

RULE 69.2.2 MEDIUM BOILERS, PROCESS HEATERS, AND STEAM GENERATORS (Adopted & Effective September 9, 2021)

(a) APPLICABILITY

Except as otherwise provided in Section (b) Exemptions, this rule shall apply to any boiler, process heater, or steam generator with a heat input rating greater than 2 million Btu per hour to less than 5 million Btu per hour. Specifically, the rule shall apply to any person who:

- (1) manufactures, sells, offers for sale or distributes such units for use within San Diego County, or
- (2) installs or operates such units within San Diego County.

(b) EXEMPTIONS

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

- (i) Any waste heat recovery boilers that are used to recover heat from the exhaust of gas turbines, internal combustion engines, or other combustion equipment.
- (ii) Furnaces, kilns, and any combustion equipment where the material being heated is in direct contact with the products of combustion.
- (iii) Thermal oxidizers and associated waste heat recovery equipment.

(2) The provisions of Subsection (d)(1)(i)(B) and Section (e) Monitoring Requirements shall not apply to any unit which burns liquid fuel only during periods of natural gas curtailment, during emergencies, or during equipment testing for the purpose of maintaining the fuel oil back-up system, provided that both of the following conditions are met:

- (i) Total cumulative operation during curtailment periods or emergencies shall not exceed 168 hours per calendar year.
- (ii) Liquid fuel firing for equipment testing shall not exceed 48 hours per calendar year.

It is the responsibility of any person claiming this exemption to keep records in accordance with Subsections (h)(4) and (h)(5).

(3) The provisions of Section (f) Manufacturer Requirements shall not apply to any new unit intended to be used in conjunction with any equipment, product line, system, process line or process that is subject to permit requirements of Rule 10 – Permits Required.

(c) **DEFINITIONS**

For the purposes of this rule, the following definitions shall apply:

(1) **"Annual Heat Input"** means the actual, total heat input of fuels burned by a unit in a calendar year, as determined from the higher heating value and cumulative annual usage of each fuel. Annual heat input shall not include the heat input from fuels used during natural gas curtailment, during an emergency, or during equipment testing for the purpose of maintaining the fuel oil back-up system.

(2) **"Boiler"** means any combustion equipment fired with gaseous and/or liquid fuel and used to produce steam or to heat water.

(3) **"Btu"** means British thermal unit.

(4) **"Emergency"** means an unforeseen disruption or interruption in the supply of gaseous fuel to the unit.

(5) **"Existing Unit"** means any unit which was installed and capable of operation before July 1, 2021.

(6) **"Furnace"** means any enclosed structure in which heat is produced by the combustion of any fuel.

(7) **"Gaseous Fuel"** means natural gas or liquefied petroleum gas.

(8) **"Heat Input"** means the heat derived from combustion of a fuel in a unit, calculated using the higher heating value, excluding the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, including but not limited to, gas turbines, internal combustion engines and kilns.

(9) **"Heat Input Rating"** means the maximum steady state heat input capacity of a unit, in Btu per hour, as specified by the manufacturer.

(10) **"Higher Heating Value"** means the total heat liberated, including the heat of condensation of water, per mass of fuel burned (Btu per pound) when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions.

(11) **"Installed"** means located onsite at the final destination and capable of operation.

(12) **"Kiln"** means an oven, furnace, or heated enclosure used for processing a substance by burning, firing, or drying.

(13) **"Liquefied Petroleum Gas (LPG)"** means a gas, consisting primarily of propane, propylene, butane, and butylene in various mixtures, that is stored as a liquid at high pressure.

(14) **"Liquid Fuel"** means any fuel, including distillate oils, which is a liquid at atmospheric pressure and ambient temperature conditions.

(15) **"Natural Gas Curtailment"** means a shortage in the supply of natural gas, due solely to limitations or restrictions in distribution pipelines by the utility supplying the gas, and not due to the cost of natural gas.

(16) **"New Unit"** means a unit installed, manufactured, or sold on or after July 1, 2021.

(17) **"Process Heater"** means any combustion equipment fired with liquid and/or gaseous fuel and which transfers heat from the combustion gases to water or process streams. Pool heaters used for swimming pools, spas and/or therapy pools shall be considered process heaters.

(18) **"Registration"** means the process of obtaining a Certificate of Registration for an emission unit that allows an owner or operator to lawfully operate the emission unit within San Diego County without applying for a Permit to Operate, as provided in Rule 12 – Registration of Specified Equipment.

(19) **"Relocated Unit"** means an existing unit which is moved within San Diego County from one stationary source to another stationary source. A relocated unit is deemed to maintain the status of an existing unit at the subsequent stationary source.

(20) **"Stationary Source"** means the same as defined in Rule 2 – Definitions.

(21) **"Steam Generator"** means any combustion equipment fired with gaseous and/or liquid fuel and used to produce steam or to heat water.

(22) **"Thermal Oxidizer"** means combustion equipment fired with gaseous fuel and used to control emissions of air contaminants from industrial or commercial processes.

(23) **"Unit"** means any boiler, process heater, or steam generator.

(d) **STANDARDS**

New Units

(1) Effective July 1, 2021, except as otherwise provided in Section (b) Exemptions, no person shall manufacture, sell, offer for sale or distribute for use within San Diego County, or install or operate a new unit within San Diego County unless:

(i) Emissions of nitrogen oxides (NO_x), calculated as nitrogen dioxide at 3% oxygen on a dry basis, do not exceed the following levels:

(A) 30 parts per million by volume when operated on a gaseous fuel as a primary fuel.

(B) 40 parts per million by volume when operated on a liquid fuel as a primary fuel.

(C) The heat-input weighted average of the limits specified in Subsections (d)(1)(i)(A) and (d)(1)(i)(B) when operated on combinations of a gaseous and a liquid fuel. The heat-input weighted average is calculated using the following equation:

$$\text{Heat-input weighted average, ppmv} = \{(H_g) (30 \text{ ppmv}) + (H_l) (40 \text{ ppmv})\} / (H_g + H_l)$$

where:

H_g = the actual heat input of gaseous fuel to a unit, in Btu per hour.

H_l = the actual heat input of liquid fuel to a unit, in Btu per hour.

(ii) Emissions of carbon monoxide (CO), calculated at 3% oxygen on a dry basis, do not exceed 400 parts per million by volume.

(iii) The new unit model has been or will be certified by the Air Pollution Control Officer in accordance with Section (f) Manufacturer Requirements.

(2) No person shall operate any new unit unless it is initially tuned no later than one year after the date of installation, and tuned at least once every calendar year thereafter. No two tuning events shall occur within 90 days of each other. Boiler tuning shall be conducted in accordance with the recommended tuning procedure of the manufacturer or boiler tuning contractor, the tuning procedure specified in 40 CFR Part 63, Sections 63.7540(a)(10)(i) through (vi), or as specified in Subsection (i)(3) for liquid-fuel fired units. At the time of tuning, the measurements of nitrogen oxides and carbon monoxide concentrations shall be conducted with the use of a portable NO_x and CO analyzer in accordance with Subsection (i)(2).

Existing or Relocated Units

(3) Except as otherwise provided in Section (b) Exemptions, no person shall operate any existing or relocated unit unless it is initially tuned no later than January 1, 2022, and tuned at least once every calendar year thereafter. No two tuning events shall occur within 90 days of each other. Boiler tuning shall be conducted in accordance with the recommended tuning procedure of the manufacturer or boiler tuning contractor, the tuning procedure specified in 40 CFR Part 63, Sections 63.7540(a)(10)(i) through (vi), or as specified in Subsection (i)(3) for liquid-fuel fired units.

(e) MONITORING REQUIREMENTS

An owner or operator of a new unit which is capable of burning both gaseous and liquid fuel and is subject to the requirements of Subsection (d)(1), except as specified in Subsection (b)(2), shall install one of the following:

- (1) A non-resettable, totalizing meter in each fuel line to measure the mass flow rate of each fuel to the unit; or
- (2) A non-resettable, totalizing meter in each fuel line to measure the volumetric flow rate, temperature and pressure of each fuel to the unit.

(f) MANUFACTURER REQUIREMENTS

(1) Except as provided in Subsection (b)(3), a manufacturer of any new unit to be offered for sale or sold for use within San Diego County shall submit to the Air Pollution Control Officer an application to certify that each model of boiler, process heater, or steam generator subject to the requirements of Section (d) Standards complies with the provisions of this rule.

(i) The application shall be signed, dated, and attested to the accuracy of all information by a representative of the manufacturer.

(ii) Except as provided in Subsection (f)(1)(iii), the application shall be submitted at least 30 days before the unit model is offered for sale, sold, or installed within San Diego County.

(iii) For any unit model that has not been certified by the Air Pollution Control Officer before the sale of the unit:

(A) The manufacturer or its representative shall conduct an initial source test within 30 days of unit installation in accordance with Subsections (i)(1)(i) or (ii), and

(B) The application shall be submitted within 30 days of conducting the initial source test.

(iv) The application shall include:

(A) Brand name,

(B) Model number,

(C) Heat input rating as specified on the nameplate, and

(D) Oxides of nitrogen and carbon monoxide emission test results of each model being certified.

(2) The certification application shall include a demonstration that the boiler, process heater, or steam generator model was tested in accordance with Section (i) Test Methods and found to comply with the requirements of Subsection (d)(1).

(3) After completing review of the application for certification and source test report, the Air Pollution Control Officer shall either approve the certification and include the subject model on the list of certified devices, or deny the certification.

(4) A manufacturer shall submit to the Air Pollution Control Officer a new certification application for any unit model previously certified in accordance with Section (f) Manufacturer Requirements whose design is changed in any manner which may alter oxides of nitrogen or carbon monoxide emissions.

(5) A manufacturer shall maintain laboratory or source test records for oxides of nitrogen, carbon monoxide, and oxygen content emissions, and certification records in electronic and/or hardcopy format for as long as the new unit model is offered for sale or sold within San Diego County, or for three calendar years after date of manufacture, whichever is longer. Such records shall be provided to the District upon request.

(g) REGISTRATION OR PERMIT TO OPERATE REQUIREMENTS

(1) An owner or operator of any unit subject to this rule and without a current District Permit to Operate shall:

(i) Submit to the District a completed Registration application form, and any additional information determined by the Air Pollution Control Officer as necessary to demonstrate eligibility for registration in accordance with the applicable requirements of Rule 12 – Registration of Specified Equipment; or

(ii) Submit an application for an Authority to Construct/Permit to Operate according to Rule 10 – Permits Required.

(2) The application required by Subsections (g)(1)(i) or (ii) shall be submitted by July 1, 2021, for any existing or relocated unit, or before the purchase and installation of any new unit.

(h) RECORD KEEPING REQUIREMENTS

(1) An owner or operator of a new unit shall maintain documentation verifying the required annual tune-ups, including, but not limited to, records of nitrogen oxides and carbon monoxide emissions for compliance with the requirements of Subsection (d)(1), as applicable.

(2) An owner or operator of a new unit subject to the requirements of Subsection (d)(1)(i)(C) shall record the annual average higher heating value and annual usage of each fuel.

(3) An owner or operator of an existing or relocated unit shall maintain documentation verifying the required annual tune-ups.

(4) An owner or operator of any unit which is burning liquid fuel during natural gas curtailment or an emergency shall monitor and record the cumulative annual hours of operation on liquid fuel. At a minimum, these records shall include the dates and times of operation on liquid fuel and any corresponding totalizer readings.

(5) An owner or operator of any unit which is burning liquid fuel for equipment testing purposes shall monitor and record the cumulative annual hours of operation on liquid fuel. At a minimum, these records shall include the dates and times of operation on liquid fuel and any corresponding totalizer readings.

All records shall be maintained onsite for at least three calendar years in electronic and/or hardcopy format and shall be made available to the District upon request.

(i) **TEST METHODS**

When more than one test method or set of test methods are specified in this Section, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.

(1) To determine compliance with Subsection (d)(1) for each unit model, a manufacturer of any unit to be certified in accordance with Section (f) Manufacturer Requirements and offered for sale within San Diego County shall have the measurements of nitrogen oxides and carbon monoxide concentrations conducted by an independent testing laboratory in accordance with:

(i) San Diego County Air Pollution Control District's Test Method 100 "Test Procedures for the Determination of Nitrogen Oxides, Carbon Monoxide, and Diluent Gases by Continuous Emission Monitoring," May 1995, or its most current version approved by the U.S. Environmental Protection Agency (EPA), or

(ii) Bay Area Air Quality Management District Manual of Procedures, Volume IV, ST-13A "Oxides of Nitrogen, Continuous Sampling," ST-6 "Carbon Monoxide, Continuous Sampling," and ST-14 "Oxygen, Continuous Sampling," July 6, 1982, or the most current versions approved by EPA.

(2) To determine compliance with Subsection (d)(1), and pursuant to Subsection (d)(2), at the time of boiler tune-up the owner or operator of any new unit shall conduct the measurements of nitrogen oxides and carbon monoxide concentrations using a portable NOx and CO analyzer in accordance with ASTM Test Method D-6522-11 (Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers), or EPA Conditional Test Method CTM-030 (Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Emissions from Natural Gas-Fired Engines, Boilers and Process Heaters Using Portable Analyzers), October 1997, or their most current versions approved by EPA.

(3) Pursuant to Subsections (d)(2) and (d)(3), for liquid-fuel fired units, tuning shall be performed in accordance with Bay Area Air Quality Management District Manual of Procedures, Volume I, Chapter 5 “Boiler, Steam Generator and Process Heater Tuning Procedure,” August 6, 2001, or its most current version approved by EPA.

(4) Certification of the higher heating value of a fuel as required by Subsection (h)(2), if not provided by a third party fuel supplier, shall be determined by one of the following methods:

(i) ASTM Test Method D240-19 (Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter) or D4809-18 (Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter - Precision Method), or their most current versions, for liquid hydrocarbon fuels.

(ii) ASTM Test Method D1826-94(2017) (Standard Test Method for Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter), or D1945-14(2019) (Standard Test Method for Analysis of Natural Gas by Gas Chromatography), in conjunction with ASTM Test Method D3588-98(2017)e1 (Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels), or their most current versions, for gaseous fuels.

(5) Other test methods which are determined to be equivalent to the test methods specified in this rule and approved, in writing, by the Air Pollution Control Officer, California Air Resources Board and EPA.