§ 60.45b Compliance and performance test methods and procedures for sulfur dioxide.

(a) The SO₂ emission standards in §60.42b apply at all times. Facilities burning coke oven gas alone or in combination with any other gaseous fuels or distillate oil are allowed to exceed the limit 30 operating days per calendar year for SO₂ control system maintenance.

(b) In conducting the performance tests required under §60.8, the owner or operator shall use the methods and procedures in appendix A (including fuel certification and sampling) of this part or the methods and procedures as specified in this section, except as provided in §60.8(b). Section 60.8(f) does not apply to this section. The 30-day notice required in §60.8(d) applies only to the initial performance test unless otherwise specified by the Administrator.

(c) The owner or operator of an affected facility shall conduct performance tests to determine compliance with the percent of potential SO₂ emission rate (% Pₑ) and the SO₂ emission rate (Eₑ) pursuant to §60.42b following the procedures listed below, except as provided under paragraph (d) and (k) of this section.

(1) The initial performance test shall be conducted over 30 consecutive operating days of the steam generating unit. Compliance with the SO₂ standards shall be determined using a 30-day average. 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 the affected facility has a low heat release rate and combusts natural gas or distillate oil in excess of 30 percent of the heat input on a 30-day rolling average from the combustion of all fuels, a limit determined by use of the following formula:

\[ Eₑ = \frac{0.10 \times Hₑ \text{g}}{Hₑ \text{g} + Hₑ \text{o}} \]

Where:

- \( Eₑ \) = NOₓ emission limit, (lb/MMBtu);
- \( Hₑ \text{g} \) = 30-day heat input from combustion of natural gas or distillate oil; and
- \( Hₑ \text{o} \) = 30-day heat input from combustion of any other fuel.

(3) After February 27, 2006, units where more than 10 percent of total annual output is electrical or mechanical may comply with an optional limit of 270 ng/J (2.1 lb/MMBtu) gross energy output, based on a 30-day rolling average. Units complying with this output-based limit must demonstrate compliance according to the procedures of §60.48Da(i) of subpart Da of this part, and must monitor emissions according to §60.49Da(c), (k), through (n) of subpart Da of this part.
(2) If only coal, only oil, or a mixture of coal and oil is combusted, the following procedures are used:

(i) The procedures in Method 19 of appendix A–7 of this part are used to determine the hourly SO\textsubscript{2} emission rate (E\textsubscript{ao}) and the 30-day average emission rate (E\textsubscript{a}). The hourly averages used to compute the 30-day averages are obtained from the CEMS of §60.47b(a) or (b).

(ii) The percent of potential SO\textsubscript{2} emission rate (%P\textsubscript{2}) emitted to the atmosphere is computed using the following formula:

\[
%P_2 = 100 \left( 1 - \frac{R_s}{100} \right) \left( 1 - \frac{R_o}{100} \right)
\]

Where:

- \%P\textsubscript{2} = Potential SO\textsubscript{2} emission rate, percent;
- \%R\textsubscript{s} = SO\textsubscript{2} removal efficiency of the control device as determined by Method 19 of appendix A of this part, in percent; and
- \%R\textsubscript{o} = SO\textsubscript{2} removal efficiency of fuel pretreatment as determined by Method 19 of appendix A of this part, in percent.

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

(i) An adjusted hourly SO\textsubscript{2} emission rate (E\textsubscript{ao}^\circ) is used in Equation 19–19 of Method 19 of appendix A of this part to compute an adjusted 30-day average emission rate (E\textsubscript{a}^\circ). The E\textsubscript{ao}^\circ is computed using the following formula:

\[
E_{ao}^\circ = E_{ao} - E_w (1 - X_k)
\]

Where:

- E\textsubscript{ao} = Adjusted hourly SO\textsubscript{2} emission rate, ng/J (lb/MMBtu); and
- E\textsubscript{ao} = Hourly SO\textsubscript{2} emission rate, ng/J (lb/MMBtu);
- E\textsubscript{w} = SO\textsubscript{2} 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 of appendix A of this part, ng/J (lb/MMBtu);
- X\textsubscript{k} = Fraction of total heat input from fuel combustion derived from coal, oil, or coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(ii) To compute the percent of potential SO\textsubscript{2} emission rate (%R\textsubscript{2}^\circ), an adjusted %R\textsubscript{s} (%R\textsubscript{s}^\circ) is computed from the adjusted E\textsubscript{ao}^\circ from paragraph (b)(3)(i) of this section and an adjusted average SO\textsubscript{2} inlet rate (E\textsubscript{a}^\circ) using the following formula:

\[
%R_2^\circ = 100 \left( 1 - \frac{E_{ao}^\circ}{E_{ai}^\circ} \right)
\]

To compute E\textsubscript{ai}^\circ, an adjusted hourly SO\textsubscript{2} inlet rate (E\textsubscript{ai}^\circ) is used. The E\textsubscript{ai}^\circ is computed using the following formula:

\[
E_{ai}^\circ = \frac{E_{ai} - E_w (1 - X_k)}{X_k}
\]

Where:

- E\textsubscript{ai} = Hourly SO\textsubscript{2} inlet rate, ng/J (lb/MMBtu); and
- E\textsubscript{ai} = Average SO\textsubscript{2} inlet rate for each hourly average during the time that the lot is being combusted; and
- X\textsubscript{k} = Fraction of total heat input from fuel combustion derived from coal, oil, or coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(4) The owner or operator of an affected facility subject to paragraph (c)(3) of this section does not have to measure parameters E\textsubscript{a} or X\textsubscript{k} if the owner or operator elects to assume that X\textsubscript{k} = 1.0. Owners or operators of affected facilities who assume X\textsubscript{k} = 1.0 shall:

(i) Determine %P\textsubscript{2}, following the procedures in paragraph (c)(2) of this section; and

(ii) Sulfur dioxide emissions (E\textsubscript{ao}) are considered to be in compliance with SO\textsubscript{2} emission limits under §60.42b.

(5) The owner or operator of an affected facility that qualifies under the provisions of §60.42b(d) does not have to measure parameters E\textsubscript{a} or X\textsubscript{k} in paragraph (c)(3) of this section if the owner or operator of the affected facility elects to measure SO\textsubscript{2} emission rates of the coal or oil following the fuel sampling and analysis procedures in Method 19 of appendix A–7 of this part.

(d) Except as provided in paragraph (l) of this section, the owner or operator of an affected facility that combusted only very low sulfur oil, natural gas, or a mixture of these fuels, 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:
(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 CEMS is used, or based on a daily average if Method 6B of appendix A of this part or fuel sampling and analysis procedures under Method 19 of appendix A of this part are used.

(e) The owner or operator of an affected facility subject to §60.42b(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 §60.8, compliance with the SO\textsubscript{2} emission limits and percent reduction requirements under §60.42b is based on the average emission rates and the average percent reduction for SO\textsubscript{2} for the first 30 consecutive steam generating unit operating days, except as provided under paragraph (d) of this section. The initial performance test is the only test for which at least 30 days prior notice is required unless otherwise specified by the Administrator. The initial performance test is to be scheduled so that the first steam generating unit operating day of the 30 successive steam generating unit operating days 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 §60.8, compliance with the SO\textsubscript{2} emission limits and percent reduction requirements under §60.42b is calculated to show compliance with the standard.

(h) Except as provided under paragraph (l) of this section, the owner or operator of an affected facility shall use all valid SO\textsubscript{2} emissions data in calculating %P\textsubscript{s} and E\textsubscript{ho} under paragraph (c), of this section whether or not the minimum emissions data requirements under §60.46b are achieved. All valid emissions data, including valid SO\textsubscript{2} emission data collected during periods of startup, shutdown and malfunction, shall be used in calculating %P\textsubscript{s} and E\textsubscript{ho} pursuant to paragraph (c) of this section.

(i) During periods of malfunction or maintenance of the SO\textsubscript{2} control systems when oil is combusted as provided under §60.42b(i), emission data are not used to calculate %P\textsubscript{s} or E\textsubscript{ho} under §60.42b(a), (b) or (c), however, the emissions data are used to determine compliance with the emission limit under §60.42b(i).

(j) The owner or operator of an affected facility that only combusts very low sulfur oil, natural gas, or a mixture of these fuels with any other fuels not subject to an SO\textsubscript{2} standard is not subject to the compliance and performance testing requirements of this section if the owner or operator obtains fuel receipts as described in §60.49b(r).

(k) The owner or operator of an affected facility seeking to demonstrate compliance in §§60.42b(d)(4), 60.42b(i), 60.42b(k)(2), and 60.42b(k)(3) (when not burning coal) shall follow the applicable procedures in §60.49b(r).

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