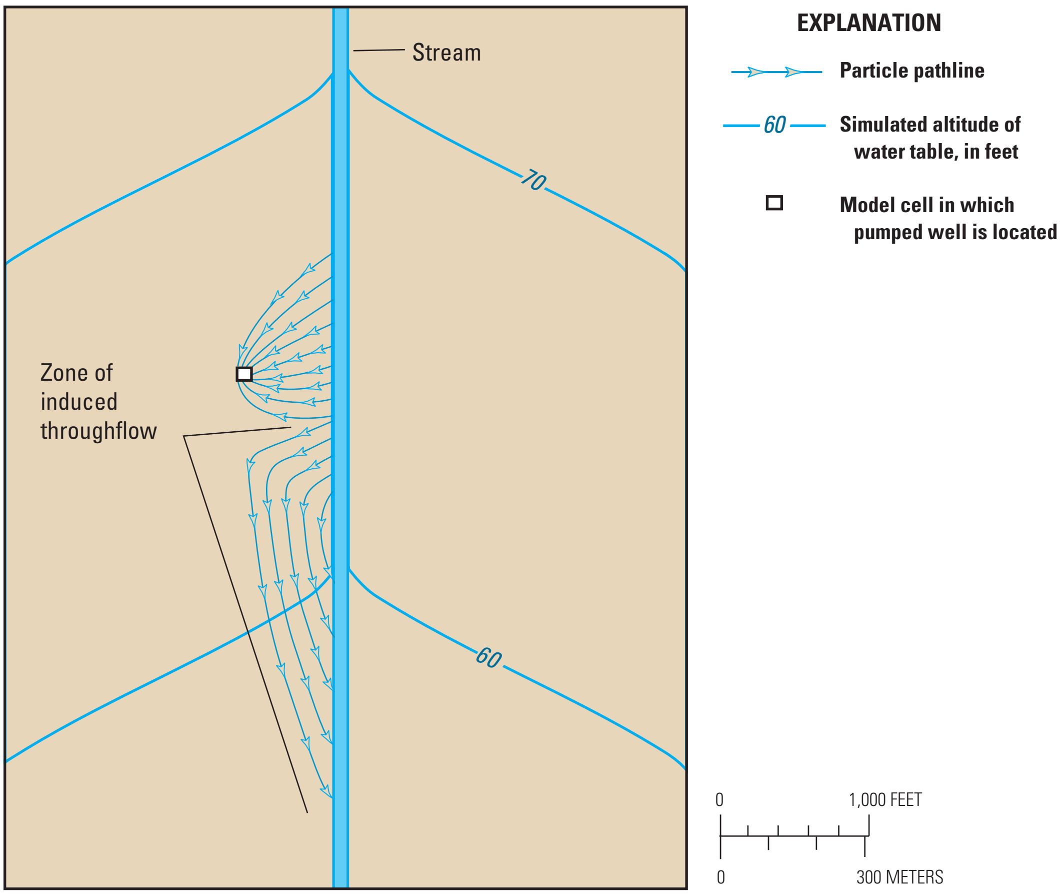


Figure 29. Pumping at the well located 300 feet from the stream at a rate of 1.0 million gallons per day causes induced infiltration of streamflow. More than 80 percent of the induced streamflow is captured by the well, but some of the induced streamflow returns to the stream through a zone of “induced throughflow” (Newsom and Wilson, 1988; model results from Barlow, 1997).

Several of these factors also affect the proportion of induced infiltration that actually flows to and is discharged by a well. Figure 29 shows the flow paths of water particles that have been drawn into the aquifer by pumping at the well 300 ft from the stream at the steady-state rate of 1.0 Mgal/d (for the average recharge rate of 26.0 in/yr). As shown by the flow paths, some of the water that has been drawn into the aquifer actually returns to the stream downgradient from the well and does not reach the well. Newsom and Wilson (1988) refer to the area in which induced infiltration flows back to the stream as the “zone of induced throughflow.” The figure illustrates that the rate of stream infiltration is not the same as the rate of infiltrated streamflow that is actually pumped at the well. The ability to quantify the relative contributions of captured discharge and induced infiltration to the source of water pumped by a well, or the concentrations of chemical constituents in the well or adjoining aquifer, requires analysis techniques that are more advanced than those used to quantify streamflow-depletion rates only. These techniques include computer programs that track water particles through a simulated aquifer, such as illustrated by the flow paths shown in figure 29 that were calculated by use of MODPATH (Pollock, 1994), or solute-transport codes that simulate movement of chemical constituents within a groundwater-flow system (for example, the computer programs documented by Konikow and others, 1996, or Zheng and Wang, 1999).

Common Misconceptions about Streamflow Depletion

An understanding of the basic concepts of streamflow depletion is needed to properly assess the effects of groundwater withdrawals on connected surface water and areas of evapotranspiration. Important concepts relating to depletion are available throughout this report and also in other literature, beginning with the paper, "The Source of Water Derived from Wells," by Theis (1940). In spite of these sources of information, misconceptions regarding factors controlling depletion are sometimes evident in analyses of depletion. This discussion highlights the following common misconceptions related to streamflow depletion.

Misconception 1. Total development of groundwater resources from an aquifer system is "safe" or "sustainable" at rates up to the average rate of recharge.

Misconception 2. Depletion is dependent on the rate and direction of water movement in the aquifer.

Misconception 3. Depletion stops when pumping ceases.

Misconception 4. Pumping groundwater exclusively below a confining layer will eliminate the possibility of depletion of surface water connected to the overlying groundwater system.

Although most of the concepts needed to clear up these misconceptions are presented in other sections, further discussion and examples are given here.

Aquifer Recharge and Development of Water Resources

There has been a tendency in parts of the United States to view groundwater development in an aquifer to be "sustainable" or "safe" when the overall rate of groundwater extraction does not exceed the long-term average rate of recharge to the aquifer. Conversely, development is considered to be unsustainable or unsafe when groundwater extraction rates exceed the average recharge rate. The rationale behind this concept is that long-term extraction beyond the average recharge rate will result in ongoing net depletions in storage that will eventually deplete the aquifer to the extent that continued pumping is no longer feasible. These views of sustainability, however, do not directly recognize the effects of withdrawals on outflow from an aquifer, which often occur through groundwater discharge to surface-water features and through evapotranspiration.

In the paper "Groundwater—The Water-Budget Myth," Bredehoeft and others (1982) explained that in an undeveloped aquifer, long-term average natural recharge is balanced by long-term average natural discharge. They show that if water is pumped from the aquifer at a given rate, that rate will be offset by the sum of an increase in the rate of recharge to the aquifer, decrease in the rate of discharge from the aquifer, and increase in the rate of removal of water from storage in the aquifer. With time, the rate of removal of water from storage change diminishes and the pumping rate is balanced by the sum of pumping-induced increased recharge and decreased discharge.

Most recharge to aquifers occurs through percolation of a portion of precipitation from the land surface, through an unsaturated zone, to the water table. In more humid areas, this recharge can be widely distributed over the surface area of an aquifer, and in more arid areas, this recharge can be focused in locations such as beneath arroyos where infrequent runoff events cause a movement of water through the unsaturated zone. In either case, however, the process of natural recharge through the unsaturated zone is unaffected by a pumped well. On the contrary, one situation in which pumping can increase recharge occurs in areas in which the water table is at the land surface (fig. 30*A*). Drawdown from pumping can result in infiltration and recharge that would have otherwise run off because of a lack of available space for storage beneath the land surface (fig. 30*B*). Another situation in which pumping can increase recharge is when recharge occurs from direct movement of water from surface-water bodies to the aquifer, such as for a naturally losing stream; this type of increased recharge is a form of induced infiltration.

Discharge from aquifers, on the other hand, commonly occurs through direct movement of groundwater into surface-water bodies and through evaporation and transpiration by plants that use groundwater. Groundwater pumping reduces the movement of water into surface-water features by decreasing the natural hydraulic gradients to these features. Pumping furthermore reduces evaporation and transpiration by lowering the water table below the land surface and roots of plants that use groundwater.

In spite of several possible cases in which pumping can increase recharge to an aquifer, most recharge is unaffected by pumping. Therefore, increases in recharge from pumping often can be considered to be small or zero. In this case, the pumping rate eventually will be approximately balanced by decreases in discharge. For this reason, Bredehoeft and others (1982) concluded that the magnitude of sustained groundwater pumping generally depends only on how much of the natural discharge can be captured. Although there may be physical limits to the amount of water that can be captured, lower limits to capture may exist for other reasons. For example, certain levels of instream flow may be required to sustain aquatic ecosystems, and capture or depletion of surface water that diminishes flow below those limits may not be permitted under some regulatory systems. Similarly, depletion that reduces the availability of surface-water flow for holders of surface-water rights may not be permitted in some areas. For further discussions of sustainability of groundwater resources, see Alley and others (1999), Alley and Leake (2004), and Gleeson and others (2012).

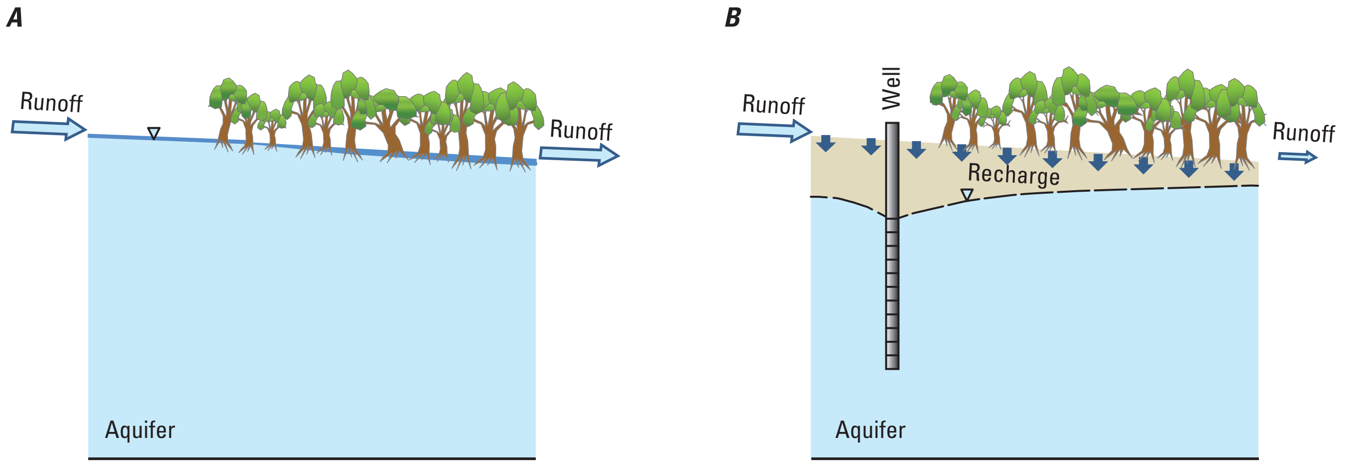


Figure 30. One way in which groundwater pumping can increase recharge to an aquifer. *A,* If the water table is at land surface, surface runoff cannot infiltrate because of a lack of available subsurface storage space. *B,* The addition of a pumped well that lowers the water table allows runoff to infiltrate and recharge the aquifer.

Depletion and the Rates and Directions of Groundwater Flow

A common misunderstanding regarding streamflow depletion is that the rates, locations, and timing of depletion are dependent on the pre-pumping rates and directions of groundwater flow in an aquifer. As indicated previously, depletion is the sum of pumping-induced increased inflow to the aquifer and decreased outflow from the aquifer. Provided that sufficient surface water is available to meet the pumping demand, a new steady-state condition will eventually be reached in which the rate of storage change is zero and the entire pumping rate can be accounted for as increased recharge and decreased discharge. It is important to understand that depletion is independent of the natural, pre-pumping rates of recharge and discharge. The concept that the rate of recharge does not affect the rate of depletion was demonstrated previously (fig. 28), where it was also noted that the recharge rate does affect the individual components of depletion—captured groundwater discharge and induced infiltration. Maddock and Vionnet (1998) extended these concepts to show that even with seasonally varying recharge and discharge, temporal patterns of recharge and discharge do not enter into calculations of depletion.

Timing and locations of depletion are affected, however, by aquifer properties and system geometry. In a system with predominantly horizontal flow, the progression from a storage-dominated to a depletion-dominated supply of pumped water is controlled by hydraulic diffusivity (Box A) and distance between pumping locations and connected surface-water and groundwater-evapotranspiration areas or other groundwater-discharge areas. In settings in which vertical components of groundwater flow are important, distributions of vertical and horizontal hydraulic conductivity, specific storage, specific yield, and aquifer thickness, in addition to well distance from the stream, are the key properties that control the timing of depletion.

As long as aquifer transmissivity and storage properties are the same in each case, total depletion (in contrast to the individual components of captured discharge and induced infiltration) at any given time would be the same for cases with natural pre-pumping flow from the stream to the aquifer (fig. 31*A*), from the aquifer to the stream (fig. 31*B*), or with no flow between the aquifer and the stream (fig. 31*C*). Furthermore, relative amounts of depletion in multiple streams are the same regardless of the existence of a divide between the streams (fig. 31*D*), natural flow from one stream to another (fig. 31*E*), or with no flow between the streams (fig. 31*F*).

The independence of depletion and rates and directions of groundwater flow in most systems allows calculation of depletion by a number of different methods. These methods include analytical solutions, superposition models, and groundwater-flow models (see “Analytical and Numerical Modeling” section). In using either analytical solutions or superposition models, the natural rates and directions of groundwater flow are ignored.

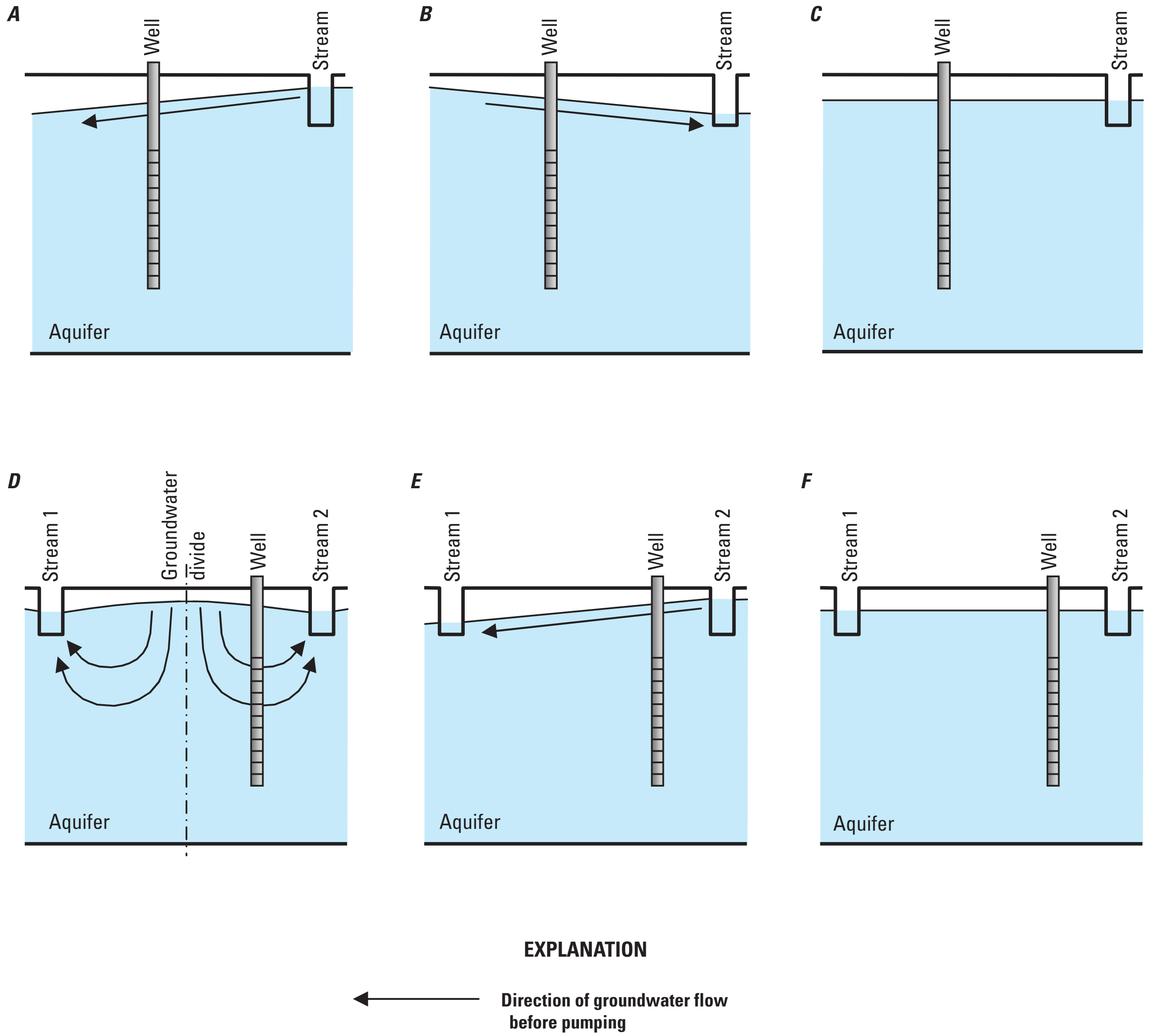


Figure 31. Position of a pumped well in relation to a stream or streams for configurations of various pre-pumping groundwater-flow patterns. As long as aquifer properties are the same in each case, depletion of the steam by the pumping well would be the same with, *A*, pre-pumping flow away from the stream; *B*, pre-pumping flow toward the stream; or, *C*, no pre-pumping flow. Similarly, relative amounts of depletion in adjacent streams are unaffected by a groundwater divide with, *D*, pre-pumping flow toward each stream; *E*, pre-pumping flow from one stream to the other; or, *F*, no flow between streams.

Depletion after Pumping Stops

When a well begins to pump, water is removed from storage around the well, creating a cone of depression. As discussed previously, the cone of depression expands and can increase recharge to and discharge from the aquifer. If a well pumps groundwater for a period of time and then pumping ceases, groundwater levels will begin to recover and the cone of depression created by the pumping will gradually fill, with water levels eventually reaching positions that existed before pumping started (fig. 32). During the time that the cone of depression is filling, groundwater that otherwise would have flowed to streams instead goes into aquifer storage; thus, streamflow depletion is ongoing, even though pumping has ceased. The factors that control the rate of recovery are the same as those that affect the rate of groundwater-level declines in response to pumping—the geology, dimensions, and hydraulic properties of the groundwater system; the locations

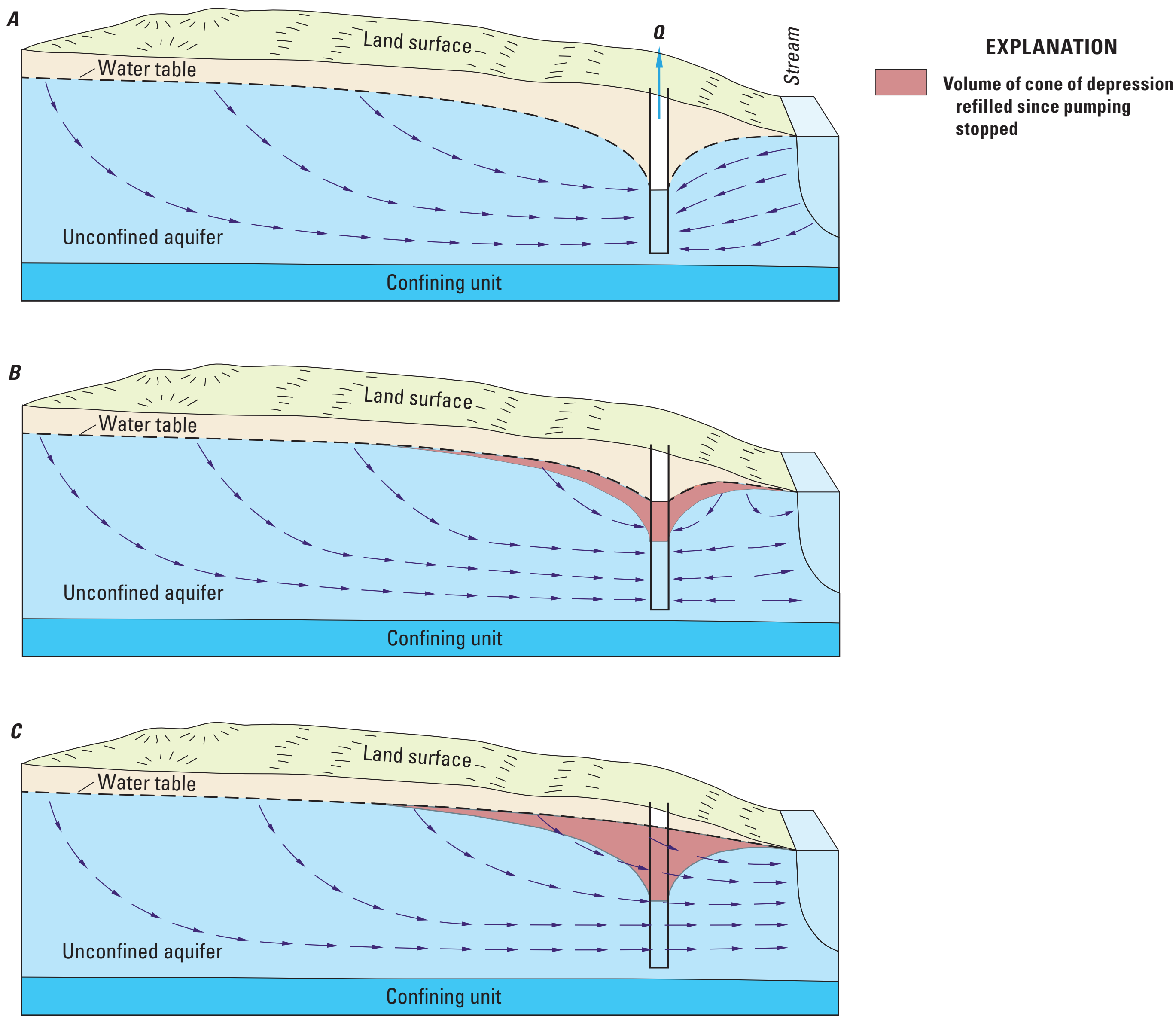


Figure 32. Residual effects of streamflow depletion after pumping stops. *A,* Prior to the well being shut down, the pumping rate at the well is balanced by decreases in aquifer storage and by streamflow depletion, which consists of captured groundwater discharge and induced infiltration of streamflow. *B*, After pumping stops, groundwater levels begin to recover, and water flows into aquifer storage to refill the cone of depression created by the previous pumping stress. *C,* Eventually, the system may return to its pre-pumping condition with no additional changes in aquifer storage or streamflow depletion. [*Q*, pumping rate at well]

and hydrologic conditions along the boundaries of the groundwater system, including the streams; and the horizontal and vertical distance of the well from the stream.

Some key points relating to depletion from a well or wells that pump and then stop pumping are as follows:

1. Maximum depletion can occur after pumping stops, particularly for aquifers with low diffusivity or for large distances between pumping locations and the stream.

2. Over the time interval from when pumping starts until the water table recovers to original pre-pumping levels, the volume of depletion will equal the volume pumped.

3. Higher aquifer diffusivity and smaller distances between the pumping location and the stream increase the maximum rate of depletion that occurs through time, but decrease the time interval until water levels are fully recovered after pumping stops.

4. Lower aquifer diffusivity and larger distances between the pumping location and the stream decrease the maximum rate of depletion that occurs through time, but increase the time interval until water levels are fully recovered after pumping stops.

5. Low-permeability streambed sediments, such as those illustrated in figure 11, can extend the period of time during which depletion occurs after pumping stops.

6. In many cases, the time from cessation of pumping until full recovery can be longer than the time that the well was pumped.

Most of these concepts are illustrated by a hypothetical example of pumping in a desert basin with a through-flowing river (fig. 33). The basin is 20 mi wide and 40 mi long with a well-connected river entering the basin at the northeast corner, running along the east side of the basin, and exiting at the southeast corner of the basin. Mountain-front recharge of 500 acre-ft/yr is uniformly distributed along the western boundary of the basin. Hydraulic conductivity is 50 ft/d and aquifer thickness is about 500 ft, resulting in a transmissivity of about 25,000 ft^2/d. Specific yield is 0.2. The effects of pumping at two possible well locations are shown in figure 34—well 1 is 5 mi from the river, and well 2 is 10 mi from the river. Pumping at either well is at a rate of 600 acre-ft/yr for a period of 50 years, after which pumping ceases. The purpose of this analysis is to better understand the effects of pumping at these locations individually, not simultaneously.

Depletion was calculated by using a groundwater-flow model. The U.S. Geological Survey (USGS) computer program MODFLOW–2005 (Harbaugh, 2005) was used with a single layer with 40 rows and 40 columns of finite-difference cells. Cell dimensions in the east-west direction are 2,640 ft and in the north-south direction are 5,280 ft. A steady-state solution was run prior to simulating pumping. In that solution, the gradient of the river resulted in inflow to the aquifer at a rate of 1,795 acre-ft/yr from the upper part of the river.

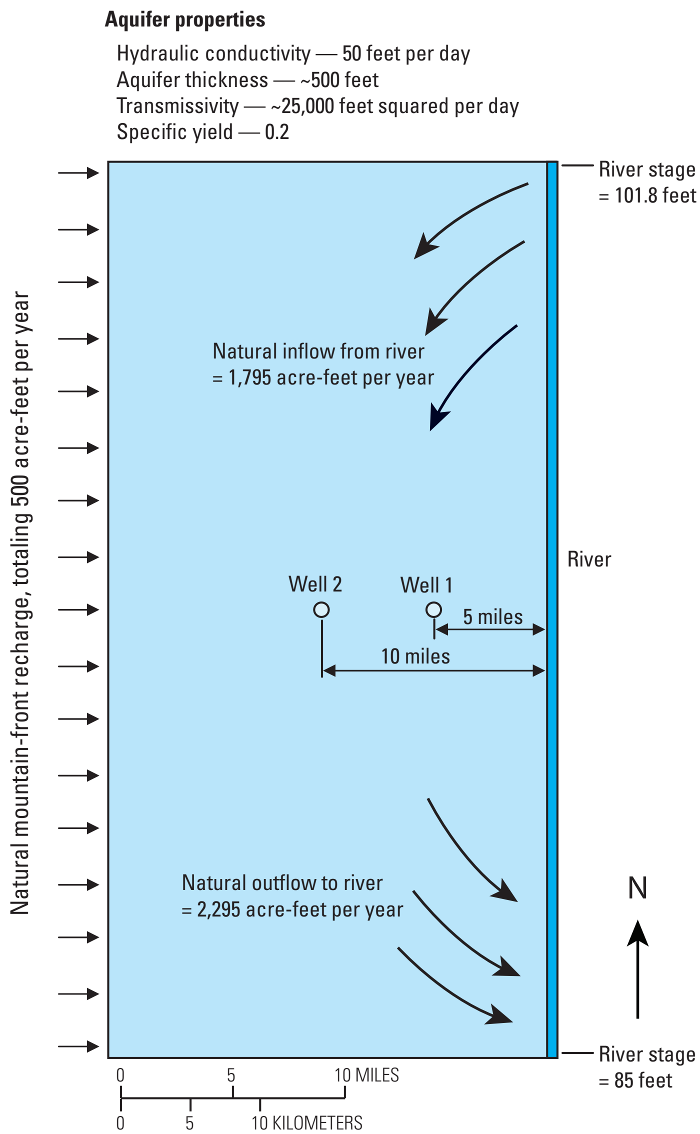


Figure 33. Hypothetical desert-basin aquifer with a through-flowing river along the east side of the basin. In separate analyses, water is pumped at locations of well 1 and well 2 at a rate of 600 acre-feet per year for 50 years.

That inflow, plus 500 acre-ft/yr of mountain-front recharge resulted in 2,295 acre-ft/yr of outflow from the aquifer to the lower part of the river. With this flow pattern, pumping at either location will increase the inflow from the river to the aquifer and decrease the outflow from the aquifer to the river. Pumping cannot, however, increase the specified amount of mountain-front recharge. For cases of pumping at each well location, 50 years of pumping was followed by 100 years of recovery.

Results for pumping at the location of well 1 are shown in the upper three graphs in figure 34. Pumping causes inflow from the river to increase from 1,795 acre-ft/yr to a maximum of 2,009 acre-ft/yr at a time of 50 years. In the 100 years that follow, inflow from the river gradually decreases to

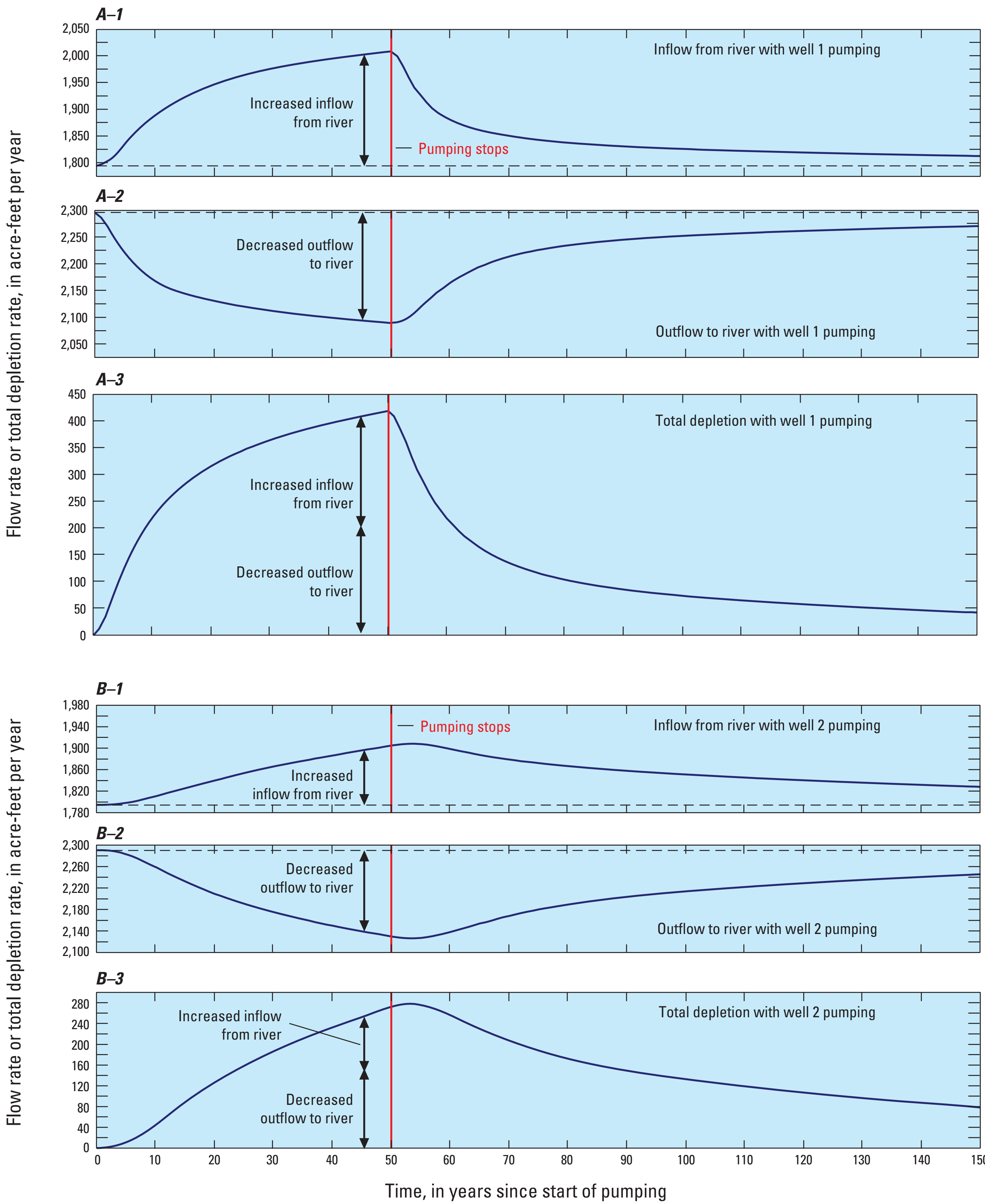


Figure 34. Inflow from the river, outflow to the river, and total depletion rate with well 1 pumping (upper three graphs) and with well 2 pumping (lower three graphs). Well locations in relation to the river are shown in figure 33.

1,813 acre-ft/yr. Additional time would be required to a full recovery of an inflow value of 1,795 acre-ft/yr. Similarly, pumping causes outflow to the river to decline from 2,295 acre-ft/yr to 2,090 acre-ft/yr at a time of 50 years. In the 100 years that follow with no pumping, outflow increases to 2,270 acre-ft/yr. For any given time, the sum of the increase in inflow from the river and decrease in outflow to the river is the total depletion from pumping. That value begins at zero, reaches a maximum of 419 acre-ft/yr at 50 years, and diminishes to 43 acre-ft/yr at 150 years.

Results for pumping at the location of well 2 are shown in the lower three graphs in figure 34. Pumping causes inflow from the river to increase from 1,795 acre-ft/yr to a maximum of 1,908 acre-ft/yr at a time of 54 years (4 years after pumping stops). In the 96 years that follow, inflow from the river gradually decreases to 1,828 acre-ft/yr. Similarly, pumping causes outflow to the river to decline from 2,295 acre-ft/yr to 2,131 acre-ft/yr at a time of 53 years. In the 97 years that follow with no pumping, outflow increases to 2,250 acre-ft/yr. Total depletion increases from zero to a maximum of 278 acre-ft/yr at 53 years and diminishes to 78 acre-ft/yr at 150 years.

In pumping at either location, 30,000 acre-ft of water is pumped over the 50-year period of pumping (fig. 35). For pumping at the location of well 1, total depletion in the 50-year period of pumping was 15,412 acre-ft, which means that nearly half of the total volume of depletion (30,000 acre-ft) will occur after pumping stops. In contrast, the total volume depleted in 50 years from pumping at the location of well 2 is 7,390 acre-ft, which means that about three-fourths of the total volume of depletion will occur after pumping stops. For pumping at either location, ultimate depletion of 30,000 acre-ft has not occurred in the 150-year period shown (fig. 35), but the trend in the depletion-volume curves is toward that ultimate value.

Most of the six key points listed previously are illustrated by this example. For pumping at the location of well 2, the maximum depletion rate occurred 3 years after pumping stopped. The time interval between the end of pumping and the time of maximum depletion rate will increase with increasing distance between pumping location and connected surface-water features. In the case of the C-aquifer analysis presented previously in the report (figs. 17–19), pumped wells were more than 20 mi from connected surface-water features. Maximum depletion in that analysis was computed to occur about 44 years after pumping stopped (fig. 19; Leake and others, 2005). In addition, the example in this section shows that pumping at either location can both increase inflow from the river and decrease outflow to the river. The sum of these two components is depletion, which represents the total reduction in surface-water flow at any given time.

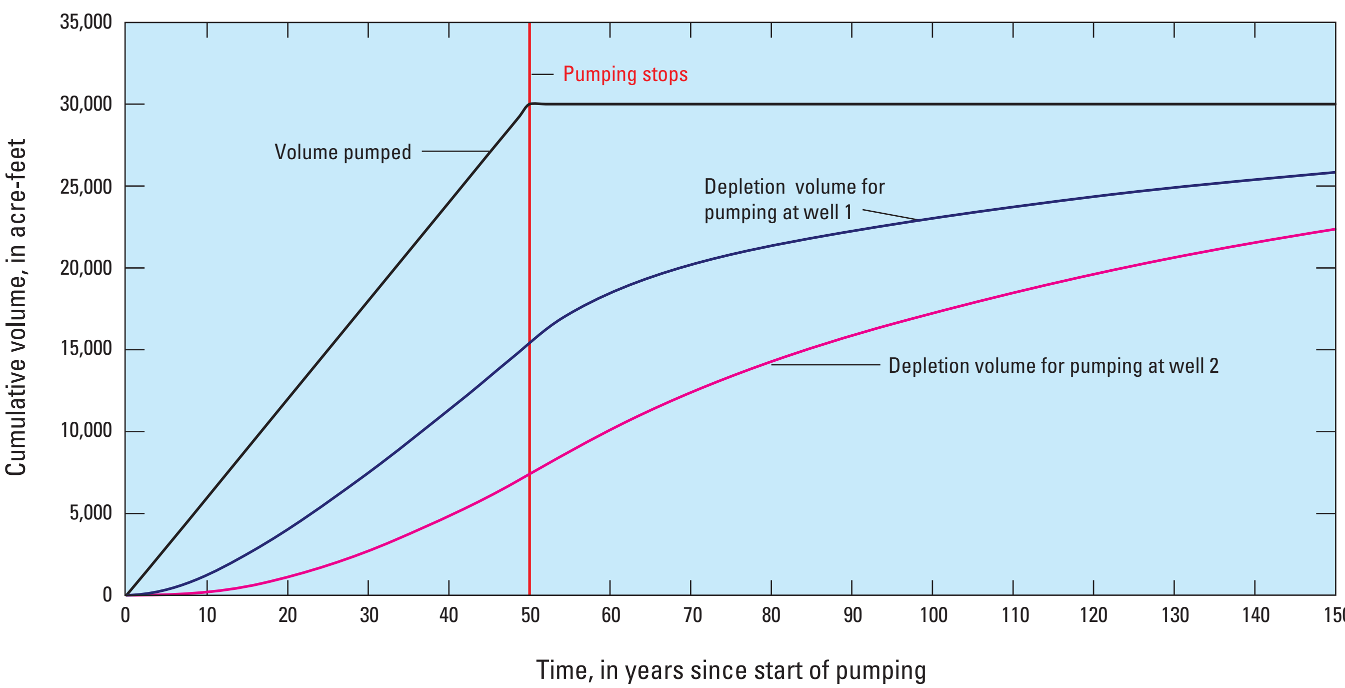


Figure 35. Cumulative volume pumped and cumulative volume of streamflow depletion for pumping at wells 1 and 2. Well locations in relation to the river are shown in figure 33.

Effects of Confining Layers on Depletion

Various geologic features that act as conduits or barriers to groundwater flow can affect the timing of depletion from groundwater pumping and also can affect which streams are affected by the pumping. Confining layers within or adjacent to aquifers are the most common type of geologic feature that potentially affect timing and locations of depletion. Here the term "confining layers" is used to refer to horizontal or nearly horizontal beds of clay, silt, or other geologic strata that have substantially lower hydraulic conductivity than adjacent aquifer material. In unconsolidated sediments that typically are a part of stream-aquifer systems, aquifer material generally consists of sand and gravel, and confining material generally consists of silt and clay. Confining layers may be laterally discontinuous or they may form laterally extensive barriers that separate adjacent aquifers. Drawdown from a pumped well propagates more rapidly in coarse-grained aquifer material than in confining layers, and in most cases confining layers between pumping locations and streams slow down the progression of depletion in comparison to equivalent aquifer systems without confining layers. It is not reasonable, however, to expect that pumping beneath an extensive confining layer will eliminate depletion. Water does move vertically from one aquifer to another through confining layers, and drawdown from pumping can propagate through confining layers as well. Also, the effective storage coefficient in confined aquifers (beneath confining layers) commonly

Groundwater from aquifers beneath the Colorado Plateau is shown discharging at Fossil Springs in north-central Arizona.

is 2–4 orders of magnitude less than in shallow unconfined aquifers with storage properties dominated by specific yield. Smaller storage coefficients result in faster lateral propagation of drawdown from pumping locations to distant edges of confining layers or locations where drawdown can more easily propagate upward. The argument that pumping beneath a confining layer eliminates the possibility of depletion implies that the pumped aquifer is without any vertical or lateral connection to aquifer material that is connected to surface water. The existence of gradients of water levels in confined aquifers, however, is evidence that the aquifers receive water from and discharge water to vertically adjacent aquifers. Drawdown from pumping also can propagate to these adjacent aquifers. The timing of depletion in systems with extensive confining layers is best understood using numerical models of groundwater flow.

Discontinuous confining layers between pumping locations and connected streams can either slow down or speed up the progression of depletion, depending on the configurations of the confining layers in relation to connected streams and pumping locations. These effects are illustrated using a finite-difference model of the hypothetical basin-fill aquifer shown in figure 36. The aquifer is 30 mi wide, 45 mi long, and 600 ft thick. A river connected to the upper part of the aquifer is present along the center of the basin. Horizontal and vertical hydraulic conductivity, specific yield, and specific storage for coarse sediments and confining clay layers (fig. 36*D*) are within ranges of values for these types of sediments in real aquifer systems. The larger storage property, specific yield, applies only at the upper boundary of the system where lowering of the water table causes pore spaces to drain. In the aquifer below the water table, a much smaller storage property consisting of the product of specific storage and aquifer thickness accounts for storage changes from compressibility of water and the matrix of solids that makes up the aquifer. Three cases with different configurations of clay layers in the aquifer are shown in figure 36*B*. In Cases 2 and 3, clay layers are 5 percent of the total aquifer thickness and are near the vertical center of the aquifer.

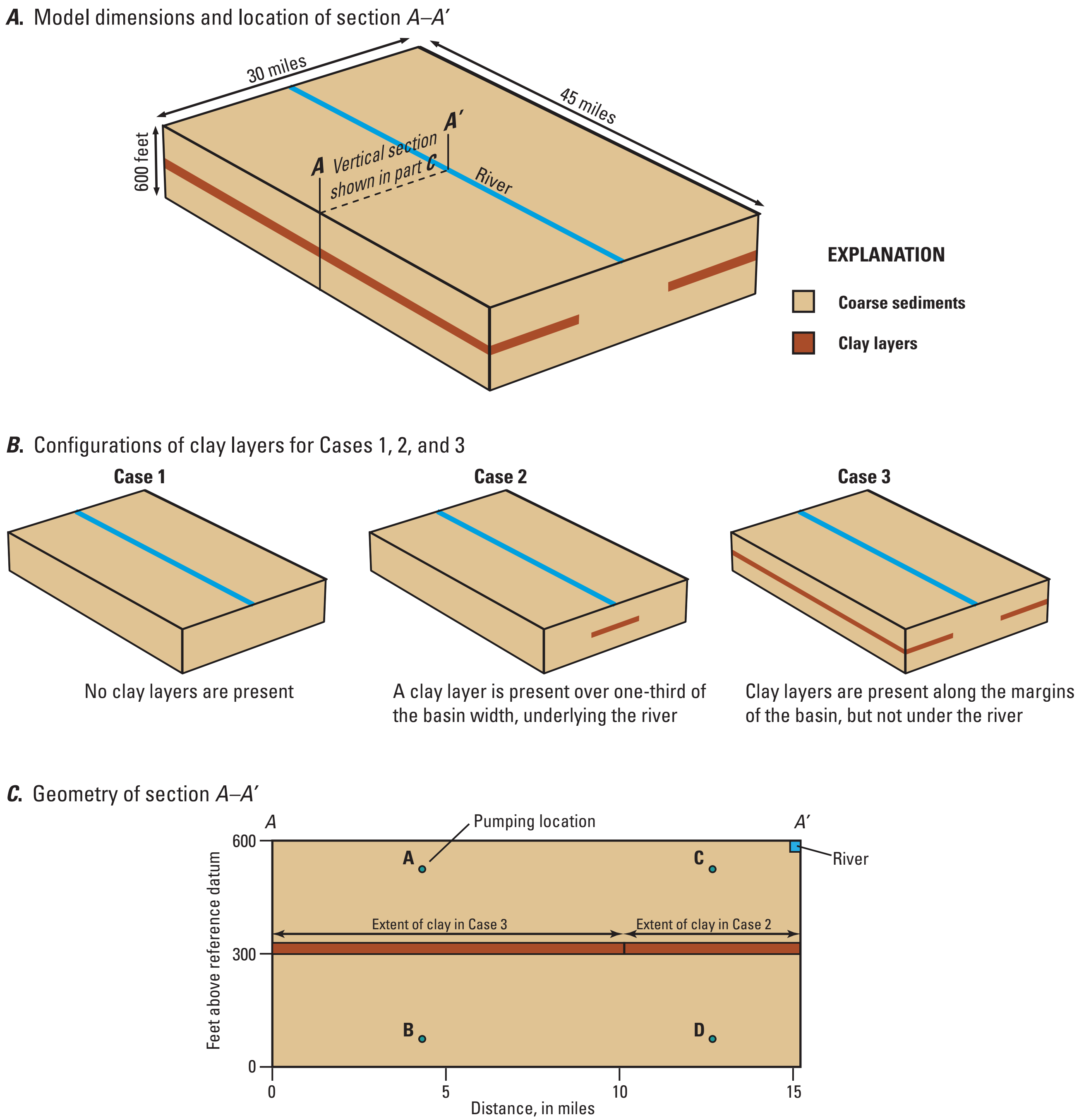
Horizontal dimensions of finite-difference cells were 1,575 ft in each direction, resulting in 101 columns and 151 rows to simulate the basin width and length, respectively. Twenty layers, each with a thickness of 30 ft, were used to simulate the entire aquifer thickness. Depletion fractions from pumping at four locations in section *A–A′* at a rate of 1,000 ft^3/d for 25 years were computed using the superposition modeling approach with MODFLOW–2005 (Harbaugh, 2005).

Comparison of depletion curves for the three cases and four pumping locations (fig. 37) yields some insights into the range of effects of clay layers on depletion. The first result to note is that even with no clay layer present, depletion from pumping at depth in some locations progresses faster than depletion from pumping near the top of the aquifer. For example, with no clay layer, depletion progresses slightly faster from pumping at depth (fig. 37*B*) than from pumping nearer to the water table (fig. 37*A*). This difference occurs because vertical hydraulic conductivity is much lower than the horizontal hydraulic conductivity. Drawdown from pumping at depth can propagate more easily laterally toward the river location than to the overlying water table where the specific yield value can result in large storage-change values that slow the propagation of the cone of depression.

The existence of a clay layer under the river (Case 2) greatly slows depletion for the deep pumping location nearer to the river (fig. 37*D*). The clay layer restricts direct propagation of drawdown upwards to the river. Drawdown must propagate laterally around the edge of the clay layer and then back to the river. This case is similar to the situation in the Upper San Pedro Basin in Arizona, where a silt and clay layer underlies the stream at most locations (fig. 13).

The existence of clay layers along the margins of the valley (Case 3) substantially speeds up the depletion for the pumping location beneath that layer (fig. 37*B*). The clay layer speeds up depletion from underlying pumping because it creates a confined aquifer zone that restricts propagation of drawdown to the water table and, with a small storage coefficient, allows relatively rapid propagation of drawdown to the edge of the clay layer.

In summary, confining layers and other geologic features are complexities that can affect the timing of depletion from groundwater pumping. If features have a lower hydraulic conductivity than that of aquifer material, the feature can slow down the progress of depletion through time. In some cases, such as is shown in figure 37*B*, the feature may speed up the progress of depletion. For systems with multiple aquifers separated by confining layers, or for aquifers with discontinuous confining layers and other heterogeneities, numerical flow modeling approaches are needed to better understand the timing of depletion.



D. Aquifer properties

	Horizontal hydraulic conductivity, in feet per day	Vertical hydraulic conductivity, in feet per day	Specific storage, in per foot	Specific yield, dimensionless
Coarse sediments	3×10^{1}	3×10^{-1}	6×10^{-7}	2×10^{-1}
Clay layers	3×10^{-3}	3×10^{-5}	6×10^{-7}	2×10^{-1}

Figure 36. *A*, Hypothetical basin-fill aquifer used to illustrate possible effects of discontinuous clay layers on timing of depletion in the river as a function of vertical and horizontal locations of pumping. *B*, Configurations of clay layers are shown for three cases. *C*, Depletion in vertical section *A–A′* is shown in figure 37 for pumping locations A, B, C, and D. *D*, Aquifer properties are within the range of values typical of basin-fill aquifers, with a horizontal-to-vertical hydraulic conductivity ratio of 100:1. Clay layers in Cases 2 and 3 increase restrictions to vertical flow in parts of the aquifer.

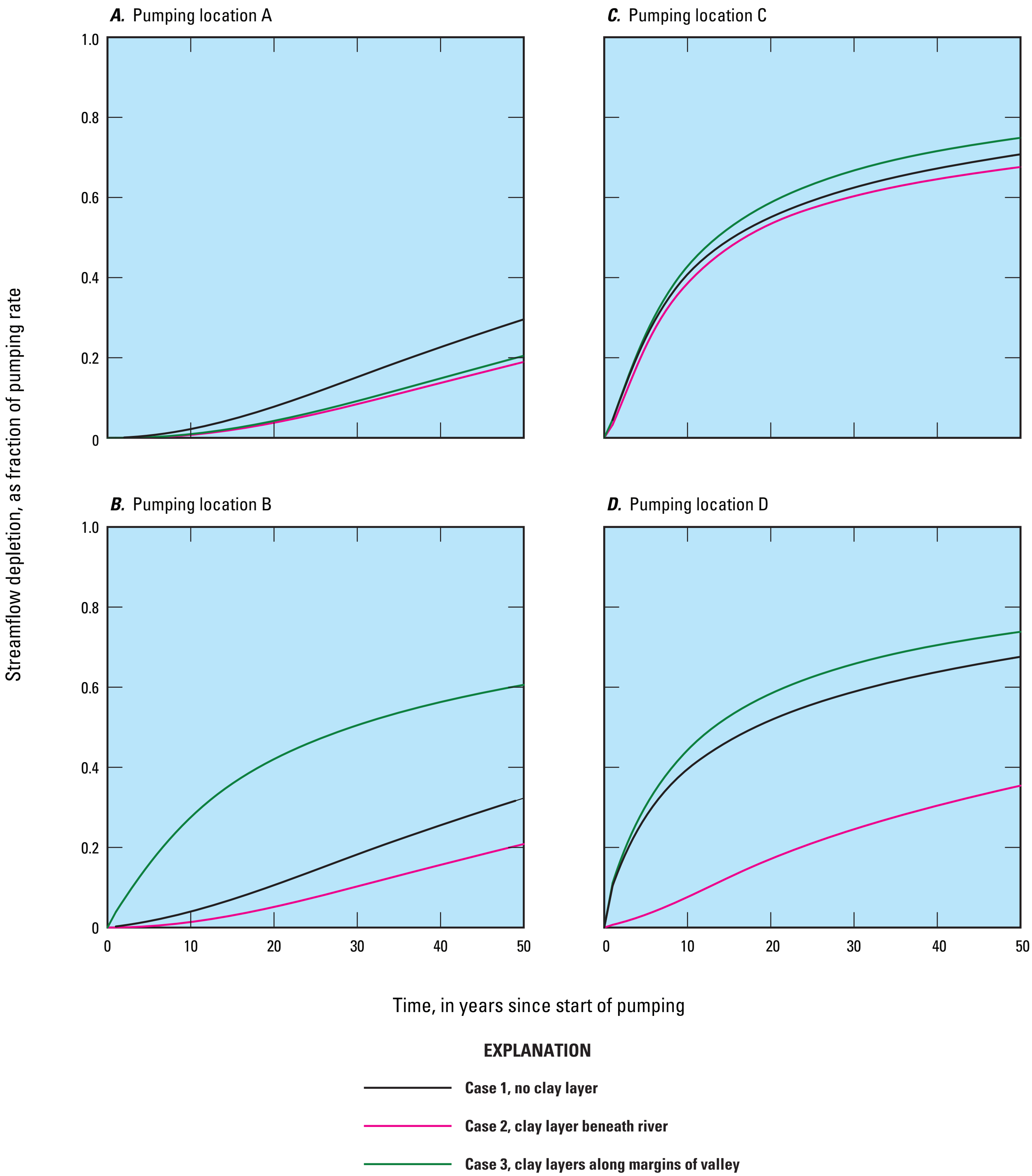


Figure 37. Computed depletion at pumping locations A, B, C, and D in vertical section *A–A′* shown in figure 36*C*. For *A*, shallow distant pumping location A, either configuration of clay layers slows depletion in comparison to case 1. For *B*, deep distant pumping location B, pumping below the clay layer at the valley margins (Case 3) produces substantially more rapid depletion than in the case with no clay layers. For *C*, shallow close pumping location C, configurations of clay layers change depletion from the case of no clay layer by a minor amount. For *D*, deep close pumping location D, the clay layer beneath the river (Case 2) substantially slows the process of depletion.

Approaches for Monitoring, Understanding, and Managing Streamflow Depletion by Wells

This section describes approaches for determining the effects of pumping on streamflow. These approaches fall into two broad categories: collection and analysis of field data and analytical and numerical modeling. Additionally, this section describes approaches that are used for managing streamflow depletion, which build on both an understanding of the underlying processes that affect the response of streamflow to pumping as well as the application of techniques for modeling these processes.

Field Techniques

Quantification of streamflow depletion using field-measurement techniques first requires that changes in flow between the stream and aquifer can be measured or estimated. The measurement technique must have the capability to resolve changes in streamflow that occur over a stream reach that may be affected by a well or wells. Such changes can most likely be detected when groundwater pumping is a substantial fraction of the available streamflow and when enough time has elapsed since pumping began for depletion to occur. A second requirement is that there must be a way to separate pumping-induced changes in streamflow from changes in flow caused by other stresses such as climate-driven variations in recharge and stream stage. Changes in groundwater/surface-water interactions not related to pumping can be as large as or larger than pumping-induced changes. Separating pumping-driven effects from other effects in field data may require comprehensive analysis of the coupled groundwater/surface-water system.

Field techniques for determination of streamflow depletion can be grouped into the following general approaches, which are described in greater detail by Stonestrom and Constantz (2003), Rosenberry and LaBaugh (2008), and Constantz (2008):

1. Direct measurement of streamflow,
2. Point measurements of flow across the streambed, or
3. Measurement of other types of data that indicate the direction or quantity of flow between a stream and adjoining aquifer.

The second approach includes seepage meters placed at specific points in the stream channel (Rosenberry and LaBaugh, 2008). Many of the additional data types in the third approach also focus on specific point measurements in a stream channel but also include methods that monitor larger areas of a stream reach. These approaches employ water levels measured at observation wells or streambed piezometers, measurements of temperature in the stream and streambed, analysis of geochemical constituents or tracers, and geophysical studies of the stream-aquifer system. Field methods that detect changes in flow between an aquifer and a stream over a long reach are more likely to be successful in detecting depletion from pumping than methods that focus on specific locations along a stream channel. For that reason, this discussion will be limited to direct measurement of streamflow to detect depletion.

Direct measurements of streamflow are used to determine streamflow changes that occur either at a particular stream location over time or at a particular time at two or more locations along a stream. Repeated streamflow measurements at a single site such as a streamgaging station can detect changes in flow over time that are driven by all processes, including depletion by groundwater pumping. Streamflow measurements made simultaneously at two or more sites along a stream are known as “seepage runs” and are indicative of streamflow gains or losses in the reaches between measurement locations. Detection of depletion using seepage runs requires that two or more measurements be made during a period in which substantial streamflow depletion may occur.

The identification of streamflow depletion from streamflow measurements is complicated by a number of factors. First, the rate of depletion must be large enough to be detected by the streamgaging instrumentation, and significantly greater than the accuracy of the streamflow measurement. Each streamflow measurement made by USGS personnel, for example, is given a rating of “excellent,” “good,” “fair,” or “poor,” depending on the hydrologic and hydraulic conditions in which the measurement was made (Turnipseed and Sauer, 2010). As defined by the USGS, an “excellent” rating is one in which the accuracy of the measurement is judged to be ±2 percent of the measured flow, a “good” rating is one with an accuracy of ±5 percent, a “fair” rating ±8 percent, and a “poor” rating greater than ±8 percent. As an example of the effects of streamflow-measurement accuracy, a streamflow-depletion rate of 1.6 ft^3/s (1.0 Mgal/d) could not be accurately detected using the USGS rating system for a stream with a measured flow of 100 ft^3/s, even if the streamflow measurement had been rated as “excellent.” This is because the depletion rate of 1.6 ft^3/s is less than the 2.0 ft^3/s accuracy of the measurement.

A related complicating factor is the effect that the aquifer has on delaying the time of arrival and on damping the range of streamflow-depletion rates caused by pumping at a well. Many of the examples provided in previous sections of this report, such as that for the Upper San Pedro Basin of Arizona (fig. 13), have demonstrated that it may take several years, if not decades, for a pumping stress to be manifested in a stream. The propensity of the aquifer to delay and damp a particular pumping stress can make it extremely challenging, if not impossible, to monitor streamflow depletion in some field settings or to differentiate streamflow depletion caused by pumping at a particular well or well field from depletion caused by other short-term or long-term stresses to the aquifer (Zlotnik, 2004; Bredehoeft, 2011b).

Left, streamgage on the Snake River, near Moran, Wyoming. (Photograph from U.S. Geological Survey files)

Streamflow measurement on Fish Creek, Teton County, Wyoming. (Photograph by Jerrod D. Wheeler, U.S. Geological Survey)

Above, seepage meters and in-stream piezometers deployed in the Shingobee River, Minnesota, to understand directions and rates of water movement between the stream and the underlying groundwater system. (Photograph by Donald O. Rosenberry, U.S. Geological Survey)

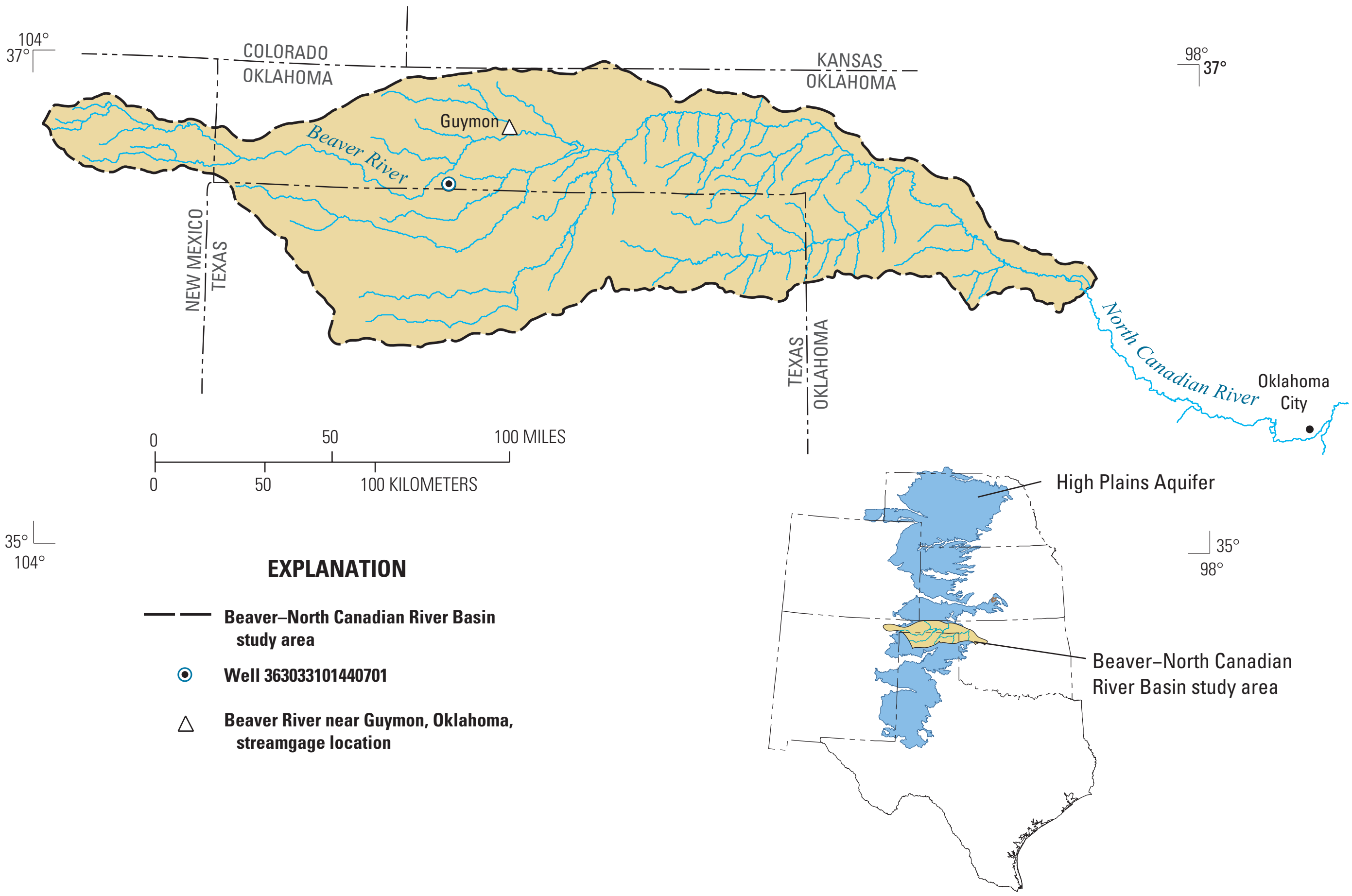


Figure 38. Location of the Beaver–North Canadian River Basin, western Oklahoma (modified from Wahl and Tortorelli, 1997).

In light of these challenges, techniques for monitoring streamflow depletion have been limited to two general approaches. In the first, short-term field tests lasting several hours to several months are done to determine local-scale effects of pumping from a specific well or well field on streams that are in relatively close proximity to the location of withdrawal. In the second, evaluations are made of hydrologic and climatic data collected over a period of many years to determine whether changing streamflow conditions can be correlated to long-term, basinwide development of groundwater resources (Wahl and Tortorelli, 1997; Sophocleous, 2000; Fleckenstein and others, 2004; and Prudic and others, 2006). Analyses of this type typically use statistical techniques to identify and explain long-term trends in streamflow conditions.

Short-term tests to determine local-scale effects of pumping are done for two primary purposes. The first is to determine the effects of an existing production well (or well field) on specific stream reaches or, conversely, to determine the quantity (and often the quality) of surface water captured by a well. Examples of these types of studies are provided by Myers and others (1996) for a site in Kansas and Dudley and Stewart (2006) for a site in Maine, and by several studies cited previously related to bank filtration. The second purpose is to improve the general scientific understanding of the geologic and hydrogeologic controls on streamflow depletion or to test the predictive ability of analytical and numerical models to determine streamflow depletion under actual field conditions. Field studies such as these typically make use of multiple data types to provide a comprehensive picture of how stream-aquifer systems respond to pumping. Experimental studies of this type include those described by Sophocleous and others (1988), Christensen (2000), Hunt and others (2001), Nyholm and others (2002, 2003), Hunt (2003b), Kollet and Zlotnik (2003), Fox (2004), and Lough and Hunt (2006).

An example of a study in which long-term changes in streamflow were correlated with groundwater development is provided for the Beaver–North Canadian River Basin of western Oklahoma (fig. 38). The basin is underlain by the High Plains aquifer, which is one of the most productive aquifer systems of the United States. Groundwater levels have declined in many parts of the High Plains aquifer in response to large-scale development of groundwater for irrigation that began in the 1940s (McGuire and others, 2003). These declines are illustrated by water levels measured in an observation well in western Oklahoma since the 1950s (fig. 39*A*). The study was undertaken in response to concerns about streamflow reductions that seemed to be occurring in the

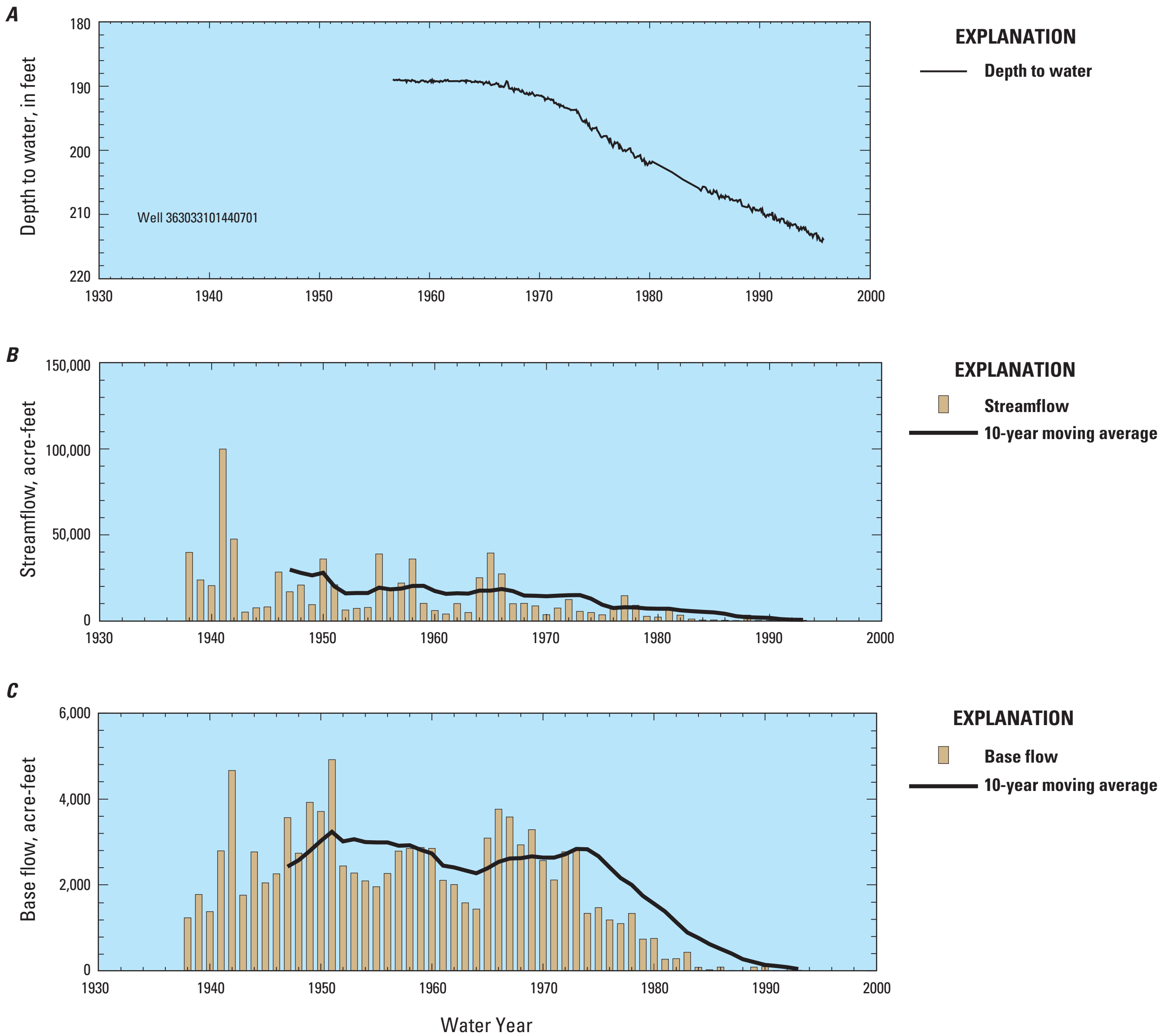


Figure 39. Long-term hydrologic data for the Beaver–North Canadian River Basin, western Oklahoma. *A*, Groundwater levels in an observation well in Texas County (1956–95). *B*, Total annual volume of streamflow and, *C*, base flow for the Beaver River near Guymon, Oklahoma (1938–93; modified from Wahl and Tortorelli, 1997). Location of observation well and streamgaging station shown in figure 38.

North Canadian River, which at the time of the study was the source of about half of the public-water supply for Oklahoma City (Wahl and Tortorelli, 1997).

Several sources of hydrologic and climatic data were analyzed as part of the study, including the measured volume of annual streamflow and estimated volume of annual base flow at several USGS streamgaging stations in the basin. The data were divided into an “early” period (ending in 1971), representing conditions before groundwater levels had declined substantially, and a “recent” period (1978–94), reflecting the condition of declining groundwater levels (Wahl and Tortorelli, 1997). Statistical tests of the data showed that the total volume of annual streamflow measured at most of the streamgaging stations in the basin had decreased from the early to recent periods, even though precipitation records for the area showed no corresponding changes. Groundwater discharge to streams in the basin had also undergone significant changes, with substantial reductions documented at some of the streamgaging stations. These trends are illustrated by streamflow data and base-flow estimates for the Beaver River at Guymon, Oklahoma (fig. 39*B* and *C*). Overall, the observed reductions in streamflow throughout the basin correlated well with long-term declines in groundwater levels that occurred in response to increased pumping for irrigation, although other factors such as changes in farming and conservation practices in the basin also may have had an effect on the changes in streamflow (Wahl and Tortorelli, 1997).

Statistical studies such as these can be used in general to evaluate the large-scale effects of basinwide pumping on streamflow reductions. They cannot, however, account for the specific effects of pumping at individual wells, nor can they help with understanding how specific management actions might affect future depletion. Such analyses require the use of analytical or numerical models.

Analytical and Numerical Modeling

Analytical and numerical modeling methods are the most widely applied approaches for estimating the effects of groundwater pumping on streamflow. The two approaches use different mathematical techniques to solve the partial differential equation of groundwater flow (or change in groundwater flow). The groundwater-flow equation mathematically describes the distribution of hydraulic heads (or drawdowns) throughout a groundwater system over time. Analytical models are limited to the analysis of idealized conditions in which many of the complexities of the real groundwater system are either ignored or approximated by use of simplifying assumptions. These simplifications typically include representation of the three-dimensional flow system by a one- or two-dimensional system, idealized boundary conditions such as perfectly straight streams, and homogeneous aquifer materials. In contrast, numerical models are capable of simulating fully three-dimensional flow in groundwater systems that are horizontally and vertically heterogeneous and have complex boundary conditions.

Although both modeling approaches have been widely used, numerical models provide the most robust approach for determining the rates, locations, and timing of streamflow depletion by wells. Nevertheless, because analytical models have received substantial application and continue to be the subject of much research, a brief review of the history and scope of analytical solutions for analysis of streamflow depletion is provided. Different approaches for numerical-modeling analyses of streamflow depletion also are described and provide background for the discussions on streamflow-depletion response functions, capture maps, and management approaches.

Analytical Models of Streamflow Depletion by Wells

Several analytical solutions to the groundwater-flow equation have been developed to determine time-varying rates of streamflow depletion caused by pumping. Analytical solutions are based on highly simplified representations of field conditions that are necessary to develop mathematical solutions to the groundwater-flow equation. Although these solutions are highly simplified representations of real-world field conditions, they can provide insight into the several factors that affect streamflow depletion and can be used as an initial estimate of the effects of a particular well on a nearby stream. Partly because they require less site-specific data to implement than do numerical models, analytical models have been used by a number of States as the basis for making water-management regulatory decisions (Sophocleous and others, 1995; Miller and others, 2007; Reeves and others, 2009).

Figure 40*A* illustrates a hypothetical stream-aquifer system that is representative of many river-valley aquifers of the United States. A single well pumps from the aquifer and captures streamflow from the adjoining major stream and perhaps also from tributaries to the stream. The aquifer is underlain by sediments having a lower permeability than the aquifer (such as glacial till) and then by relatively impermeable bedrock.

Many, if not most, streams penetrate only a small fraction of the saturated thickness of the adjoining aquifer, such as illustrated for the stream in figure 40*A*. This condition is referred to as a partially penetrating stream, and both the stream and the well in figure 40*A* partially penetrate the aquifer. Partially penetrating streams and pumped wells can create complicated three-dimensional flow patterns in the vicinity of the wells and streams and can result in water being captured by the wells from parts of the aquifer that are on the opposite side of the streams from the wells.

A simplified representation of the hypothetical river-valley aquifer is shown in figure 40*B*. The conceptualization of the stream-aquifer-well system forms the basis for the development of the simplest and most widely applied analytical solution of streamflow depletion, which was developed independently and in somewhat different forms by Theis (1941) and Glover and Balmer (1954) and later implemented in a set of tables and graphs by Jenkins (1968a). The solution is based on several assumptions, including representation of the partially penetrating stream by one that fully penetrates the aquifer. Other assumptions are that (1) the aquifer is confined, homogeneous, underlain by an impermeable boundary, and extends to infinity in all directions away from the stream; (2) the aquifer is bounded by a single stream that is straight and in perfect hydraulic connection with the aquifer (that is, there are no resistive streambed sediments at the stream-aquifer interface); and (3) a single well pumps from the full saturated thickness of the aquifer. The solution is frequently applied to unconfined aquifers (as in figure 40) when it can be assumed that drawdowns caused by pumping at a well are small compared to the initial saturated thickness of the aquifer. The solution is sometimes referred to as the "Glover solution" or "Jenkins' approach" and, because it has been so widely applied, is discussed in more detail in Box C.

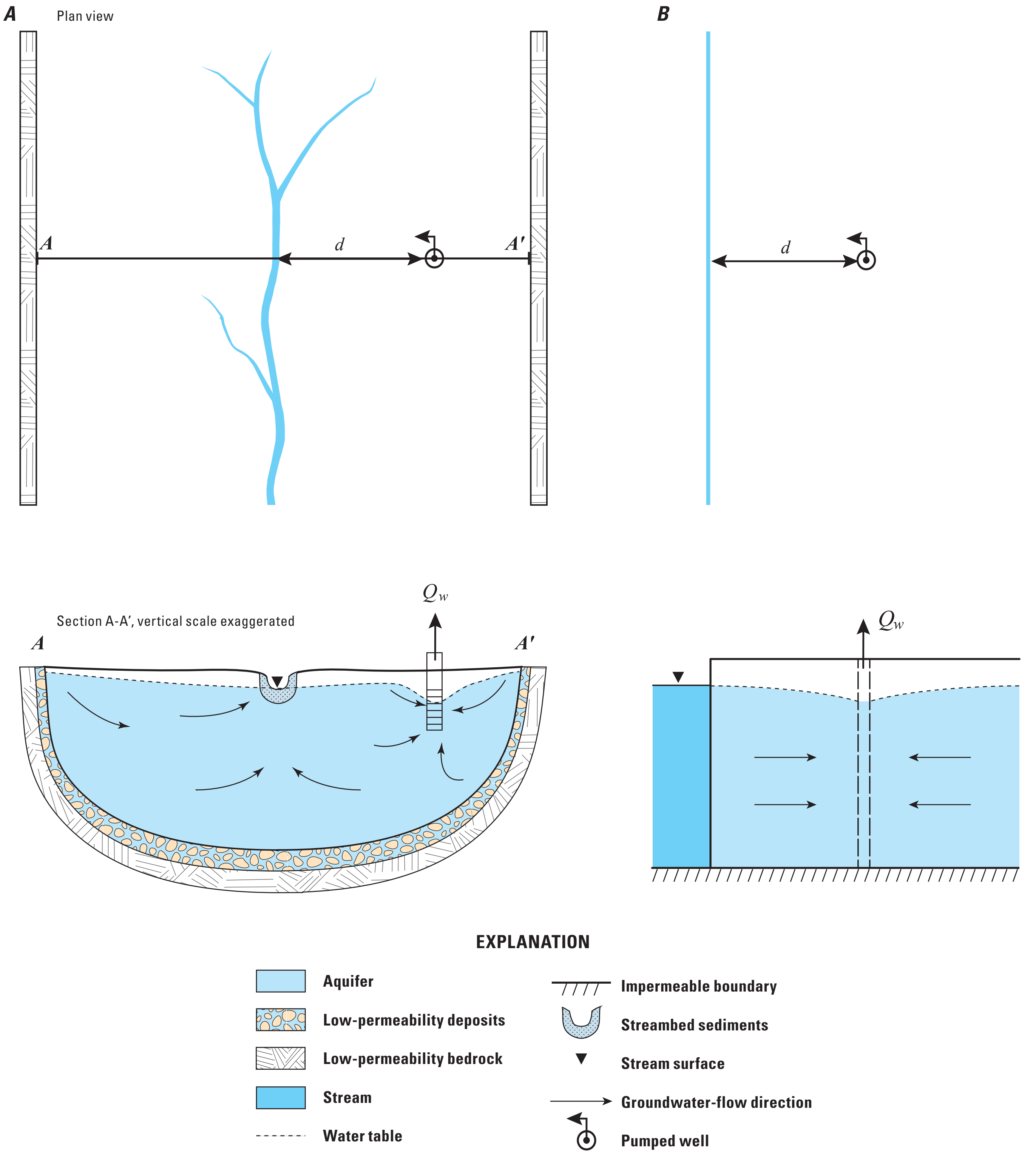


Figure 40. *A*, Hypothetical river-valley aquifer with a single pumping well. *B*, Simplified conceptualization of the same river-valley aquifer for the Glover analytical solution. [*d* is distance from well to nearest stream and Q_w is pumping rate at well]

Box C: Glover's Analytical Solution and Jenkins' Stream Depletion Factor *(SDF)*

The most widely applied analytical solution for determining the effects of pumping on streamflow is one that was developed by Glover and Balmer (1954) that has become known as the Glover solution. The solution is based on a highly simplified stream-aquifer-well system illustrated in figure 40*B*. The full set of assumptions on which the solution is based can be summarized as follows (Jenkins, 1968a):

1. The aquifer is homogeneous, isotropic, and extends to infinity away from the stream.
2. The aquifer is confined, and the transmissivity and saturated thickness of the aquifer do not change with time. The solution is also applied to water-table aquifers when it can be assumed that drawdown caused by pumping is small compared to the initial saturated thickness of the aquifer.
3. Water is released instantaneously from storage (and there are no delayed-drainage effects characteristic of water-table aquifers).
4. The stream that forms a boundary with the aquifer is straight, fully penetrates the thickness of the aquifer, is infinitely long, remains flowing at all times, and is in perfect hydraulic connection with the aquifer (that is, no streambed and streambed sediments impede flow between the stream and aquifer).
5. The temperature of the stream and aquifer are the same and do not change with time. This assumption is necessary because variations in temperature affect the hydraulic conductivity of streambed and aquifer sediments.
6. The well pumps from the full saturated thickness of the aquifer at a constant rate.

The assumption that the aquifer is confined (or that the drawdown in a water-table aquifer is small compared to the initial saturated thickness of the aquifer) in conjunction with the two assumptions that the stream and well penetrate the full saturated thickness of the aquifer imply that groundwater flow in the aquifer is horizontal.

The Glover solution provides an expression for the total rate of streamflow depletion as a function of time (defined mathematically as Q_s), and is equal to the product of the pumping rate of the well, Q_w, and a mathematical function referred to as the complementary error function, $erfc(z)$:

$$Q_s = Q_w erfc(z)\,. \qquad (C1)$$

Variable z in this equation is equal to $\sqrt{(d^2S)/(4Tt)}$, in which d is the shortest distance of the well to the stream, S is the storage coefficient of the aquifer (or specific yield, for water-table aquifers), T is the transmissivity of the aquifer, and t is the time. Note that the ratio S/T is the inverse of the hydraulic diffusivity of the aquifer ($D = T/S$). The solution is illustrated in figure C–1*A* for two wells pumping from an aquifer having a hydraulic diffusivity of 10,000 feet squared per day.

As noted previously in the report, Jenkins (1968a and 1968b) defined the quantity d^2/D, which is equivalent to $(d^2S)/(T)$ in equation C1, as the "stream depletion factor," or "*SDF*." Jenkins' *SDF* has the units of time, such as seconds or days, depending on the units of time used to express *T*. Although Jenkins named the constant the stream depletion factor, it might alternatively be called a "streamflow-depletion response-time factor" because of its similarity to other types of hydraulic response-time constants that have been defined for groundwater systems (Domenico and Schwartz, 1990; Alley and others, 2002; Sophocleous, 2012).

For the two wells illustrated in figure C–1*C*, the *SDF* of well A is 6.25 days and that of well B is 25 days. Note that as either the distance of the well from the stream increases or the hydraulic diffusivity of the aquifer decreases, rates of streamflow depletion increase more slowly. Jenkins also noted that for the stream-aquifer conditions modeled by equation C1, the stream depletion factor is equal to the time at which streamflow depletion is equal to 28 percent of the volume pumped for a given location. This can be seen graphically in figure C–1*B*, in which the total volume of streamflow depletion for pumping at wells A and B is 28 percent (that is, a fraction of 0.28) of the volume pumped at 6.25 days and 25 days, respectively.

An important aspect of the *SDF* is that it can be calculated for every location in an aquifer. Wells pumping at the same rate and with the same pumping schedule at any location having a particular *SDF* value will have an equal effect on streamflow depletion, assuming that the conditions for which equation C1 were derived are met. Figure C–1*C* illustrates a map of stream depletion factors for the simplified stream-aquifer system that meets the assumptions underlying equation C1. As an example use of the map, any well pumped at a constant rate along the *SDF* contour equal to 25.0 days will result in a streamflow-depletion rate of about 57 percent of the pumping rate of the well after 40 days of pumping (from figure C–1*A*, well B curve) and a total volume of streamflow depletion equal to about 37 percent of the total volume of water pumped to that time (figure C–1*B*, well B curve).

In many field settings, the conditions required for application of the Glover solution and Jenkins' *SDF* mapping approach are not fully met, such as for aquifers that are bounded laterally by low-permeability rocks or sediments. In such cases, methods have been developed to determine modified *SDF* values that account for the specific conditions of the particular field setting (for example, Jenkins 1968b and 1968c; Hurr, Schneider, and others, 1972; Burns, 1983; and Miller and others, 2007). More recently, alternative approaches to the *SDF* methodology have been developed to map aquifer locations having equal effect on streamflow depletion, such as response-function and capture maps.

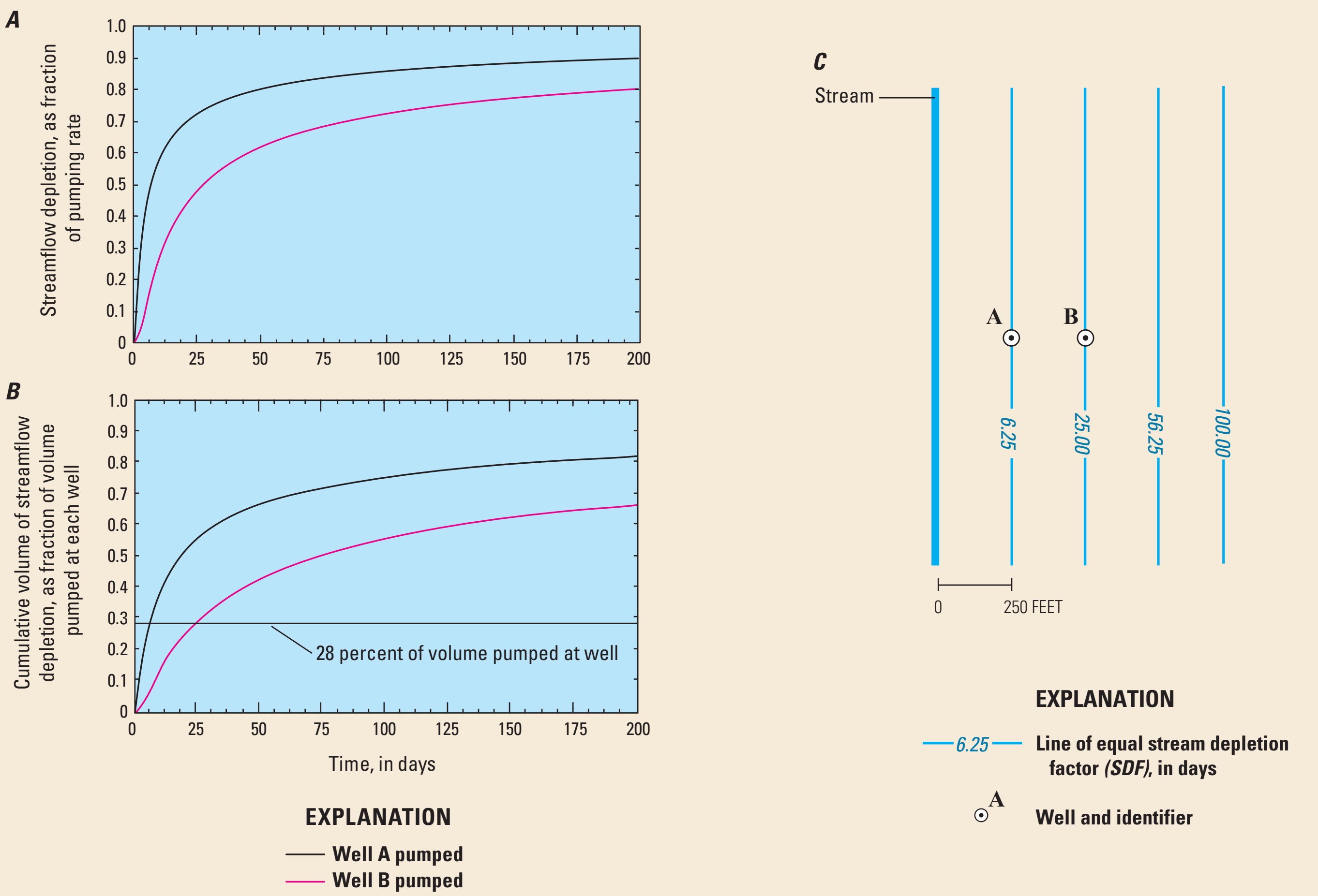


Figure C–1. *A,* Rate and, *B,* cumulative volume of streamflow depletion caused by pumping at two wells located 250 feet (well A) and 500 feet (well B) from a stream. Rates of streamflow depletion were calculated by use of the Glover equation (C1), as implemented in the computer program described in Reeves (2008); cumulative volumes were calculated by adding the daily rates of streamflow depletion. Each well is pumped independently of the other at a rate of 1 million gallons per day from an aquifer having a hydraulic diffusivity of 10,000 feet squared per day. *C,* Contours of stream depletion factor for the aquifer.

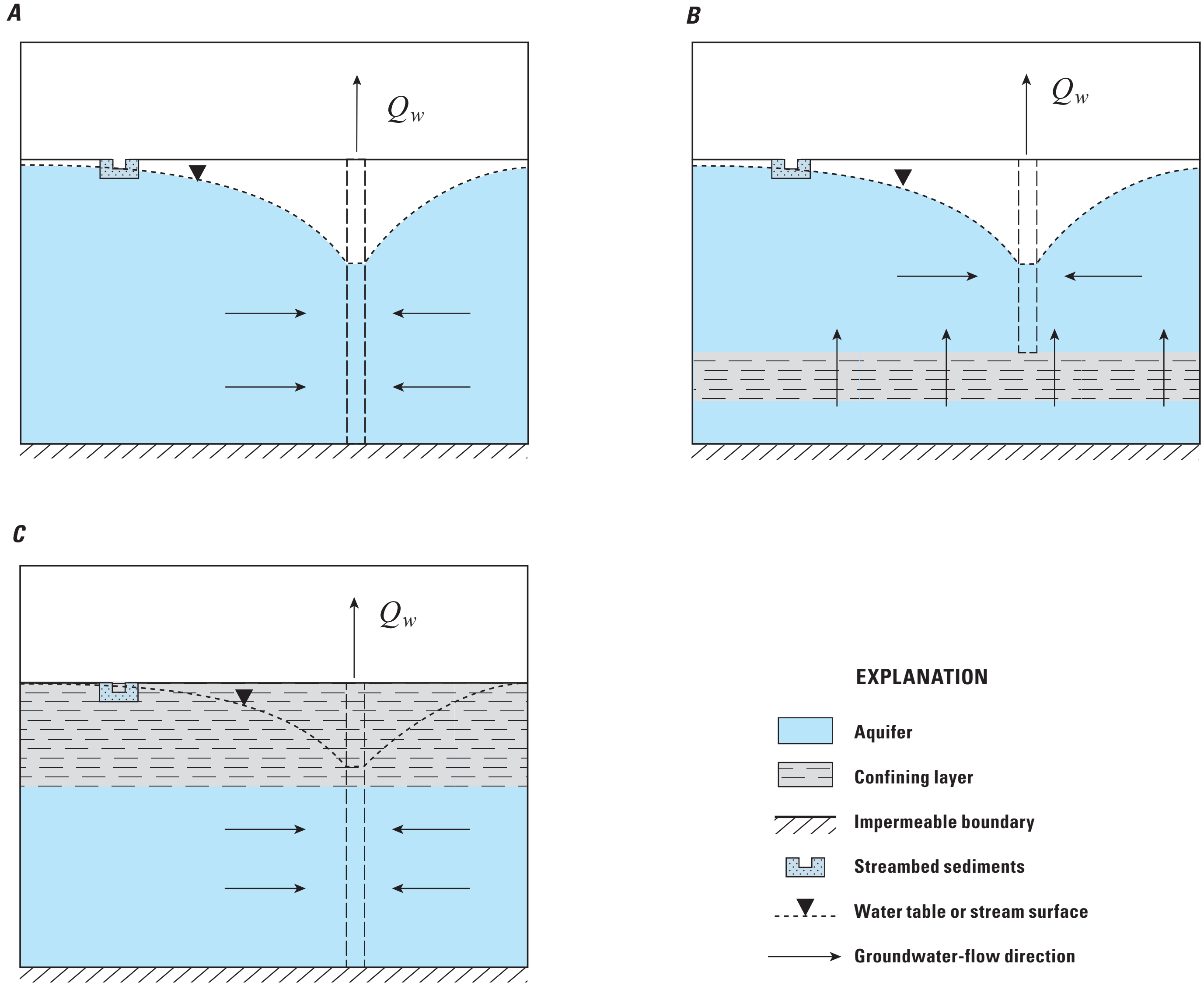


Figure 41. Alternate conceptualizations of stream-aquifer systems for which analytical solutions have been developed. *A,* Single-layer aquifer with a partially penetrating stream. *B,* Leaky-aquifer system with flow through a low-permeability confining layer from an underlying aquifer. *C,* Leaky-aquifer system with flow from an overlying confining layer (modified from Reeves and others, 2009). [Q_w is pumping rate at well]

Since the initial work of Theis and of Glover and Balmer, many additional solutions have been derived to represent more realistic field conditions. Glover (1974) presented a solution to compute streamflow depletion from a well pumping between a stream and a lateral impermeable boundary that is parallel to the stream. Such an approach would be needed to represent the well pumping between the stream and the impermeable edge of the valley shown in figure 40*A*. Other solutions have focused on incorporating the effects of field conditions such as are shown in figure 41.

Several authors have demonstrated that the assumptions that a stream is in perfect hydraulic connection with the aquifer and extends over the full thickness of the aquifer can lead to significant errors in the determination of the timing and rates of streamflow depletion (Spalding and Khaleel, 1991; Sophocleous and others, 1995; Conrad and Beljin, 1996). Hantush (1965) was the first to develop a solution that accounted for resistance to flow at the stream-aquifer boundary due to streambed materials having a lower hydraulic conductivity than the adjacent aquifer, although his solution was based on a conceptualization of a fully penetrating stream. Hunt (1999), Butler and others (2001), Fox and others (2002), and Singh (2003) later extended the work of Hantush to allow both streambed resistance and partial penetration of the stream into the aquifer (fig. 41*A*). Simulating the stream as partially penetrating the aquifer allows for the propagation of drawdown under the stream and resulting groundwater-storage changes on the side of the stream opposite to the well. An important assumption common to all of these approaches is that the groundwater level in the aquifer at the stream remains above the streambed, such that the stream does not become disconnected from the underlying aquifer.

Additional solutions have been developed to address flow conditions along the lower and upper boundaries of the aquifer. Zlotnik (2004), Butler and others (2007), and Zlotnik and Tartakovsky (2008) developed solutions for leaky-aquifer systems in which the pumped aquifer is underlain by a low-permeability confining layer that restricts flow between the pumped aquifer and an underlying high-permeability aquifer (fig. 41*B*). In a separate set of papers, Hunt (2003a, 2008) developed analytical solutions for the condition in which the affected stream is located within an overlying confining layer that provides a source of leakage to the underlying pumped aquifer during the early stages of withdrawal (fig. 41*C*). At equilibrium, however, streamflow depletion is the only source of water to the well.

Although much work has been done to extend the applicability of analytical solutions to conditions that are typically found in the field, these solutions remain unable to address many of the complicating factors that affect streamflow depletion by wells, such as aquifer heterogeneity (Sophocleous and others, 1995; Kollet and Zlotnik, 2003) and the presence of meandering streams that have multiple tributaries. Moreover, even solutions that have been developed to represent aquifers having a finite width (that is, aquifers bounded laterally by low-permeability materials such as shown in figure 40*A*) are difficult to apply because of irregular geometry of lateral boundaries. It is the authors' experience that these three factors—aquifer heterogeneity, multiple streams and (or) complex stream geometry, and finite-width aquifers with complex geometry—can have substantial effects on streamflow depletion that limit the use of analytical solutions for many practical applications, particularly basinwide analyses in which multiple wells pump simultaneously. For these conditions, numerical-modeling methods are needed.

Winding channel of the Washita River between Anadarko and Chickasha, Oklahoma.

Numerical Models of Streamflow Depletion by Wells

Difficulties in applying analytical approaches to streamflow-depletion problems in real-world settings are apparent in the diagram of a portion of a stream-aquifer system shown in figure 42. Analytical solutions assume a single straight stream, yet the system shown includes a stream and two tributaries, each with irregular geometry. Similarly, analytical solutions would not be able to account for effects of the irregular edges of the aquifer. When faced with these and other complexities, a numerical-modeling approach is needed for analysis of streamflow depletion. Numerical groundwater models are the most powerful tools for understanding streamflow depletion from groundwater pumping. Some of the more common complexities of real systems that require a numerical-modeling approach include

- Irregular geometry of lateral and vertical boundaries of aquifers.
- Irregular geometry of streams, rivers, and other surface-water features.
- Non-uniform (heterogeneous) aquifer properties.
- Complex, time-varying pumping schedules at multiple wells or well fields pumping within a basin.
- Nonlinearities, such as boundary conditions and aquifer properties that change with changes in groundwater levels.

Many of the examples in this report that illustrate various aspects of streamflow depletion are derived from groundwater models of actual stream-aquifer systems. Investigators in those studies chose a numerical-modeling approach, in part because of the complexities listed above.

Groundwater-flow models simulate movement of water from areas of recharge, through an aquifer or an aquifer system, to streams and other features where groundwater discharges. Any groundwater-model program can be used to

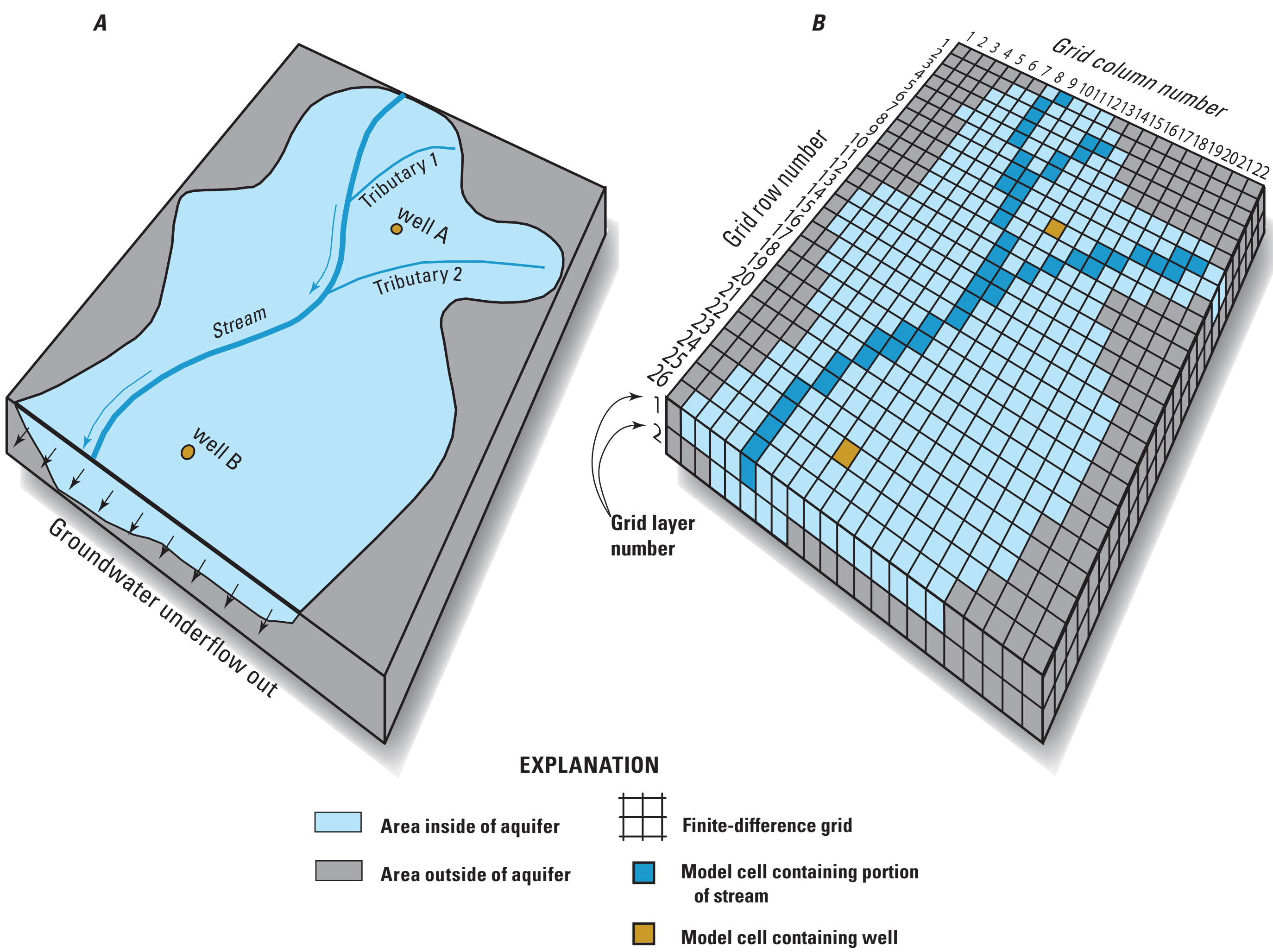


Figure 42. *A*, Part of a hypothetical stream-aquifer system. *B*, Representation of that system with a finite-difference model grid consisting of 26 rows, 22 columns, and 2 layers of rectangular finite-difference blocks.

simulate depletion, as long as the program carries out rigorous calculations of system water-balance components, including inflow to the aquifer, change in storage within the aquifer, and outflow from the aquifer. The discussion that follows will reference the USGS finite-difference groundwater-model program, MODFLOW (McDonald and Harbaugh, 1988; Harbaugh, 2005), which is used worldwide to simulate many aspects of groundwater flow, including streamflow depletion. This type of model uses a grid of rectangular or square blocks to represent an aquifer (fig. 42*B*). In this example, a portion of a valley-fill aquifer is represented using a finite-difference grid consisting of 26 rows and 22 columns of equally spaced model cells. Aquifer properties are represented as being constant in each grid cell, and locations of boundaries occur either at the center of the cell or along the edges of cells. Use of a regular grid of finite-difference cells leads to approximations of locations of features such as the edges of the aquifer, streams, and wells (fig. 42*B*); however, use of a finer finite-difference grid will allow more accurate representation of locations of these features. In this example, two layers of grid cells were used to represent the aquifer in the vertical dimension.

Steady-State Flow Models

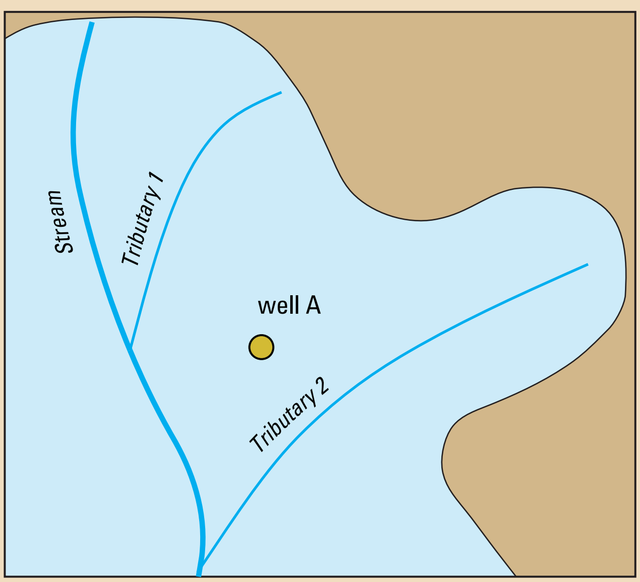
Steady-state groundwater models solve for head (groundwater levels) and flow components for the condition in which inflow rates balance outflow rates, and the rate of storage change in the aquifer is zero. As shown in the example in figure 42, inflow components might include recharge to the aquifer surface (not shown), lateral inflow from the rocks surrounding the aquifer, and flow from some stream segments to the aquifer. Outflow components would include groundwater underflow out of the model domain, flow from the aquifer to stream segments, and discharge by wells. Ultimate effects of pumping on streams (including tributaries) can be computed in three steps as follows:

Step 1. Run the model *without* pumping by a well or wells of interest and record model-computed flow rates to and from stream segments.

Step 2. Run the model *with* pumping by a well or wells of interest and record model-computed flow rates to and from stream segments.

Step 3. Subtract model-computed flow rates in step 2 from corresponding flow rates in step 1 to get net change in flow between the aquifer and streams.

If the pumping cannot increase recharge to the aquifer, or increase lateral inflow, or decrease underflow out, then the total change in flow to and from stream segments will equal the total pumping rate. This type of steady-state analysis cannot address the timing of depletion but is useful in understanding which features would ultimately be affected by the pumping (fig. 43).



Plan view of portion of aquifer around well A (fig. 42). In this example, well A is assumed to pump at a rate of 100 gallons per minute.

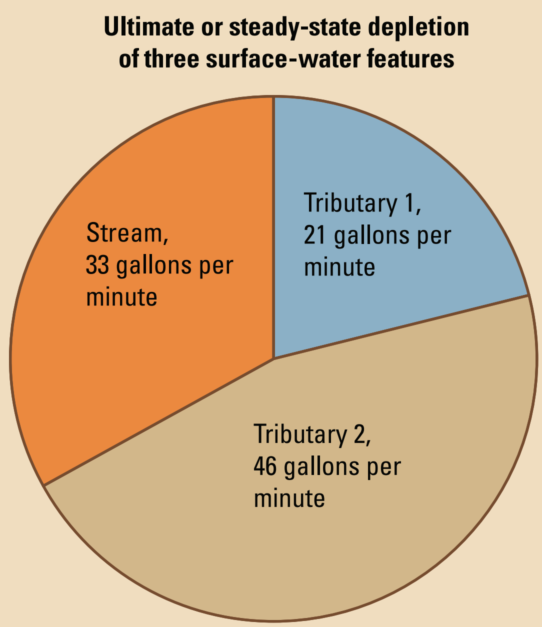
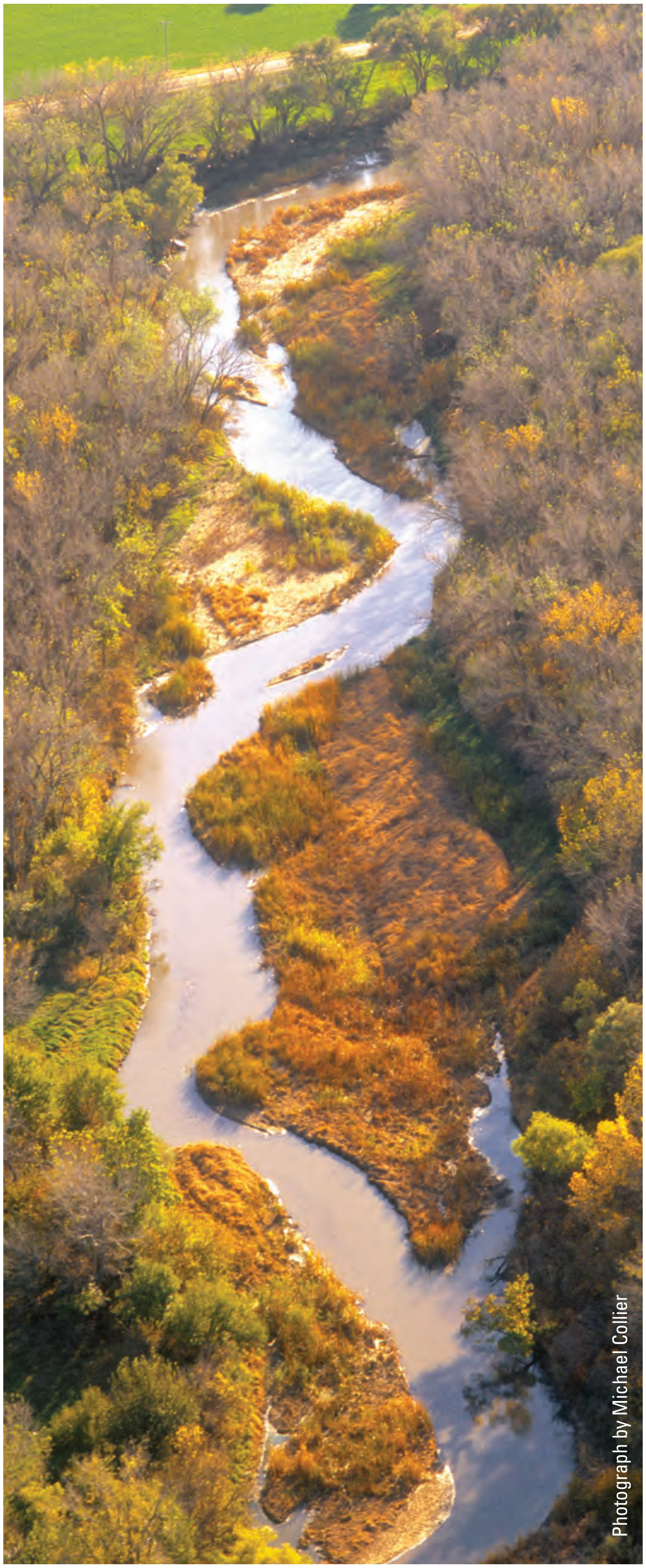


Figure 43. Possible ultimate rate of depletion of different surface-water features by pumping well A at a rate of 100 gallons per minute until steady-state conditions are reached.



Republican River below McCook, Nebraska. The Republican River Compact Administration groundwater model is used to assess groundwater consumptive use in Kansas, Colorado, and Nebraska *(http://www.ksda.gov/ interstate_water_issues/content/142)*.

Transient Flow Models

Transient groundwater models solve for head and flow components at discrete intervals of time, called "time steps." In these models, head may change with time and the rate of change in aquifer storage is a component in model water budgets. For the example in figure 42, inflow components to the aquifer would be recharge to the aquifer surface, lateral inflow from surrounding rocks, flow from some stream segments to the aquifer, and the rate that water is released from aquifer storage (the condition that happens when aquifer head declines). Outflow components would include groundwater underflow out of the model domain, flow from the aquifer to stream segments, discharge by wells, and the rate that water is going into aquifer storage (the condition that occurs when aquifer head rises). The latter condition of water going into storage would not occur as a result of pumping, but it is a possible condition in part of the model domain if other water-budget components are varying through time.

The procedure for computing depletion in transient models uses the same three steps outlined above for steady-state models except that these steps must be carried out for each time step for which depletion is to be calculated. For example, if a transient model uses 10 time steps to simulate 1 year of pumping, depletion at a pumping time of 1 year can be calculated by recording flow components at time step 10 in model runs with and without pumping, and computing differences in corresponding components.

Simulated Features that can be Affected by Groundwater Pumping

Although the focus of this report is streamflow depletion, many models simulate additional features including rivers, lakes, springs, wetlands, and evapotranspiration areas. Evaluation of total effects of pumping involves calculating pumping-induced changes in inflow to and outflow from the aquifer from all relevant features. As opposed to the term "streamflow depletion," total change in pumping-induced inflow to and outflow from the aquifer is referred to here as "capture." Table 2 lists select MODFLOW packages that can be used to simulate features from which capture may occur.

In the Upper San Pedro groundwater model (fig. 13), outflow to streams, springs, and riparian vegetation is simulated, respectively, with the Stream, Drain, and Evapotranspiration Packages. For any given pumping location, total capture may include reduced outflow to a combination of these features. For example, at the location of well C in figure 13, total capture consists mostly of streamflow depletion with some evapotranspiration capture and no capture of spring discharge (fig. 44). Numerical models, such as presented in this example, are the only approach to compute capture from different features in a real-world setting.

Table 2. Select MODFLOW packages for representing boundary conditions in which pumping may increase inflow to the aquifer or decrease outflow from the aquifer.

MODFLOW package	Common uses	Possible responses to pumping	Comments
Specified head (CHD)	Well-connected surface-water features	Increased inflow to aquifer, decreased outflow from aquifer	The package sets head in aquifer equal to head in connected surface-water feature
General-head flow (GHB)	Streams, rivers, other surface-water features	Increased inflow to aquifer, decreased outflow from aquifer	A linear boundary condition in which flow between boundary and aquifer is proportional to difference between boundary head and aquifer head
Stream (STR) or Streamflow Routing (SFR)	Streams, rivers	Increased inflow to aquifer, decreased outflow from aquifer	Can calculate stream stage, keeps track of flow in streams, streams may go dry
River (RIV)	Rivers, streams that do not go dry	Increased inflow to aquifer, decreased outflow from aquifer	River stage is specified at each location of cell with a river, seepage rate to aquifer becomes steady if groundwater level drops below bottom of stream-bed sediments
Drain (DRN)	Agricultural drains, springs	Decreased outflow from aquifer	Discharge to a simulated drain ceases if groundwater level drops below drain altitude
Lake (LAK)	Lakes	Increased inflow to aquifer, decreased outflow from aquifer	Can calculate lake stage, maintains mass balances of lakes, lakes may go dry
Evapotranspira-tion (EVT)	Groundwater evapotranspiration	Decreased outflow from aquifer	Evapotranspiration ceases if groundwater level drops below a specified level; evapotranspiration is constant with groundwater levels above another specified level

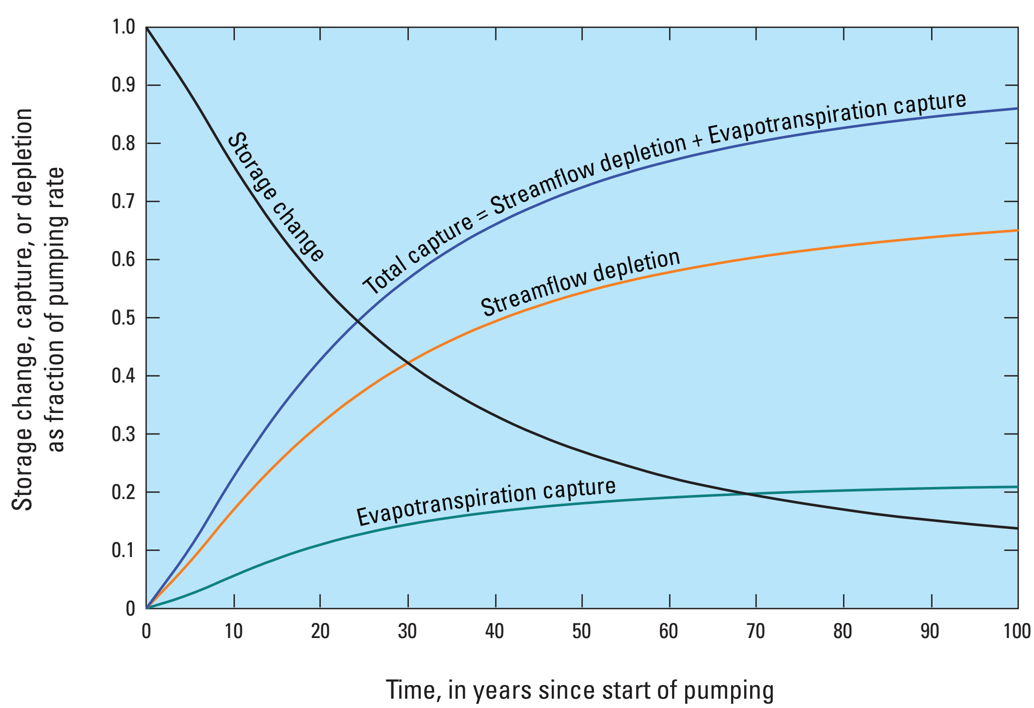


Figure 44. Model-computed streamflow depletion, evapotranspiration capture, and total capture for location of hypothetical well C (see figure 13) in the Upper San Pedro Basin, Arizona.

Photograph by Michael Collier

In addition to depleting streamflow, groundwater pumping can capture groundwater that otherwise would be used by plants (phreatophytes). Riparian trees, shown here, use shallow groundwater along the channel of the Mojave River in California.

Superposition Models

In the suite of methods available for computing depletion, superposition models are an intermediate approach between simple analytical solutions and complex calibrated groundwater-flow models. Unlike flow models, superposition groundwater models do not simulate natural movement of water through an aquifer. Instead of computing head and flow, these models directly compute *change* in head and *change* in flow from an added stress such as pumping. To compute streamflow depletion, the initial pre-pumping state of the superposition model is to have no flow between the stream and the aquifer. After addition of a pumping stress, computed flow from a boundary representing a stream is a direct calculation of total streamflow depletion. Because the natural flow system is not simulated, superposition models cannot determine if the depletion represents reduced groundwater discharge to the stream, increased flow of water from the stream to the aquifer (that is, induced infiltration), or a combination of these two components. Regardless, the streamflow depletion computed by a superposition model is a direct calculation of the reduced availability of surface water in the stream.

Application of the principle of superposition strictly applies to groundwater systems that respond linearly to stresses such as groundwater pumping (Reilly and others, 1987). Linearity of response means that changes from the added stress do not change the aquifer properties or configuration or function of the boundary conditions. Some examples of nonlinear responses include (1) drawdown that causes substantial changes in aquifer saturated thickness and corresponding changes in transmissivity, (2) drawing aquifer water levels below the base of a streambed so that the stream is no longer in direct hydraulic connection with the aquifer, (3) drawing water levels down below the evapotranspiration extinction depth so that evapotranspiration ceases, and (4) drying up a spring or reach of a stream. Many aquifer systems respond linearly to some range of lower stresses, and superposition can be applied in many mildly nonlinear systems (Reilly and others, 1987).

Leake and others (2005) used a superposition modeling approach to compute streamflow depletion from proposed pumping in the C aquifer in northern Arizona (figs. 17–19). In that model, both confined and unconfined areas of the aquifer and complex variations in aquifer thickness were represented. In contrast, Leake, Greer, and others (2008) computed possible depletion of the lower Colorado River using superposition models that were representative of aquifer material of uniform thickness and aquifer properties. In that application, vertical geometry and aquifer properties are treated simplistically as they would be in an analytical solution, yet all complexities of horizontal aquifer and river geometry are represented in greater detail than would be possible by an analytical solution. These types of superposition models can be constructed faster and at less expense than more complex numerical flow models and are useful in gaining an initial understanding of the possible timing of depletion. For details on how to set up a groundwater model to compute changes using superposition, see Reilly and others (1987). Durbin and others (2008) present methods of representing nonlinear boundaries in superposition models.

Simulating the Effects of Other Boundary Conditions on Streamflow Depletion

In addition to boundary conditions representing surface-water features and evapotranspiration (table 2), models can simulate the effects of no-flow or specified-flow boundaries at appropriate locations. For example, the area outside of the aquifer depicted in figure 42 may be crystalline rocks of low permeability. If interchange of water between these rocks and the aquifer is insignificant, the lateral edges of the aquifer shown in the figure could be represented as a no-flow boundary. Alternately, if some mountain-block recharge to the aquifer occurs through these rocks, the interface could be represented as a specified-flow boundary. Whether this boundary is represented as no flow or specified flow, the presence of impermeable or low-permeability rocks tends to speed up the timing of streamflow depletion because drawdown and storage change from pumping cannot extend beyond the boundary.

Ideally, all model boundaries should represent physical features such as the edge of the aquifer or a surface-water boundary. In some cases, it is impractical to construct a model that extends to all physical boundaries. In the example shown in figure 42, the area of interest may be around wells A and B, but the aquifer may extend a great distance down the valley from this area. Using the model domain shown in figure 42, an “artificial” boundary must be implemented to represent flow out of the model domain along model row 26, columns 2–17 in layer 1 and columns 4–8 in layer 2. Options for representing artificial boundaries at this location include (1) specified flow—that is, estimated downvalley flow is input for each boundary cell and the model will compute head at these cells, (2) specified head—that is, head is set to the estimated water level for each boundary cell, and the model will compute flow into or out of the model domain at each of these cells, and (3) head-dependent flow—a boundary head and “conductance” value are specified at each boundary cell so that computed flow into or out of the model varies with changes in head in the connected model cells. No matter which boundary type is selected, proximity of artificial boundaries to pumping wells is a potential problem in calculations of depletion. In figure 42, an artificial boundary along row 26 is distant from well A. Furthermore, well A is surrounded by surface-water boundaries and the natural boundary of the edge of the aquifer. Placement of an artificial boundary in model row 26 is not likely to affect calculations of depletion by pumping well A. In contrast, well B is as close to the artificial boundary as it is to the surface-water boundary. A constant-head artificial boundary along row 26 likely will result in an underestimation of depletion by well B for any given time. In contrast, a specified-flow (including no-flow) artificial boundary at that location would result in an overestimation of the progression of depletion by well B. To calculate depletion for well B, the model should be extended enough distance downstream so that the drawdown from this well does not reach the artificial downstream boundary.

In some aquifers, groundwater divides that approximately underlie watershed boundaries define the extent of a subunit of the aquifer beneath the watershed. If interest is in modeling groundwater processes in the particular watershed, a common practice is to represent the bounding groundwater divides as no-flow boundaries. Under flow conditions that are steady, the groundwater divides are in fact no-flow boundaries because there is no movement of groundwater across the divides. A possible result of added pumping in the watershed, however, is that groundwater divides will be moved outward into adjacent watersheds. Divides that are represented as no-flow boundaries that are fixed in space may result in computed rates of streamflow depletion that occur faster than would be computed using a representation of divides that can move in response to pumping. If drawdown from pumping can propagate to groundwater divides, the best approach is to make the domain of the model large enough so that model boundaries are not on the groundwater divides adjacent to the pumping locations. In the example shown in figure 45, pumping locations A and B are both in watershed 1. Pumping location B is close to the stream segments in watershed 1, and drawdown from pumping at this location probably would not reach the boundaries of the watershed. In this case, a model that includes only the portion of the aquifer underlying watershed 1 may be a reasonable approach to simulating depletion from pumping at location B. In contrast, location A is closer to the watershed boundary than it is to stream segments in watershed 1. Pumping at location A likely would deplete surface water in stream segments in watersheds 1, 2, 3, and 4. Use of a model that includes only watershed 1 for this pumping location would force some of the drawdown, storage change, and depletion that should occur in adjacent watersheds to occur only in watershed 1. The result is an overestimation of depletion in watershed 1 and an underestimation of depletion in adjacent watersheds 2, 3, and 4. To effectively simulate depletion from pumping at location A, the model must include the part of the aquifer underlying watersheds 1, 2, 3, and 4.

Response Functions and Capture Maps

Two important uses of analytical and numerical models are to generate streamflow-depletion response functions and capture maps (which are a type of response function). Response functions characterize the unique functional relation between pumping at a particular location in an aquifer and the resulting depletion in a nearby stream and provide hydrologists and water-resource managers with insight into how a particular stream or stream reach will respond to pumping at a particular well. Although response functions have been defined and used in different ways (and referred to by different names), all response functions have the common characteristic that they represent a change in streamflow that results from a change in pumping rate at a single well, independently of other pumping or recharge stresses that may be occurring simultaneously within the aquifer[1]. As demonstrated by the many examples provided in this report, the response function for a particular well and streamflow-location pair reflects the combined effects of several factors, including the distance of the well from the stream, the geometry of the aquifer system and stream network, the hydraulic properties of the aquifer and streambed materials, and the vertical depth of pumping from the aquifer.

Theoretically, response functions could be determined by monitoring changes in streamflow that result from pumping at a particular well, but this approach is often not technically feasible because of difficulty in separating depletion changes from streamflow responses to other changes, such as those driven by climate. In practice, response functions are determined by using analytical or numerical models. Model-simulated response functions are shown as either the rate or volume of streamflow depletion that occurs in response to pumping at a particular rate or, alternatively, as dimensionless fractions of the pumping rate or total volume of withdrawal at a well, as described in Box B. Reporting response functions as dimensionless quantities is particularly useful when streamflow depletion responds linearly to pumping, because the dimensionless quantities are constants whose values are independent of the particular pumping rate used for their calculation. For example, if the dimensionless response function were 0.5 for a time and location of interest, the rate of streamflow depletion would be 0.5 Mgal/d for a pumping rate of 1.0 Mgal/d, and 2.0 Mgal/d for a pumping rate of 4.0 Mgal/d. As described previously, a stream-aquifer system is linear if (1) the transmissivity of the aquifer does not change as the pumping rates of the wells change and (2) the rate of flow at

[1]Some examples of the application of response functions to stream-aquifer systems include those described by Maddock (1974), Morel-Seytoux and Daly (1975), Morel-Seytoux (1975), Illangasekare and Morel-Seytoux (1982), Danskin and Gorelick (1985), Maddock and Lacher (1991), Reichard (1995), Male and Mueller (1992), Mueller and Male (1993), Fredericks and others (1998), Barlow and others (2003), Cosgrove and Johnson (2004, 2005), and Ahlfeld and Hoque (2008). Although this report focuses on streamflow-depletion response functions, it should be noted that response functions also can be generated for other types of variables that describe the state of a groundwater system, such as groundwater-level declines, groundwater velocities, and aquifer-storage changes (see, for example, Maddock and Lacher, 1991; Gorelick and others, 1993; Ahlfeld and Mulligan, 2000; and Ahlfeld and others, 2005 and 2011).

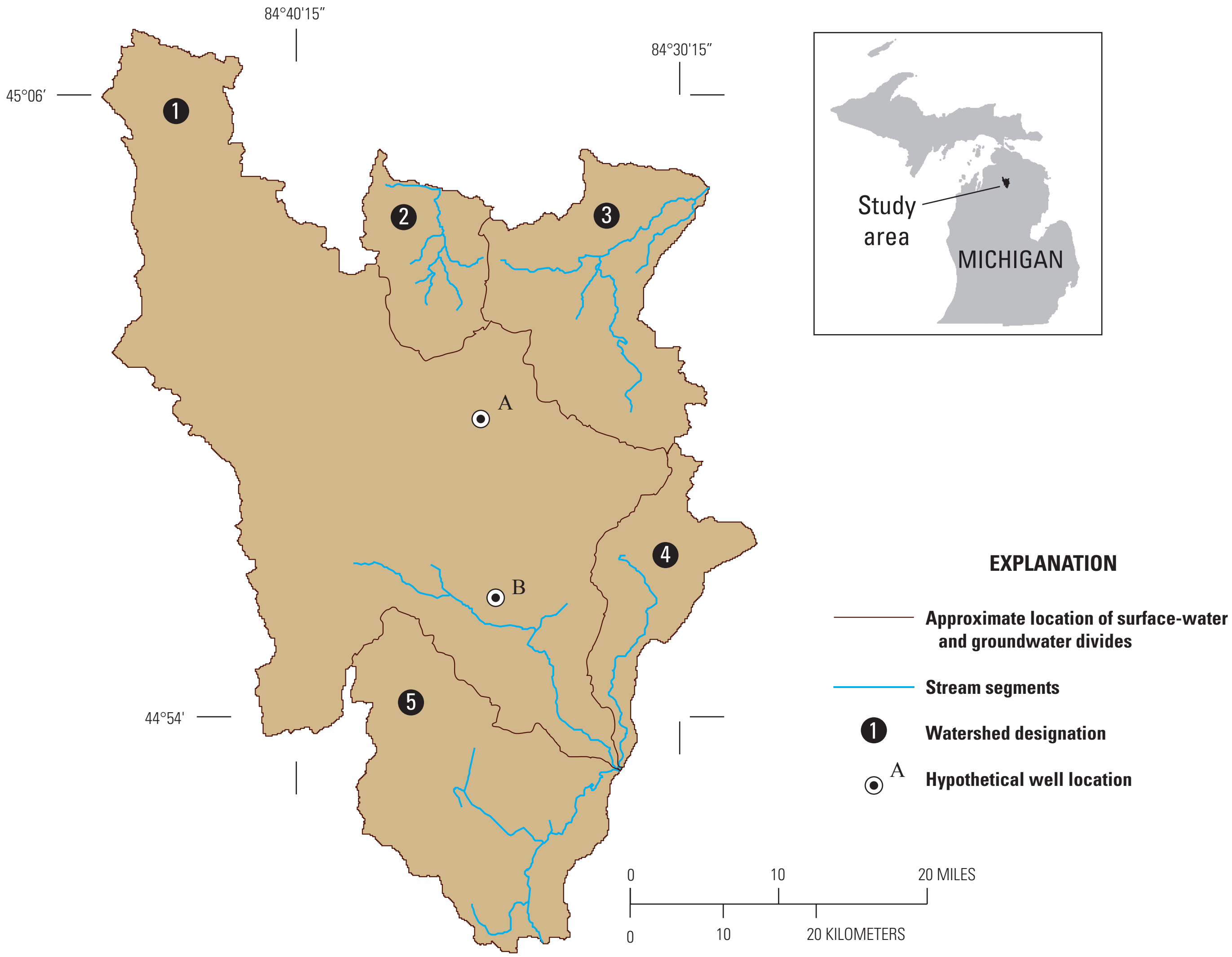


Figure 45. Five adjacent watersheds in north-central Michigan overlying a groundwater system. Pumping locations A and B are both within watershed 1, but construction of a model to compute depletion for a well at location A will require inclusion of some adjacent watersheds in the model domain (modified from Reeves and others, 2009).

the stream-aquifer boundary is a linear function of the groundwater level near the stream.

Response functions that characterize total depletion of all streams (and sometimes other features) within a basin are referred to here as "global response functions." Conversely, response functions that characterize depletion in a particular stream or segment of a stream are referred to as "local response functions." Furthermore, "transient response functions" characterize depletion through time until some maximum time interval and "steady-state response functions" characterize ultimate depletion without regard to the time required to reach that state. Some key points relating to these types of response functions are as follows:

1. Transient response functions for each pumping location are defined by a number of values through time.

2. Global transient response functions expressed as a fraction of pumping rate will start at zero at the onset of pumping and will trend toward a maximum value of 1.0, as shown by the curve in figure B–1*B* in Box B.

3. Local transient response functions may trend toward a value less than 1.0 if the pumping causes depletion in locations in addition to the stream or segment of interest.

4. Steady-state response functions are a single value for each pumping location.

5. Global steady-state response functions are equal to 1.0, assuming that streams are the ultimate source of pumped water.

6. The sum of local steady-state response functions for all stream segments affected by a pumped well is equal to 1.0.

Concepts relating to global and local, transient and steady-state response functions are further illustrated by the two maps in figure 46. Dimensionless response-function values are shown in figure 46*A* for three wells in the watershed after 10 years of pumping. The stream location for which the response coefficients were determined is the outflow point from the basin. For this hypothetical aquifer, the response-function value for well A is largest because the well is closer to the stream network than the other two wells; the value for well C is smallest because it is furthest from the stream network. Figure 46*B* illustrates steady-state local response-function values for one of the tributaries to the main stem (stream segment 1). In this example, the system has reached steady-state conditions, and streamflow depletion is the only source of water to the wells. Each response-function value shown in figure 46*B* represents the change in streamflow at the point just upstream from the confluence of the tributary with the main stem in response to pumping at each of the three wells. The response-function value is largest for well A because it is adjacent to the tributary, whereas the response-function value for well B is lowest because it captures most of its discharge from the main stem (stream segments 3 and 5) and very little discharge from the tributary denoted as stream segment 1.

An alternative approach to calculating response functions for only a few locations is to show maps of the spatial distribution of values of response functions for large regions of an aquifer. Response-function maps are particularly useful for illustrating the effects of pumping location on streamflow depletion within a large set of possible pumping locations within an aquifer (Leake and others, 2010). One approach has been to show values of the global transient response function for a particular pumping time, such as 10 years (for examples, see Leake, Pool, and Leenhouts, 2008; and Leake and Pool, 2010). Such maps, referred to as “capture maps,” provide water-resource managers with a visual tool that can be used to determine the effects of pumping at specific locations on total streamflow depletion. Using values from local transient or steady-state response functions, capture maps also can be created to illustrate effects of pumping location on specific streams or stream segments (Cosgrove and Johnson, 2005; Leake and others, 2010). The goal of any of these types of capture maps is to help convey an understanding of the effects of well placement on depletion in areas of interest and to provide a possible tool for use in siting new wells or recharge facilities.

The procedure for making response-function or capture maps requires use of a well-constructed groundwater model. The model must include streams and other appropriate features as head-dependent boundaries, and any boundaries that do not represent actual physical features must be at distances such that they do not affect calculated depletion. For details on constructing these maps, see Leake and others (2010).

Example capture maps showing global transient response functions for the Upper San Pedro Basin (Leake, Pool, and Leenhouts, 2008) are shown in figure 47. The mapped area is the extent of the lower basin-fill aquifer, represented as layer 4 of the groundwater model by Pool and Dickinson (2007). Global response in this case is mostly from changes to streamflow in the San Pedro and Babocomari Rivers, but also includes minor components of reductions in groundwater evapotranspiration and in springflow (that is, groundwater discharge to springs). For the times shown, 10 years (fig. 47*A*) and 50 years (fig. 47*B*), pumping in the area shaded in the darkest blue indicates that depletion would be between 0 and 10 percent (a fraction from 0 to 0.1) of the pumping rate for that time. Similarly, depletion from pumping in the darkest red area on each map indicates depletion would be between 90 and 100 percent (a fraction from 0.9 to 1.0) of the pumping rate for that time. As would be expected, the general pattern is that depletion from pumping nearer the rivers is greater than from pumping at more distant locations for either time shown; however, amounts of depletion vary along the streams. Leake, Pool, and Leenhouts (2008) attribute the complexities in the patterns shown to spatial variations in aquifer geometry and aquifer properties. A low-permeability clay layer that exists between some pumping locations and connected streams may

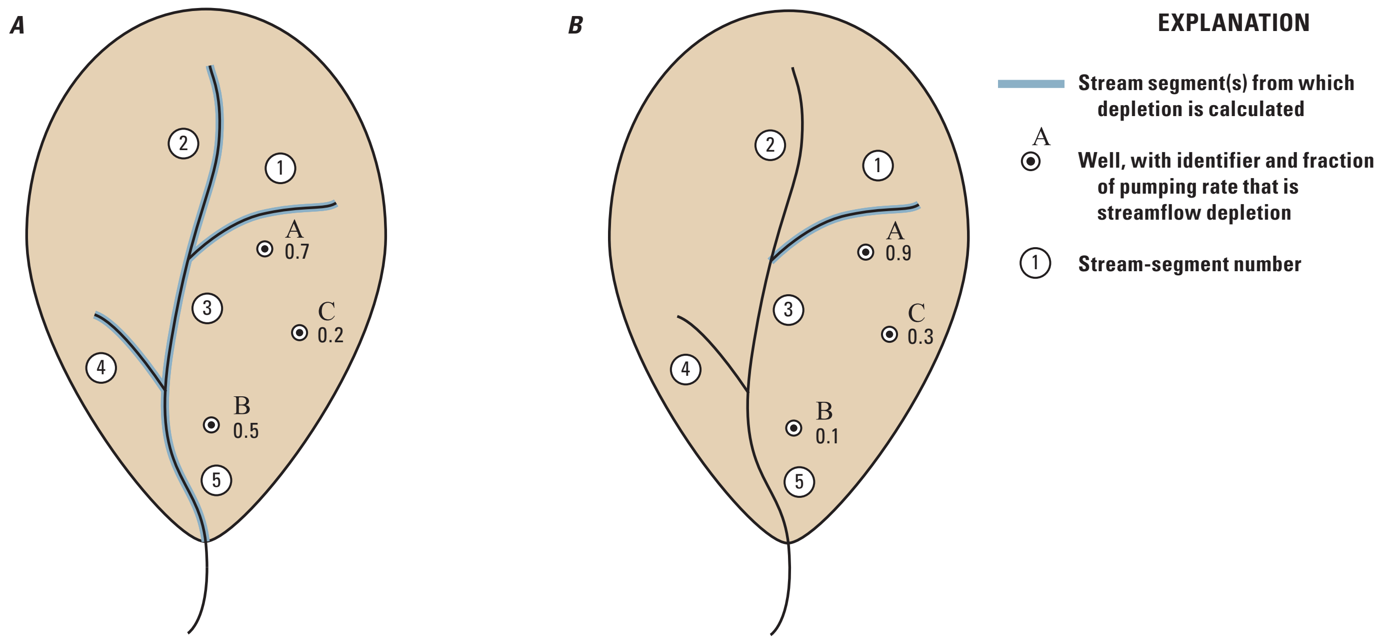


Figure 46. *A*, Diagram of transient response functions for the outflow point of the basin after 10 years of pumping. *B*, Diagram of steady-state response functions for a tributary stream to the main stem (modified from Leake and others, 2010).

contribute to complexity in the patterns shown. Comparison of the 10-year and 50-year capture maps indicates the progression of depletion through time, with substantially more areas of yellow, orange, and red colors in the 50-year map than in the 10-year map. Because these maps show global response, maps for increased pumping time would be more red, and if pumping time was such that a new steady-state condition would be reached for any pumping location, the map would be solid red.

Other examples of maps to understand depletion as a function of pumping location include mapping of stream-depletion factors by Jenkins and Taylor (1974) and Burns (1983). COHYST Technical Committee (2004), Peterson and others (2008), and Stanton and others (2010) used numerical models to map lines of equal depletion as a fraction of volume pumped at specific times for locations in Nebraska. Some authors have used response-function maps to group wells (or regions of an aquifer) having similar effects on specific stream reaches into aquifer response zones. Examples of this approach are provided for the Eastern Snake River Plain aquifer in Idaho by Hubbell and others (1997) and Cosgrove and Johnson (2004 and 2005).

In addition to mapping responses for a specific time, it is also possible to construct maps showing the time it would take to reach a particular depletion level of interest. For example, depletion-dominated supply of pumped water (fig. 9) occurs when depletion exceeds half of the pumping rate. Figure 48 shows the time it would take to reach depletion-dominated supply of pumping from the lower basin-fill aquifer in the Upper San Pedro Valley. For most areas adjacent to the Babocomari and San Pedro Rivers, depletion-dominated supply is reached within 20 years of pumping, but in the southern extent of the aquifer and in places along the east and west margins of the aquifer, depletion-dominated supply would not be reached within 100 years (fig. 48).

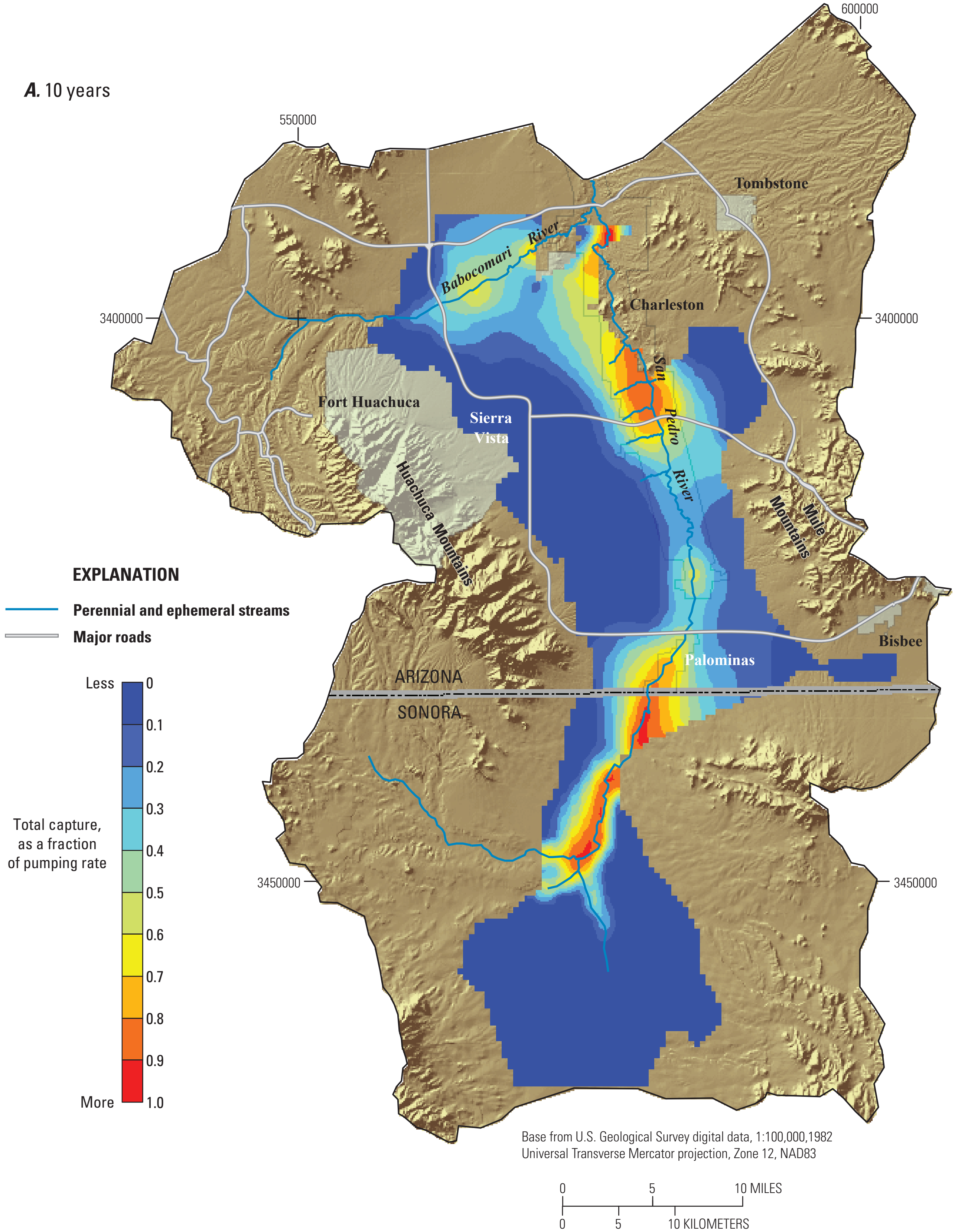


Figure 47. Computed capture of streamflow, riparian evapotranspiration, and springflow that would result for withdrawal of water at a constant rate for, *A,* 10 years and, *B,* 50 years from the lower basin-fill aquifer in the upper San Pedro Basin, Arizona. The color at any location represents the fraction of the withdrawal rate by a well at that location that can be accounted for as changes in outflow from and (or) inflow to the aquifer for model boundaries representing streams, riparian vegetation, and springs (from Leake, Pool, and Leenhouts, 2008).

B. 50 years

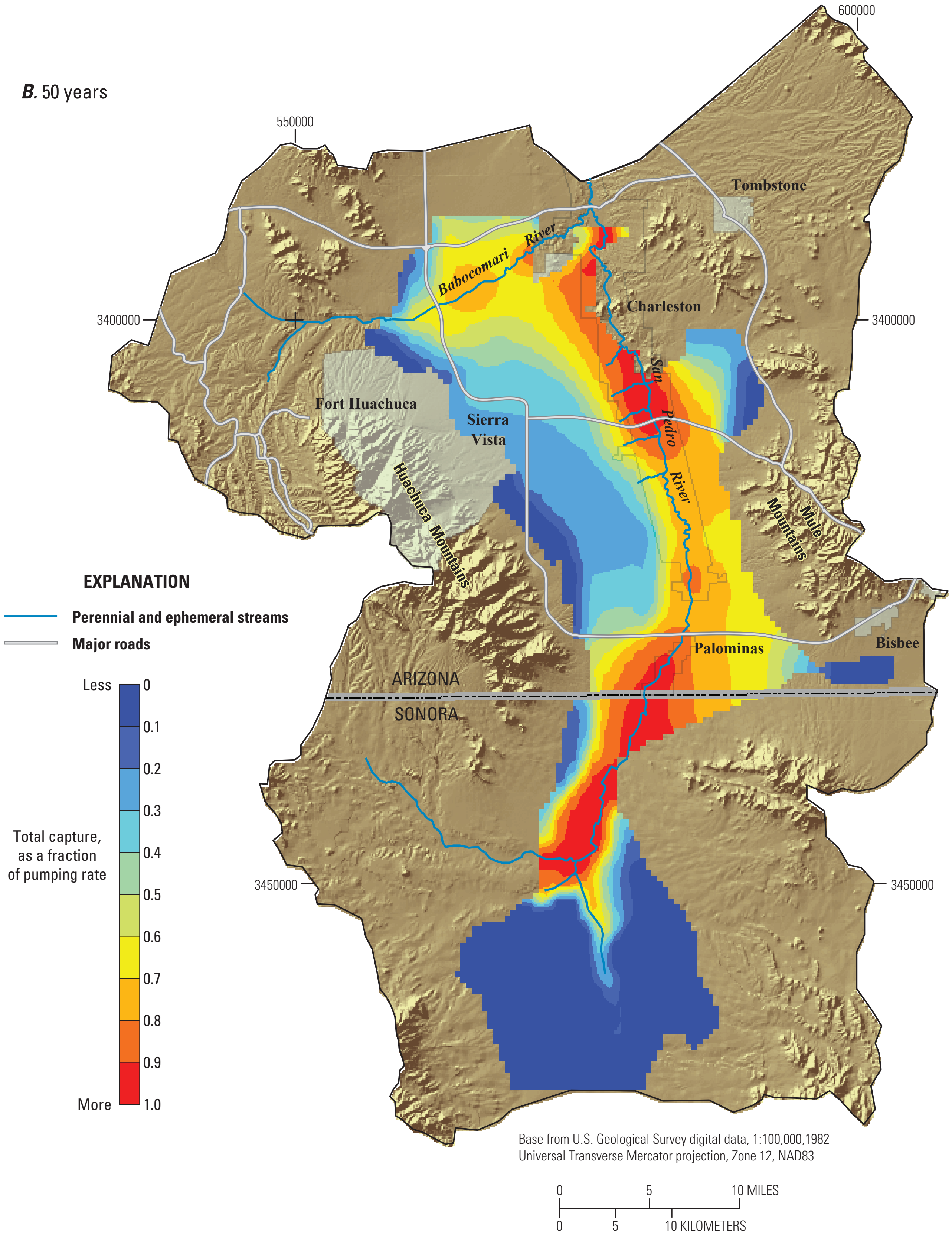


Figure 47. Continued.

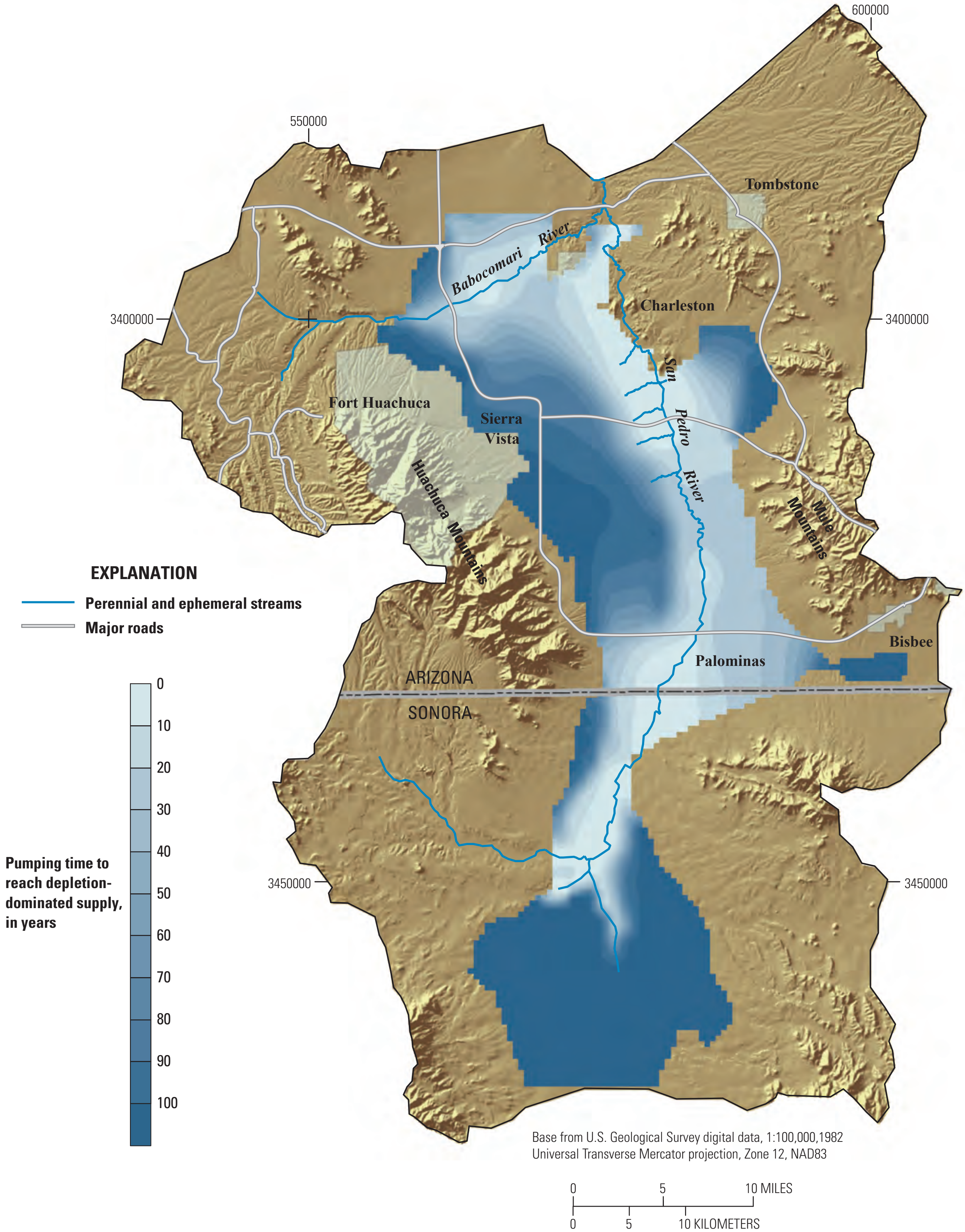


Figure 48. Computed time to reach a depletion-dominated supply of pumped water for the lower basin-fill aquifer in the Upper San Pedro Basin, Arizona, when streamflow depletion exceeds half of the pumping rate.

Management of Streamflow Depletion

Managing the effects of streamflow depletion by wells is one of the most common and often one of the most challenging aspects of conjunctively managing groundwater and surface-water systems. The effect of a groundwater withdrawal on the timing, rates (or volumes), and locations of streamflow depletions is substantially different from those caused by a surface-water withdrawal, which has an immediate effect on the rate of streamflow at the point of withdrawal. As demonstrated throughout this report, there can be a significant delay between when a well begins to pump and when the impacts of that pumping are realized in nearby streams. These delays can range from days to decades, and in some cases the full impact of pumping may not be realized within a period of time that is meaningful for practical management of a water-supply system. Moreover, unless the pumping site is located very close to the stream, streamflow will not recover immediately after pumping stops because of the residual pumping effects on streamflow depletion. As a result, in many hydrogeologic settings management of pumping rates in response to short-term fluctuations in streamflow conditions such as might be desired during periods of low streamflow or drought is unlikely to have an immediate impact on streamflow (Jenkins, 1968a; Bredehoeft, 2011a).

Other factors, such as determining the locations of streamflow depletions, also complicate management strategies. Streamflow reductions caused by pumping occur both upstream and downstream from the point of withdrawal, and may be distributed among more than one stream; the exact locations of these reductions may not be easily defined without extensive field investigations or modeling studies. Also, many aquifers are tapped by large numbers of wells, and it may not be possible to accurately determine the history of groundwater pumping at each well. It is the sum total of streamflow effects caused by pumping from many wells that need to be managed. A related issue is that an individual well may not produce depletion that is measurable. This is particularly true for large rivers. Finally, aquifers are hidden from view, and even extensive field programs may not be able to define the hydrogeology of a groundwater system in sufficient detail to accurately define the timing of streamflow depletion from an individual well.

In spite of these challenges, water-resource managers often want to understand how pumping rates and pumping schedules might be managed to control the effects of pumping on streamflow depletion. Doing so requires both a long-term perspective (Bredehoeft, 2011a) and an understanding of how streamflow responds to pumping at each well individually and at all wells simultaneously. Several examples of the types of analyses that can be done to determine long-term impacts have been illustrated in this report, such as the generation of response functions and capture maps by use of numerical models. Simulations of specific time-varying and cyclic pumping schedules at individual wells also are useful to determine how aquifer properties and well distance may affect the timing and variability of streamflow depletion, such as demonstrated for three irrigation wells pumping at various distances from a stream (fig. 21).

An example of some of the issues involved in managing streamflow depletion is illustrated for a typical water-resource management problem, which is to determine pumping schedules that meet water-supply demands while simultaneously meeting minimum streamflow requirements at specific stream locations and for specific periods of time. For this example, an evaluation is made of a single, hypothetical stream that is in hydraulic connection with an aquifer that is pumped from June through August to supply water for irrigation. In the absence of pumping, the annual pattern of streamflow for the hypothetical system ranges from a maximum of 55.0 ft^3/s in early spring (March 31) to a minimum of 40.5 ft^3/s in early fall (September 30) (fig. 49). Water managers have determined that a minimum streamflow requirement of 35 ft^3/s is to be maintained throughout the year to meet instream flow needs. Irrigators want to pump 6 Mgal/d (9.3 ft^3/s) from the aquifer from two possible well sites to meet their irrigation requirements. The management problem is to determine whether or not pumping rates can be determined for the two wells to simultaneously meet the irrigation demands and instreamflow requirements.

Because of the simplicity of the physical system, the Glover analytical model is used to determine streamflow depletion caused by different combinations of pumping rates at each well (fig. 49). The first well (A) is located 300 ft from the stream and the second well (B), 1,000 ft from the stream. Three of the many possible combinations of pumping rates at the two wells to meet the irrigation demand are shown in figure 49. When the well closest to the stream is pumped at the full 6 Mgal/d, the minimum streamflow requirement is not met for a short period of time at the end of each pumping cycle (late August into early September). However, when the pumping rate at this well is reduced to 3 Mgal/d and the remaining 3 Mgal/d of the demand is supplied by pumping at the well furthest from the stream, the maximum rate of depletion is reduced and the minimum streamflow requirement is met. The maximum rate of depletion is further reduced as the proportion of pumping from well B increases, with the smallest effect occurring for the case in which all of the withdrawal is from well B. The results shown for this simple stream-aquifer system reflect differences in the underlying streamflow response functions for each well, which in this case result from differences in the distance of each well from the stream.

This simple example demonstrates how pumping rates might be managed to control the timing of streamflow depletion by taking advantage of the variability in streamflow responses to pumping at different wells. For a water-supply system with just a few wells and a single stream location of interest, alternative pumping rates can be tested relatively easily to determine if pumping schedules can be found that simultaneously meet water-supply demands and minimum instreamflow requirements. A trial-and-error testing approach such as this becomes impractical however for a typical hydrogeologic

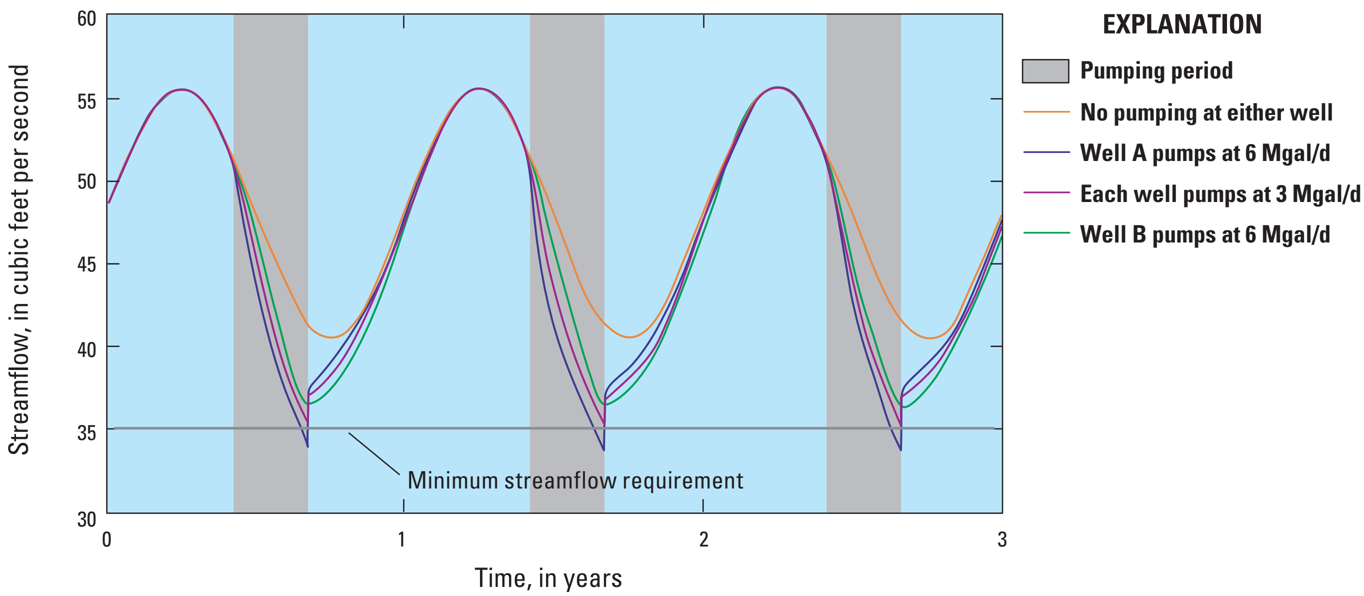


Figure 49. Streamflow for a hypothetical stream-aquifer system for different pumping conditions. Hydraulic diffusivity of aquifer is 10,000 feet squared per day. Wells are located 300 feet (well A) and 1,000 feet (well B) from the stream. [Rates of streamflow depletion were calculated by using a computer program described in Reeves (2008), which includes the Glover analytical model. The calculated depletion rates were then subtracted from the streamflow hydrograph without pumping (top curve on the figure) to determine the resulting decreased rates of streamflow. Mgal/d, million gallons per day]

setting in which there are multiple pumping wells and multiple streams for which minimum streamflow requirements have been established. For complex settings such as these, a technique called simulation-optimization modeling might be used. In this approach, a numerical simulation model (or, less often, an analytical model) is combined with a mathematical optimization technique to identify pumping schedules that best meet management objectives and constraints. The simulation model accounts for the physical behavior of the stream-aquifer system, whereas the optimization model accounts for the management aspects of the problem. Examples of the use of simulation-optimization modeling for management of streamflow depletion by wells include those described by Young and Bredehoeft (1972), Maddock (1974), Morel-Seytoux and Daly (1975), Morel-Seytoux (1975), Illangasekare and Morel-Seytoux (1982), Bredehoeft and Young (1983), Peralta and others (1988), Matsukawa and others (1992), Male and Mueller (1992), Mueller and Male (1993), Basagaoglu and Marino (1999), Barlow and others (2003), Ahlfeld and Hoque (2008), and Stanton and others (2010). The technique is described in detail by Gorelick and others (1993) and Ahlfeld and Mulligan (2000) and has been implemented for use with some of the widely available groundwater models (for example, the Groundwater-Management Process developed for MODFLOW by Ahlfeld and others, 2005).

An example of the use of simulation-optimization modeling to determine long-term average pumping schedules that meet groundwater-development goals and minimum streamflow requirements is provided by the results of a study for the Big River Basin of Rhode Island by Granato and Barlow (2005). Minimum streamflow requirements that are protective of aquatic habitats are often not well defined, and, as a result, water-resource and environmental agencies commonly evaluate the effects of alternative streamflow standards on groundwater-development options before implementing a particular regulatory standard. This was the case for the Big River Basin when, at the time of the study, State water-resource and environmental-management agencies were considering more than a dozen alternative minimum streamflow standards for implementation.

A numerical model developed to simulate groundwater flow and groundwater/surface-water interactions within the basin was linked with an optimization model that represented management goals and constraints. The management object was to determine the maximum amount of groundwater that could be pumped from more than a dozen wells in the basin. The maximum rate of withdrawal was limited, however, by constraints placed on the minimum amount of streamflow required at four streamflow locations. Each of the proposed minimum streamflow standards was defined in terms of the minimum streamflow required at each streamflow site per square mile of drainage area to each site. For example, for a defined standard of 0.5 cubic foot per second per square mile [$(ft^3/s)/mi^2$], the minimum flow required at a stream location having a 30 mi^2 drainage area would be 15 ft^3/s.

The combined simulation-optimization model was run several times to determine a range of optimal withdrawal rates for alternative definitions of the minimum streamflow standard at the four stream sites. Not surprisingly, the results of the simulation-optimization model indicated that as the minimum streamflow standard was increased, the total amount of pumping within the basin that would be possible decreased (fig. 50). Graphs such as the one shown in figure 50 are often referred to as trade-off curves, because they illustrate the trade-offs that decision makers must consider between minimum streamflow standards and maximum rates of groundwater development. For example, point A on the graph corresponds to a minimum streamflow standard of 0.5 $(ft^3/s)/mi^2$ at each of the four stream sites. For this proposed standard, an average annual pumping rate of 12 Mgal/d from the basin would be possible. Although the overall results of the study could be anticipated without a model—that is, that groundwater development would decrease as the streamflow standard was increased—the specific rates of pumping at each of the wells, and therefore from the basin as a whole, could not. The shape of the curve in figure 50 reflects the unique hydrogeologic and hydrologic conditions within the basin and the distribution of the pumping wells relative to the locations of the streamflow constraint sites.

Both of the examples described in this section and illustrated in figures 49 and 50 were related to managing groundwater withdrawals to meet specified rates of minimum streamflow. However, a number of studies have demonstrated the utility of artificial-recharge strategies at injection wells or artificial-recharge basins to increase streamflow or to offset the effects of withdrawals, such as was illustrated in figure 26. Additional examples of the use of artificial recharge to augment streamflow are provided in the studies by Burns (1984), Bredehoeft and Kendy (2008), and Barber and others (2009).

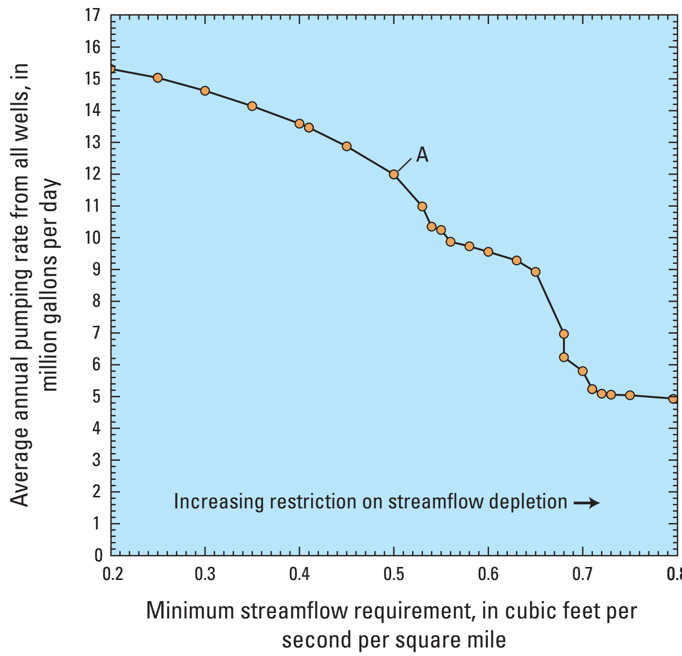


Figure 50. Example application of simulation-optimization modeling to determine trade-offs between minimum streamflow requirements and maximum groundwater pumping rates, Big River Basin, Rhode Island (modified from Granato and Barlow, 2005).

Photograph by Robert F. Breault, U.S. Geological Survey

Lateral-move irrigation system used on turf farms, Pawcatuck River Basin, Rhode Island. Concerns about the effects of groundwater and surface-water withdrawals on aquatic habitat in the basin prompted local, State, and Federal agencies to explore water-management strategies that minimize the effects of withdrawals on aquatic habitat (Breault and others, 2009).

Conclusions

Understanding and managing streamflow depletion is a major challenge in regulation and management of groundwater use in coupled groundwater/surface-water systems. Scientific research in conjunction with practical applications of this research to real-world field settings over the past seven decades have made important contributions to the understanding of the processes and factors that affect the timing, locations, and rates of streamflow depletion, and for evaluating alternative approaches for managing depletion. The following primary conclusions can be drawn from this research and the many field applications:

Sources of water to a well: The sources of water to a well are reductions in aquifer storage, increases in the rates of recharge (inflow) to an aquifer, and decreases in the rates of discharge (outflow) from an aquifer. The latter two components are referred to as capture. In many groundwater systems, the primary components of capture are groundwater that would otherwise have discharged to a connected stream or river in the absence of pumping (referred to as captured groundwater discharge) and streamflow drawn into an aquifer because of the pumping (induced infiltration of streamflow).

Components of streamflow depletion: Both captured groundwater discharge and induced infiltration of streamflow result in reductions in the total rate of streamflow. Streamflow depletion, therefore, is the sum of captured groundwater discharge and induced infiltration. Captured groundwater discharge is often the primary component of streamflow depletion, but if pumping rates are relatively large or the locations of withdrawal relatively close to a stream, then induced infiltration may become an important component of streamflow depletion.

Time response of streamflow depletion: Reductions in aquifer storage are the primary source of water to a well during the early stages of pumping. The contribution of water from storage decreases and the contribution from streamflow depletion increases with time as the hydraulic stress caused by pumping expands outward away from the well and reaches one or more areas of the aquifer from which water can be captured. At some point in time, streamflow depletion will be the dominant source of water to the well (that is, more than 50 percent of the discharge from the well) and after an extended period of time may become the only source of water to the well. The time at which streamflow depletion is the only source of water to a well is referred to as the time to full capture.

Factors that affect streamflow depletion: Many factors affect the timing of the response of streamflow depletion to pumping at a particular well. These include the geologic structure, dimensions, and hydraulic properties of the groundwater system; the locations and hydrologic conditions along the boundaries of the groundwater system, including the streams and streambed hydraulic properties; the horizontal and vertical distances of wells from the streams; and pumping schedules at the wells. In a system with predominantly horizontal groundwater flow, well distance and the hydraulic diffusivity of the aquifer are two of the most important factors. Streamflow depletion will occur more rapidly for a well pumping relatively close to a stream from an aquifer having a relatively high value of hydraulic diffusivity and less rapidly for a well pumping far from a stream from an aquifer having a relatively low value of hydraulic diffusivity. In settings in which vertical groundwater-flow components are important, distributions of vertical and horizontal hydraulic conductivity, specific storage, specific yield, and aquifer thickness, in addition to well distance from the stream, are the key properties that control the timing of depletion. Aquifer extent is also an important variable. The time to full capture for wells pumping from narrow river-valley aquifers that are bounded at their margins by relatively impermeable materials can be short (days to years), whereas the time to full capture for wells pumping from regionally extensive aquifer systems can be quite long (years to centuries).

Effects of confining layers on depletion: Various geologic features that act as conduits or barriers to groundwater flow can affect the timing of streamflow depletion from groundwater pumping and also can affect which streams are affected by the pumping. Horizontal or nearly horizontal beds of clay, silt, or other geologic materials that are of substantially lower hydraulic conductivity than adjacent aquifer material may be laterally discontinuous or form laterally extensive confining units that separate adjacent aquifers. Even though confining layers can slow down the progression of depletion in comparison to equivalent aquifer systems without confining layers, it is not reasonable to expect that pumping beneath an extensive confining layer will entirely eliminate depletion. For some well locations, discontinuous confining beds of clay may actually increase the depletion process relative to a condition in which the beds are absent.

Aquifer recharge and streamflow depletion: The long-term average or transient rates of recharge to an aquifer (or the predevelopment rates and directions of flow within an aquifer) will not affect the total amount of depletion that results from pumping a well, because the sources of capture to a well result from changes in the predevelopment recharge and discharge rates to or from an aquifer and not the absolute rates of recharge or discharge themselves. Because the natural rate of recharge does not affect the quantity of streamflow that can be captured by a well, it cannot be assumed that the total amount of groundwater development from an aquifer system is “safe” or “sustainable” at rates up to the long-term average recharge rate. The amount of depletion that can be captured is dependent on the total amount of water in the stream and the amount of reduced streamflow that a community or regulatory authority is willing to accept. However, recharge rates do affect the relative contributions of captured groundwater discharge and induced infiltration to total streamflow depletion: relatively high rates of recharge (or predevelopment flow rates through the aquifer) will result in relatively high rates of captured groundwater discharge, whereas relatively low rates of recharge will result in relatively high rates of induced infiltration.

Distribution of streamflow depletion along stream reaches: Groundwater pumping causes streamflow depletion in streams and stream reaches that are both upgradient and downgradient from the location of withdrawal; the effect of pumping is not confined to those reaches that are immediately adjacent to the well. Some stream reaches will be affected more than others, depending on the distance of the pumped well from each reach and the three-dimensional distribution and hydraulic properties of the sediments that compose the groundwater system and adjoining streambeds. Cumulative streamflow depletion increases in the downstream direction of a basin, and the total amount of depletion in the direction of the outflow point (or points) from the basin will, over time, tend toward the total pumping rate of the well or wells that pump from the basin.

Disconnected and dry stream reaches: Two important assumptions that have been made throughout the report are that the stream and underlying aquifer remain hydraulically connected by a continuous saturated zone and that the stream does not become dry. In extreme cases of large-scale groundwater development and limited streamflow, groundwater levels can be drawn down below the bottom of the streambed and the stream may eventually lose all of its water to the aquifer. Under such conditions, there will not be enough water available from streamflow depletion to offset the pumping by a well or wells in the aquifer.

Streamflow depletion after pumping stops: Streamflow depletion continues after pumping stops because it takes time for groundwater levels to recover from the previous pumping stress and for the depleted aquifer defined by the cone of depression to be refilled with water. The time of maximum streamflow depletion often may occur after pumping has stopped. Eventually, the aquifer and stream may return to their pre-pumping conditions, but the time required for full recovery may be quite long and exceed the total time that the well was pumped. Over the time interval from when pumping starts until the system fully recovers to its prepumping levels, the volume of streamflow depletion will equal the volume of water pumped.

Variable- and cyclic-pumping effects: Pumping schedules at wells fluctuate in response to water-supply demands that change on daily, seasonal, and longer-term intervals. Intermittent- and cyclic-pumping schedules result in variable or cyclic patterns of streamflow depletion, but the overall effect of an aquifer is to damp the variability and amplitude (range) of pumping rates such that the resulting rates of streamflow depletion are less variable and smaller in amplitude than the pumping stress itself. The damping effect is enhanced as the distance of the pumped well increases from a stream or the diffusivity of the aquifer decreases, and at some distance the effects of an intermittent- or cyclic-pumping pattern become indistinguishable from a constant pumping pattern at a cycle (or long-term)-average pumping rate.

Basinwide analyses: Many groundwater basins have hundreds or thousands of pumped wells. Individually, these wells may have little effect on streamflow depletion, but small effects of many wells within a basin can combine to produce substantial effects on streamflow and aquatic habitats. Moreover, basinwide groundwater development typically occurs over a period of several decades, and the resulting cumulative effects on streamflow depletion may not be fully realized for years. As a result of the large number of wells and complex history of development, it is often necessary to take a basinwide perspective to assess the effects of groundwater withdrawals on streamflow depletion.

Streamflow depletion and water quality: Many of the problems associated with streamflow depletion do not require that the two components of depletion—captured groundwater discharge and induced infiltration—be differentiated, or individually quantified. This is the case, for example, for issues that are strictly related to questions of streamflow quantity, such as for water-rights administration or determination of minimum instream-flow requirements for aquatic habitats. For water-quality concerns, however, the relative contribution of captured groundwater discharge and induced infiltration has important implications to the resulting quality of the water in the stream, in the aquifer system, and pumped from wells. As a result, techniques of analysis that are needed to evaluate water-quality problems associated with streamflow depletion must be able to identify the specific components of depletion. For example, analytical solutions and superposition numerical models that can only identify changes in streamflow and not the absolute amount of streamflow will not be appropriate, whereas numerical models, particularly those that can track particles of water through a groundwater system or can simulate solute-transport processes may be.

Field methods for identifying and monitoring streamflow depletion: Two general approaches are used to monitor streamflow depletion: (1) short-term field tests lasting several hours to several months to determine local-scale effects of pumping from a specific well or well field on streams that are in relative close proximity to the location of withdrawal and (2) statistical analyses of hydrologic and climatic data collected over a period of many years to test correlations between long-term changes in streamflow conditions with basinwide development of groundwater resources. Direct measurement of streamflow depletion is made difficult by the limitations of streamflow-measurement techniques to accurately detect a pumping-induced change in streamflow, the ability to differentiate a pumping-induced change in streamflow from other stresses that cause streamflow fluctuations, and by the diffusive effects of a groundwater system that delay the arrival and reduce the peak effect of a particular pumping stress.

Analytical-modeling methods to estimate streamflow depletion: Several analytical solutions to the groundwater-flow equation have been developed to estimate streamflow depletion by wells. These solutions are based on highly simplified representations of field conditions that are necessary to develop mathematical solutions to the groundwater-flow equation but that limit their applicability to real-world field conditions. Some of the important limitations of analytical solutions are that they cannot adequately represent aquifer heterogeneity, the presence of multiple streams or complex stream geometry, or aquifers having complex, three-dimensional geometries. Nevertheless, analytical solutions provide insight into several of the factors that affect streamflow depletion and are often used to make an initial estimate of the effect of a particular well on a nearby stream.

Numerical-modeling methods to estimate streamflow depletion: Numerical models are the most robust method for determining the rates, locations, and timing of streamflow depletion caused by pumping because they are capable of handling many of the common complexities of real groundwater systems. They are the only effective method for determining detailed, basinwide water budgets that account for the effects of complex pumping histories from large numbers of wells on all types of hydrologic features, including streams. Numerical models can be used to generate streamflow-depletion response functions and capture maps. Response functions characterize the unique functional relation between pumping at a particular location and the resulting depletion in a nearby stream or stream network, independently of other pumping or recharge stresses that may be occurring simultaneously within the aquifer. Capture maps, which are a type of response function, show the spatial distribution of response-function values for large regions of an aquifer, and provide a visual tool to illustrate the effects of pumping location on streamflow depletion within a large set of possible pumping locations within an aquifer.

Management of streamflow depletion: Managing streamflow depletion by wells is challenging because of the significant time delays that often occur between when pumping begins and when the effects of that pumping are realized in nearby streams. In many cases, it is not possible to reduce pumping rates during periods of low streamflow to substantially affect flow during the period of stress. Effective management of streamflow depletion requires both a long-term perspective and an understanding of how streamflow responds to pumping at each well individually and at all wells simultaneously. Numerical models are the most effective means to determine the effects of pumping on streamflow and to determine whether or not pumping schedules can be manipulated to meet minimum streamflow requirements. For conditions in which many wells pump from the same basin, the use of numerical models can be enhanced by their coupling with management models that identify the optimal pumping strategies to meet water-resource goals and constraints.

Depletion of other hydrologic features: Most aquifer systems are complex, with water moving from areas of recharge through geologic materials and discharging to streams, springs, rivers, and wetlands, and by plants that use groundwater. The introduction of groundwater pumping can affect all features connected to an aquifer. The emphasis of this report has been on the effects of pumping on connected streams, although most of the discussion that has been presented is equally applicable to other connected features.

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U.S. Geological Survey and the California State Water Resources Control Board

Groundwater Quality in the Tahoe and Martis Basins, California

By Miranda S. Fram and Kenneth Belitz

Groundwater provides more than 40 percent of California's drinking water. To protect this vital resource, the State of California created the Groundwater Ambient Monitoring and Assessment (GAMA) Program. The Priority Basin Project of the GAMA Program provides a comprehensive assessment of the State's groundwater quality and increases public access to groundwater-quality information. The Tahoe and Martis Basins and surrounding watersheds constitute one of the study units being evaluated.

The Tahoe-Martis Study Unit

The Tahoe-Martis study unit is approximately 460 square miles and includes the groundwater basins on the south, north, and west shores of Lake Tahoe, and the Martis Valley groundwater basin (California Department of Water Resources, 2003). The study unit was divided into three study areas based primarily on geography: the Tahoe study area composed of the three Tahoe Valley basins, the Martis study area, and the Hard Rock study area composed of the parts of the watersheds surrounding the basins (Fram and others, 2009).

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For additional information contact:

Technical reports and hydrologic data collected for the GAMA Program may be obtained from

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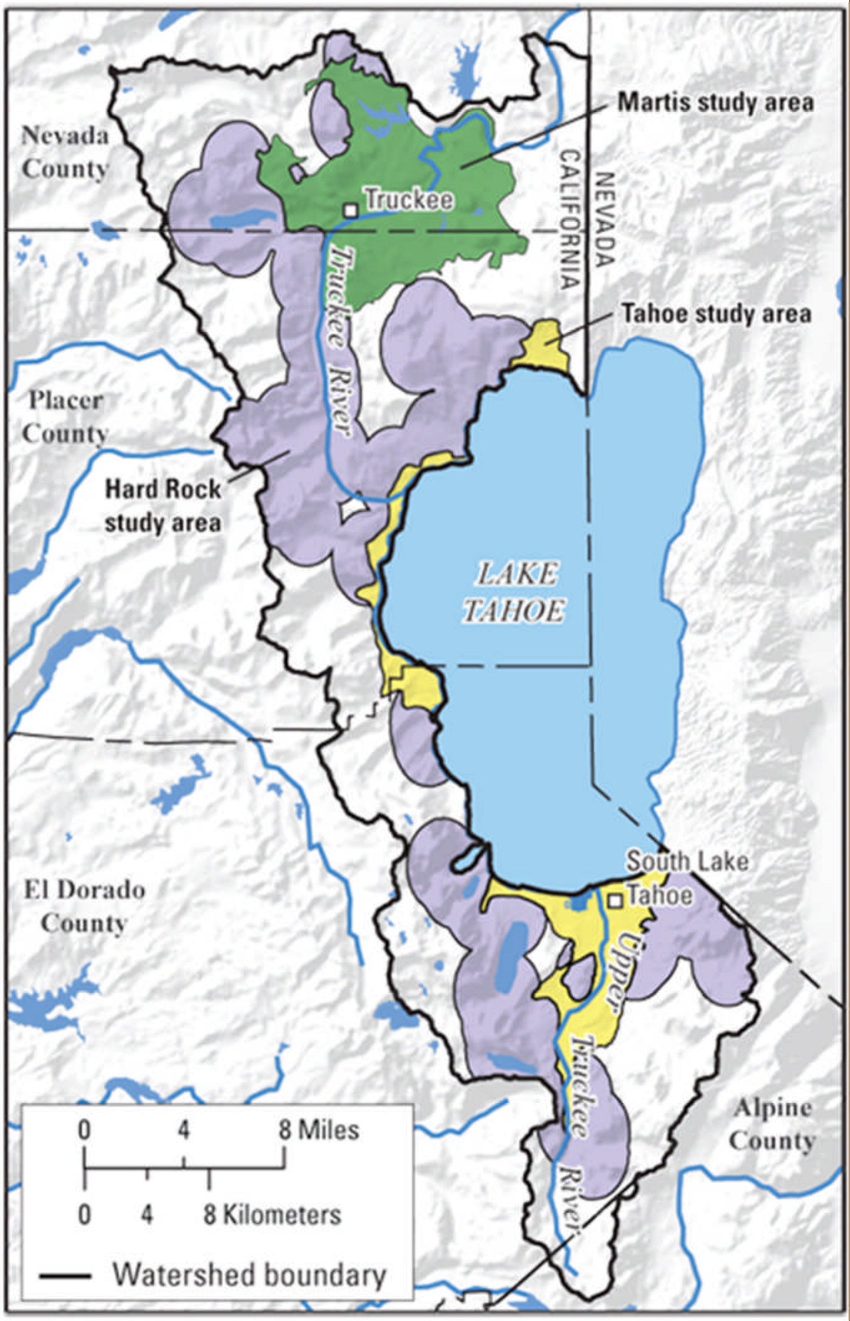

The primary aquifers in the Tahoe study area consist of glacial outwash sediments (mixtures of sand, silt, clay, gravel, cobbles, and boulders), interbedded with lake sediments. The primary aquifers in the Martis study area are interbedded volcanic lavas, volcanic sediments, and glacial outwash sediments. In the Hard Rock study area, groundwater is present in

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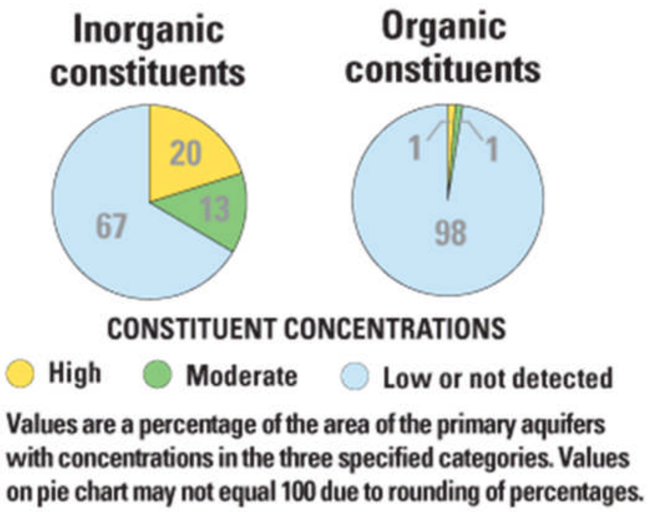
fractured granitic rocks in the south and fractured volcanic rocks in the north. Aquifers composed of different materials commonly contain groundwater with different chemical compositions.

The primary aquifers in the study unit are defined as those parts of the aquifers corresponding to the screened or open intervals of wells listed in the California Department of Public Health database. In the Tahoe study area, these wells typically are drilled to depths between 175 and 375 feet, consist of solid casing from land surface to a depth of about 75 to 125 feet, and are screened or open below the solid casing. In the Martis study area, these wells typically are 200 to 900 feet deep, and are screened or open below 75 to 300 feet. Water quality in the shallower and deeper parts of the aquifer system may differ from that in the primary aquifers.The Hard Rock study area includes wells and developed springs.

The Tahoe-Martis study unit has warm, dry summers and cold, wet winters. Average annual precipitation ranges from 30 inches at Lake Tahoe to 80 inches in the surrounding mountains, and the majority of precipitation falls as snow. Land use in the study unit is approximately 88 percent (%) undeveloped (forests, grasslands, and bare rock), and 12% urban. The undeveloped lands are used mostly for recreation. The largest urban areas are the cities of South Lake Tahoe and Truckee.

Municipal and community water supply accounts for nearly all of the total water use in the study unit, with most of the remainder used for recreation, including landscape irrigation and snow-making. Groundwater provides nearly all of the water supply in the study unit, with limited use of surface water in some areas. Recharge to the groundwater flow system is mainly from mountain-front recharge at the margins of the basins, stream-channel infiltration, and direct infiltration of precipitation. Groundwater leaves the aquifer system when it is pumped for water supply or flows into streams and lakes.



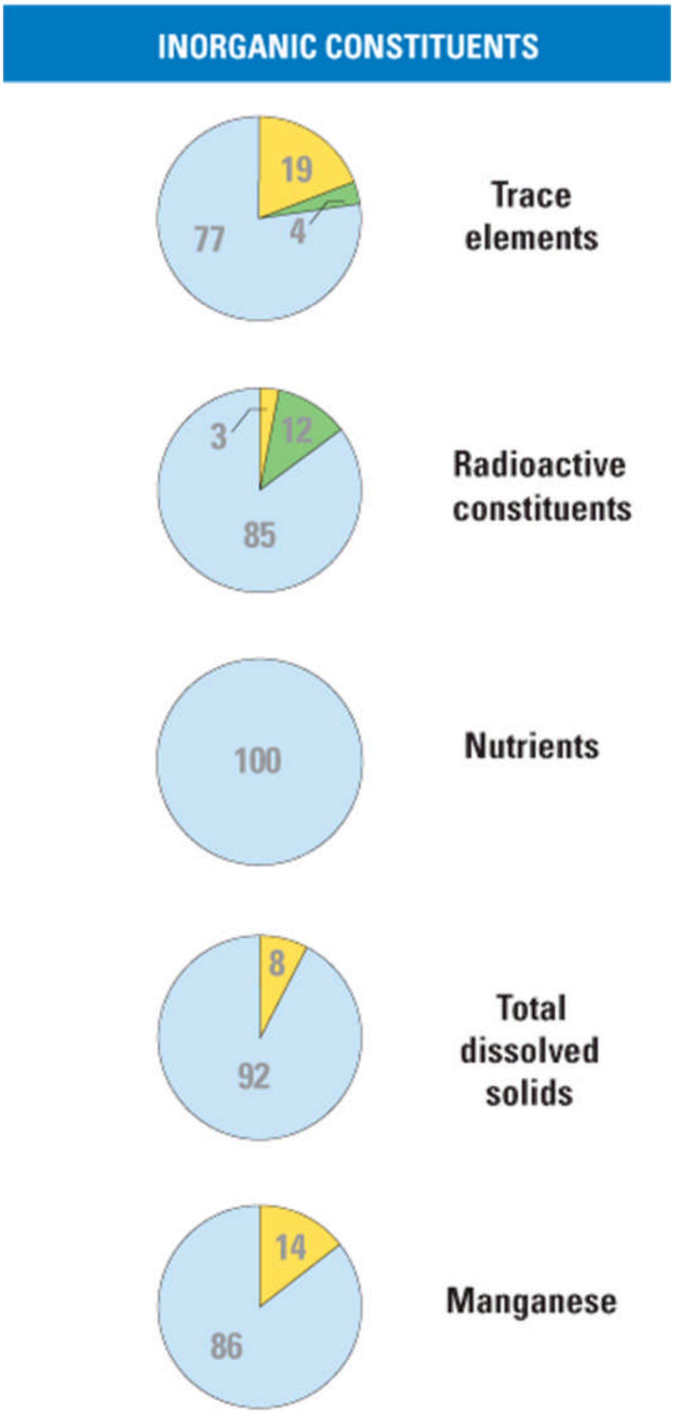
Overview of Water Quality

GAMA's Priority Basin Project evaluates the quality of untreated groundwater. However, for context, benchmarks established for drinking-water quality are used for comparison. Benchmarks and definitions of *high*, *moderate*, and *low* concentrations are discussed in the inset box.

Many inorganic constituents occur naturally in groundwater. The concentrations of the inorganic constituents can be affected by natural processes as well as by human activities. In the Tahoe-Martis study unit, one or more inorganic constituents were present at high concentrations in about 20% of the primary aquifers and at moderate concentrations in 13%.

Human-made organic constituents are found in products used in the home, business, industry, and agriculture. Organic constituents can enter the environment through normal usage, spills, or improper disposal. In this study unit, one or more organic constituents were present at high concentrations in about 1% of the primary aquifers and at moderate concentrations in about 1%.

RESULTS: Groundwater Quality in the Tahoe-Martis Study Unit



Inorganic Constituents with Human-Health Benchmarks

Trace and minor elements are naturally present in the minerals in rocks and soils, and in the water that comes into contact with those materials. In the Tahoe-Martis study unit, trace elements were present at high concentrations in about 19% of the primary aquifers, and in moderate concentrations in about 4%. Arsenic was the trace element that most frequently occurred at high and moderate concentrations. Three trace elements with non-regulatory health-based benchmarks, boron, molybdenum, and strontium, also were detected at high concentrations.

Radioactivity is the emission of energy or particles during spontaneous decay of unstable atoms. Humans are exposed to small amounts of natural radioactivity every day. Most of the radioactivity in groundwater comes from decay of naturally occurring uranium and thorium in minerals in the rocks or sediments of the aquifers. Radioactive constituents occurred at high levels in about 3% of the primary aquifers, and at moderate levels in about 12%. Gross alpha particle and radon-222 activities were the radioactive constituents that most frequently occurred at high and moderate levels.

Nutrients, such as nitrogen, are naturally present at low concentrations in groundwater. High and moderate concentrations generally occur as a result of human activities. Common sources of nutrients include fertilizer applied to crops and landscaping, seepage from septic systems, and human and animal waste. In the Tahoe-Martis study unit, nutrients were not detected at high or moderate concentrations in the primary aquifers.

Inorganic Constituents with Non-Health Benchmarks

(Not included in water-quality overview charts shown)

Some constituents affect the aesthetic properties of water, such as taste, color, and odor, or may create nuisance problems, such as staining and scaling. The State of California has a recommended and an upper limit for total dissolved solids (TDS). All water naturally contains TDS as a result of the weathering and dissolution of minerals in soils and rocks. Iron and manganese are naturally occurring constituents that commonly occur together in groundwater. Anoxic conditions in groundwater (low amounts of dissolved oxygen) may result in release of manganese and iron from minerals into groundwater.

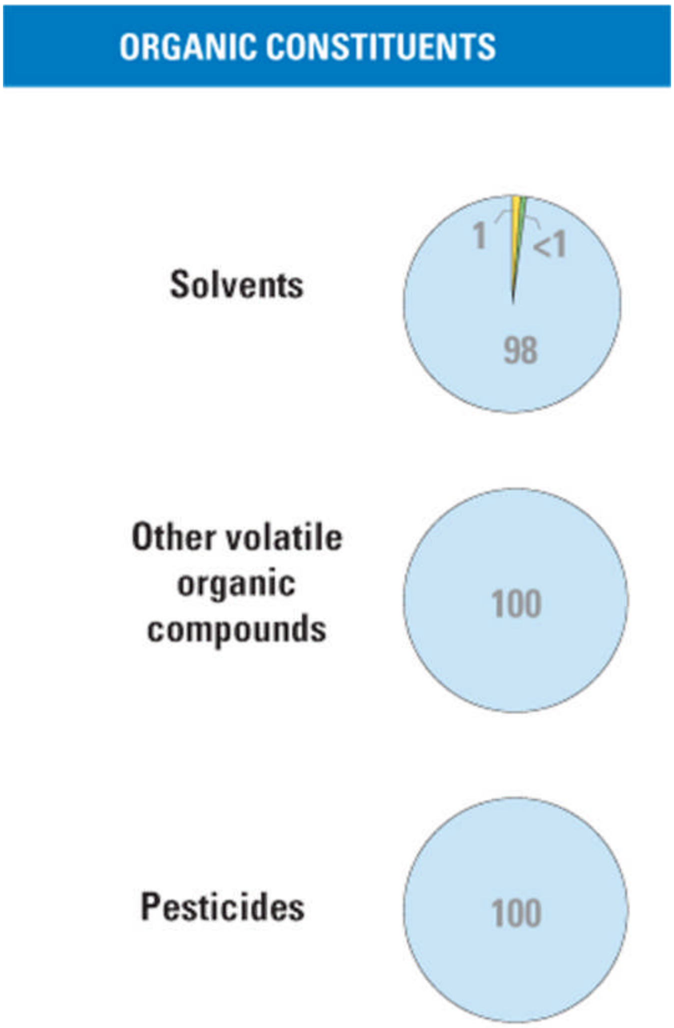
In the Tahoe-Martis study unit, TDS was present at high concentrations (greater than the upper limit) in about 8% of the primary aquifers, and at low concentrations (less than the recommended limit) in about 92% of the primary aquifers. Manganese, with or without iron, was present at high concentrations in about 14% of the primary aquifers.

SPECIAL-INTEREST CONSTITUENTS

Perchlorate

(Not included in water-quality overview charts shown)

Perchlorate is an inorganic constituent that has been regulated in California drinking water since 2007. It is an ingredient in rocket fuel, fireworks, safety flares, and other products, may be present in some fertilizers, and occurs naturally at low concentrations in groundwater. Perchlorate was not detected in the primary aquifers.



Organic Constituents

The Priority Basin Project uses laboratory methods that can detect the presence of low concentrations of volatile organic compounds (VOCs) and pesticides, far below human-health benchmarks. VOCs and pesticides detected at these low concentrations can be used to help trace water from the landscape into the aquifer system.

Volatile Organic Compounds with Human-

Health Benchmarks

VOCs are in many household, commercial, industrial, and agricultural products, and are characterized by their tendency to volatilize (evaporate) into the air.

Solvents are used for a number of purposes, including manufacturing and cleaning. In the Tahoe-Martis study unit, solvents were present at high concentrations in about 1% of the primary aquifers. The solvent detected at high concentrations was tetrachloroethylene (PCE), which mainly was used in dry-cleaning businesses. Solvents were present at moderate concentrations in about 1% of the primary aquifers, and at low concentrations (or not detected) in about 98%.

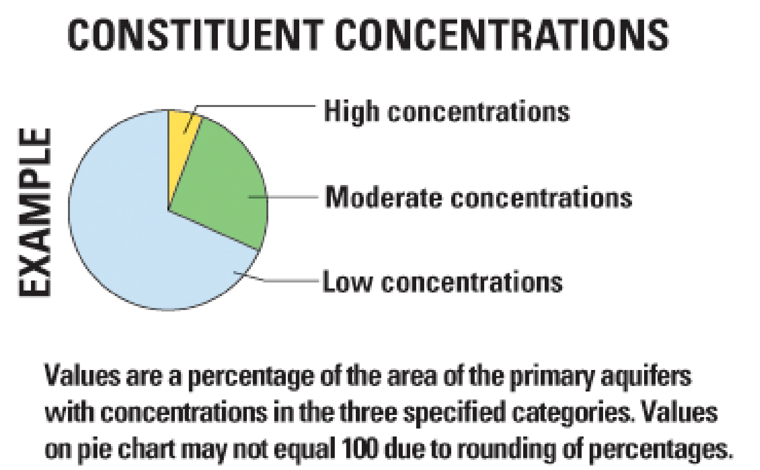
Other VOCs include trihalomethanes, gasoline additives and oxygenates, refrigerants, and organic synthesis reagents. Trihalomethanes form during disinfection of water supplies, and may enter groundwater by the infiltration of landscape irrigation water, or leakage from distribution lines. Gasoline additives and oxygenates increase the efficiency of fuel combustion. Other VOCs were not detected at high or moderate concentrations in the primary aquifers. Trihalomethanes and gasoline oxygenates were detected at low concentrations in the primary aquifers.

Pesticides with Human-Health Benchmarks

Pesticides, including herbicides, insecticides, fungicides, and fumigants, are applied to crops, gardens, lawns, around buildings, and along roads to help control unwanted vegetation (weeds), insects, fungi, and other pests. In the Tahoe-Martis study unit, pesticides were not detected at high or moderate concentrations in the primary aquifers. Herbicides were occasionally detected at low concentrations.

BENCHMARKS FOR EVALUATING

GROUNDWATER QUALITY



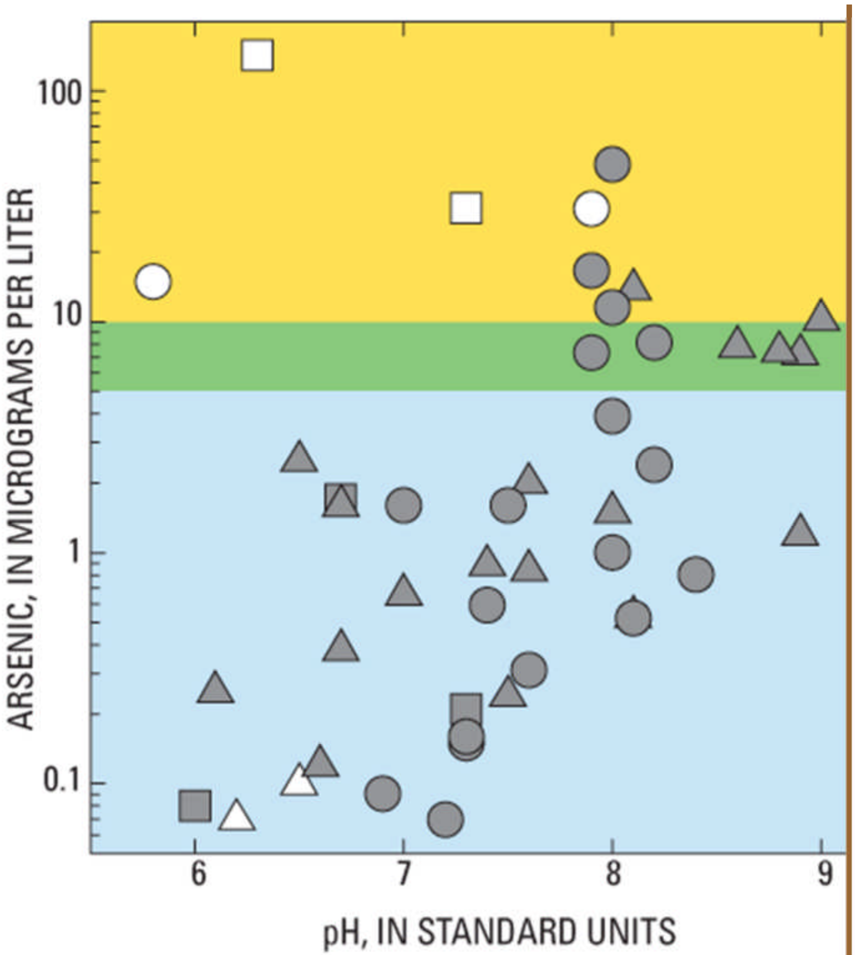
GAMA's Priority Basin Project uses benchmarks established for drinking water to provide context for evaluating the quality of untreated groundwater. After withdrawal, groundwater may be disinfected, filtered, mixed, and exposed to the atmosphere before being delivered to consumers. Federal and California regulatory benchmarks for protecting human health (Maximum Contaminant Level, MCL) were used when available. Nonregulatory benchmarks for protecting aesthetic properties, such as taste and odor (Secondary Maximum Contaminant Level, SMCL), and nonregulatory benchmarks for protecting human health (Notification Level, NL, and Lifetime Health Advisory, HAL) were used when Federal or California regulatory benchmarks were not available.

High, moderate, and low concentrations are defined relative to benchmarks

Concentrations are considered *high* if they are greater than a benchmark. For inorganic constituents, concentrations are *moderate* if they are greater than one-half of a benchmark. For organic constituents and perchlorate, concentrations are *moderate* if they are greater than one-tenth of a benchmark; this lower threshold was used because organic constituents are generally less prevalent and have smaller concentrations relative to benchmarks than inorganic constituents. *Low* values include nondetections and values less than moderate concentrations. Methods for evaluating water quality are discussed in Fram and Belitz (2012).

Factors that Affect Groundwater Quality

In the Tahoe-Martis study unit, arsenic was the constituent that most frequently occurred at high concentrations. About 18% of the primary aquifers had arsenic concentrations greater than the human-health regulatory benchmark Federal MCL) of 10 µg/L (micrograms per liter). Natural sources of arsenic to groundwater include dissolution of arsenic-bearing sulfide minerals, desorption of arsenic from the surfaces of manganese- or iron-oxide minerals (or dissolution of those oxide minerals), and mixing with geothermal waters (Welch and others, 2000).



In the Tahoe-Martis study unit, elevated arsenic concentrations likely are caused by two different processes (Fram and Belitz, 2012). In aquifers composed of sediments or volcanic rocks, high and moderate arsenic concentrations were found in groundwater that was oxic (high dissolved oxygen concentration) and alkaline (pH values greater than about 8). The elevated arsenic concentration in oxic, alkaline groundwater likely is due to desorption of arsenic from the surfaces of manganese- and iron-oxide minerals (Smedley and Kinniburgh, 2002). Oxic, alkaline conditions increase arsenic solubility in groundwater by inhibiting arsenic from adhering to mineral surfaces (sorption). In aquifers composed of granitic and volcanic rocks, high arsenic concentrations also were found in anoxic (low dissolved oxygen concentration) groundwater with low pH values. Dissolution of manganese- and iron-oxide minerals under anoxic conditions likely results in release of arsenic associated with these minerals.

Priority Basin Assessments

GAMA's Priority Basin Project (PBP) assesses water quality in that part of the aquifer system used for drinking water, primarily public supply. Water quality in the primary aquifers, assessed by the PBP, may differ from that in the deeper parts of the aquifer, or from the shallower parts, which are being assessed by GAMA's Domestic Well Project. Ongoing assessments are being conducted in more than 120 basins throughout California.

The PBP assessments are based on a comparison of constituent concentrations in untreated groundwater with benchmarks established for protection of human health and for aesthetic concerns. The PBP does not evaluate the quality of drinking water delivered to consumers.

The PBP uses two scientific approaches for assessing groundwater quality. The first approach uses a network of wells to statistically assess the status of groundwater quality. The second approach combines water-quality, hydrologic, geographic, and other data to help assess the factors that affect water quality. In the Tahoe-Martis study unit, data were collected by the PBP in 2007, and from the CDPH database for 2004–2007. The PBP includes chemical analyses generally not available as part of regulatory compliance monitoring, including measurements at concentrations much lower than human-health benchmarks, and measurement of constituents that can be used to trace the sources and movement of groundwater.

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Suggested Citation:

Fram, M.S., and Belitz, Kenneth, 2012, Groundwater Quality in the Tahoe and Martis Basins, California: U.S. Geological Survey Fact Sheet 2011-3143, 4 p.

291112 Part 3

OUR REGION

Dam emissions rise

Low water levels at Folsom Lake are causing an increase in air pollution from the spillway project. Page B8

Wednesday, August 20, 2014 | The Sacramento Bee | sacbee.com/ourregion B1

Opinion

MARCOS BRETON

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Hansen's got guts to defy KJ

Steve Hansen is showing some real daring in standing up to Mayor Kevin Johnson – the kind of political guts we don't often see in Sacramento.

KJ is easily the most popular politician in town. He is riding high after saving the Kings, cultivating a national profile and going after what he's always wanted: more hiring power, firing power and veto power for the mayor's office.

Influential people helped KJ put a strong-mayor proposal on the November ballot, and it appeared there

Friends mourn animal rescuer

THEY TIE HEALTH DECLINE TO RECENT DOG NEGLECT CASE

By Cynthia Hubert
chubert@sacbee.com

For decades, it was just Elaine Greenberg and her rescue dogs.

On her farm off a country road outside Davis, Greenberg took in dogs that had been burned and beaten, injured in dog fights, destined for death row. She fed, sheltered and trained them, paid for their veterinary care and found many of them new homes through her nonprofit group, Second Chance Rottweiler Rescue.

But something happened to Greenberg in the final

Second Chance Rottweiler Rescue

Elaine Greenberg, 74, a longtime dog rescuer, was found dead in her Davis-area home over the weekend.

months of her life that left her unable to care for her animals and herself, friends and acquaintances said. Earlier this month, authorities converged on her home and found a horrifying scene, with dead and malnourished animals living in squalor. They seized 11 surviving dogs, placed Greenberg on a "mental health hold" for a few hours and began investigating her for neglect.

Two weeks later, sheriff's deputies found Greenberg's dead body in her home. She was 74 years old.

The chain of events shocked longtime friends who knew Greenberg as an intensely private, somewhat cantankerous former biochemist who during the past two decades dedicated her life to saving dogs that otherwise likely would have been killed at animal shelters.

"She took dogs that no one else would take, and she gave them meticulous care, and she saved hun-

RESCUER | Page B2

Water is way below allotments

TOTAL OF 'JUNIOR RIGHTS' IS 5 TIMES THE SUPPLY

By Matt Weiser
mweiser@sacbee.com

The state of California has handed out five times more water rights than nature can deliver, a new study by University of California researchers shows.

California's total freshwater runoff in an average year is about 70 million acre-feet, according to the study. But the state has handed out junior water rights totaling 370 million acre-feet. One acre-foot is enough to meet the needs of two average households for a year.

The rivers under the most strain, the research indicates, are virtually all that drain into the Central Valley, including the Sacramento, Feather, Yuba, American, Mokelumne, Stanislaus, Tuolumne, Merced, Kings and San Joaquin rivers. Others near the top include the Salinas, Santa Clara,

WATER | Page B3

Water

FROM PAGE B1

Santa Ana and Santa Ynez rivers.

"It seems clear that in a lot of these cases, we've promised a lot more water than what's available," said Ted Grantham, the study's lead author, who conducted the research as part of postdoctoral studies at UC Davis. "There's never going to be enough water to meet all of these demands."

The study confirms prior estimates of the disparity but goes further by describing the degree of over-allocation in individual watersheds across California. It also reveals that the problem may be much larger since the researchers looked at only a subset of California water rights – those allocated after 1914 and considered "junior" rights.

California's system of water rights, overseen by the State Water Resources Control Board, is the primary means by which the state distributes natural runoff to provide water for cities, farms and industry. In most cases, a property owner or government agency applies to the state for a water right or permit. If granted, it allows them to divert a certain amount of water directly from a river or stream.

Such rights, for example, account for all the water stored behind dams in the state, which is the primary source of drinking water for many Californians and irrigation water for crops.

The study was published in the current issue of the journal Environmental Research Letters. It was conducted by analyzing more than 12,000 water rights issued after 1914, the year California adopted its system of water diversion rules. Only those rights had sufficient data available for analysis, Grantham said.

"It seems clear that in a lot of these cases, we've promised a lot more water than what's available. There's never going to be enough water to meet all of these demands."

TED GRANTHAM, *study's lead author*

The researchers then used streamflow data collected by the U.S. Geological Survey to establish baseline natural runoff volumes for about 4,500 sub-watersheds across the state. These data were compared to the water rights. In many cases, the results showed that diverters are allowed to withdraw far more water than the stream can produce in an average weather year.

"In so doing, they give these rights-holders a false sense of water security," said Joshua Viers, a co-author of the study and an engineering professor at UC Merced. "It's an entitlement that may never be filled. That is unfortunate, because we continue to allocate water rights to this day."

In dry years like this one, the disparity grows worse, because there is less snowmelt to feed streams. The consequences can be dire: This summer, the state water board imposed curtailments on about 10,000 water rights, requiring diversions to be halted completely because there isn't enough water to go around.

Craig Wilson, Delta water master for the state board, has a different view of the situation. He said the excess allocation of water is "overblown" because many water-rights holders actually divert less water than their permits allow. And very often, much of that diverted water returns to the same stream as runoff from farm fields, where it can be used again by someone downstream.

"It's very true, the board has issued water rights for more water than is available," said Wilson, who oversees water rights in the Sacramento-San Joaquin Delta. "I don't think it's nearly as big an issue as some people believe."

But Grantham said it is difficult to know for sure, because the state has no idea how much water is being diverted at any moment. Diverters are not required to report their water use in real time. Instead, they report water usage annually, and these reports are not verified for accuracy.

"Particularly in times of drought, I think there is just so much uncertainty in how these water rights are being exercised that it's practically impossible to try and manage these systems," said Grantham, who now works for the U.S. Geological Survey in Colorado.

It has long been assumed that correcting the excess allocation would be complicated because there are so many water rights, each with unique historical and legal complications. But Grantham said the study revealed that might not be so, because 80 percent of the water volume is held by 1 percent of the water rights, and mostly by government agencies.

"We don't really need to deal with thousands and thousands of water-rights holders," he said. "We might just need to deal with a couple hundred that hold 90 percent of the water."

Call The Bee's Matt Weiser at (916) 321-1264. Follow him on Twitter @matt_weiser.

271052

TGPA-ZOU ZOU <tgpa-zou@edcgov.us>

Fwd: Public Comment on Draft EIR for TGPA/ZOU

1 message

Shawna Purvines <shawna.purvines@edcgov.us> Wed, Jul 23, 2014 at 9:17 AM
To: TGPA-ZOU ZOU <TGPA-ZOU@edcgov.us>

---------- Forwarded message ----------
From: **Char Tim** <charlene.tim@edcgov.us>
Date: Wed, Jul 23, 2014 at 7:28 AM
Subject: Fwd: Public Comment on Draft EIR for TGPA/ZOU
To: Shawna Purvines <shawna.purvines@edcgov.us>

Fyi...let's talk on how to handle since she copied me and PC...also how we might want to reference the legislation used for that with the one we are doing right now for project.

---------- Forwarded message ----------
From: "Ellen Van Dyke" <vandyke.5@sbcglobal.net>
Date: Jul 23, 2014 6:08 AM
Subject: Public Comment on Draft EIR for TGPA/ZOU
To: "Jim Mitrisin" <edc.cob@edcgov.us>
Cc: "Brian Veerkamp" <bosthree@edcgov.us>, "Ron Mikulaco" <bosone@edcgov.us>, "Jim Mitrisin" <jim.mitrisin@edcgov.us>, "Norma Santiago" <bosfive@edcgov.us>, "Ron Briggs" <bosfour@edcgov.us>, "Char Tim" <charlene.tim@edcgov.us>, "Brian Shinault" <brian.shinault@edcgov.us>, "Dave Pratt" <dave.pratt@edcgov.us>, "Tom Heflin" <tom.heflin@edcgov.us>, "Walter Mathews" <walter.mathews@edcgov.us>, "Rich Stewart" <rich.stewart@edcgov.us>, "Jim Moore" <jim@mooremethods.com>, <sue-taylor@comcast.net>, "Cheryl@CDPR Langley" <rlangley40@gmail.com>, "Rural Communities United" <lilylake3@yahoo.com>, "John Giles" <johngiles10@yahoo.com>, "Tom Infusino" <tomi@volcano.net>, "Don VanDyke" <don.a.van.dyke@sbcglobal.net>, "Ellen Van Dyke" <vandyke.5@sbcglobal.net>, "Howard Penn" <hpenn@lbcomm.com>, "Kathy Ottenberg" <blankslatejp@yahoo.com>, "Charlene Hensley" <hensleycharlene@gmail.com>, "Christine and Paul Schelin" <team.schelin@hotmail.com>, "Eva Robertson" <erobertson@golyon.com>, "Rich Boylan" <drboylan@outlook.com>, "John & Linda Hovey" <jl_hovey@pacbell.net>, "Shingle Springs Community Alliance" <info@shinglespringscommunityalliance.com>, "Lori Parlin" <loriparlin@sbcglobal.net>, "Shiva Frentzen" <shiva@calis.com>

Jim- please submit the attached comments with cover letter into the public record for the draft EIR for the TGPA/ZOU. A list of contributors follows the cover letter, and I want to be sure they are given any future notices on the project.

I will deliver a hard copy of the comments and CD to planning this morning as well, and will bring CD copies to the Supervisors (and you) at that time.

Best Regards- Ellen

cc Supervisors and Commissioners

271052

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Thank you.

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