(Adopted January 9, 1998) (PAR 1146.2 November 24, 2004)

**PROPOSED AMENDED RULE 1146.2. EMISSIONS OF OXIDES OF NITROGEN FROM LARGE WATER HEATERS AND SMALL BOILERS**

(a) Purpose and Applicability

The purpose of this rule is to reduce NOx emissions from natural gas-fired large (commercial) water heaters, small (industrial) boilers, and process heaters as defined in this rule. This rule applies to units that have a rated heat input starting at 75,000 Btu/hr up to and including 2,000,000 Btu/hr. Type 1 Units as defined in this rule are typically, but not exclusively, large water heaters or smaller-sized process heaters in the above range. Type 2 Units as defined in this rule are typically, but not exclusively, small boilers or larger-sized process heaters in this range. Beginning, January 1, 2000, the provisions of this rule are applicable to manufacturers, distributors, retailers, refurbishers, installers and operators of new units. Beginning, July 1, 2002, the provisions of this rule are also applicable to operators of existing Type 2 Units.

(b) Definitions

(1) BOILER OR STEAM GENERATOR means any combustion equipment fired with liquid and/or gaseous and/or solid fossil fuel, used to produce steam or to heat water, and that is not used exclusively to produce electricity for sale. Boiler or Steam Generator does not include any waste heat recovery boiler that is used to recover sensible heat from the exhaust of a combustion turbine or any unfired waste heat recovery boiler that is used to recover sensible heat from the exhaust of any combustion equipment.

(2) BTU means British thermal unit or units.

(3) CERTIFIED RETROFIT KIT means any burner and ancillary controls or blowers that have been demonstrated to comply with the provisions of the rule, on a retrofit basis, on a particular model of unit.

(4) COMMERCIAL WATER HEATER means a Type 2 Unit as defined in this rule.

(5) HEAT INPUT means the higher heating value of the fuel to the unit measured as Btu/hr.

(6) HEAT OUTPUT means the enthalpy of the working fluid output of the unit.

(7) INDEPENDENT TESTING LABORATORY means a testing laboratory that meets the requirements of District Rule 304, subdivision (k) and is approved by the District to conduct certification testing under the Protocol.

(8) MOBILE HOME WATER HEATER means a closed vessel manufactured exclusively for mobile home use in which water is heated by combustion of gaseous fuel and is withdrawn for use external to the vessel at pressures not exceeding 160 pounds per square inch gauge (psig), including the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210$^{o}$F (99$^{o}$C).

(9) NOx EMISSIONS means the sum of nitrogen oxide and nitrogen dioxide in the flue gas, collectively expressed as nitrogen dioxide.

(10) PROCESS HEATER means any combustion equipment fired with liquid and/or gaseous and/or solid fossil fuel and which transfers heat from combustion gases to water or process streams. Process Heater does not include any kiln or oven used for annealing, drying, curing, baking, cooking, calcining, or vitrifying; or any unfired waste heat recovery heater that is used to recover sensible heat from the exhaust of any combustion equipment.

(11) PROTOCOL means South Coast Air Quality Management District Protocol: Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired Water Heaters and Small Boilers.

(12) RATED HEAT INPUT CAPACITY means the gross heat input specified on the nameplate of the combustion device.

(13) RECREATIONAL VEHICLE means any vehicle used for recreational purposes designed to include a water heater and licensed to be driven or moved on the highways of California.

(14) REFURBISHER means anyone who reconditions a Type 1 Unit or Type 2 Unit and offers the unit for resale, for use in the District.

(15) RESELLER means anyone who sells either retail, wholesale or on an individual basis Type 1 Units or Type 2 Units.

(16) RESIDENTIAL means any structure which is designed for and used exclusively as a dwelling for not more than four families, and where such equipment is used by the owner or occupant of such a dwelling.

(17) SMALL BOILER means a Type 2 Unit.

(18) TYPE 1 UNIT means any water heater, boiler or process heater with a Rated Gross Heat Input from 75,000 BTU/hr up to and including 400,000 BTU/hr and manufactured on or after January 1, 2001.

(19) TYPE 2 UNIT means any water heater, boiler or process heater with a Rated Heat Input greater than 400,000 BTU/hr up to and including 2,000,000 BTU/hr and manufactured on or after January 1, 2000.

(20) THERM means 100,000 Btu.

(21) UNIT means any boiler, steam generator, or process heater as defined in subparagraph (b)(1), (b)(3), (b)(10), (b)(17), (b)(18), (b)(19), or (b)(22).

(22) WATER HEATER means a closed vessel other than a mobile home water heater in which water is heated by combustion of gaseous fuel 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$^{o}$F (99$^{o}$C).

(c) Requirements

(1) On or after January 1, 2000, no person shall manufacture for use, or offer for sale for use, in the District any new Type 2 Unit, unless the ~~certified~~ NOx emissions level is less than or equal to 30 ppm of NOx emissions (at 3% $O_2$, dry) or 0.037 pound NOx per million Btu of heat input and no more than 400 ppm of carbon monoxide (at 3% $O_2$, dry), as certified by the Distict according to ~~specified in~~ subdivision (d).

(2) On or after January 1, 2001, no person shall manufacture for use, or offer for sale for use, in the District any new Type 1 Unit, unless the ~~certified~~ NOx emissions level is less than or equal to 40 nanograms of NOx (calculated as $NO_2$) per joule (93 lb per billion Btu) of heat output or 55

ppm NOx emissions (at 3% $O_2$, dry), ~~determined~~ as certified by the District according to sub~~section~~division (d).

(3) On or after July 1, 2002, no person shall operate in the District any unit with a rated heat input greater than 1,000,000 Btu/hr but less than or equal to 2,000,000 Btu/hr manufactured prior to January 1, 1992, which does not meet the emissions limits required by subparagraph (c)(1). Alternatively, a unit may be modified or demonstrated to meet the emission limits~~requirements~~ of paragraph (c)(1) pursuant to the provisions of subdivision (e).

(4) On or after January 1, 200~~6~~5, no person shall operate in the District any unit more than 15 years old, based on the original date of manufacture as specified in paragraph (e)(6), with a rated heat input greater than 1,000,000 Btu/hr but less than or equal to 2,000,000 Btu/hr and manufactured ~~between~~on or after January 1, 1992~~ and 1999, inclusive~~, which does not meet the emissions limits required by paragraph (c)(1). Alternatively, a unit may be modified or demonstrated to meet the emission limits~~requirements~~ of paragraph (c)(1) pursuant to the provisions of subdivision (e).

(5) On or after January 1, 2006, no person shall operate in the District any unit more than 15 years old, based on the original date of manufacture as specified in paragraph (e)(6), with a rated heat input greater than 400,000 Btu/hr but less than or equal to 1,000,000 Btu/hr manufactured prior to January 1, 2000, which does not meet the emissions limits required by subparagraph (c)(1). Alternatively, a unit may be modified or demonstrated to meet the emission limits~~requirements~~ of paragraph (c)(1) pursuant to the provisions of subdivision (e).

(6) The original date of manufacture shall be determined by:

(A) Original manufacturer's identification plate permanently fixed to the equipment. If not available, then;

(B) Invoice from manufacturer for purchase of equipment. If not available, then:

(C) Unit is deemed to be more than 15 years old.

(d) Certification

(1) The manufacturer shall obtain confirmation from an independent testing laboratory prior to applying for certification that, each unit model or retrofit kit complies with the applicable requirements of subdivision (c). This confirmation shall be based upon emission tests of a randomly selected unit of each model, and the Protocol shall be adhered to during the confirmation testing of all units subject to this rule.

(2) When applying for unit(s) certification, the manufacturer shall submit to the Executive Officer the following:

(A) A statement that the model is in compliance with subdivision (c). The statement shall be signed and dated, and shall attest to the accuracy of all statements;

(B) General Information

(i) Name and address of manufacturer,

(ii) Brand name, and

(iii) Model number, as it appears on the unit rating plate;

(C) A description of each model being certified; and

(D) A source test report verifying compliance with the emission limits in subdivision (c) for each model to be certified. The source test report shall be prepared by the confirming independent testing laboratory and shall contain all of the elements identified in Section 10 of the Protocol for each unit tested. The source test shall have been conducted no more than ninety (90) days prior to the date of submittal to the Executive Officer.

(3) When applying for unit certification, the manufacturer shall submit the items identified in paragraph (d)(2) no more than ninety (90) days after the date of the source test identified in subparagraph (d)(2)(D) and at least 120 days prior to the date of the proposed sale of the units.

(4) The Executive Officer shall certify a unit model which complies with the provisions of subdivision (c) and of paragraphs (d)(1), (d)(2), and (d)(3).

(5) Certification status shall be valid for three years from the date of approval by the Executive Officer. After the third year, recertification may be required according to the requirements of paragraphs (d)(1) and (d)(2).

(e) Modification (Retrofit) Provisions and Demonstration of Compliance With Emission Limits.

Any unit ~~manufactured prior to January 1, 2000~~, may be modified or demonstrated to meet the requirements of paragraph (c)(1), (c)(2), (c)(3), (c)(4), or (c)(5) provided:

(1) The unit is certified pursuant to subdivision (d); or

(2) A certified retrofit kit has been installed; or

(3) A copy of a source test report conducted by an independent third party, demonstrating the specific unit complies with the emission limits at low and high fire, shall be maintained on-site ~~on and after July 1, 2002, January 1, 2005, or January 1, 2006 as applicable~~; and

(4) The source test report clearly specifies the emissions limit of the unit in parts per million or pounds of NOx per million Btu of heat input. The source test report must identify that the source test was conducted pursuant to a District approved protocol; and

(5) The source test report shall be maintained on-site at the facility where the unit is being operated and made available to the Executive Officer, at all times, upon request, as long as the unit is being operated. The model and serial numbers of the specified unit shall clearly be indicated on the source test report.

(f) Identification of Compliant Units

(1) Newly Manufactured Units

The manufacturer shall display the model number of the unit complying with subdivision (c) on the shipping carton and rating plate. The manufacturer shall also display the certification status on the shipping carton and on the unit.

(2) Certified Retrofit Kits

The manufacturer shall display the model number of the retrofit kit and manufacturer and model of applicable units on the shipping carton and in a plainly visible portion of the retrofit kit.

(g) Enforcement

The Executive Officer may periodically inspect distributors, retailers, and installers of units located in the District, and conduct such tests as are deemed necessary to ensure compliance with subdivision (c).

(h) Exemptions

(1) The provisions of this rule shall not apply to:

(A) Units used in recreational vehicles.

(B) Units used in mobile homes.

(C) Units located at RECLAIM facilities.

(2) The provisions of paragraphs (c)(3), (c)(4), and (c)(5) shall not apply to:

(A) Any residential unit.

(B) Units rated greater than 400,000 Btu/hour, but less than or equal to 2,000,000 Btu/hour that are demonstrated to use less than 9,000 therms of natural gas during every calendar year. ~~beginning with~~:

~~(i) 2001 for units rated greater than 1,000,000 Btu/hr, but less than or equal to 2,000,000 Btu/hr; and~~

~~(ii) 2005 for units rated greater than 400,000 Btu/hr, but less than or equal to 1,000,000 Btu/hr.~~

~~(i) Implementation Study~~

~~Staff will study the implementation of the rule, in cooperation with the public, industry, and trade associations, and report back to the Governing Board at least 18 months prior to the implementation date for the following categories: new units (75,000 to 400,000 Btu/hr), retrofit units (400,000 to 1,000,000 Btu/hr), and retrofit units (1,000,000 to 2,000,000 Btu/hr); the study will evaluate issues including, but not limited to, the following:~~

~~(1) Review of available and potential low-NOx boilers and burners;~~

~~(2) Cost differential between standard units and low-NOx units;~~

~~(3) Potential fuel savings from low-NOx units;~~

~~(4) Certification and related standards, including safety;~~

~~(5) Emissions for a typical unit;~~

~~(6) Appropriate fuel use exemption;~~

~~(7) Timing of the proposed retrofit requirements; and~~

~~(8) Cost effectiveness and cost impacts on selected industries and small businesses.~~