

# Subpart D-Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971

## Applicability -§ 60.40

General	<ol style="list-style-type: none"> <li>1.) Fossil-fuel-fired steam generating units of more than 73 megawatts heat input rate (250 million Btu per hour).</li> <li>2.) Fossil-fuel and wood-residue-fired steam generating unit capable of firing fossil fuel at a heat input rate of more than 73 megawatts (250 million Btu per hour).</li> <li>3.) Any change to an existing fossil-fuel-fired steam generating unit to accommodate the use of combustible materials, other than fossil fuels as defined in this subpart, shall not bring that unit under the applicability of this subpart.</li> <li>4.) The requirements of §§60.44 (a)(4), (a)(5), (b) and (d), and 60.45(f)(4)(vi) are applicable to lignite-fired steam generating units that commenced construction or modification after December 22, 1976.</li> <li>5.) Any facility covered under Subpart Da is not covered under this subpart.</li> </ol>
---------	--

## Emission Standards

Source	PM -§ 60.42	SO <sub>x</sub> -§ 60.43	NO <sub>x</sub> -§ 60.44
General	Facility may not exhibit greater than 20 percent opacity except for one six-minute period per hour of not more than 27 percent opacity.	Compliance shall be based on the total heat input from all fossil fuels burned, including gaseous fuels.	
Facility with heat input derived from fossil fuel or fossil fuel and wood residue.	Facility may not emit greater than 43 nanograms per joule heat input (0.10 lb per million Btu).		
Facility with heat input derived from liquid fossil fuel or liquid fossil fuel and wood residue.		Facility may not emit greater than 340 nanograms per joule heat input (0.80 lb per million Btu).	
Facility with heat input derived from gaseous fossil fuels		Facility may not emit greater than 86 nanograms per joule heat input (0.20 lb per Million Btu)	
Facility with heat input derived from liquid fossil fuel, liquid fossil fuel and wood residue, or gaseous fossil fuel and wood residue.			Facility may not emit greater than 129 nanograms per joule heat input (0.30 lb per million Btu)

Source	PM- §60.42	SO <sub>x</sub> - §60.43	NO <sub>x</sub> - §60.44
Facility with heat input derived from lignite or lignite and wood residue.			Facility may not emit greater than 260 nanograms per joule heat input (0.60 lb per million Btu)
Facility with heat input derived from lignite which is mined in North Dakota, South Dakota, or Montana and which is burned in a cyclone-fired unit.			Facility may not emit greater than 340 nanograms per joule heat input (0.80 lb per million Btu)
Facilities with heat input derived from solid fossil fuel or solid fossil fuel and wood residue		Facility may not emit greater than 520 nanograms per joule heat input (1.2 lb per million Btu).	Facility may not emit greater than 300 nanograms per joule heat input (0.70 lb per million btu)
When different fossil fuels are burned simultaneously in any combination.		Facility may may not emit greater than the following: (in nanograms per heat input) $PSSO_2 = \frac{y(340) + z(520)}{y+z}$ See §60.43 (a) (2) for variables and units	Facility may may not emit greater than the following: (in nanograms per heat input) $PSNO_x = \frac{w(260) + x(86) + y(130) + z(300)}{w+x+y}$ See §60.44 (b) for variables and units
Cyclone-fired units which burn fuels containing at least 25 percent of lignite that is mined in North Dakota, South Dakota, or Montana.		Facility may not emit greater than 340 nanograms per joule heat input (0.80 lb per million Btu).	

## Emission and fuel monitoring - § 60.45

Source	PM	SOx	NOx
General	<ol style="list-style-type: none"> <li>1.) Facility shall install, calibrate, maintain, and operate continuous monitoring systems (CMS) for measuring opacity and either oxygen or carbon dioxide</li> <li>2.) span value for a CMS measuring the opacity of emissions shall be 80, 90, or 100 percent</li> <li>3.) Excess emission and monitoring reports shall be submitted every calendar quarter</li> <li>4.) All quarterly reports shall be postmarked by the 30th day following the end of the month</li> <li>5.) Periods of excess emissions and monitoring system downtime shall be reported if the opacity during any six-minute period exceeds 20 percent, except that one six-minute average per hour of up to 27 percent need not be reported.</li> <li>6.) All CMS data must be in common units. conversion equations are found in §60.45 (e) (1-6)</li> </ol>	<ol style="list-style-type: none"> <li>1.) Facility shall install, calibrate, maintain, and operate continuous monitoring systems (CMS) for measuring SOx and either oxygen or carbon dioxide</li> <li>2.) Sulfur dioxide shall be used for preparing calibration gas mixtures under Performance Specification 2 of Appendix B</li> <li>3.) Span value requirements for CMS are found in §60.45 (B)(3)</li> <li>4.) Excess emission and monitoring reports shall be submitted every calendar quarter</li> <li>5.) All quarterly reports shall be postmarked by the 30th day following the end of the month</li> <li>6.) Periods of excess emissions and monitoring system downtime shall be reported if during any three hour period the average emissions as measured by a CMS exceeds the applicable standard</li> <li>7.) performance evaluations and calibration checks shall use Methods 6, 7, and 3B as applicable</li> <li>8.) All CMS data must be in common units. conversion equations are found in §60.45 (e) (1-6)</li> </ol>	<ol style="list-style-type: none"> <li>1.) Facility shall install, calibrate, maintain, and operate continuous monitoring systems (CMS) for measuring NOx and either oxygen or carbon dioxide</li> <li>2.) Nitric oxide shall be used for preparing calibration gas mixtures under Performance Specification 2 of Appendix B</li> <li>3.) Span value requirements for CMS are found in §60.45 (B)(3)</li> <li>4.) Excess emission and monitoring reports shall be submitted every calendar quarter</li> <li>5.) All quarterly reports shall be postmarked by the 30th day following the end of the month</li> <li>6.) Periods of excess emissions and monitoring system downtime shall be reported if during any three hour period the average emissions as measured by a CMS exceeds the applicable standard</li> <li>7.) performance evaluations and calibration checks shall use Methods 6, 7, and 3B as applicable</li> <li>8.) All CMS data must be in common units. conversion equations are found in §60.45 (e) (1-6)</li> </ol>
Fossil fuel-fired steam generator that burns only gaseous fossil fuel	CMS is not required for measuring the opacity of emissions.	CMS is not required for measuring the SOx emissions.	
Fossil fuel-fired steam generator that does not use a flue gas desulfurization device.		A CMS is not required if emissions are monitored by fuel sampling and analysis	

Facilities that burn a combination of fossil fuels		calculated span value shall be rounded to the nearest 500 ppm	calculated span value shall be rounded to the nearest 500 ppm
Source	PM	SOx	NOx
Facilities that burn fossil fuels and nonfossil fuels	Span values are determined by the administrator	Span values are determined by the administrator	Span values are determined by the administrator

### Test methods and procedures - §60.46

Source	All Emissions		
General	<p>1.) In conducting the performance tests required the facility shall use as reference methods and procedures the test methods in Appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b). Acceptable alternative methods and procedures are given in paragraph (4) of this section.</p> <p>2.) The emission rate (E) of particulate matter, SO<sub>2</sub>, or NO<sub>x</sub> shall be computed for each run using the following equation:  <math display="block">E = CF (20.9) / (20.9 - \% O_2)</math> see §60.45 (f) (1-6) for variables and units</p> <p>3.) When a CMS is used for measuring CO<sub>2</sub> the measurements consistent basis using the following equation to make adjustments to the data  <math display="block">E = CFc [100 / \text{percent CO}_2]</math> see §60.45 (f) (1-6) for variables and units</p> <p>4.) The facility may use alternatives to the reference methods and procedures in this section see §60.46 (d) (1-7)</p>		
Facilities that fire combinations of fossil fuel and wood residue	Facility shall determine the percentage of the total heat input derived from each type of fuel see §60.46 (c) (1-3) for applicable requirements		
	PM	SOx	NOx
General	Method 9 and the procedures in §60.11 shall be used to determine opacity	Method 6 shall be used to determine the concentration see §60.46 (b) (4) (i-ii) for specific requirements	Method 7 shall be used to determine the concentration see §60.46 (b) (5) (i-iii) for specific requirements
Facilities without flue-gas-desulfurization system	Method 5 shall be used to determine the concentration see §60.46 (b) (2) (i-iii) for specific requirements.		
Facilities with flue-gas-desulfurization system	Method 5B shall be used to determine the concentration. see §60.46 (b) (2) (i-iii) for specific requirements.		