

**REGULATION 9
INORGANIC GASEOUS POLLUTANTS
RULE 11
NITROGEN OXIDES AND CARBON MONOXIDE FROM
ELECTRIC POWER GENERATING STEAM BOILERS**

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ELECTRIC POWER GENERATING STEAM BOILERS

(Adopted February 16, 1994)

9-11-100 GENERAL

9-11-101 Description: This Rule limits the emissions of nitrogen oxides and carbon monoxide from electric power generating steam boilers. (Amended May 17, 2000)

9-11-110 Exemption, Limited Heat Input Capacity: The requirements of this Rule shall not apply to any boiler with a rated heat input capacity less than 250 million BTU/hour. (Amended November 15, 1995)

9-11-111 Exemption, Startup or Shutdown: The emission limits of Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, 309, 310, and 311 shall not apply during the startup or shutdown period of any applicable boiler, with the following limitations:

111.1 Startup: For boilers with a rated heat input capacity greater than or equal to 5.0 billion BTU/hour, the duration of each startup procedure shall not exceed twenty (20) hours unless catalytic reaction temperature has not been reached, if applicable. For boilers with a rated heat input capacity of less than 5.0 billion BTU/hour, the duration of each startup procedure shall not exceed twelve (12) hours unless catalytic reaction temperature has not been reached, if applicable;

111.2 Shutdown: The duration of each shutdown procedure shall not exceed eight (8) hours. (Amended November 15, 1995)

9-11-112 Exemption, Oil Testing: The non-gaseous fuel firing limitations of subsections 9-11-301.4, 302.1.4, 303.4, 304.2, 305.4, and 306.4, and Section 9-11-309 shall not apply to oil-burn readiness testing or state or federal agency required performance testing not to exceed a total of twenty-four (24) hours per boiler between May 1 and October 31 in any one year and a total of ninety-six (96) hours per boiler in any calendar year, or oil-burn emission testing required by the APCO. (Amended 11/15/95; 5/17/00)

9-11-113 Exemption, Limited Capacity Factor: The provisions of Section 9-11-305 shall not apply to any boiler specified in that section that operates with a capacity factor of less than two (2) percent between May 1 and October 31 in any one year, and below four (4) percent in any calendar year, or if the boiler is required to operate in excess of these capacity factors due to an electric system emergency as defined in Section 9-11-207 and the affected boiler has never been required to meet the provisions of Section 9-11-305. For boilers that are subject to Section 9-11-305 and have refractory lined furnace hoppers, as defined in Section 9-11-217, the capacity factor limits shall apply to the aggregate average of the heat input weighted capacity factors of these boilers. Boilers qualifying for this exemption or in compliance with Section 9-11-307 shall not be included in the systemwide NO_x emission rate calculation for the purpose of determining compliance with Section 9-11-309. (Amended November 15, 1995)

9-11-114 Exemption, Heat Recovery Steam Generators: The requirements of this Rule shall not apply to duct burners and heat recovery steam generators that are used to recover sensible heat from the exhaust of combustion turbines.

(Adopted May 17, 2000)

9-11-200 DEFINITIONS

9-11-201 Annual Heat Input: The total heat input of fuels burned by a boiler during the consecutive 12-month period of any calendar year, as determined from the higher heating value and cumulative annual usage of each fuel.

9-11-202 Boiler: Any combustion equipment used to produce steam or to heat water.

- 9-11-203 British Thermal Unit (BTU):** The amount of heat required to raise the temperature of one pound of water from 59°F to 60°F at one atmosphere.
- 9-11-204 Capacity Factor:** The ratio of the actual heat input burned by a boiler divided by the heat input that would have been burned by the boiler if it had operated at full rated heat input capacity, calculated over a specified period of time and expressed as a percentage (e.g., an annual capacity factor would be calculated over a calendar year).
- 9-11-205 Catalytic Reaction Temperature:** The minimum temperature required by a catalytic emission abatement system to achieve the design emission reduction efficiency.
- 9-11-206 Electric Power Generating System:** The combined total of all affected steam boilers used for electric power generation in the Bay Area Air Quality Management District that are owned and/or operated by a person or persons under common ownership or contractual obligation. (Amended May 17, 2000)
- 9-11-207 Electric System Emergency:** When an electric power generating system is required to request or provide emergency electrical support, as defined in Item 6 of the Coordinated Bulk Power Supply Program, Western Systems Coordinating Council (April 1, 1992). For the purposes of this Rule, this definition is limited to those situations in which the specified procedures for requesting emergency relief have been followed, including a determination that normal arrangements for capacity and energy are not sufficient to avoid area brownouts or blackouts. (Amended May 17, 2000)
- 9-11-208 Force Majeure Natural Gas Curtailment:** An interruption in natural gas service, such that the daily fuel needs of a boiler cannot be met with natural gas available, due to one of the following reasons:
- 208.1 An unforeseeable failure or malfunction, not resulting from an intentional act or omission that the governing state, federal, or local agency finds to be due to an act of gross negligence on the part of the owner or operator of the boiler; or
 - 208.2 A natural disaster; or
 - 208.3 The natural gas is curtailed pursuant to governing state, federal, or local agency rules or orders; or
 - 208.4 The serving natural gas supplier provides notice to the District that, with forecasted natural gas supplies and demands, natural gas service is expected to be curtailed pursuant to governing state, federal, or local agency rules or orders. (Amended May 17, 2000)
- 9-11-209 Heat Input:** The heat of combustion released due to burning a fuel in a boiler, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air.
- 9-11-210 Heat Input Weighted Average:** The heat input of the gaseous fuel per unit time divided by the total heat input per unit time and the heat input per unit time of the non-gaseous fuel divided by the total heat input per unit time. The calculated fractions are used to calculate the applicable weighted average ppmv emission limit of subsections 9-11-301.3, 302.1.3, 303.3, 304.1.3, 305.3, and 306.3.
- 9-11-211 Higher Heating Value (HHV):** The total heat liberated per mass or volume of fuel burned (BTU per pound or BTU per cubic feet), when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to their standard states at standard conditions. The HHV is determined as specified in Section 9-11-605.
- 9-11-212 Natural Gas:** Any mixture of gaseous hydrocarbons containing at least 80 percent methane by volume, as determined according to Standard Method ASTM D1945-64 or equivalent method approved by the APCO. (Amended November 15, 1995)
- 9-11-213 Nitrogen Oxide (NO_x) Emissions:** The sum of nitric oxide (NO) and nitrogen dioxide (NO₂) in the flue gas, collectively expressed as nitrogen dioxide.
- 9-11-214 Non-Gaseous Fuel:** Any fuel which is not a gas at 68°F and one atmosphere.
- 9-11-215 Operating Day:** Twenty-four (24) hours from midnight to midnight.
- 9-11-216 Rated Heat Input Capacity:** The heat input capacity specified on the nameplate of the boiler. If the boiler has been physically modified and/or operated in such a manner that its maximum heat input capacity is different from that specified on the nameplate, then the modified maximum heat input capacity per Section 9-11-502 shall be considered as the rated heat input capacity. (Amended November 15, 1995)

- 9-11-217 Refractory Lined Furnace Hopper:** The bottom of a boiler firebox (the compartment of a boiler in which the fuel burns), when this bottom is lined with a refractory material. (Amended November 15, 1995)
- 9-11-218 Startup or Shutdown:** Startup is that period of time during which a boiler is brought up to its normal operating temperature and pressure from an inactive status, initially at zero fuel flow, by following a prescribed series of separate steps or operations. Shutdown is that period of time during which a boiler is taken out of service from a normal operating mode to an inactive status of no fires by following a prescribed series of separate steps or operations.
- 9-11-219 Systemwide NO_x Emission Rate:** The ratio of the total mass of discharge into the atmosphere of nitrogen oxides in pounds from all affected steam boilers of an electric power generating system to the sum of the actual heat input to those boilers in million BTU, calculated over a specified period of time. (Amended 11/15/95; 5/17/00)
- 9-11-220 Electric Power Generating Steam Boiler:** A boiler that produces steam used to make electricity. (Adopted May 17, 2000)

9-11-300 STANDARDS

9-11-301 NO_x Emission Limits for Boilers with a Rated Heat Input Capacity Greater Than or Equal to 1.75 billion BTU/hour: Effective December 31, 2001, a person shall not operate an electric power generating steam boiler with a rated heat input greater than or equal to 1.75 billion BTU per hour unless the following conditions and emission limits are met:

- 301.1 Gaseous Fuel: For gaseous fuel firing, nitrogen oxides (NO_x) shall not exceed 10 ppmv, dry at 3 percent oxygen;
- 301.2 Non-Gaseous Fuel: For non-gaseous fuel firing, nitrogen oxides (NO_x) shall not exceed 25 ppmv, dry at 3 percent oxygen;
- 301.3 Gaseous and Non-Gaseous Fuel: For simultaneous gaseous and non-gaseous fuel firing, the heat input weighted average of the NO_x emission limits specified in subsections 9-11-301.1 and 301.2 shall not be exceeded; and
- 301.4 Limitation on Non-Gaseous Fuel Firing: From May 1 to October 31 in any calendar year, a person shall not fire an electric power generating steam boiler with a non-gaseous fuel unless gaseous fuel is not available because of a force majeure natural gas curtailment as defined by Section 9-11-208.

9-11-302 Interim Compliance NO_x Emission Limits for Boilers with a Rated Heat Input Capacity Greater Than or Equal to 1.75 billion BTU/hour: For any single electric power generating system as defined in Section 9-11-206, a person shall not operate an electric power generating steam boiler with a rated heat input greater than or equal to 1.75 billion BTU per hour unless the following conditions and emission limits are met:

- 302.1 Effective May 31, 1995, nitrogen oxides (NO_x) shall not exceed the following:
 - 1.1 Gaseous Fuel: For gaseous fuel firing, NO_x emissions shall not exceed 175 ppmv, dry at 3 percent oxygen;
 - 1.2 Non-Gaseous Fuel: For non-gaseous fuel firing, NO_x emissions shall not exceed 300 ppmv, dry at 3 percent oxygen;
 - 1.3 Gaseous and Non-Gaseous Fuel: For simultaneous gaseous and non-gaseous fuel firing, the heat input weighted average of the NO_x emission limits specified in subsections 9-11-302.1.1 and 302.1.2 shall not be exceeded; and
 - 1.4 Limitation on Non-Gaseous Fuel Firing: From May 1 to October 31 in any calendar year, a person shall not fire an electric power generating steam boiler with a non-gaseous fuel unless gaseous fuel is not available because of a force majeure natural gas curtailment as defined by Section 9-11-208.
- 302.2 By December 31, 1996, at least one of the boilers in this boiler capacity category within the power system shall comply with the respective emission limits specified in subsections 9-11-301.1, 301.2, and 301.3; and

302.3 By December 31, 1998, at least two-thirds of the rated capacity of the boilers in this boiler capacity category within the power system shall comply with the respective emission limits specified in subsections 9-11-301.1, 301.2, and 301.3. (Amended May 17, 2000)

9-11-303 NO_x Emission Limits for Boilers with a Rated Heat Input Capacity Less Than 1.75 billion BTU/hour and Greater Than or Equal to 1.5 billion BTU/hour: Effective December 31, 2004, a person shall not operate an electric power generating steam boiler with a rated heat input less than 1.75 billion BTU/hour and greater than or equal to 1.5 billion BTU/hour unless the following conditions and emission limits are met:

303.1 Gaseous Fuel: For gaseous fuel firing, nitrogen oxides (NO_x) shall not exceed 25 ppmv, dry at 3 percent oxygen;

303.2 Non-Gaseous Fuel: For non-gaseous fuel firing, nitrogen oxides (NO_x) shall not exceed 110 ppmv, dry at 3 percent oxygen;

303.3 Gaseous and Non-Gaseous Fuel: For simultaneous gaseous and non-gaseous fuel firing, the heat input weighted average of the emission limits specified in subsections 9-11-303.1 and 303.2 shall not be exceeded; and

303.4 Limitation on Non-Gaseous Fuel Firing: A person shall not fire an electric power generating steam boiler with a non-gaseous fuel unless gaseous fuel is not available because of a force majeure natural gas curtailment as defined by Section 9-11-208.

9-11-304 Interim Compliance NO_x Emission Limits for Boilers with a Rated Heat Input Capacity Less Than 1.75 billion BTU/hour and Greater Than or Equal to 1.5 billion BTU/hour: For any single electric power generating system as defined in Section 9-11-206, a person shall not operate an electric power generating steam boiler with a rated heat input less than 1.75 billion BTU/hour and greater than or equal to 1.5 billion BTU/hour unless the following conditions and emission limits are met:

304.1 Effective May 31, 1995, nitrogen oxides (NO_x) shall not exceed the following:

1.1 Gaseous Fuel: For gaseous fuel firing, NO_x emissions shall not exceed 175 ppmv, dry at 3 percent oxygen;

1.2 Non-Gaseous Fuel: For non-gaseous fuel firing, NO_x emissions shall not exceed 700 ppmv, dry at 3 percent oxygen; and

1.3 Gaseous and Non-Gaseous Fuel: For simultaneous gaseous and non-gaseous fuel firing, the heat input weighted average of the NO_x emission limits specified in subsections 9-11-304.1.1 and 304.1.2 shall not be exceeded.

304.2 Limitation on Non-Gaseous Fuel Firing: Effective May 31, 1995, a person shall not fire an electric power generating steam boiler with a non-gaseous fuel unless gaseous fuel is not available because of a force majeure natural gas curtailment as defined by Section 9-11-208;

304.3 By December 31, 1999, at least one of the boilers in this boiler capacity category within the power system shall comply with the respective emission limits specified in subsections 9-11-303.1, 303.2, and 303.3; and

304.4 By December 31, 2003, at least one-half of the rated capacity of the boilers in this boiler capacity category within the power system shall comply with the respective emission limits specified in subsections 9-11-303.1, 303.2, and 303.3. (Amended May 17, 2000)

9-11-305 NO_x Emission Limits for Boilers with a Rated Heat Input Capacity Less Than 1.5 billion BTU/hour: Effective December 31, 2004, a person shall not operate an electric power generating steam boiler with a rated heat input less than 1.5 billion BTU/hour unless the following conditions and emission limits are met:

305.1 Gaseous Fuel: For gaseous fuel firing, nitrogen oxides (NO_x) shall not exceed 30 ppmv, dry at 3 percent oxygen;

305.2 Non-Gaseous Fuel: For non-gaseous fuel firing, nitrogen oxides (NO_x) shall not exceed 110 ppmv, dry at 3 percent oxygen;

305.3 Gaseous and Non-Gaseous Fuel: For simultaneous gaseous and non-gaseous fuel firing, the heat input weighted average of the emission limits specified in subsections 9-11-305.1 and 305.2 shall not be exceeded;

- 305.4 Limitation on Non-Gaseous Fuel Firing: A person shall not fire an electric power generating steam boiler with a non-gaseous fuel unless gaseous fuel is not available because of a force majeure natural gas curtailment as defined by Section 9-11-208; and
- 305.5 Limitation on Total Fuel Use: The capacity factor limitations specified in Section 9-11-307 are waived, effective December 31, 2004, or at such time when the requirements of subsections 9-11-305.1 through 305.4 are met.
- 9-11-306 Interim Compliance NO_x Emission Limits for Boilers with a Rated Heat Input Capacity Less Than 1.5 billion BTU/hour:** Effective May 31, 1995, a person shall not operate an electric power generating steam boiler with a rated heat input less than 1.5 billion BTU/hour unless the following conditions and emission limits are met:
- 306.1 Gaseous Fuel: For gaseous fuel firing in boilers with refractory lined furnace hoppers, nitrogen oxides (NO_x) shall not exceed 175 ppmv, dry at 3 percent oxygen. For gaseous fuel firing in all other boilers, nitrogen oxides (NO_x) shall not exceed 120 ppmv, dry at 3 percent oxygen;
- 306.2 Non-Gaseous Fuel: For non-gaseous fuel firing, nitrogen oxides (NO_x) shall not exceed 500 ppmv, dry at 3 percent oxygen;
- 306.3 Gaseous and Non-Gaseous Fuel: For simultaneous gaseous and non-gaseous fuel firing, the heat input weighted average of the emission limits specified in subsections 9-11-306.1 and 306.2 shall not be exceeded; and
- 306.4 Limitation on Non-Gaseous Fuel Firing: A person shall not fire an electric power generating steam boiler with a non-gaseous fuel unless gaseous fuel is not available because of a force majeure natural gas curtailment as defined by Section 9-11-208 and there exists an electric system emergency as defined in Section 9-11-207.
- 9-11-307 Interim Compliance NO_x Emission Limits for Boilers with a Rated Heat Input Capacity Less Than 1.5 billion BTU/hour:** Effective December 31, 2000, in addition to the limitations specified in Section 9-11-306, a person shall not operate an electric power generating steam boiler with a rated heat input less than 1.5 billion BTU/hour unless the following conditions are met:
- 307.1 Limitation on Total Fuel Use: The capacity factor of any boiler in this boiler capacity category, with the exception of boilers that have refractory lined furnace hoppers, as defined in Section 9-11-217, shall not exceed four (4) percent in any calendar year. This capacity factor shall not exceed two (2) percent between May 1 through October 31 in any one year. For any single electric power generating system as defined in Section 9-11-206, the capacity factor limits for boilers that are in this boiler capacity category and have refractory lined furnace hoppers shall apply to the aggregate average of the heat input weighted capacity factors of these boilers. Fuel burned in any of these boilers, with or without refractory lined furnace hoppers, for backup power during scheduled outages of boilers undergoing installation of any emission control device, pursuant to the requirements of Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, or 309 shall not be counted as part of these boiler capacity factor limits.
- 307.2 Limitation on Total Fuel Use Waiver: The fuel use limitations of subsection 9-11-307.1 shall be waived for any boiler at such time when the requirements of subsections 9-11-305.1 through 305.4 are met.
- (Amended 11/15/95; 5/17/00)
- 9-11-308 Systemwide NO_x Emission Rate Limit:** Effective May 31, 1995, the systemwide average nitrogen oxides (NO_x) emission rate from an electric power generating system, as defined in Sections 9-11-206 and 219, shall not exceed 0.28 lb/MMBTU of heat input, calculated each operating day as the average of all hourly data for the preceding 30 operating days, excluding periods of force majeure natural gas curtailment as defined in Section 9-11-208.
- (Amended May 17, 2000)
- 9-11-309 Advanced Technology Alternative Emission Control Plan:** As an alternative to compliance with the NO_x limits specified in Sections 9-11-301, 302.2, 302.3, 303, 304.3, 304.4, and 305, an electric power generating system may comply with the applicable systemwide NO_x emission rate limit for gaseous fuel in Section 9-11-309.1, and the requirements of Section 9-11-309.2, 309.3, and 309.4. A person shall

not fire an electric power generating steam boiler with non-gaseous fuel under Section 9-11-309.1 unless gaseous fuel is not available because of a force majeure natural gas curtailment.

309.1 Systemwide NO_x Emission Rate Limits: The following systemwide NO_x emission rate limits are expressed as pounds of NO_x per million BTU of heat input, calculated on a clock-hour basis, excluding boilers on force majeure natural gas curtailment. These limits become effective on January 1 of the year specified.

1997: 0.188

1998: 0.160

1999: 0.115

2000: 0.105

2002: 0.057

2004: 0.037

2005: 0.018

309.2 Boilers in Startup or Shutdown; Boilers Taken Out of Service; Boilers on Force Majeure Natural Gas Curtailment; and Oil Testing: When an affected boiler is in startup or shutdown; taken out of service for repairs, maintenance, and/or inspection; on force majeure natural gas curtailment; or being fired for oil-burn readiness testing; state, federal, or local agency-required performance testing; or oil-burn emission testing required by the APCO; or if NO_x or heat input information is unavailable due to equipment breakdown, scheduled maintenance or calibration; the boiler's contribution for the purpose of determining compliance with the applicable systemwide NO_x emission rate in Section 9-11-309.1 shall be taken as the average NO_x emissions at the average heat input of that unit over the previous thirty (30) operating days on natural gas, with the following limitations:

2.1 Startup: For boilers with a rated heat input capacity greater than or equal to 5.0 billion BTU/hour, the duration of each startup procedure shall not exceed twenty (20) hours unless catalytic reaction temperature has not been reached, if applicable. For boilers with a rated heat input capacity of less than 5.0 billion BTU/hour, the duration of each startup procedure shall not exceed twelve (12) hours unless catalytic reaction temperature has not been reached, if applicable.

2.2 Shutdown: The duration of each shutdown procedure shall not exceed eight (8) hours.

2.3 Boilers Taken Out of Service: The calculated contribution procedure shall be utilized no more than sixty (60) days for any one boiler in a calendar year.

2.4 Oil Testing: Oil-burn readiness testing or state, federal, or local agency-required performance testing shall not exceed a total of twenty-four (24) hours per boiler between May 1 and October 31 in any one year and a total of ninety-six (96) hours per boiler in any calendar year.

309.3 Election of Systemwide NO_x Emission Rate Limits (No backsliding provision): Once an electric power generating system has elected to comply with the systemwide NO_x emission rate limits in subsection 9-11-309.1, except as provided in Sections 9-11-111, 112, or 113, each electric power generating steam boiler included in that system shall remain part of an electric power generating system subject to the systemwide NO_x emission rate limits in subsection 9-11-309.1, and any such system shall not be eligible to choose to comply with any less stringent NO_x emission limit specified in Sections 9-11-301, 302.2, 302.3, 303, 304.3, 304.4, and 305, regardless of any change in ownership or composition of any electric power generating system.

309.4 Eligible Boilers: Only affected boilers, in an electric power generating system, that have District Permits to Operate issued prior to November 15, 1995, are eligible for inclusion in the Advanced Technology Alternative Emission Control Plan. (Adopted 11/15/95; 5/17/00)

9-11-310 CO Emission Limits for Boilers with a Rated Heat Input Capacity Greater Than or Equal to 250 million BTU/hour: Effective May 31, 1995, a person shall not

operate an electric power generating steam boiler with a rated heat input greater than or equal to 250 million BTU per hour unless the following emission limits are met:

310.1 During steady state compliance source tests, carbon monoxide (CO) shall not exceed 400 ppmv, dry at 3 percent oxygen, based on the test methods referenced in Section 9-11-602;

310.2 During normal operation (CEMS compliance monitoring), carbon monoxide (CO) shall not exceed 1000 ppmv, dry at 3 percent oxygen, based on a clock hour average. (Amended November 15, 1995)

9-11-311 Ammonia Emission Limit for Boilers with a Rated Heat Input Capacity Greater Than or Equal to 250 million BTU/hour: No person shall allow the discharge from any electric power generating steam boiler with a rated heat input greater than or equal to 250 million BTU per hour, ammonia (NH₃) emissions in excess of 10 ppmv, dry at 3 percent oxygen, based on a rolling 60-minute average, resulting from the operation of any emission control device installed pursuant to the requirements of Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, or 309. (Amended November 15, 1995)

9-11-400 ADMINISTRATIVE REQUIREMENTS

9-11-401 Compliance Schedule - Emissions Limits: A person who must modify existing sources or equipment to comply with any of the requirements of Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, 309, 310, or 311 shall comply with the following increments of progress:

401.1 By December 31, 1994, submit to the APCO a plan for compliance for each affected boiler. For modifications to comply with Section 9-11-309, the plan shall be submitted no later than 6 months prior to the election of the alternative emission control plan. The plan shall include at a minimum:

1.1 A list of all boilers subject to this Rule, including the manufacturer, model number, and maximum rated heat input capacity for each boiler;

1.2 A description of the boiler design and the NO_x control system being considered for each boiler, as well as a description of any ancillary equipment related to the control of emissions. Data on the expected performance of the NO_x control system shall also be included;

1.3 A compliance schedule for each boiler, including, but not limited to, specific dates for the following events: final engineering, contract award, begin construction, boiler outage, complete construction, and final compliance.

401.2 No later than 12 months prior to each applicable compliance date for each boiler, submit to the APCO applications for all Authorities to Construct required to install or modify any equipment necessary to comply with the respective sections of this Rule.

401.3 By the applicable compliance date for each boiler, be in compliance with all the applicable requirements of this Rule. (Amended November 15, 1995)

9-11-402 Initial and Annual Demonstration of Compliance: Within 90 boiler operating days of the applicable compliance schedule specified in Sections 9-11-301, 302, 303, 304, 305, 306, 307, or 310 for each type of fuel, any person subject to this Rule shall conduct source tests, as specified in Sections 9-11-601, 602, or 603, for the purpose of demonstrating compliance with the appropriate Sections 9-11-301, 302, 303, 304, 305, 306, 307, 310, or 311. Compliance determination by source test with the respective emission limits shall be based on the methods referenced in Sections 9-11-601, 602, and 603. These source tests shall be conducted for each boiler at least once in any calendar year or within 12 months following the actual operation of each boiler during any calendar year. Source testing for compliance with the ammonia emission limit of Section 9-11-311 shall be conducted at least once quarterly, for each boiler that operated during the calendar quarter and was equipped with an ammonia-based NO_x control device. In no event shall this Section be interpreted to require non-gaseous fuel burning, solely to perform emissions testing or compliance demonstrations. Initial and annual source testing for NO_x and CO shall not be

required to demonstrate compliance with Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, 309, or 310, provided CEMS are in place pursuant to Section 9-11-503.

(Amended 11/15/95; 5/17/00)

9-11-500 MONITORING AND RECORDS

9-11-501 Fuels Monitoring: Any person who operates an electric power generating steam boiler subject to Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, 309, or 310 shall install a non-resettable, totalizing and continuous recording fuel meter in each fuel line of each such boiler.

(Amended 11/15/95; 5/17/00)

9-11-502 Modified Maximum Heat Input Capacity: Any person who operates an electric power generating steam boiler that has been physically modified and/or operated in such a manner that its maximum heat input capacity is different from that specified on the nameplate shall demonstrate to the APCO the maximum heat input capacity, as measured by a fuel meter, while operating the source at maximum capacity.

(Amended 11/15/95; 5/17/00)

9-11-503 Emissions Monitoring: Any person who operates an electric power generating steam boiler subject to Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, 309, or 310 shall provide, properly install, maintain in good working order, and operate an in-stack continuous emission monitoring system (CEMS) for each such boiler, approved by the APCO to demonstrate compliance with the provisions of this Rule by measuring the pollutants nitrogen oxides (NO_x) and carbon monoxide (CO) and diluents oxygen (O₂) or carbon dioxide (CO₂), following the procedures of subsection 9-11-503.1. The operator of a boiler with a rated heat input capacity less than 1.5 billion BTU/hour may petition the APCO to certify the alternative monitoring methods for nitrogen oxides (NO_x) and carbon monoxide (CO) referenced in subsection 9-11-503.2.

503.1 The CEMS must meet the requirements of the District Manual of Procedures, Volume V, Continuous Emission Monitoring, Policy and Procedures, and the federal requirements referenced in Sections 9-11-601 and 602. Each CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive six (6) minute period for boilers with a rated heat input capacity greater than or equal to 1.5 billion BTU/hour, and for each successive fifteen (15) minute period for boilers with a rated heat input capacity less than 1.5 billion BTU/hour.

503.2 For any boiler that has (1) a heat input capacity less than 1.5 billion BTU/hr, (2) an average capacity factor of 10 percent or less during the previous three calendar years, (3) a capacity factor of 20 percent or less in each of those three calendar years, and (4) no ammonia-based NO_x control device installed, the owner and/or operator may, as an alternative to the CEMS:

2.1 Measure and record NO_x emissions by the source test correlation of emissions with boiler operating load, excess oxygen levels, fuels, and any other specified parameters, following the procedures specified in 40 CFR Pt. 75, Appendix E;

2.2 Measure and record CO emissions by following the analogous procedure (for NO_x emissions) specified in 40 CFR Pt. 75, Appendix E, except that CO emissions (instead of NO_x emissions) will be determined by using 40 CFR Pt. 60, Appendix A, Method 10.

(Amended 11/15/95; 5/17/00)

9-11-504 Records: Any person who operates an electric power generating steam boiler subject to Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, 309, or 310 shall maintain permanent hourly continuous emission monitoring records for each such boiler, in a form suitable for inspection and approved by the APCO, for a period of at least five (5) years. Such records shall be made available to the APCO upon request. These records shall include, but are not limited to:

504.1 The type of fuel burned and its sulfur content, quantity of fuel burned (BTU/hour), gross energy production in megawatt hours (MW-hour), and the injection rate for any reactant chemicals used by the emission control system(s);

- 504.2 The continuous emission monitoring measurements for NO_x and CO, each expressed in ppmv and lb/hour, and also in lb/MMBTU for NO_x, and for O₂ or CO₂, expressed in volume percent;
- 504.3 The date, time, and duration of any startup, shutdown or malfunction in the operation of any boiler, emission control equipment, or emission monitoring equipment;
- 504.4 The results of performance testing, evaluations, calibrations, checks, adjustments, and maintenance of any continuous emission monitors that have been installed pursuant to Section 9-11-503 of this Rule;
- 504.5 The results of any source testing required by Section 9-11-402; and
- 504.6 The capacity factors of any boiler affected by Sections 9-11-113, 307, and 503.
- 504.7 The systemwide NO_x emission rate as specified in Sections 9-11-308 and 309, as applicable. (Amended 11/15/95; 5/17/00)

9-11-505 Reporting Requirements: Any person who operates an electric power generating steam boiler subject to Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, 309, 310, or 311 shall meet the following reporting requirements:

- 505.1 Report to the APCO any violation of any emission standard with which the boiler is required to comply, in writing within 96 hours after such occurrence;
- 505.2 Submit a written report for each calendar month to the APCO. The report shall be submitted within 30 days of the close of the month reported on and shall include:
 - 2.1 A summary of the data obtained from the continuous emission monitoring systems that have been installed pursuant to Section 9-11-503. The format of the summary shall be approved in writing by the APCO; and
 - 2.2 The date, time, duration, and magnitude of emissions in excess of the appropriate standards required by Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, 309, 310, or 311; the nature and cause of the excess (if known); the corrective actions taken; and the preventive measures adopted. (Amended 11/15/95; 5/17/00)

9-11-600 MANUAL OF PROCEDURES

9-11-601 Determination of Nitrogen Oxides: The methods by which samples of exhaust gases are collected and analyzed to determine concentrations of nitrogen oxides are set forth in the District Manual of Procedures, Volume IV, ST-13A. Compliance with the nitrogen oxides emission limits of Sections 9-11-301, 302, 303, 304, 305, 306, and 307, shall be determined by the source tests specified in Section 9-11-402 using ST-13A (nitrogen oxides) and ST-14 (oxygen) or ST-5 (carbon dioxide), and by the continuous emission monitors that have been installed pursuant to Section 503 and meet the requirements of Volume V of the District Manual of Procedures and the federal requirements specified in 40 CFR Pt. 75 and Appendices. Compliance with the nitrogen oxides emission limits of Sections 9-11-308 and 309 shall also be determined by these continuous emission monitors. (Amended November 15, 1995)

9-11-602 Determination of Carbon Monoxide and Stack Gas Oxygen or Carbon Dioxide: Compliance with the carbon monoxide emission limits of Section 9-11-310 shall be determined by the source tests specified in Section 402 using the methods set forth in the District Manual of Procedures, Volume IV, ST-6 (carbon monoxide) and ST-14 (oxygen) or ST-5 (carbon dioxide), and by the continuous emission monitors that have been installed pursuant to Section 503 and meet the requirements of Volume V of the District Manual of Procedures and the federal requirements specified in 40 CFR Pt. 60, App. B, Spec. 4 (CO), and 40 CFR Pt. 75 and Appendices (O₂ and CO₂). (Amended November 15, 1995)

9-11-603 Determination of Ammonia: Compliance with the ammonia emission limit of Section 9-11-311 shall be determined by the source tests specified in Section 9-11-402 using the methods set forth in the District Manual of Procedures, Volume IV, ST-1B, and EPA Method 350.3, or an alternate method approved by the APCO. (Amended November 15, 1995)

- 9-11-604 Compliance Determination:** All emission determinations shall be made in the as-found operating condition, except that no compliance determination be established during periods of startup or shutdown, as specified by Section 9-11-111. In addition to the continuous emission monitoring system (CEMS) required by Sections 9-11-503, 601, and 602, emission determinations shall include at least one source test for each boiler, conducted at its rated or attainable heat input capacity, in any calendar year or within twelve (12) months following the actual operation of each boiler during any calendar year, as specified in Section 9-11-402. Source testing for compliance with the ammonia emission limit of Section 9-11-311 shall be conducted at least once quarterly for each boiler that operated during the calendar quarter. Compliance determination by source test with the respective emission limits of Sections 9-11-301, 302, 303, 304, 305, 306, 307, 310, and 311 shall be in accordance with the methods specified in Sections 9-11-601, 602, and 603. Initial and annual source testing for NO_x and CO shall not be required to demonstrate compliance with Sections 9-11-301, 302, 303, 304, 305, 306, 307, 308, 309, or 310, provided CEMS are in place pursuant to Section 9-11-503. Compliance determination by CEMS shall be based on a clock hour average. (Amended November 15, 1995)
- 9-11-605 Determination of Higher Heating Value:** If certification of the Higher Heating Value is not provided by the third party fuel supplier, it shall be determined by one of the following test methods: (1) ASTM D2015-85 for solid fuels; (2) ASTM D240-87 or ASTM D2382-88 for liquid hydrocarbon fuels; or (3) ASTM D1826-88 or ASTM D1945-81 in conjunction with ASTM D3588-89 for gaseous fuels.