

EL DORADO COUNTY AIR QUALITY MANAGEMENT DISTRICT

RULE 239 - NATURAL GAS-FIRED WATER HEATERS LESS THAN 1,000,000 BTU PER HOUR

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RULE 239 - NATURAL GAS-FIRED WATER HEATERS LESS THAN 1,000,000 BTU PER HOUR

239.1 GENERAL

- A. **PURPOSE:** To limit the emission of nitrogen oxides (NO_x) from the use of natural gas-fired water heaters.
- B. **APPLICABILITY:** The provisions of this rule shall apply to any person who manufactures, distributes, offers for sale, sells, or installs any natural gas-fired residential water heater with a rated heat input capacity less than 1,000,000 British thermal units per hour (Btu/hr), for use in this District.
- C. **SEVERABILITY:** Each provision of this rule shall be deemed severable. In the event that any provisions of this rule is deemed to be invalid, the remainder of this rule shall continue in full force and effect.
- D. **EXEMPTIONS:** The provisions of this rule shall not apply to:
 - 1. Water heaters with a rated heat input of 1,000,000 Btu/hr or greater.
 - 2. Water heaters used exclusively in recreational vehicles.

239.2 DEFINITIONS

- A. **BRITISH THERMAL UNIT (Btu):** The amount of heat energy required to raise the temperature of one pound of water from 59°F to 60°F at one atmosphere pressure.
- B. **HEAT INPUT:** The actual amount of heat energy released by natural gas burned in a natural gas-fired water heater. It is calculated during certification testing in accordance with the test method referenced in Section 239.5 A.
- C. **HEAT OUTPUT:** The amount of heat energy, H_o, in British thermal units (Btu), absorbed by the water being heated during the process of natural gas-fired water heater testing in accordance with the protocol referenced in Section 239.5 A.
- D. **MOBILE HOME:** A residential dwelling, designed and manufactured to be movable from site to site as desired by the owner/occupant, and that is not a Recreational Vehicle as defined in Section 239.2 J.
- E. **MOBILE HOME WATER HEATER:** A natural gas-fired water heater manufactured exclusively for mobile home use.
- F. **NATURAL GAS:** A mixture of gaseous hydrocarbons containing at least 80 percent methane by volume as determined according to American Standard Test Method (ASTM) D1945-64.
- G. **NATURAL GAS-FIRED WATER HEATER:** A closed vessel in which water is heated by the combustion of natural gas and is withdrawn for use external to the vessel at pressures not exceeding 160 psig, including the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210°F (99°C).
- H. **PARTS PER MILLION BY VOLUME (ppmv):** The ratio of the number of gas molecules of a given species, or group of species, to the number of millions of total gas molecules.

- I. **RATED HEAT INPUT CAPACITY:** The heat input capacity specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input capacity specified on the nameplate, the actual heat input capacity as certified by the manufacturer or certified technician, shall be considered as the rated heat input capacity.
- J. **RECREATIONAL VEHICLE:** A motor home, travel trailer, truck camper, or camping trailer, with or without motive power, designed for human habitation for recreational, emergency, or other occupancy, as defined pursuant to Section 18010 of the California Health and Safety Code.
- K. **SWIMMING POOLS AND HOT TUBS:** A device in which water is heated when pool or spa water circulates through a heat exchanger.
- L. **WATER HEATER:** A closed vessel in which water is heated and is withdrawn for use external to the vessel at pressures not exceeding 160 psig, including the apparatus by which is generated and all control and devices necessary to prevent water temperatures from exceeding 210°F (99°C)

239.3 STANDARDS

- A. **NITROGEN OXIDES EMISSIONS LIMIT:** No person shall offer for sale, sell, or install any natural gas-fired water heater subject to the provision of this rule within the District with NOx emissions in excess of the following limits:

Heat Input Range and Type	NOx Limit Nanograms per Joule of Heat Output (ppmv @ 3% O2)*
<u>< 75,000 Btu/hr</u> Mobile Home All others	50 (66) 40 (55)
<u>75,000 to < 400,000 Btu/hr</u> Pool/Spa All others	40 (55) 14 (20)
<u>400,000 to < 1million Btu/hr</u> All Types	14 (20)

* Where limits are shown in units of both nanograms per joule of heat output and ppmv at 3% oxygen, compliance can be demonstrated using either limit.

239.4 ADMINISTRATIVE REQUIREMENTS

A. CERTIFICATION REQUIREMENT

- 1. **COMPLIANCE REPORT:** A manufacturer shall submit to the Air Pollution Control Officer a compliance report that demonstrates compliance with Section 239.3 of this rule for each water heater model subject to the provisions of this rule. A manufacturer shall submit a new compliance report for any water heater model whose design is changed in any manner

which may alter NOx emissions. These compliance reports, for either new or altered models, shall be submitted to the District at least 30 days before the water heater model is offered for sale, sold, or installed within the District. The compliance report shall contain all the following information:

- a. Name and address of the manufacturer;
 - b. Brand name and model as it appears on the rating plate;
 - c. Fuel type unit is fired with;
 - d. Description of each water heater model being certified;
 - e. Heat input rating;
 - f. All compliance test procedures and results for each water heater model, as performed by an independent testing laboratory, in accordance with Section 239.5A;
 - g. All calculations for determining compliance of each water heater model; and
 - h. A signed and dated statement attesting to the accuracy of all statements and information in the compliance report.
2. In lieu of Section 239.4A.1(f) and 239.4A.1(g), a manufacturer may submit to the District, at least 30 days prior to a model being sold or distributed for sale with the District, an approved South Coast Air Quality Management District Rule 1121 or 1146.2 certification.

B. MANUFACTURER'S LABELING REQUIREMENT: A manufacturer shall display the model number of the water heater complying with Section 239.3 STANDARDS on the shipping carton and on the rating plate of each water heater unit. The manufacturer shall also display the certification status on the shipping carton and on the water heater.

239.5 MONITORING AND RECORDKEEPING

- A. TESTING SCHEDULE:** The manufacturer shall have each water heater, boiler, or process heater subject to this rule tested in accordance with one of the following:
1. South Coast Air Quality Management District Protocol: "Nitrogen Oxides Emission Compliance Testing for Natural Gas-Fired Water Heaters and Small Boilers".
 2. South Coast Air Quality Management District Test Method 100.1
 3. EPA Reference Test Method 7E (40 CFR 60, Appendix A)
 4. A manufacturer that has certified a unit model to demonstrate compliance with a State or local agency rule that meets the requirements of this rule may submit the test results to the District in lieu of conducting duplicative testing.
- B. RECORDKEEPING:** A manufacturer shall keep test reports and certification records for as long as the water heater model is offered for sale or sold in the District or for three calendar years after manufacture, whichever is longer. These records shall be made available to the Air Pollution Control Officer upon request.