

**RULE 69. ELECTRICAL GENERATING STEAM BOILERS,  
REPLACEMENT UNITS AND NEW UNITS**

(Adopted and Effective: 1/18/94)

(a) **APPLICABILITY**

(1) Except as provided in Section (b) or otherwise specified in this rule, this rule is applicable to all electrical generating steam boilers, including any auxiliary boiler used in conjunction with an electrical generating steam boiler, and to replacement units and new units.

(2) Equipment subject to this rule shall also comply with the emission limitations and exemptions set forth in Rule 68.

(b) **EXEMPTIONS**

(1) The provisions of Section (d) shall not apply to:

(i) Any electrical generating steam boiler with a maximum heat input capacity of less than 100 million Btu's per hour.

(ii) Boilers which generate steam used exclusively for space heat or process heat and not used for electrical generation.

(c) **DEFINITIONS**

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

(1) **"Boiler"** means any combustion equipment fired with solid, liquid and/or gaseous fuels and used to produce steam, excluding electrical generating gas turbines.

(2) **"Calendar Day"** means the 24-hour period starting on the 00:00 hour and ending on the 24:00 hour.

(3) **"Calendar Year"** means the consecutive 12-month period beginning January 1 and ending December 31.

(4) **"Capacity Factor"** means the fraction of an electrical generating steam boiler's, replacement unit's or new unit's maximum electrical generating capacity that is actually utilized during a calendar year. The maximum electrical generating capacity shall be determined by multiplying the maximum rated capacity of a boiler, replacement unit or new unit, in megawatts, by 8760 maximum operating hours per year (8784 hours for a leap year).

(5) **"Clock Hour"** means every 60-minute period starting on the hour.

(6) **"Electrical Generating Steam Boiler"** means any boiler used to produce steam to be expanded in a turbine generator used for the generation of electric power.

(7) **"Electrical Generating Gas Turbine"** means any combustion turbine fired with solid, liquid and/or gaseous fuels and used to provide direct shaft work for the generation of electric power.

(8) **"Force Majeure Natural Gas Curtailment"** means an interruption in natural gas service such that the daily fuel needs of a boiler or replacement unit subject to this rule cannot be met with the natural gas available due to:

(i) Unforeseeable natural disaster or other cause resulting in the failure or malfunction of natural gas supply, delivery or storage system facilities, not resulting from an intentional or negligent act or omission on the part of an owner or operator of a boiler, a new unit or a replacement unit, or

(ii) A supply restriction resulting from a California Public Utilities Commission priority allocation ruling, or

(iii) Delivery restrictions due to pipeline capacity limitations of the natural gas supplier or upstream transports or within a gas utility's delivery system.

(9) **"Heat Input"** means the heat derived from combustion of fuel in an electrical generating unit and does not include the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, kilns, etc. The maximum heat input rating means the lesser of the steady state heat input capacity of an electrical generating unit, as limited by its design and construction or as limited by an Authority to Construct or Permit to Operate.

(10) **"Megawatt-hour (MW-hr)"** means the total electrical energy generation of a boiler, new unit or replacement unit subject to this rule.

(11) **"New Unit"** means any electrical generating steam boiler or gas turbine for which the first Authority to Construct is issued on or after January 18, 1994.

(12) **"Reasonable Further Progress"** means annual incremental reductions in emissions of the applicable air pollutant which are sufficient, in the judgment of the Air Pollution Control Officer, to provide for attainment of the applicable National Ambient Air Quality Standard by the date required by law.

(13) **"Reasonably Available Control Technology"** means the lowest emission limit that a particular source is capable of meeting by the application of control technology that is reasonably available, considering technological and economic feasibility and any technology findings made by the U. S. Environmental Protection Agency.

(14) **"Replacement Unit"** means any electrical generating steam boiler or gas turbine which permanently replaces or augments, on or after January 18, 1994, an existing

electrical generating steam boiler subject to this rule. For purposes of this rule, a replacement unit need not be limited to the same electrical generating capacity as the existing boiler being replaced.

(15) **“SIP Control Measures”** means those emission control measures approved by the Air Pollution Control Board for inclusion in the State Implementation Plan (SIP) required by federal law or contained in the SIP approved by the U.S. Environmental Protection Agency.

(16) **"Startup"** means the period of time during which a boiler, replacement unit or new unit, and associated emissions control device(s), are being heated to the minimum functional operating temperatures of the emission control device(s), or when electrical generation equals or exceeds 25 percent of rated capacity, whichever is sooner.

(17) **"Shutdown"** means the period of time during which a boiler, replacement unit or new unit, and its associated emissions control device(s), are allowed to cool from the minimum functional operating temperatures of the emission control device(s) or when electrical generation drops below 25 percent of rated capacity, whichever is later.

(d) **STANDARDS**

A person shall not operate an electrical generating steam boiler, replacement unit or new unit subject to this rule unless only natural gas, alternative fuel and/or fuel oil is burned and the following requirements are met. If an alternative fuel is burned, the operator shall have previously demonstrated to the satisfaction of the Air Pollution Control Officer that the emissions of oxides of nitrogen (NO<sub>x</sub>) per megawatt-hour of electricity generated is not greater than would be the emissions from the burning of natural gas in the same boiler, replacement unit or new unit.

(1) Except as provided in Subsections (d)(2) through (d)(6), a person shall not operate an electrical generating steam boiler unless:

(i) The emissions of oxides of nitrogen, expressed as nitrogen dioxide, from the boiler do not exceed 0.15 pounds per megawatt-hour, and

(ii) The person has met the compliance schedule specified in Section (e).

(2) Except as provided in Subsections (d)(3), (d)(4) and (d)(5), no person shall operate one or more of the electrical generating steam boilers listed below unless the emissions of oxides of nitrogen, expressed as nitrogen dioxide, from the boiler do not exceed 0.18 pounds per megawatt-hour and such person has met the compliance schedule specified in Section (e).

Encina Power Plant Units 1, 2, 3 and 4

South Bay Power Plant Units 1,2 and 4

(3) The provisions of Subsection (d)(2) shall not apply and the provisions of Subsection (d)(1) shall apply if the capacity factor of an electrical generating boiler with a maximum heat input rating of equal to or greater than 2100 million Btu's per hour is greater than 0.15 over any calendar year.

(4) Fuel Oil Firing NOx Emission Rate Limits

A person shall not operate an electrical generating steam boiler when burning fuel oil unless:

(i) The requirements of Subsection (d)(1), (d)(2) or (d)(3), as applicable, are met by the operator of an affected boiler when burning natural gas exclusively in that boiler, and

(ii) The emissions of oxides of nitrogen, expressed as nitrogen dioxide, from an affected boiler do not exceed 0.40 pounds per megawatt-hour when burning fuel oil exclusively in that boiler, and

(iii) The emissions of oxides of nitrogen, expressed as nitrogen dioxide, from the boiler when fired on a mixture of fuel oil and natural gas do not exceed the limits prescribed in Subsections (d)(4)(i) and (d)(4)(ii), prorated for the relative heat input from fuel oil and natural gas, as follows:

$$EL = \frac{[(Lo)(Qo)(HHVo)] + [(Lg)(Qg)(HHVg)]}{(Qo)(HHVo) + (Qg)(HHVg)}$$

where,

- EL = Emission limit, pounds per megawatt-hour
- Lo = 0.40 pounds per megawatt-hour
- Qo = Quantity of fuel oil burned, barrels per hour
- HHVo = Higher heating value of fuel oil, Btu's per barrel
- Lg = 0.15 or 0.18 pounds per megawatt-hour, as applicable
- Qg = Quantity of natural gas burned, scf per hour
- HHVg = Higher heating value of natural gas, Btu per scf,

and

(iv) The Air Pollution Control Officer has determined that an exceedance of the state ambient air quality standard for ozone is not predicted at any location in the air basin at any time during the fuel oil burning. This paragraph shall not apply when burning of fuel oil is required due to a force majeure natural gas curtailment. Prior to January 1, 1997, this paragraph shall not apply to fuel oil burning in the existing South Bay Power Plant Unit 4 boiler on days when fuel oil burning is needed to meet peak electrical generation demand.

(5) Low Capacity Factor Boiler NOx Emission Rate Limits

The provisions of Subsections (d)(1)(i), (d)(2) and (d)(4)(i), (ii) and (iii), shall not apply to the operation of the existing electrical generating steam boilers located at the Silvergate Power Plant nor to the existing Unit 4 boiler at the South Bay Power Plant provided:

(i) The capacity factor for each such boiler, over each calendar year, does not exceed 0.10, and

(ii) The emissions of oxides of nitrogen, expressed as nitrogen dioxide, do not exceed 0.60 pounds per megawatt-hour when burning natural gas, and

(iii) Fuel oil shall not be burned in the Silvergate Power Plant boilers, and may only be burned in the South Bay Unit 4 boiler during force majeure natural gas curtailments on and after January 1, 1997. Prior to January 1, 1997, this limitation shall not apply to fuel oil burning in the South Bay Power Plant Unit 4 boiler on days when fuel oil burning is needed to meet peak electrical generation demand. The emissions of oxides of nitrogen, expressed as nitrogen dioxide, from the South Bay Unit 4 boiler when burning fuel oil shall not exceed 1.20 pounds per megawatt-hour and when fired on a mixture of fuel oil and natural gas shall not exceed the limits prescribed in Subsections (d)(5)(ii) and (d)(5)(iii), prorated for the relative heat input from fuel oil and natural gas, as follows:

$$EL = \frac{[(Lo)(Qo)(HHVo)] + [(Lg)(Qg)(HHVg)]}{(Qo)(HHVo) + (Qg)(HHVg)}$$

where,

- EL = Emission limit, pounds per megawatt-hour  
Lo = 1.20 pounds per megawatt-hour  
Qo = Quantity of fuel oil burned, barrels per hour  
HHVo = Higher heating value of fuel oil, Btu's per barrel  
Lg = 0.60 pounds per megawatt-hour  
Qg = Quantity of natural gas burned, scf per hour  
HHVg = Higher heating value of natural gas, Btu per scf,

and

(iv) The Air Pollution Control Officer has determined that an exceedance of the state ambient air quality standard for ozone is not predicted at any location in the air basin at any time during the fuel oil burning. This paragraph shall not apply when burning of fuel oil is required due to a force majeure natural gas curtailment.

(6) Compliance with the standards of Subsections (d)(1) through (d)(5) shall be based on emissions of oxides of nitrogen from an affected boiler averaged over each calendar day of operation, or portion thereof, excluding periods of startups and shutdowns.

(7) Startups and Shutdowns

The provisions of Subsections (d)(1)(i), (d)(2)(i), (d)(3), (d)(4) and (d)(5) shall not apply to electrical generating steam boilers during periods of startup or shutdown provided the startup or shutdown does not exceed fifteen hours.

(8) Replacement Units and New Units NO<sub>x</sub> Emission Rate Limits

Notwithstanding the requirements of Subsections (d)(1) through (d)(7), no person shall operate a replacement unit or new unit subject to this rule unless such unit has been built with, and is operated in conjunction with, the Lowest Achievable Emission Rate or Best Available Control Technology as applicable and defined in Rule 20.1 for emissions of oxides of nitrogen. Emissions of oxides of nitrogen from any replacement unit or new unit shall not be greater than the emission rate limit of Subsection (d)(1)(i). For a cogeneration unit which generates process steam as well as electricity, the emissions of oxides of nitrogen per megawatt-hour of electrical energy generated shall be determined by prorating the total unit emissions of oxides of nitrogen by the ratio of the gross electrical energy generated to the total energy produced by the unit.

(9) Aggregate NO<sub>x</sub> Emission Limit

Except as provided in Subsection (d)(10), no person or company which qualifies for the NO<sub>x</sub> offset waiver provisions of Subsection (d)(11) shall operate any electrical generating steam boiler, replacement unit or new unit subject to this rule unless such person or company has demonstrated that the aggregate emissions of oxides of nitrogen, expressed as nitrogen dioxide, from all boilers, replacement units and new units, located in San Diego County and owned or operated by such person or company, and any boilers, replacement units and new units that are owned or operated by a company in which such person or company has a controlling interest, are not greater than:

- (i) On and after January 1, 1997, 2100 tons during every calendar year.
- (ii) On and after January 1, 2001, 800 tons during every calendar year.

The annual oxides of nitrogen emission limits specified in this subsection shall be adjusted to account for fuel oil burning that results from a force majeure natural gas curtailment or is due to compliance emissions testing. The adjustment shall be made by adding to the applicable limit the product of the megawatt-hours generated by each boiler, replacement unit, or new unit during such fuel oil burning and the difference between the applicable oxides of nitrogen emission rate limits for fuel oil burning and natural gas burning in that boiler, replacement unit or new unit. The adjustment shall be prorated for the relative heat inputs of fuel oil and natural gas when co-firing both fuels.

(10) Exceedances of an Aggregate NO<sub>x</sub> Emission Limit

A person or company subject to the requirements of Subsection (d)(9) may operate its electrical generating steam boilers, replacement units and new units when aggregate

oxides of nitrogen emissions exceed the calendar year limits specified in Subsection (d)(9) provided:

(i) Such person or company has demonstrated, to the satisfaction of the Air Pollution Control Officer, that the exceedance is due to an unforeseen event, such as a forced outage of one or more generating units or a disruption in the supply of imported power, and is not due to an intentional or negligent act or omission on the part of such person or company, and

(ii) The Air Pollution Control Officer has approved the exceedance in advance and has issued modified permits to operate for the affected equipment adding conditions that establish a new, enforceable calendar year aggregate emission limit, and

(iii) Such person or company has provided offsetting emission reductions, on an annual basis and at a 1.3 to 1.0 offset ratio, for all emissions of oxides of nitrogen in excess of the calendar year limits specified in Subsection (d)(9).

The new calendar year aggregate oxides of nitrogen emission limit established pursuant to Subsection (d)(10)(ii) above, shall be based on the maximum expected calendar year emissions in compliance with this rule. The quantity of offsetting emission reductions required shall be 1.3 times the difference between the new calendar year aggregate oxides of nitrogen emission limit and the applicable calendar year limit specified in Subsection (d)(9). Offsetting emission reductions shall conform to the criteria for emission offsets specified in Rule 20.1.

#### (11) Waiver from New Source Review NO<sub>x</sub> Offset Requirements

On and after January 1, 1997, oxides of nitrogen emission increases from any new, modified or replacement unit subject to and in compliance with Subsections (d)(9) and (d)(10) of this rule, shall not be subject to the offset provisions of Regulation II, Rules 20.1 through 20.4 (New Source Review) of these Rules and Regulations provided that:

(i) The owner or operator of the new, modified or replacement unit has demonstrated, using methods approved by the Air Pollution Control Officer and the U.S. Environmental Protection Agency, the extent to which the NO<sub>x</sub> emission reductions that have been achieved by the owner or operator from electrical generating steam boilers existing prior to January 18, 1994, by compliance with this rule are in excess of the NO<sub>x</sub> emission reductions required to demonstrate compliance with Reasonably Available Control Technology and any NO<sub>x</sub> emission reductions from electrical generating steam boilers contained in SIP Control Measures and any NO<sub>x</sub> emission reductions from electrical generating steam boilers necessary to demonstrate compliance with Reasonable Further Progress, and

(ii) The excess NO<sub>x</sub> emission reductions determined in Subsection (d)(11)(i) are greater than 1.3 times the NO<sub>x</sub> emissions increases from the new, modified or replacement unit that would otherwise be subject to the offset provi-

sions of Regulation II, Rules 20.1 through 20.4 (New Source Review) of these Rules and Regulations, and

(iii) The excess NO<sub>x</sub> emission reductions determined in Subsection (d)(11)(i) are reduced by 1.3 times the NO<sub>x</sub> emissions increases from the new, modified or replacement unit that would otherwise be subject to the offset provisions of Regulation II, Rules 20.1 through 20.4 (New Source Review) of these Rules and Regulations.

Only oxides of nitrogen emission increases associated with generating capacity which the California Energy Commission or the California Public Utilities Commission has determined a need for shall be eligible for this waiver.

(12) Emission Standards for Ammonia

The emissions of ammonia from any electrical generating steam boiler, replacement unit or new unit subject to the requirements of this rule, or from any emissions control device used to achieve compliance with this rule, shall not be greater than the lowest emission rate achievable, consistent with the requirements of this rule, taking into consideration the costs of achieving that emission rate and the potential public health impacts associated with such emissions.

(13) Banking of Excess Emission Reductions

No person shall be eligible to obtain emission reduction credits for emissions of oxides of nitrogen below the limits specified in this Section (d).

(e) **COMPLIANCE SCHEDULE**

(1) Increments of Progress

A person subject to the provisions of Section (d) shall comply with the following increments of progress:

(i) Any replacement unit or any new unit shall be in compliance with the applicable requirements of Section (d) on and after initial startup.

(ii) Not later than January 18, 1997, be in compliance with the applicable requirements of Section (d) for not fewer than one electrical generating steam boiler, replacement unit or new unit and each calendar year thereafter bring into compliance a minimum of one additional boiler, replacement unit or new unit owned or operated by such person.

(iii) Except as provided in Subsection (e)(1)(iv) below, on and after January 1, 2001, be in compliance with the requirements of Section (d) for all operating electrical generating steam boilers, replacement units and new units owned or operated by such person.



(iv) Be in compliance with Section (d) by January 1, 2003, or upon initial startup, whichever is sooner, for all replacement units, and associated boiler(s), scheduled for initial startup between January 1, 2001 and January 1, 2003.

(2) Compliance Plan/Report

(i) The owner or operator of any equipment subject to the provisions of this rule shall submit by July 18, 1994 a Compliance Plan describing the actions, and contingencies, which are proposed by the owner or operator to meet the requirements of Section (d) and Subsection (e)(1). The Compliance Plan shall contain, at a minimum, the following applicable information for each electrical generating steam boiler, replacement unit and new unit subject to this rule:

- District Permit to Operate number.
- Equipment location.
- Manufacturer.
- Model number.
- Maximum permitted heat input rating.
- Primary and backup fuels to be used.
- Proposed method to measure and record megawatt-hours generated and watt transducer calibration method with supporting documentation.
- Maximum hourly, daily and annual pre-controlled NOx emission rates.
- Method and type of emission controls to be used.
- Expected performance of the emission controls.
- Proposed schedule for applications for Authorities to Construct, issuing purchase orders for emission controls, commencing construction, completing construction, conducting compliance tests and demonstrating compliance with the provisions of this rule.

The initial Compliance Plan submittal need not contain detailed information regarding emission control specifications, performance and schedules, but must contain at least preliminary information regarding the type of control equipment and the anticipated final compliance date for each affected unit. A copy of the Compliance Plan shall be kept at each affected site and shall be made available for District inspection upon request. Adherence to a Compliance Plan does not relieve the owner or operator from complying with any other provisions of this rule. The Compliance Plan shall be updated annually.

(ii) The owner or operator of any equipment subject to the provisions of this rule shall submit by the submittal date in 1997 of the Emissions Statement Form(s) required by Rule 19.3, and each year thereafter, a Compliance Report which describes the measures taken in the preceding calendar year to achieve compliance with the requirements of Section (d) and Subsection (e)(1). The Compliance Report shall contain, at a minimum, the following information for the

preceding calendar year for each electrical generating steam boiler, replacement unit and new unit subject to Section (d) of this rule:

- District Permit to Operate number.
- Number of hours of operation.
- Types and amounts of fuels consumed, and the number of hours on each fuel type.
- Dates and times of any force majeure natural gas curtailments that occurred.
- Mass emissions of oxides of nitrogen for each calendar day and for the calendar year.
- Megawatt-hours generated each calendar day and for the calendar year.
- Indication of whether the unit is on schedule to meet the Compliance Plan(s) submitted pursuant to Subsection (e)(1).
- Identification of each exceedance of the applicable requirements of Section (d).

The Compliance Report shall also contain any proposed revisions to the Compliance Plan. These revisions shall include the justification for the changes and a demonstration that the changes will ensure compliance with the requirements of Section (d) and Subsection (e)(1).

Documentation and calculations used to prepare the material presented in the Compliance Report shall be maintained by the owner or operator for at least two years and shall be made available to the District upon request.

**(f) RECORDKEEPING**

(1) On and after January 1, 1997, no person or company subject to the requirements of Subsection (d)(9) shall operate any electrical generating steam boiler, replacement unit or new unit subject to this rule unless such boiler or unit is equipped with continuous emission monitors which record and preserve, on a daily basis and in the manner and form prescribed by the Air Pollution Control Officer, all of the information needed to demonstrate compliance with Subsections (d)(9) and (d)(10) of this rule, including but not limited to:

(i) The daily emissions, in pounds, of oxides of nitrogen from each boiler, replacement unit or new unit.

(ii) The aggregate daily emissions, in pounds, of oxides of nitrogen from all such boilers, replacement units or new units.

(iii) The cumulative annual emissions, in tons, of oxides of nitrogen, commencing with January 1 of the current calendar year, for each such boiler, replacement unit or new unit, and

(iv) The cumulative annual emissions, in tons, of oxides of nitrogen, commencing with January 1 of the current calendar year, for the aggregate of all such boilers, replacement units or new units under common ownership or control.

(2) On and after the final compliance date specified in the Compliance Plan, a person shall not operate any electrical generating steam boiler, replacement unit or new unit subject to this rule unless such boiler or unit is equipped with continuous monitors, approved by the Air Pollution Control Officer, which record and preserve all of the information needed to determine compliance with Subsections (d)(1) through (d)(5) and (d)(7), including but not limited to:

(i) The hours of operation of the unit.

(ii) The emission concentration of oxides of nitrogen, calculated as parts per million by volume (ppmv) of nitrogen dioxide at three percent oxygen on a dry basis, averaged over every clock hour of operation, or portion thereof. The emission concentration shall be measured at equally spaced intervals, not to be less frequent than once every five minutes, or such other period determined by the Air Pollution Control Officer to be necessary to determine compliance with this rule and not inconsistent with monitoring requirements imposed under these rules or state or federal law, and averaged up to each clock hour, or portion thereof. Only the clock hour average data, or portion thereof, must be recorded and preserved.

(iii) The unit exhaust flue gas flow rate, calculated as cubic feet per hour at standard conditions and at three percent oxygen on a dry basis, averaged over every clock hour of operation, or portion thereof. The exhaust flue gas flow rate shall be measured at the same interval as emission concentration measurements. If unit exhaust flue gas flow rate is not measured directly but instead calculated from fuel flow rate or other operating parameter, such parameter shall be measured at the specified concentration measurement interval, the parameter measurement shall be recorded, and the exhaust flue gas flow rate shall be calculated for each such interval. The exhaust flue gas flow rate measurements shall be averaged up to each clock hour, or portion thereof. Only the clock hour average data, or portion thereof, must be recorded and preserved.

(iv) The emissions of oxides of nitrogen shall be calculated, as pounds of nitrogen dioxide, during every interval of emission concentration measurement using the emission concentration and exhaust flue gas flow rate measurements required in Subsections (f)(2)(ii) and (f)(2)(iii) above. The emissions of oxides of nitrogen during every clock hour of operation, or portion thereof, shall be calculated by summing the emissions calculated for each measurement interval, following the methods described in Subsection (g)(4), and shall be recorded.

(v) The megawatt-hours of electrical energy generated by the unit during every clock hour of operation, or portion thereof shall be measured and recorded.

(vi) The cumulative emissions of oxides of nitrogen, expressed as pounds of nitrogen dioxide; the total megawatt-hours of electrical energy generated; and, the average emission rate of oxides of nitrogen, expressed as pounds of nitrogen dioxide per megawatt-hour of energy generated, for every calendar day of operation, or portion thereof, shall be calculated and recorded.

The records required by this section shall be retained on site for at least three years and shall be made available to the District upon request. Records of aggregate daily emissions required by Subsection (f)(1)(ii) shall be available within two working days of a request. Records of cumulative annual emissions required by Subsections (f)(1)(iii) and (f)(1)(iv) shall be available within 20 working days of a request.

**(g) TEST METHODS**

The following methods shall be used to determine compliance with the requirements of this rule:

(1) Oxides of nitrogen emissions shall be measured utilizing District modified Method 20, as it exists on January 18, 1994. This method shall not apply to continuous emission monitors required by Subsections (f)(1) and (f)(2).

(2) Total energy generation in megawatt-hours shall be measured using watt transducers calibrated according to methods approved by the Air Pollution Control Officer. The methods shall be submitted by the owner or operator of a boiler or unit as part of the compliance plan required by Subsection (e)(2), and shall include a description of the principal of measurement, the frequency of measurement and basis therefore, and the calculations used to determine the megawatt hours (MW-hr) generated. The method shall also include the techniques and procedures used to calibrate each measurement device. Each measurement device shall be calibrated against standards which are based on the National Institute of Standards and Technology (NIST) standards or equivalent if no NIST standards exist. The calibration accuracy tolerance of each measurement device shall be (+/-) 0.5 percent of each measured value.

(3) The oxides of nitrogen (NO<sub>x</sub>) emission rate, in pounds per megawatt-hour, for each clock hour of operation, or portion thereof, for each boiler subject to the requirements of Subsections (d)(1) or (d)(2), shall be calculated as follows:

$$\text{NO}_{x\text{lb/MW-hr}} = \frac{\text{NO}_{x\text{lb}}}{\text{MW-hr}_{\text{Total}}}$$

where,

$\text{NO}_{x\text{lb/MW-hr}}$  = NO<sub>x</sub> emission rate in lb/MW-hr, for each clock hour of operation, or portion thereof.

$\text{NO}_{x\text{lb}}$  = NO<sub>x</sub> emissions in pounds during each clock hour, as calculated in Subsection (g)(4) below.

MW-hr<sub>Total</sub> = Total megawatt-hours generated for each clock hour.

(4) The emissions of oxides of nitrogen (NO<sub>x</sub>) for each applicable unit during each clock hour, or portion thereof, shall be calculated as follows:

$$\text{NO}_{x\text{lb}} = \sum_{i=1}^n \text{NO}_{x_i}$$

where,

NO<sub>x</sub>lb = Emissions of oxides of nitrogen, in pounds, during each clock hour of operation.

NO<sub>x</sub><sub>i</sub> = Emission of oxides of nitrogen, in pounds, calculated for each five minute or approved alternative time interval within each clock hour, or portion thereof.

n = Number of valid data points during each clock hour of operation, or portion thereof. There shall not be fewer than **four** valid data points during each clock hour.

Emissions occurring during periods of no electrical generation shall not be included when calculating oxides of nitrogen emissions per megawatt-hour but shall be included when calculating aggregate oxides of nitrogen emissions for a calendar year.