

SUBPART Db - STANDARDS OF PERFORMANCE FOR INDUSTRIAL-COMMERCIAL-INSTITUTIONAL STEAM GENERATING UNITS
(Adopted 12-15-87; Delegation Effective 7-18-89;
Rev. Effective 9-21-93)

RULE 260.40b. APPLICABILITY AND DEFINITION OF AFFECTED FACILITY (Rev. Effective 3-14-89)

(a) The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of more than 29 MW (100 million BTU/hour).

(b) Any affected facility meeting the applicability requirements under Section (a) of this rule and commencing construction, modification, or reconstruction after June 19, 1984, but on or before June 19, 1986, is subject to the following standards:

(1) Coal-fired affected facilities having a heat input capacity between 29 and 73 MW (100 and 250 million BTU/hour), inclusive, are subject to the particulate matter and nitrogen oxides standards under this subpart.

(2) Coal-fired affected facilities having a heat input capacity greater than 73 MW (250 million BTU/hour) and meeting the applicability requirements under Subpart D (Standards of Performance for Fossil-Fuel Fired Steam Generators; Rule 260.40) are subject to the particulate matter and nitrogen oxides standards under this subpart and to the sulfur dioxide standards under Subpart D (Rule 260.43).

(3) Oil-fired affected facilities having a heat input capacity between 29 and 73 MW (100 and 250 million BTU/hour), inclusive, are subject to the nitrogen oxides standards under this subpart.

(4) Oil-fired affected facilities having a heat input capacity greater than 73 MW (250 million BTU/hour) and meeting the applicability requirements under Subpart D (Standards of Performance for Fossil-Fuel-Fired Steam Generators: Rule 260.40) are also subject to the nitrogen oxides standards under this subpart and the particulate matter and sulfur dioxide standards under Subpart D (Rules 260.42 and 260.43).

(c) Affected facilities which also meet the applicability requirements under Subpart J (Standards of Performance for Petroleum Refineries; Rule 260.104) are subject to the particulate matter and nitrogen oxides standards under this subpart and the sulfur dioxide standards under Subpart J (Rule 260.104).

(d) Affected facilities which also meet the applicability requirements under Subpart E (Standards of Performance for Incinerators; Rule 260.50) are subject to the nitrogen oxides and particulate matter standards under this subpart.

(e) Steam generating units meeting the applicability requirements under Subpart Da (Standards of Performance for Electric Utility Steam Generating Units; Rule 260.40a) are not subject to this subpart.

(f) Any change to an existing steam generating unit for the sole purpose of combusting gases containing TRS (Total Reduced Sulfur) as defined under Section 60.281, Title 40, Code of Federal Regulations, is not considered a modification under Rule 260.14 and the steam generating unit is not subject to this subpart.

RULE 260.41b. DEFINITIONS (Rev. Effective 9-21-93)

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this Regulation.

(a) **"Annual Capacity Factor"** means the ratio between the actual heat input to a steam generating unit from the fuels listed in Rules 260.42b(a), 260.43b(a), or 260.44b(a), as applicable, during a calendar year and the potential heat input to the steam generating unit had it been operated for 8,760 hours during a calendar year at the maximum steady state design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility in a calendar year.

(b) **"Byproduct/Waste"** means any liquid or gaseous substance produced at chemical manufacturing plants or petroleum refineries (except natural gas, distillate oil, or residual oil) and combusted in a steam generating unit for heat recovery or for disposal. Gaseous substances with carbon dioxide levels greater than 50 percent or carbon monoxide levels greater than 10 percent are not byproduct/waste for the purposes of this subpart.

(c) **"Chemical Manufacturing Plants"** means industrial plants which are classified by the Department of Commerce under Standard Industrial Classification (SIC) Code 28.

(d) **"Coal"** means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials in ASTM D388-77, Standard Specification for Classification of Coals by Rank (incorporated by reference (IBR) - 40 CFR, see Section 60.17) coal refuse and petroleum coke. Coal-derived synthetic fuels, including but not limited to solvent refined coal, gasified coal, coal-oil mixtures and coal-water mixtures, are also included in this definition for the purpose of this subpart.

(e) **"Coal Refuse"** means any byproduct of coal mining or coal cleaning operations with an ash content greater than 50 percent, by weight, and a heating value less than 13,900 kJ/kg (6,000 BTU/lb) on a dry basis.

(f) **"Combined Cycle System"** means a system in which a separate source, such as a gas turbine, internal combustion engine, kiln, etc., provides exhaust gas to a heat recovery steam generating unit.

(g) **"Conventional Technology"** means wet flue gas desulfurization (FGD) technology, dry FGD technology, atmospheric fluidized bed combustion technology, and oil hydrodesulfurization technology.

(h) **"Distillate Oil"** means fuel oils which contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oils number 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396-78, Standard Specifications for Fuel Oil (IBR - see 40 CFR, Section 60.17).

(i) **"Dry Flue Gas Desulfurization Technology"** means a sulfur dioxide control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline slurry or solution and forming a dry powder material. This definition includes devices where the dry powder material is subsequently converted to another form. Alkaline slurries or solutions used in dry flue gas desulfurization technology include but are not limited to lime and sodium.

(j) **"Duct Burner"** means a device that combusts fuel and which is placed in the exhaust duct from another source, such as a stationary gas turbine, internal combustion engine, kiln, etc., to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a heat recovery steam generating unit.

(k) **"Emerging Technology"** means any sulfur dioxide control system that is not defined as a conventional technology under this rule, and for which the owner or operator of the facility has applied to the Administrator and received approval to operate as an emerging technology under Rule 260.49b(a)(4).

(l) **"Federally Enforceable"** means all limitations and conditions which are enforceable by the Administrator or the Control Officer including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to 40 CFR 51.18 and 40 CFR 51.24.

(m) **"Fluidized Bed Combustion Technology"** means combustion of fuel in a bed or series of beds (including but not limited to bubbling bed units and circulating bed units) of limestone aggregate (or other sorbent materials) in which these materials are forced upward by the flow of combustion air and the gaseous products of combustion.

(n) **"Fuel Pretreatment"** means a process that removes a portion of the sulfur in a fuel before combustion of the fuel in a steam generating unit.

(o) **"Full Capacity"** means operation of the steam generating unit at 90 percent or more of the maximum steady state design heat input capacity.

(p) **"Heat Input"** means heat derived from combustion of fuel in a steam 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.

(q) **"Heat Release Rate"** means the steam generating unit design heat input capacity (in MW or BTU/hour) divided by the furnace volume (in cubic meters or cubic feet); the furnace volume is that volume bounded by the front furnace wall where the burner is located,

the furnace side waterwall, and extending to the level just below or in from of the first row of convection pass tubes.

(r) **"Heat Transfer Medium"** means any material which is used to transfer heat from one point to another point.

(s) **"High Heat Release Rate"** means a heat release rate greater than 730,000 J/sec-m³ (70,000 BTU/hour-ft³).

(t) **"Lignite"** means a type of coal classified as lignite A or lignite B by the American Society of Testing and Materials in ASTM D388-77, Standard Specification for Classification of Coals by Rank (IBR see 40 CFR, Section 60.17).

(u) **"Low Heat Release Rate"** means a heat release rate of 730,000 J/sec-m³ (70,000 BTU/hour-ft³) or less.

(v) **"Mass-Feed Stoker Steam Generating Unit"** means a steam generating unit where solid fuel is introduced directly into a retort or is fed directly onto a grate where it is combusted.

(w) **"Maximum Heat Input Capacity"** means the ability of a steam generating unit to combust a stated maximum amount of fuel on a steady state basis, as determined by the physical design and characteristics of the steam generating unit.

(x) **"Municipal-Type Solid Waste"** means refuse, more than 50 percent of which is waste consisting of a mixture of paper, wood, yard wastes, food wastes, plastics, leather, rubber, and other combustible materials, and noncombustible materials such as glass and rock.

(y) **"Natural Gas"** means (1) a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane or (2) liquid petroleum gas, as defined by the American Society for Testing and Materials in ASTM D1835-82, "Standard Specification for Liquid Petroleum Gases" (IBR - see 40 CFR, Section 60.17).

(z) **"Noncontinental Area"** means the State of Hawaii, the Virgin-Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.

(aa) **"Oil"** means crude oil or petroleum or a liquid fuel derived from crude oil or petroleum, including distillate and residual oil.

(bb) **"Petroleum Refinery"** means industrial plants which are classified by the Department of Commerce under Standard Industrial Classification (SIC), Code 29.

(cc) **"Potential Sulfur Dioxide Emission Rate"** means the theoretical sulfur dioxide emissions (nanograms per joule, lbs/million BTU heat input) that would result from combusting fuel in an uncleaned state and without using emission control systems.

(dd) **"Process Heater"** means a device which is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

(ee) **"Pulverized Coal-Fired Steam Generating Unit"** means a steam generating unit in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the steam generating unit where it is fired in suspension. This includes both conventional pulverized coal-fired and micropulverized coal-fired steam generating units.

(ff) **"Residual Oil"** means crude oil, fuel oils numbers 1 and 2 which have a nitrogen content of greater than 0.05 weight percent, and all fuel oils number 4, 5 and 6, as defined by the American Society of Testing and Materials in ASTM D396-78, Standard Specifications for Fuel Oils (IBR - 40 CFR, Section 60.17).

(gg) **"Spreader Stoker Steam Generating Unit"** means a steam generating unit in which solid fuel is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

(hh) **"Steam Generating Unit"** means a device which combusts any fuel or byproduct/waste to produce steam or to heat water or any other heat transfer medium. This term includes any municipal-type solid waste incinerator with a heat recovery steam generating unit or any steam generating unit which combusts fuel and is part of a cogeneration system or a combined cycle system. This term does not include process heaters as they are defined in this subpart.

(ii) **"Steam Generating Unit Operating Day"** means a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time in the steam generating unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.

(jj) **"Low Sulfur Oil"** means an oil that contains no more than 0.5 weight percent sulfur or that, when combusted without sulfur dioxide emission control, has a sulfur dioxide emission rate equal to or less than 215 nanograms per joule (0.5 lb/million BTU) heat input. (Rev. Effective 9-21-93)

(kk) **"Wet Flue Gas Desulfurization Technology"** means a sulfur dioxide control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating by contacting the combustion gas with an alkaline slurry or solution and forming a liquid material. This definition applies to devices where the aqueous liquid material product of this contact is subsequently converted to other forms. Alkaline reagents used in wet flue gas desulfurization technology include, but are not limited to, lime, limestone and sodium.

(ll) **"Wet Scrubber System"** means any emission control device which mixes an aqueous stream or slurry with the exhaust gases from a steam generating unit to control emissions of particulate matter or sulfur dioxide.

(mm) **"Wood"** means wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including, but not limited to, sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues.

RULE 260.42b. STANDARD FOR SULFUR DIOXIDE
(Effective 3-14-89; Rev. Effective 9/21/93)

(a) Except as provided in Sections (b), (c), or (d) of this rule on and after the date on which the performance test is completed or required to be completed under Rule 260.8 of this Regulation, whichever date comes first, no owner or operator of an affected facility that combusts coal or oil shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 10 percent (0.10) of the potential sulfur dioxide emission rate (90 percent reduction) and that contain sulfur dioxide in excess of the emission limit determined according to the following formula:

$$E_s = (K_a H_a + K_b H_b) / (H_a + H_b)$$

where:

E_s is the sulfur dioxide emission limit, in nanograms per joule (ng/J) or lbs/million BTU heat input,

K_a is 520 ng/J (or 1.2 lbs/million BTU),

K_b is 340 ng/J (or 0.80 lbs/million BTU),

H_a is the heat input from the combustion of coal, in J (million BTU),

H_b is the heat input from the combustion of oil, in J (million BTU).

Only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this rule. No credit is provided for the heat input to the affected facility from the combustion of natural gas, wood, municipal-type solid waste, or other fuels or heat input to the affected facility from exhaust gases from another source, such as gas turbines, internal combustion engines, kilns, etc.

(b) On and after the date on which the performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever comes first, no owner or operator of an affected facility that combusts coal refuse alone in a fluidized bed combustion steam generating unit shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 20 percent of the potential sulfur dioxide emission rate (80 percent reduction) and that contain sulfur dioxide in excess of 520 ng/J (lbs/million BTU) heat input. If coal or oil is fired with coal refuse, the affected facility is subject to Sections (a) or (d) of this rule, as applicable.

(c) On and after the date on which the performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever comes first, no owner or operator of an affected facility that combusts coal or oil, either alone or in combination with any other fuel, and that uses an emerging technology for the control of sulfur dioxide emissions, shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 50 percent

of the potential sulfur dioxide emission rate (50 percent reduction) and that contain sulfur dioxide in excess of the emission limit determined according to the following formula:

$$E_s = (K_c H_c + K_d H_d) / (H_c + H_d)$$

where:

E_s is the sulfur dioxide emission limit, expressed in ng/J (lbs/million BTU) heat input,

K_c is 260 ng/J (0.60 lbs/million BTU),

K_d is 170 ng/J (0.40 lbs/million BTU),

H_c is the heat input from the combustion of coal, J (million BTU), and

H_d is the heat input from the combustion of oil, J (million BTU).

Only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this rule. No credit is provided for the heat input to the affected facility from the combustion of natural gas, wood, municipal-type solid waste, or other fuels, or from the heat input to the affected facility from exhaust gases from another source, such as gas turbines, internal combustion engines, kilns, etc.

(d) On and after the date on which the performance test is completed or required to be completed under Rule 260.8 of this Regulation, whichever comes first, no owner or operator of an affected facility listed in Subsections (d)(1), (d)(2), or (d)(3), of this rule shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of 520 ng/J (1.2 lbs/million BTU) heat input if the affected facility combusts coal, or 215 ng/J (0.50 lbs/million BTU) heat input if the affected facility combusts oil other than low sulfur oil. The following affected facilities under this section are not subject to percent reduction requirements: (Rev. Effective 9-21-93)

(1) Affected facilities that have any annual capacity factor for coal and oil of 30 percent (0.30) or less and are subject to a federally enforceable permit limiting the operation of the affected facility to an annual capacity factor for coal and oil to 30 percent (0.30) or less;

(2) Affected facilities located in a noncontinental area; and

(3) Affected facilities combusting coal or oil, alone or in combination with any other fuel, in a duct burner as part of a combined cycle system where 30 percent (0.30) or less of the heat input to the steam generating unit is from combustion of coal and oil in the duct burner and 70 percent (0.70) or more of the heat input to the steam generating unit is from the exhaust gases entering the duct burner.

(e) Except as provided in Section (f) of this rule, compliance with the emission limits, fuel oil sulfur limits, and/or percent reduction requirements under this rule are determined on a rolling 60-minute average basis. (Rev. Effective 9-21-93)

(f) Except as provided in Subsection (j)(2) of this rule, compliance with the emission limits or fuel oil sulfur limits under this rule is determined on a 24-hour average basis for affected facilities that have a federally enforceable permit limiting the annual capacity factor for oil to 10 percent or less, combust only low sulfur oil, and do not combust any other fuel. (Effective 9-21-93)

(g) Except as provided in Section (i) of this rule, the sulfur dioxide emission limits and percent reduction requirements under this section apply at all times, including periods of startup, shutdown, and malfunction.

(h) Reductions in the potential sulfur dioxide emission rate through fuel pretreatment are not credited toward the percent reduction requirement under Section (c) of this rule unless:

(1) Fuel pretreatment results in a 50 percent or greater reduction in potential sulfur dioxide emissions and

(2) Emissions from the pretreated fuel (without combustion or post combustion sulfur dioxide control) are equal to or less than the emission limits specified in Section (c) of this rule.

(i) An affected facility subject to Sections (a), (b), or (c) of this rule may combust low sulfur oil or natural gas when the sulfur dioxide control system is not being operated because of malfunction or maintenance of the sulfur dioxide control system.

(j) Affected facilities combusting only low sulfur oil are not subject to the percent reduction requirements in any section of this rule. The owner or operator of an affected facility combusting low sulfur oil shall demonstrate that the oil meets the definition of low sulfur oil by: (Effective 9-21-93)

(1) following the performance testing procedures as described in Rules 260.45b(c) or 260.45b(d), and following the monitoring procedures as described in Rules 260.47b(a) or 260.47b(b) to determine sulfur dioxide emission rate or fuel oil sulfur content; or

(2) maintaining fuel receipts as described in Rule 260.49b(r).

RULE 260.43b. STANDARD FOR PARTICULATE MATTER

(Rev. Effective 9-21-93)

(a) On and after the date on which the initial performance test is completed or is required to be completed under Rule 260.8 of Subpart A of this Regulation, whichever comes first, no owner or operator of an affected facility which combusts coal or combusts mixtures of coal with other fuels, shall cause to be discharged into the atmosphere from the affected facility any gases which contain particulate matter in excess of the following emission limits:

(1) 22 ng/J (0.05 lbs/million BTU) heat input;

(i) If the affected facility combusts only coal, or

(ii) If the affected facility combusts coal and other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.

(2) 43 ng/J (0.10 lbs/million BTU) heat input if the affected facility combusts coal and other fuels and has an annual capacity factor for the other fuels greater than 10 percent (0.10) and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor greater than 10 percent (0.10) for fuels other than coal.

(3) 86 ng/J (0.20 lbs/million BTU) heat input if the affected facility combusts coal or coal and other fuels, and

(i) Has an annual capacity factor for coal or coal and other fuels of 30 percent (0.30) or less,

(ii) Has a maximum heat input capacity of 73 MW (250 million BTU/hour) or less,

(iii) Has a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of 30 percent (0.30) or less for coal or coal and other solid fuels, and

(iv) Construction of the affected facility commenced after June 19, 1984 and before November 25, 1986.

(b) On and after the date on which the performance test is completed or required to be completed under Rule 260.8 of this Regulation, whichever date comes first, no owner or operator of an affected facility that combusts oil (or mixtures of oil with other fuels) and uses a conventional or emerging technology to reduce sulfur dioxide emissions shall cause to be discharged into the atmosphere from that affected facility any gases that contain particulate matter in excess of 43 ng/J (0.10 lbs/million BTU) heat input. (Rev. Effective 9-21-93)

(c) On or after the date which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever date comes first, no owner or operator of an affected facility which combust wood, or wood with other fuels, except coal, shall cause to be discharged from that affected facility any gases which contain particulate matter in excess of the following emission limits:

(1) 43 ng/J (0.10 lbs/million BTU) heat input if the affected facility has an annual capacity factor greater than 30 percent (0.30) for wood.

(2) 86 ng/J (0.20 lbs/million BTU) heat input if:

(i) The affected facility has an annual capacity factor of 30 percent (0.30) or less for wood,

(ii) Is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of 30 percent (0.30) or less for wood, and

(iii) Has a maximum heat input capacity of 73 MW (250 million BTU/hour) or less.

(d) On or after the date on which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever date comes first, no owner or operator of an affected facility which combusts municipal-type solid wastes or mixtures of municipal-type solid waste with other fuels, shall cause to be discharged into the atmosphere from that affected facility any gases which contain particulate matter in excess of the following emission limits:

(1) 43 ng/J (0.10 lbs/million BTU) heat input;

(i) If the affected facility combusts only municipal-type solid waste, or

(ii) If the affected facility combusts municipal-type solid waste and other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.

(2) 86 ng/J (0.20 lbs/million BTU) heat input if the affected facility combusts municipal-type solid waste or municipal-type solid waste and other fuels, and

(i) Has an annual capacity factor for municipal-type solid waste and other fuels of 30 percent (0.30) or less,

(ii) Has a maximum heat input capacity of 73 MW (250 million BTU/hour) or less,

(iii) Has a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of 30 percent (0.30) for municipal-type solid waste, or municipal-type solid waste and other fuels, and

(iv) Construction of the affected facility commenced after June 19, 1984 but before November 25, 1986.

(e) For the purposes of this rule the annual capacity factor is determined by dividing the actual input to the steam generating unit during the calendar year from the combustion of coal, wood, or municipal-type solid waste, and other fuels, as applicable, by the potential heat input to the steam generating unit if the steam generating unit had been operated for 8,760 hours at the maximum design heat input capacity.

(f) On and after the date on which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever date comes first, no owner or operator of an affected facility that combusts coal, oil, wood, or mixtures of these fuels with any other fuels shall cause to be discharged into the atmosphere any gases which exhibit greater than

20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. (Rev. Effective 9-21-93)

(g) The particulate matter and opacity standards apply at all times, except during periods of startup, shutdown or malfunction.

RULE 260.44b. STANDARD FOR NITROGEN OXIDES

(Rev. Effective 9-21-93)

(a) Except as provided under Section (k) of this rule, on and after the date on which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever date comes first, no owner or operator of an affected facility subject to the provisions of this rule which combusts only coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases which contain nitrogen oxides (expressed as NO₂) in excess of the following emission limits: (Rev. Effective 9-21-93)

(Figures in parenthesis represent lbs/million BTU heat input)

<u>FUEL/STEAM GENERATING UNIT TYPE</u>	<u>NITROGEN OXIDES¹</u>
(1) Natural gas and distillate oil, except (4):	
(i) Low heat release rate	43 (.10)
(ii) High heat release rate	86 (.20)
(2) Residual oil:	
(i) Low heat release rate	130 (.30)
(ii) High heat release rate	170 (.40)
(3) Coal:	
(i) Mass-feed stoker	210 (.50)
(ii) Spreader stoker and fluidized bed combustion	260 (.60)
(iii) Pulverized coal	300 (.70)
(iv) Lignite, except (v)	260 (.60)
(v) Lignite mined in North Dakota, South Dakota, or Montana and combusted in a slag tap furnace	340 (.80)
(vi) Coal-derived synthetic fuels	210 (.50)
(4) Duct burner used in a combined cycle system:	
(i) Natural gas and distillate oil	86 (.20)
(ii) Residual Oil	170 (.40)

¹ Emission limits ng/J (lbs/BTU) (expressed as NO₂) heat input.

(b) Except as provided under Section (k) of this rule, on which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever date comes first, no owner or operator of an affected facility which simultaneously combusts mixtures of coal, oil, or natural gas shall cause to be discharged into the atmosphere from that

affected facility any gases which contain nitrogen oxides in excess of a limit determined by use of the following formula:

$$E_n = [(EL_{go} \times H_{go}) + (EL_{ro} \times H_{ro}) + (EL_c \times H_c)] / (H_{go} + H_{ro} + H_c)$$

where:

E_n is the nitrogen oxides emission limit, (calculated as NO_2), ng/J (lbs/million BTU),

EL_{go} is the appropriate emission limit from Subsection (a)(1) for combustion of natural gas or distillate oil, ng/J (lbs/million BTU),

H_{go} is the heat input from combustion of natural gas or distillate oil,

EL_{ro} is the appropriate emission limit from Subsection (a)(2) for combustion of residual oil,

H_{ro} is the heat input from combustion of residual oil,

EL_c is the appropriate emission limit from Subsection (a)(3) for combustion of coal, and

H_c is the heat input from combustion of coal.

(c) On and after the date on which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever comes first, no owner or operator of an affected facility which simultaneously combusts coal or oil, or a mixture of these fuels with natural gas, and wood, municipal-type solid waste, or any other fuel shall cause to be discharged into the atmosphere any gases which contain nitrogen oxides in excess of the emission limit for the coal or oil, or a mixture of these fuels with natural gas combusted in the affected facility, as determined pursuant to Sections (a) or (b) of this rule, unless the affected facility has an annual capacity factor for coal or oil, or mixture of these fuels with natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement which limits operation of the facility to an annual capacity factor of 10 percent (0.10) or less for coal, oil, or a mixture of these fuels with natural gas.

(d) On and after the date on which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever date comes first, no owner or operator of an affected facility which simultaneously combusts natural gas with wood, municipal-type solid waste, or other solid fuel, except coal, shall cause to be discharged into the atmosphere from that affected facility any gases which contain nitrogen oxides in excess of 130 ng/J (0.30 lbs/million BTU) heat input unless the affected facility has an annual capacity factor for natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement which limits operation of the affected facility to an annual capacity factor of 10 percent (0.10) or less for natural gas.

(e) On and after the date on which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever date comes first, no owner or

operator of an affected facility which simultaneously combusts coal, oil, or natural gas with byproduct/wastes shall cause to be discharged into the atmosphere from that affected facility any gases which contain nitrogen oxides in excess of an emission limit determined by the following formula unless the affected facility has an annual capacity factor for coal, oil, and natural gas of 10 percent (0.10) or less and is subject to a federally enforceable requirement which limits operation of the affected facility to an annual capacity factor of 10 percent (0.10) or less.

$$E_n = [(EL_{go} \times H_{go}) + (EL_{ro} \times H_{ro}) + (EL_c \times H_c)] / (H_{go} + H_{ro} + H_c)$$

where:

E_n is the nitrogen oxides emission limit (expressed as NO_2), ng/J lbs/million BTU,

EL_{go} is the appropriate emission limit from Subsection (a)(1) for combustion of natural gas or distillate oil, ng/J (lbs/million BTU),

H_{go} is the heat input from combustion of natural gas, distillate oil and gaseous byproduct/waste, ng/J (lbs/million BTU),

EL_{ro} is the appropriate emission limit from Subsection (a)(2) for combustion of residual oil, ng/J (lbs/million BTU),

H_{ro} is the heat input from combustion of residual oil and/or liquid byproducts/waste,

EL_c is the appropriate emission limit from Subsection (a)(3) for combustion of coal, and

H_c is the heat input from combustion of coal.

(f) Any owner or operator of an affected facility which combusts byproduct/waste with either natural gas or oil may petition the Administrator within 180 days of the initial startup of the affected facility to establish a nitrogen oxides emission limit which shall apply specifically to the affected facility when the byproduct/waste is combusted. The petition shall include sufficient and appropriate data, as determined by the Administrator, such as nitrogen oxides emissions from the affected facility, waste composition (including nitrogen content), and combustion conditions to allow the Administrator to confirm that the affected facility is unable to comply with the emission limits in Section (e) of this rule and to determine the appropriate emission limit for the affected facility.

(1) Any owner or operator of an affected facility petitioning for a facility-specific nitrogen oxides emission limit pursuant to this rule shall:

(i) Demonstrate compliance with the emission limits for natural gas and distillate oil in Subsection (a)(1) or for residual oil in Subsection (a)(2) of this rule, as appropriate, by conducting a 30-day performance test as provided in Rule 260.46b(e). During the performance test only natural gas, distillate oil, or residual oil shall be combusted in the affected facility; and

(ii) Demonstrate that the affected facility is unable to comply with the emission limits for natural gas and distillate oil in Subsection (a)(1) or for residual oil in Subsection (a)(2) of this rule, as appropriate, when gaseous or liquid byproduct/waste is combusted in the affected facility under the same conditions and using the same technological system of emission reduction applied when demonstrating compliance under Subsection (f)(1)(i) of this rule.

(2) The nitrogen oxides emission limits for natural gas or distillate oil in Subsection (a)(1) or for residual oil in Subsection (a)(2) of this rule, as appropriate, shall be applicable to the affected facility until and unless the petition is approved by the Administrator. If the petition is approved by the Administrator, a facility-specific nitrogen oxides emission limit will be established at the nitrogen oxides emission level achievable when the affected facility is combusting oil, natural gas and byproduct/waste in a manner which the Administrator determines to be consistent with minimizing nitrogen oxides emissions.

(g) Any owner or operator of an affected facility which combusts hazardous waste (as defined by 40 CFR Part 261 or 40 CFR Part 761) with natural gas or oil may petition the Administrator within 180 days of the initial startup of the affected facility for a waiver from compliance with the nitrogen oxides emission limit which applies specifically to that affected facility. The petition must include sufficient and appropriate data, as determined by the Administrator, on nitrogen oxide emissions from the affected facility, waste destruction efficiencies, waste composition (including nitrogen content), the quantity of specific wastes to be combusted and combustion conditions to allow the Administrator to determine if the affected facility is able to comply with the nitrogen oxides emission limits required by this rule. The owner or operator of the affected facility shall demonstrate that when hazardous waste is combusted in the affected facility, thermal destruction efficiency requirements for hazardous waste specified in an applicable federally enforceable requirement preclude compliance with the nitrogen oxides emission limits of this rule. The nitrogen oxides emission limits for natural gas or distillate oil in Subsection (a)(1) or for residual oil in Subsection (a)(2) of this rule, as appropriate, are applicable to the affected facility until and unless the petition is approved by the Administrator. [See 40 CFR 761.70 for regulations applicable to the incineration of materials containing polychlorinated biphenyls (PBC's)].

(h) The nitrogen oxide standards under this rule apply at all times including periods of startup, shutdown or malfunction.

(i) [RESERVED]

(j) Compliance with the emission limits under this rule is determined on a 24-hour average basis for the initial performance test and on a 3-hour average basis for subsequent performance tests for any affected facilities that: (Effective 9-21-93)

(1) Combust, alone or in combination, only natural gas, distillate oil, or residual oil with a nitrogen content of 0.30 weight percent or less;

(2) Have a combined annual capacity factor of 10 percent or less for natural gas, distillate oil, and residual oil with a nitrogen content of 0.30 weight percent or less; and

(3) Are subject to a federally enforceable requirement limiting operation of the affected facility to the firing of natural gas, distillate oil, and/or residual oil with a nitrogen content of 0.30 weight percent or less and limiting operation of the affected facility to a combined annual capacity factor of 10 percent or less for natural gas, distillate oil, and residual oil and a nitrogen content of 0.30 weight percent or less.

(k) Affected facilities that meet the criteria described in Subsections (j)(1), (2), and (3) of this rule, and that have a heat input capacity of 73 MW (250 million BTU/hour) or less, are not subject to the nitrogen oxides emission limits under this rule. (Effective 9-21-93)

**RULE 260.45b. COMPLIANCE AND PERFORMANCE TEST
METHODS AND PROCEDURES FOR SULFUR
DIOXIDE (Rev. Effective 9-21-93)**

(a) The sulfur dioxide emission standards under Rule 260.42b apply at all times.

(b) In conducting the performance tests required under Rule 260.8, the owner or operator shall use the methods and procedures in Appendix A of this Regulation or the method and procedures as specified in this rule, except as provided in Rule 260.8(b). Rule 260.8(f) does not apply to this subpart. The 30-day notice required in Rule 260.8(d) applies only to the initial performance test unless otherwise specified by the Control Officer.

(c) The owner or operator of an affected facility shall conduct performance tests to determine compliance with the percent of potential sulfur dioxide emission rate (% P_s) and the sulfur dioxide emission rate (E_s) pursuant to Rule 260.42b following the procedures listed below, except as provided under Section (d) of this rule.

(1) The initial performance test shall be conducted over the first 30 consecutive operating days of the steam generating unit. Compliance with the sulfur dioxide standards shall be determined using one-hour averages where an exceedance averaged over any hour is a violation. The first operating day included in the initial performance test shall be scheduled within 30 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility.

(2) If only coal or only oil is combusted, the following procedures are used:

(i) The procedures in Method 19 are used to determine the hourly sulfur dioxide emission rate (E_{ho}) and the 30-day average emission rate (E_{ao}). The hourly averages used to compute the 30-day averages are obtained from the continuous emission monitoring system of Rule 260.47b(a) or (b).

(ii) The percent of potential sulfur dioxide emission rate (% P_s) emitted to the atmosphere is computed using the following formula:

$$\% P_s = 100 (1 - \% R_g/100) (1 - \% R_f/100)$$

where:

$\% R_g$ is the sulfur dioxide removal efficiency of the control device as determined by Method 19, in percent.

$\% R_f$ is the sulfur dioxide removal efficiency of fuel pretreatment as determined by Method 19, in percent.

(3) If coal or oil is combusted with other fuels, the same procedures required in subsection (c)(2) of this rule are used, except as provided in the following:

(i) E_{ho}^o , the adjusted hourly sulfur dioxide emission rate, is computed using the following formula:

$$E_{ho}^o = [E_{ho} - E_w (1 - X_k)]/X_k$$

where:

E_{ho}^o is the adjusted hourly sulfur dioxide emission rate, ng/J (lbs/million BTU).

E_{ho} is the hourly sulfur dioxide emission rate ng/J (lbs/million BTU).

E_w is the sulfur dioxide concentration in fuels other than coal and oil combusted in the affected facility, as determined by the fuel sampling and analysis procedures in Method 19, ng/J (lbs/million BTU). The value E_w for each fuel lot is used for each hourly average during the time that the lot is being combusted.

X_k is the fraction of total heat input from fuel combustion derived from coal, oil, or coal and oil, as determined by applicable procedures in Method 19.

(ii) To compute the percent of potential sulfur dioxide emission rate ($\% P_s$), an adjusted $\% R_g$ ($\% R_g^o$) is computed from the adjusted E_{ho}^o from Subsection (b)(3)(i) of this rule and an adjusted average sulfur dioxide inlet rate (E_{hi}^o) using the following formula:

$$\% R_g^o = 100 (1.0 - E_{ho}^o/E_{hi}^o)$$

The adjusted hourly sulfur dioxide inlet rate (E_{hi}^o) is computed using the following formula:

$$E_{hi}^o = [E_{hi} - E_w(1 - X_k)]/X_k$$

where:

E_{hi}^o is the adjusted hourly sulfur dioxide inlet rate, ng/J (lbs/million BTU).

E_{hi} is the hourly sulfur dioxide inlet rate, ng/J (lbs/million BTU).

(4) The owner or operator of an affected facility subject to Subsection (b)(3) of this rule does not have to measure parameters E_w or X_k if the owner or operator elects to assume that $X_k = 1.0$. Owners or operators of affected facilities who assume $X_k = 1.0$ shall:

(i) Determine % P_s following the procedures in Subsection (c)(2) of this rule, and

(ii) Sulfur dioxide emissions (E_s) are considered to be in compliance with sulfur dioxide emission limits under Rule 260.42b.

(5) The owner or operator of an affected facility that qualifies under the provisions of Rule 260.42b(d) does not have to measure parameters E_w or X_k under Subsection (b)(3) of this rule if the owner or operator of the affected facility elects to measure sulfur dioxide emission rates of the coal or oil following the fuel sampling and analysis procedures under Method 19.

(d) Except as provided in Section (j) of this rule, the owner or operator of an affected facility that combusts only low sulfur oil, has an annual capacity factor for oil of 10 percent (0.10) or less, and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for oil of 10 percent (0.10) or less shall:
(Rev. Effective 9-21-93)

(1) Conduct the initial performance test over 24 consecutive steam generating unit operating hours at full load;

(2) Determine compliance with the standards after the initial performance test based on the arithmetic average of the hourly emissions data during each steam generating unit operating day if a continuous emission measurement system (CEMS) is used, or based on a daily average if Method 6B or fuel sampling and analysis procedures under Method 19 are used.

(e) The owner or operator of an affected facility subject to Rule 260.42b(d)(1) shall demonstrate the maximum design capacity of the steam generating unit by operating the facility at maximum capacity for 24-hours. This demonstration will be made during the initial performance test and a subsequent demonstration may be requested at any other time. If the 24-hour average firing rate for the affected facility is less than the maximum design capacity provided by the manufacturer of the affected facility, the 24-hour average firing rate shall be used to determine the capacity utilization rate for the affected facility, otherwise the maximum design capacity provided by the manufacturer is used.

(f) For the initial performance test required under Rule 260.8, compliance with the sulfur dioxide emission limits and percent reduction requirements under Rule 260.42b is based on the average emission rates and the average percent reduction for sulfur dioxide for the first 30 consecutive steam generating unit operating days, except as provided under Section (d) of this rule. The initial performance test is the only test for which at least 30 days prior notice is required unless otherwise specified by the Control Officer. The initial performance test is to be scheduled so that the first steam generating unit operating day is completed within 30 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility. The boiler load during the 30-day period does not have to be the maximum design load, but must be representative of future operating conditions and include at least one 24-hour period at full load.

(g) After the initial performance test required under Rule 260.8, compliance with the sulfur dioxide emission limits and percent reduction requirements under Rule 260.42b is based on the average emission rates and the average percent reduction for sulfur dioxide for 30 successive steam generating unit operating days, except as provided under Section (d). A separate performance test is completed at the end of each steam generating unit operating day after the initial performance test, and an hourly average emission rate and percent reduction for sulfur dioxide are calculated to show compliance with the standard. An exceedance of the standard averaged over any given hour is a violation.

(h) Except as provided under Section (i) of this rule, the owner or operator of an affected facility shall use all valid sulfur dioxide emissions data in calculating % P_s and E_{ho} under Section (c) of this rule whether or not the minimum emissions data requirements under Rule 260.46b are achieved. All valid emission data, including valid sulfur dioxides emission data collected during periods of startup, shutdown and malfunction, shall be used in calculating % P_s and E_{ho} pursuant to Section (c) of this rule.

(i) During periods of malfunction or maintenance of the sulfur dioxide control systems when oil is combusted as provided under Rule 260.42b(i), emission data are not used to calculate % P_s or E_s under Rule 260.42b(a), (b), or (c), however the emissions data are used to determine compliance with the emission limit under Rule 260.42b(i).

(j) The owner or operator of an affected facility that combusts low sulfur oil is not subject to the compliance and performance testing requirements of this rule if the owner or operator obtains fuel receipts as described in Rule 260.49b(r). (Effective 9-21-93)

**RULE 260.46b. COMPLIANCE AND PERFORMANCE METHODS
AND PROCEDURES FOR PARTICULATE MATTER
AND NITROGEN OXIDES (Rev. Effective 9-21-93)**

(a) The particulate matter emission standards and opacity limits under Rule 260.43b apply to all times except during periods of startup, shutdown, or malfunction. The nitrogen oxides emission standards under Rule 260.44b apply at all times.

(b) Compliance with the particulate matter emission standards under Rule 260.43b shall be determined through performance testing as described in Section (d) of this rule.

(c) Compliance with the nitrogen oxides emission standards under Rule 260.44b shall be determined through performance testing under Sections (e) or (f) of this rule, or under Sections (g) and (h) of this rule, as applicable. (Rev. Effective 9-21-93)

(d) To determine compliance with the particulate matter emission limits and opacity limits under Rule 260.43b, the owner or operator of an affected facility shall conduct an initial performance test as required under Rule 260.8 using the following procedures and reference methods: (Rev. Effective 9-21-93)

(1) Method 3B is used for gas analysis when applying Method 5 or Method 17.

(2) Method 5, Method 5B or Method 17 shall be used to measure the concentration of particulate matter as follows:

(i) Method 5 shall be used at affected facilities without wet Flue Gas Desulfurization (FGD) systems; and

(ii) Method 17 may be used at facilities with or without wet scrubber systems provided that the stack gas temperature does not exceed a temperature of 160°C (320°F). The procedures of Sections 2.1 and 2.3 of Method 5B may be used in Method 17 only if it is used after a wet FGD system. Do not use Method 17 after wet FGD systems if the effluent is saturated or laden with water droplets.

(iii) Method 5B is to be used only after wet FGD systems.

(3) Method 1 is used to select the sampling site and the number of traverse sampling points. The sampling time for each run is at least 120 minutes and the minimum sampling volume is 1.7 dscm (60 dscf) except that smaller sampling times or volumes may be approved by the Administrator when necessitated by process variables or other factors.

(4) For Method 5, the temperature of the sample gas in the probe and filter holder is monitored and is maintained at 160°C (320°F).

(5) For determination of particulate emissions, the oxygen or carbon dioxide sample is obtained simultaneously with each run of Method 5, Method 5B or Method 17 by traversing the duct at the same sampling location.

(6) For each run using Method 5, Method 5B or Method 17, the emission rate expressed in ng/J heat input is determined using:

(i) The oxygen or carbon dioxide measurements and particulate matter measurements obtained under this rule.

(ii) The dry basis F_e factor, and

(iii) The dry basis emission rate calculation procedure contained in Method 19 (Appendix A).

(7) Method 9 is used for determining the opacity of stack emissions.

(e) To determine compliance with the emission limits for nitrogen oxides required under Rule 260.44b, the owner or operator of an affected facility shall conduct the performance test as required under Rule 260.8b using the continuous system for monitoring nitrogen oxides under Rule 260.48(b).

(1) For the initial compliance test, nitrogen oxides from the steam generating unit are monitored for 30 successive steam generating unit operating days and the 60-minute average emission rate is used to determine compliance with the nitrogen oxides emission standards under Rule 260.44b. An exceedance of the standard averaged over any given hour is a violation.

(2) Following the date on which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever date comes first, the owner or operator of an affected facility which fires coal or which fires residual oil having a nitrogen content greater than 0.30 weight percent shall determine compliance with the nitrogen oxides emission standards under Rule 260.44b on a continuous basis through the use of a 60-minute average emission rate. An exceedance of the standard averaged over any given hour is a violation.

(3) Following the date on which the initial performance test is completed or is required to be completed under Rule 260.8 of this Regulation, whichever date comes first, the owner or operator of an affected facility which has a heat input capacity greater than 73 MW (250 million BTU/hour) and which fires natural gas, distillate oil, or residual oil having a nitrogen content of 0.30 weight percent or less shall determine compliance with the nitrogen oxides standards under Rule 260.44b on a continuous basis through the use of a 60-minute average emission rate. An exceedance of the standard averaged over any given hour is a violation.

(4) Following the date on which the initial performance test is completed or required to be completed under Rule 260.8 of this Regulation, whichever date comes first, the owner or operator of an affected facility which has a heat input capacity of 73 MW (250 million BTU/hour) or less and which fires natural gas, distillate oil, or residual oil having a nitrogen content of 0.30 weight percent or less shall upon request determine compliance with the nitrogen oxides standards under Rule 260.44b through the use of a 30-day performance test. During periods when performance tests are not requested by the Control Officer, nitrogen oxides emissions data collected pursuant to Rule 260.48b(g)(1) or 260.48b(g)(2) are used to calculate a 60-minute average emission rate on an hourly basis and to prepare excess emission reports.

(5) If the owner or operator of an affected facility which fires residual oil does not sample and analyze the residual oil for nitrogen content, as specified in Rule 260.49b(e), the requirements of Subsection (e)(3) of this rule apply and the provisions of Subsection (e)(4) of this rule are inapplicable.

(f) To determine compliance with the emission limit for nitrogen oxides required by Rule 260.44b(a)(4) for duct burners used in combined cycle systems, the owner or operator of an affected facility shall conduct the performance test required under Rule 260.8 using the nitrogen oxides and oxygen measurement procedures in 40 CFR Part 60 Appendix A, Method 20. During the performance test, one sampling site shall be located as close as practical to the exhaust of the turbine, as provided by Section 6.1.1 of Method 20. A second sampling site shall be located at the outlet to the steam generating unit. Measurements of nitrogen oxides and oxygen shall be taken at these two sampling sites simultaneously during the performance test. The nitrogen oxides emission rate from the combined cycle system shall be calculated by subtracting the nitrogen oxides emission rate measured at the sampling site at the outlet from the turbine from the nitrogen oxides emission rate measured at the sampling site at the outlet from the steam generating unit.

(g) The owner or operator of an affected facility described in Rule 260.44b(j) or 260.44b(k) shall demonstrate the maximum heat input capacity of the steam generating unit by operating the facility at maximum capacity for 24 hours. The owner or operator of an affected facility shall determine the maximum heat input capacity using the heat loss method described in Sections 5 and 7.3 of the ASME Power Test Codes 4.1. This demonstration of maximum heat input capacity shall be made during the initial performance test for affected facilities that meet the criteria of Rule 260.44b(j). It shall be made within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of each facility, for affected facilities meeting the criteria of Rule 260.44b(k). Subsequent demonstrations maybe required by the Control Officer at any other time. If this demonstration indicates that the maximum heat input capacity of the affected facility is less than that stated by the manufacturer of the affected facility, the maximum heat input capacity determined during this demonstration shall be used to determine the capacity utilization rate for the affected facility. Otherwise, the maximum heat input capacity provided by the manufacturer is used. (Effective 9-21-93)

(h) The owner or operator of an affected facility described in Rule 260.44b(j) that has a heat input capacity greater than 73 MW (250 million BTU/hour) shall: (Effective 9-21-93)

(1) Conduct an initial performance test as required under Rule 260.8 over a minimum of 24 consecutive steam generating unit operating hours at maximum heat input capacity to demonstrate compliance with the nitrogen oxides emission standards under Rule 260.44b using Method 7, 7A, 7E, or other approved reference methods; and

(2) Conduct subsequent performance tests once per calendar year or every 400 hours of operation (whichever comes first) to demonstrate compliance with the nitrogen oxides emission standards under Rule 260.44b over a minimum of 3 consecutive steam generating unit operating hours at maximum heat input capacity using Method 7, 7A, 7E, or other approved reference methods.

RULE 260.47b. EMISSION MONITORING FOR SULFUR DIOXIDE (Effective 3-14-89; Rev. Effective 9-21-93)

(a) Except as provided in Sections (b) and (f) of this rule, the owner or operator of an affected facility subject to the sulfur dioxide standards under Rule 260.42b shall install, calibrate, maintain, and operate continuous emission monitoring system (CEMS) for measuring sulfur dioxide concentrations and either oxygen (O₂) or carbon dioxide (CO₂) concentrations and shall record the output of the systems. The sulfur dioxide and either oxygen or carbon dioxide concentrations shall both be monitored at the inlet and outlet of the sulfur dioxide control device. (Rev. Effective 9-21-93)

(b) As an alternative to operating CEMS as required under Section (a) of this rule, an owner or operator may elect to determine the average sulfur dioxide emissions and percent reduction by: (Rev. Effective 9-21-93)

(1) Collecting coal or oil samples in an as-fired condition at the inlet to the steam generating unit and analyzing them for sulfur and heat content according to Method 19. Method 19 provides procedures for converting these measurements into the format to be used in calculating the average sulfur dioxide input rate, or

(2) Measuring sulfur dioxide according to Method 6B at the inlet or outlet to the sulfur dioxide control system. An initial stratification test is required to verify the adequacy of the Method 6B sampling location. The stratification test shall consist of three paired runs of a suitable sulfur dioxide and carbon dioxide measurement train operated at the candidate location and a second similar train operated according to the procedures in Section 3.2 and the applicable procedures in Section 7 of Performance Specification 2. Method 6B, Method 6A, or a combination of Method 6 and 3 or 3B or Methods 6C and 3A are suitable measurement techniques. If Method 6B is used for the second train, sampling time and timer operation may be adjusted for the stratification test as long as an adequate sample volume is collected; however, both sampling trains are to be operated similarly. For the location to be adequate for Method 6B 24-hour tests, the mean of the absolute difference between the three paired runs must be less than 10 percent.

(3) A daily sulfur dioxide emission rate, E_D , shall be determined using the procedure described in Method 6A, Section 7.6.2 (Equation 6A-8) and stated in ng/J (lbs/million BTU) heat input.

(4) RESERVED

(c) The owner or operator of an affected facility shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement is not met with a single monitoring system, the owner or operator of the affected facility shall supplement the emission data with data collected with other monitoring systems as approved by the Administrator or the reference methods and procedures as described in Section (b) of this rule.

(d) The 1-hour average sulfur dioxide emission rates measured by the CEMS required by Section (a) of this rule and required under Rule 260.13(h) is expressed in ng/J or lbs/million BTU heat input and is used to calculate the average emission rates under Rule 260.42b. Each 1-hour average sulfur dioxide emission rate must be based on more than 30 minutes of steam generating unit operation and include at least 2 data points with each representing a 15-minute

period. Hourly sulfur dioxide emission rates are not calculated if the affected facility is operated less than 30 minutes in a 1-hour period and are not counted toward determination of a steam generating unit operating day.

(e) The procedures under Rule 260.13 shall be followed for installation, evaluation, and operation of the CEMS.

(1) All CEMS shall be operated in accordance with the applicable procedures under Performance Specification 1, 2, and 3 (Appendix B).

(2) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 (Appendix F).

(3) For affected facilities combusting coal or oil, alone or in combination with other fuels, the span value of the sulfur dioxide CEMS at the inlet to the sulfur dioxide control device is 125 percent of the maximum estimated hourly potential sulfur dioxide emissions of the fuel combusted, and the span value of the CEMS at the outlet to the sulfur dioxide control device is 50 percent of the maximum estimated hourly potential sulfur dioxide emissions of the fuel combusted.

(f) The owner or operator of an affected facility that combusts low sulfur oil is not subject to the emission monitoring requirements of this rule if the owner or operator obtains fuel receipts as described in Rule 260.49b(r). (Effective 9-21-93)

**RULE 260.48b. EMISSION MONITORING FOR PARTICULATE
MATTER AND NITROGEN OXIDES**
(Rev. Effective 9-21-93)

(a) The owner or operator of an affected facility subject to the opacity standard under Rule 260.43b shall install, calibrate, maintain and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system.

(b) Except as provided in Sections (g), (h) and (i) of this rule, the owner or operator of an affected facility subject to the nitrogen oxides standard of Rule 260.44b shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides emissions discharged to the atmosphere and record the output of the system. (Rev. Effective 9-21-93)

(c) The continuous monitoring systems required under Section (b) of this rule shall be operated and data recorded during all periods of operation of the affected facility except for continuous monitoring system breakdowns, and repairs. Data is recorded during calibration checks, and zero and span adjustments.

(d) The 1-hour average nitrogen oxides emissions rates measured by the continuous nitrogen oxides monitor required by Section (b) of this rule and required under Rule 260.13(h) shall be expressed in ng/J or lbs/million BTU heat input and shall be used to calculate the average emission rates under Rule 260.44b. The 1-hour averages shall be calculated using the data points required under Rule 260.13(b). At least two data points must be used to calculate each 1-hour average.

(e) The procedures under Rule 260.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems.

(1) For affected facilities combusting coal, wood, or municipal-type solid waste, the span value for continuous monitoring system for measuring opacity shall be between 60 and 80 percent.

(2) For affected facilities combusting coal, oil, or natural gas, the span value for nitrogen oxides is determined as follows:

FUEL	SPAN VALUES FOR NITROGEN OXIDES (ppm)
Natural gas	500
Oil	500
Coal	1,000
Combination	$500(x + y) + 1,000z$

where:

x is the fraction of total heat input derived from natural gas,

y is the fraction of total heat input derived from oil, and

z is the fraction of total heat input derived from coal.

(3) All span values computed under Subsection (e)(2) of this rule for combusting combinations of regulated fuels are rounded to the nearest 500 ppm.

(f) When nitrogen oxides emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7, Method 7A, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.

(g) The owner or operator of an affected facility which has a heat input capacity of 73 MW (250 million BTU/hour) or less, and which has an annual capacity factor for residual oil having a nitrogen content of 0.30 weight percent or less, natural gas, distillate oil, or any mixture of these fuels greater than 10 percent (0.10) shall:

(1) Comply with the provisions of Sections (b), (c), (d), (e)(2), (e)(3), and (f) of this rule, or

(2) Monitor steam generating unit operating conditions and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to Rule 260.49b(c).

(h) The owner or operator of an affected facility which is subject to the nitrogen oxides standards of Rule 260.44b(a)(4) is not required to install or operate a continuous monitoring system to measure nitrogen oxides emissions.

(i) The owner or operator of an affected facility described in Rules 260.44b(j) or 260.44b(k) is not required to install or operate a continuous monitoring system for measuring nitrogen oxides emissions.

RULE 260.49b. REPORTING AND RECORDKEEPING REQUIREMENTS (Rev. Effective 9-21-93)

(a) The owner or operator of each affected facility shall submit notification of the date of initial startup, as provided by Rule 260.7. This notification shall include:
(Rev. Effective 9-21-93)

(1) The design heat input capacity of the affected facility and identification of the fuels to be combusted in the affected facility.

(2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under Rules 260.42b(d)(1), 260.42b(f)(1), 260.43b(a)(2), 260.43b(a)(3)(iii), 260.43b(c)(2)(ii), 260.43b(d)(2)(iii),

260.44b(c), 260.44b(d), 260.44b(e), 260.44b(i), 260.44b(j), 260.44b(k), 260.45b(d), 260.46b(g), 260.46b(h), or 260.48b(i).

(3) The annual capacity factor at which the owner or operator anticipates operating the facility based on all fuels fired and based on each individual fuel fired, and

(4) Notification that an emerging technology will be used for controlling emissions of sulfur dioxide. The Administrator will examine the description of the emerging technology and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of Rule 260.42b(a) unless and until this determination is made by the Administrator.

(b) The owner or operator of each affected facility subject to the sulfur dioxide, particulate matter and nitrogen oxides emission limits under Rule 260.42b, 260.43b, and 260.44b, shall submit to the Control Officer the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in Appendix B. The owner or operator of each affected facility described in Rules 260.44b(j) or 260.44b(k) shall submit to the Control Officer the maximum heat input capacity data from the demonstration of the maximum heat input capacity of the affected facility. (Rev. Effective 9-21-93)

(c) The owner or operator of each affected facility subject to the nitrogen oxides standard of Rule 260.44b who seeks to demonstrate compliance with those standards through the monitoring of steam generating unit operating conditions under the provisions of Rule 260.48b(g)(2) shall submit to the Control Officer for approval a plan which identifies the operating conditions to be monitored under Rule 260.48b(g)(2) and the records to be maintained under Rule 260.49b(j). This plan shall be submitted to the Control Officer for approval within 360 days of the initial startup of the affected facility. The plan shall:

(1) Identify the specific operating conditions to be monitored and the relationship between these operating conditions and nitrogen oxides emission rates (i.e., ng/J or lbs/million BTU heat input). Steam generating unit operating conditions include, but are not limited to, degree of staged combustion (i.e., the ratio of primary air to secondary and/or tertiary air) and the level of excess air (i.e., flue gas oxygen level);

(2) Include the data and information which the owner or operator used to identify the relationship between nitrogen oxides emission rates and these operating conditions;

(3) Identify how these operating conditions, including steam generating unit load, will be monitored under Rule 260.48b(g) on an hourly basis by the owner or operator during the period of operation of the affected facility; the quality assurance procedures or practices that will be employed to ensure that the data generated by monitoring these operating conditions will be representative and accurate; and the type and format of the records of these operating conditions, including steam generating unit load that will be maintained by the owner or operator under Rule 260.49b(j).

If the plan is approved, the owner or operator shall maintain records of predicted nitrogen oxide emission rates and the monitored operating conditions, including steam generating unit load, identified in the plan.

(d) The owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for coal, distillate oil, residual oil, natural gas, wood and municipal-type solid waste for each calendar quarter. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.

(e) For an affected facility that combusts residual oil and meets the criteria under Rules 260.44b(j), 260.44b(k), or 260.46b(e)(4), the owner or operator shall maintain records of the nitrogen content of the oil combusted in the affected facility and calculate the average fuel nitrogen content on a per calendar quarter basis. The nitrogen content shall be determined using ASTM Method D3431-80, Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons, (IBR - see 40 CFR Section 60.17), or fuel specification data obtained from fuel suppliers. If residual oil blends are being combusted, fuel nitrogen specifications may be prorated based on the ratio of residual oils of different nitrogen content in the fuel blend. (Rev. Effective 9-21-93)

(f) For facilities subject to the opacity standard under Rule 260.43b, the owner or operator shall maintain records of opacity.

(g) Except as provided under Section (p) of this rule, the owner or operator of an affected facility subject to the nitrogen oxides standards under Rule 260.44b shall maintain records of the following information for each steam generating unit operating day: (Rev. Effective 9-21-93)

(1) Calendar date.

(2) The average hourly nitrogen oxides emission rates (expressed as NO₂) (ng/J or lbs/million BTU heat input) measured or predicted.

(3) RESERVED

(4) Identification of the steam generating unit operating days when any calculated hourly average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under Rule 260.44b, with the reasons for such excess as well as a description of corrective actions taken.

(5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

(6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

(7) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(8) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

(9) Description of any modifications to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with Performance Specifications 2 or 3.

(10) Results of daily CEMS drift tests and quarterly accuracy assessments as required under Appendix F, Procedure 1.

(h) The owner or operator of any affected facility in any category listed below in Subsection (h)(1) or (h)(2) of this rule is required to submit excess emission reports for any calendar quarter during which there are excess emissions from the affected facility. If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period.

(1) Any affected facility subject to the opacity standards under Rule 260.43b(e) or to the operating parameter monitoring requirements under Rule 260.13(i)(1).

(2) Any affected facility that is subject to the nitrogen oxides standard of Rule 260.44b and that:

(i) Combusts natural gas, distillate oil, or residual oil with a nitrogen content of 0.3 weight percent or less, or

(ii) Has a heat input capacity of 73 MW (250 million BTU/hour) or less and is required to monitor nitrogen oxides emissions on a continuous basis under Rule 260.48b(g)(1) or steam generating unit operating conditions under Rule 260.48b(g)(2).

(3) For the purpose of Rule 260.43b, excess emissions are defined as all 6-minute periods during which the average opacity exceeds the opacity standards under Rule 260.43b(f).

(4) For the purposes of Rule 260.48b(g)(1), excess emissions are defined as any 60-minute average nitrogen oxides emission rate, as determined under Rule 260.46b(e), which exceeds the applicable emission limits in Rule 260.44b.

(i) The owner or operator of any affected facility subject to the continuous monitoring requirements for nitrogen oxides under Rule 260.48b shall submit a quarterly report containing the information recorded under Section (g) of this rule. All quarterly reports shall be post-marked by the 30th day following the end of each calendar quarter.

(j) The owner or operator of any affected facility subject to the sulfur dioxide standards under Rule 260.42b shall submit written reports to the Administrator for every calendar quarter. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

(k) For each affected facility subject to compliance and performance testing requirements of Rule 260.45b and the reporting requirement in Section (j) of this rule, the following information shall be reported to the Administrator:

(1) Calendar dates covered in the reporting period.

(2) Each 30-day average sulfur dioxide emission rate (ng/J or lbs/million BTU heat input) measured during the reporting period, ending with the last 30-day period in the quarter; reasons for noncompliance with the emission standards; and a description of corrective actions taken.

(3) Each 30-day average percent reduction in sulfur dioxide emissions calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for noncompliance with the emission standards; and a description of corrective actions taken.

(4) Identification of the steam generating unit operating days that coal or oil was combusted and for which sulfur dioxide or diluent (oxygen or carbon dioxide) data have been obtained by an approved method for at least 75 percent of the operating hours in the steam generating unit operating day; justification for not obtaining sufficient data; and description of corrective action taken.

(5) Identification of the times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and description of corrective action taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.

(6) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(7) Identification of times when hourly averages have been obtained based on manual sampling methods.

(8) Identification of the times when the pollutant concentration exceeded full span of the CEMS.

(9) Description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specification 2 or 3.

(10) Results of daily CEMS drift tests and quarterly accuracy assessments as required under Appendix F, Procedure 1.

(11) The annual capacity factor of each unit fired as provided under Section (d) of this rule.

(l) For each affected facility subject to the compliance and performance testing requirements of Rule 260.45b(d) and the reporting requirements of Section (j) of this rule, the following information shall be reported to the Administrator:

(1) Calendar dates when the facility was in operation during the reporting period;

(2) The 24-hour average sulfur dioxide emission rate measured for each steam generating unit operating day during the reporting period that coal or oil was combusted, ending in the last 24-hour period in the quarter; reasons for noncompliance with the emission standards; and a description of corrective actions taken;

(3) Identification of the steam generating unit operating days that coal or oil was combusted for which sulfur dioxide or diluent (oxygen or carbon dioxide) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and description of corrective action taken.

(4) Identification of the times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and description of corrective action taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.

(5) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(6) Identification of times when hourly averages have been obtained based on manual sampling methods.

(7) Identification of the times when the pollutant concentration exceeded full span of the CEMS.

(8) Description of any modifications to the CEMS which could affect the ability of the CEMS to comply with Performance Specification 2 or 3.

(9) Results of daily CEMS drift tests and quarterly accuracy assessments as required under Appendix F, Procedure 1.

(m) For each affected facility subject to the sulfur dioxide standards under Rule 260.42b for which the minimum amount of data required under Rule 260.47b(f) were not obtained during a calendar quarter, the following information is reported to the Administrator in addition to that required under Section (k) of this rule.

(1) The number of hourly averages available for outlet emission rates and inlet emission rates.

(2) The standard deviation of hourly averages for outlet emission rates and inlet emission rates, as determined in Method 19, Section 7.

(3) The lower confidence limit for the mean outlet emission rate and the upper confidence limit for the mean inlet emission rate, as calculated in Method 19, Section 7.

(4) The ratio of the lower confidence limit for the mean outlet emission rate and the allowable emission rate, as determined in Method 19, Section 7.

(n) If a percent removal efficiency by fuel pretreatment (i.e., % R_f) is used to determine the overall percent reduction (i.e., % R_o) under Rule 260.45b, the owner or operator of the affected facility shall submit a signed statement with the quarterly report:

(1) Indicating what removal efficiency by fuel pretreatment (i.e., % R_f) was credited for the calendar quarter;

(2) Listing the quantity, heat content, and date each pretreated fuel shipment was received during the previous calendar quarter; the name and location of the fuel pretreatment facility; and the total quantity and total heat content of all fuels received at the affected facility during the previous calendar quarter;

(3) Documenting the transport of the fuel from the fuel pretreatment facility to the steam generating unit.

(4) Including a signed statement from the owner or operator of the fuel pretreatment facility certifying that the percent removal efficiency achieved by fuel pretreatment was determined in accordance with the provisions of Method 19 (Appendix A) and listing the heat content and sulfur content of each fuel before and after fuel pretreatment.

(o) All records required under this rule shall be maintained by the owner or operator of the affected facility for a period of 2 years following the date of such record.

(p) The owner or operator of an affected facility described in Rules 260.44b(j) or 260.44b(k) shall maintain records of the following information for each steam generating unit operating day: (Effective 9-21-93)

(1) Calendar date,

(2) The number of hours of operation, and

(3) A record of the hourly steam load.

(q) The owner or operator of an affected facility described in Rules 260.44b(j) or 260.44b(k) shall submit to the Control Officer on a quarterly basis: (Effective 9-21-93)

(1) The annual capacity factor over the previous 12 months,

(2) The average fuel nitrogen content during the quarter, if residual oil was fired; and

(3) If the affected facility meets the criteria described in Rule 260.44b(j), the results of any nitrogen oxides emission tests required during the quarter, the hours of operation during the quarter, and the hours of operation since the last nitrogen oxides emission test.

(r) The owner or operator of an affected facility who elects to demonstrate that the affected facility combusts only low sulfur oil under Rule 260.42b(j)(2) shall obtain and maintain at the affected facility fuel receipts from the fuel supplier which certify that the oil meets the definition of distillate oil as defined in Rule 260.41b. For the purposes of this rule, the oil need not meet the

fuel nitrogen content specification in the definition of distillate oil. Quarterly reports shall be submitted to the Control Officer certifying that only low sulfur oil meeting this definition was combusted in the affected facility during the preceding quarter. (Effective 9-21-93)