

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

RULE 59 - ELECTRICAL POWER GENERATING EQUIPMENT - OXIDES OF NITROGEN EMISSIONS

(Adopted 10/6/69, Revised 5/23/72, 7/18/72, 10/31/72, 8/14/79, 12/7/82, 6/4/91, 9/15/92 effective 4/1/93, 10/12/93, 7/15/97)

A. Applicability

The provisions of this rule shall apply to electric power generating steam boilers with a rated heat input capacity of greater than three hundred (300) million BTU's per hour, and any auxiliary boiler used with an electric power generating steam boiler, not subject to the provisions of Rule 74.15.

B. Requirements

1. No person shall allow the discharge into the atmosphere from any electric power generating steam boiler NO_x emissions in excess of 0.10 pounds per megawatt hour (MW-hr) produced (net). Compliance shall be determined using an emission rate calculated from continuous emission monitor measurements as a rolling hourly average of not to exceed 24 hours.
2. No person shall allow the discharge into the atmosphere from any auxiliary boiler NO_x emissions in excess of 0.040 pounds per million BTU's of fuel consumed. Compliance shall be determined using continuous emission monitor measurements averaged hourly.
3. Operation of any applicable boiler on any amount of fuel oil shall be prohibited, except as provided in Subsection C.3.
4. No person shall allow the discharge into the atmosphere from any emission control device installed and operated pursuant to the requirements of Subsections B.1 and B.2 above, ammonia (NH₃) emissions in excess of 10 ppmv.

C. Exemptions

1. The provisions of Subsections B.1 and B.4 of this rule shall not apply during the cold start-up of an applicable unit. For units with a rated heat input capacity of equal to, or greater than, two thousand one hundred fifty (2150) million BTU's per hour, the duration of each start-up procedure shall not exceed twenty (20) hours. For units with a rated heat input capacity of less than two thousand one hundred fifty (2150) million BTU's per hour, the duration of each start-up procedure shall not exceed ten (10) hours.

2. The provisions of Subsections B.2 and B.4 of this rule shall not apply during the cold start-up of an applicable unit. The duration of each start-up procedure shall not exceed four (4) hours.
3. The provisions of Subsections B.1 and B.3 of this rule shall not apply during either a force majeure natural gas curtailment, a fuel oil system test or an emission test. Fuel oil system tests for all units at each stationary source shall not exceed a total of 48 hours per year. For multiple stationary sources that have the same owner, fuel oil system tests for all units shall not exceed a total of 96 hours per year. When fuel oil is in use in any electric power steam generating boiler, NOx emissions shall not exceed the following:
 - a. When operated on 100 percent fuel oil, 0.33 pounds per megawatt hour (MW-hr) produced (net).
 - b. When operated on a mixture of natural gas and fuel oil, a limit calculated every hour as an average of the sum of the current and previous hourly emission limits. The number of hourly limits averaged shall equal the number of hours used to calculate the compliance rolling average for the hour. The hourly emission limit shall be determined from the following equation:

$$R = \frac{[(0.33)(Fo)(HFO)] + [(0.10)(Fg)(HFG)]}{B}$$

Where R = Emission limit in pounds per megawatt hour (MW-hr) produced (net)

Fo = Rate of fuel oil used (gallons/hour)

Fg = Rate of natural gas used (cubic feet/hour)

HFO = Heating value of fuel oil in use (BTU/gallon)

HFG = Heating value of natural gas in use (1050 BTU/cubic foot)

B = (Fo)(HFO)+(Fg)(HFG), or the total energy input per hour (BTU/Hr)

Compliance shall be determined using an emission rate calculated from continuous emission monitor measurements as a rolling hourly average of not to exceed 24 hours.

D. Recordkeeping Requirements

1. For those units subject to Subsection B.2, permanent daily records shall be maintained for a period of five (5) years and shall be available for inspection by the Air Pollution Control Officer upon request. The records shall include, but are not limited to, type of fuel burned, sulfur content of fuel burned, quantity of fuel burned, and hours of operation.

2. Any unit exempt pursuant to the provisions of Subsections C.1 and C.2 shall maintain permanent hourly records of the cold startup procedure for a period of five (5) years. Records shall be available for inspection by the Air Pollution Control Officer upon request. The records shall include, but are not limited to, type of fuel burned, sulfur content of fuel burned, quantity of fuel burned, net energy production in megawatt hours (MW-hr), and the duration of the procedure.
3. For those units subject to the provisions of Subsection B.1, permanent hourly records shall be maintained for a period of five (5) years and shall be available for inspection by the Air Pollution Control Officer upon request. The records for each hour shall include, but are not limited to, net energy production in megawatt hours (MW-hr), quantity of fuel burned, the injection rate of reactant chemicals (gallons/minute), if appropriate, NO_x emissions in pounds (lb), the NO_x emission rate in lb/MW-hr, the rolling hourly average NO_x emission rate with the number of hours averaged, and the applicable NO_x emission limit calculated pursuant to Subsection C.3.

E. Test Methods

1. The oxides of nitrogen (NO_x) emission limitation specified in Subsections B.1, B.2, and C.3 are expressed as nitrogen dioxide. The limitation in Subsection B.4 is referenced at three (3) percent volume stack gas oxygen on a dry basis. Stack gas oxygen shall be measured using EPA Method 3A. The heating value of fuel oil shall be measured using ASTM Method D 240-87.
2. Megawatt hours (MW-hr) produced (net), as required in Subsection B.1, shall be measured using a method approved by the Air Pollution Control Officer. The method shall be submitted by the owner or operator of an electric power generating unit and shall include a description of the principle of measurement and calculation used to determine the megawatt hours (MW-hr) produced (net). The method shall also include the technique and procedures used to calibrate each measurement device. Each measurement device shall be calibrated against standards which are traceable to either National Institute of Standards and Technology (NIST) standards or a higher authority if no NIST standards exist. The calibration accuracy tolerance of each measurement device shall be ± 0.5 percent of all measured values.
3. The hourly calculations used to determine pounds per MW-hr, as required in Subsections B.1 and C.3, shall use NO_x and MW-hr measurements determined according to the procedure set forth in 40 CFR 75.10(d)(1).
4. The rolling hourly average specified in Subsections B.1 and C.3 shall be calculated every hour as $(E_t)/(F_t)$, where E_t is the sum of a number of previous consecutive hourly average emission rates E and F_t is the sum of the same number of corresponding consecutive hourly MW-hr produced (net) calculations

F, as specified in Subsection E.3. The number of hours averaged shall be determined by the operator.

5. For those units subject to the ammonia emission requirement in Subsection B.4, compliance shall be determined using Bay Area Air Quality Management District Method ST-1B, dated 1/20/82.
6. The hourly average specified in Subsection B.2 shall be calculated every clock hour as the sum of valid 15-minute emission rates measured during the previous hour divided by the number of valid 15-minute emission rates.

F. Violations

Failure to comply with any provision of this rule shall constitute a violation of this rule.

G. Definitions

1. "Boiler": An individual piece of combustion equipment fired with liquid and/or gaseous fuel and used to produce steam.
2. "Cold startup procedure": The process of bringing a boiler and the associated emission control device up to operating temperature after the boiler and control device have experienced zero fuel flow for a period of time and are considered cold. A boiler and control device shall be considered cold if the temperature of the flue gas leaving the economizer outlet is less than 550 degrees F.
3. "Force majeure natural gas curtailment": An interruption in natural gas service, such that the daily fuel needs of a boiler cannot be met with the natural gas available, due to one of the following reasons:
 - a. Unforeseeable failure or malfunction not resulting from an intentional or negligent act or omission on the part of the owner or operator of a boiler, or natural disaster, or;
 - b. A supply restriction resulting from a California Public Utilities Commission priority allocation system.
4. "Heat Input": The chemical heat released due to fuel combustion in a boiler, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air.

5. "Megawatt hour (MW-hr) produced (net)": The electricity produced according to the following equation:

$$\text{MW-hr} = VI(\cos u)$$

Where V = Voltage to the power grid (volt)
I = Current to the power grid (ampere)
cos u = Power factor
u = Phase angle

6. "Rated Heat Input Capacity": The heat input capacity specified on the nameplate of the unit's burner. If the burner has been permanently altered or modified such that the maximum heat input is different than the input capacity specified on the nameplate, and this alteration or modification has been approved in writing by the Air Pollution Control Officer, then the new maximum heat input shall be considered as the rated heat input capacity.