

## § 75.15

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unit is recategorized as another type of unit by changing its fuel mix, the owner or operator shall install, operate, and certify a continuous opacity monitoring system as required by paragraph (a) of this section by December 31 of the following calendar year.

(d) *Diesel-fired units and dual-fuel reciprocating engine units.* The owner or operator of an affected diesel-fired unit or a dual-fuel reciprocating engine unit is exempt from the opacity monitoring requirements of this part.

[58 FR 3701, Jan. 11, 1993, as amended at 61 FR 25581, May 22, 1996]

### § 75.15 Specific provisions for monitoring SO<sub>2</sub> emissions removal by qualifying Phase I technology.

(a) *Additional monitoring provisions.* In addition to the SO<sub>2</sub> monitoring requirements in § 75.11 or § 75.16, for the purposes of adequately monitoring SO<sub>2</sub> emissions removal by qualifying Phase I technology operated pursuant to § 72.42 of this chapter, the owner or operator shall, except where specified below, use both an inlet SO<sub>2</sub>-diluent continuous emission monitoring system and an outlet SO<sub>2</sub>-diluent continuous emission monitoring system, consisting of an SO<sub>2</sub> pollutant concentration monitor and a diluent CO<sub>2</sub> or O<sub>2</sub> monitor. (The outlet SO<sub>2</sub>-diluent continuous emission monitoring system may consist of the same SO<sub>2</sub> pollutant concentration monitor that is required under § 75.11 or § 75.16 for the measurement of SO<sub>2</sub> emissions discharged to the atmosphere and the diluent monitor used as part of the NO<sub>x</sub> continuous emission monitoring system that is required under § 75.12 or § 75.17 for the measurement of NO<sub>x</sub> emissions discharged into the atmosphere.) During the period when required to measure emissions removal efficiency, from January 1, 1997 through December 31, 1999, the owner or operator shall meet the general operating requirements in § 75.10 for both the inlet and the outlet SO<sub>2</sub>-diluent continuous emission monitoring systems, and in addition, the owner or operator shall comply with the monitoring provisions in this section. On January 1, 2000, the owner or operator may cease operating and/or reporting on the inlet SO<sub>2</sub>-diluent continuous emission monitoring system

results for the purposes of the Acid Rain Program.

(1) *Pre-combustion technology.* The owner or operator of an affected unit for which a precombustion technology has been employed for the purpose of meeting qualifying Phase I technology requirements shall use sections 4 and 5 of method 19 in appendix A of part 60 of this chapter to estimate, daily, for the purposes of this part, the percentage SO<sub>2</sub> removal efficiency from such technology, and shall substitute the following ASTM methods for sampling, preparation, and analysis of coal for those cited in method 19: ASTM D2234-89, Standard Test Method for Collection of a Gross Sample of Coal (Type I, Conditions A, B, or C and systematic spacing), ASTM D2013-86, Standard Method of Preparing Coal Samples for Analysis, ASTM D2015-91, Standard Test Method for Gross Calorific Value of Coal and Coke by the Adiabatic Calorimeter, and ASTM D3177-89, Standard Test Methods for Total Sulfur in the Analysis Sample of Coal and Coke, or ASTM D4239-85, Standard Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods. Each of the preceding ASTM methods is incorporated by reference in § 75.6.

(2) *Combustion technology.* The owner or operator of an affected unit for which a combustion technology has been installed and operated for the purpose of meeting qualifying Phase I technology requirements shall use the coal sampling and analysis procedures in paragraph (a)(1) of this section and equation 5 in paragraph (b) of this section to estimate the percentage SO<sub>2</sub> removal efficiency from such technology.

(3) *Post-combustion technology.* The owner or operator of an affected unit for which a post-combustion technology has been installed and operated for the purpose of meeting qualifying Phase I technology requirements shall install, certify, operate, and maintain both an inlet and an outlet SO<sub>2</sub>-diluent continuous emission monitoring system.

(i) Both inlet and outlet SO<sub>2</sub>-diluent continuous emission monitoring systems shall consist of an SO<sub>2</sub> pollutant concentration monitor and a diluent

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gas monitor for measuring the O<sub>2</sub> or CO<sub>2</sub> concentrations in the flue gas and shall measure and record average hourly SO<sub>2</sub> emission rates (in lb/mmBtu).

(ii) The SO<sub>2</sub>-diluent continuous emission monitoring systems for measuring and recording the SO<sub>2</sub> emissions removal by a qualifying Phase I technology shall meet all the requirements of this part during the period when required to measure emissions removal, from January 1, 1997 through December 31, 1999, and shall meet the certification deadline specified in § 75.4.

(iii) The SO<sub>2</sub> pollutant concentration monitors and the diluent gas monitors at the inlet and outlet of the SO<sub>2</sub> emission controls shall meet all requirements specified in appendices A and B to this part.

(b) *Demonstration of SO<sub>2</sub> emissions removal efficiency.* The owner or operator shall demonstrate the average annual percentage SO<sub>2</sub> emissions removal efficiency of the installed technology or combination of technologies during the period when required to measure emissions removal, from January 1, 1997 through December 31, 1999, according to the following procedures:

(1) Calculate the average annual SO<sub>2</sub> emissions removal efficiency using equations 1-7 as follows:

$$\%R = [100[1.0 - (1.0 - \%R_f/100) (1.0 - \%R_g/100) (1.0 - \%R_c/100)]] \quad (Eq. 1)$$

where,

%R = Overall percentage SO<sub>2</sub> emissions removal efficiency.

%R<sub>f</sub> = Percentage SO<sub>2</sub> emissions removal efficiency from fuel pretreatment, calculated from equation 19-22 in Reference Method 19 in appendix A to part 60 of this chapter.

%R<sub>c</sub> = Percentage SO<sub>2</sub> emissions removal of combustion emission controls, calculated from equation 5.

%R<sub>g</sub> = Percentage SO<sub>2</sub> removal efficiency of post-combustion emission controls, calculated from equation 2.

$$\%R_g = 100 \left[ 1.0 - \frac{E_o}{E_i} \right] \quad (Eq. 2)$$

where,

E<sub>o</sub> = Average hourly SO<sub>2</sub> emission rate in lb/mmBtu, measured at the outlet of the post-combustion emission controls during

the calendar year, calculated from equation 3.

E<sub>i</sub> = Average hourly SO<sub>2</sub> emission rate in lb/mmBtu, measured at the inlet to the post-combustion emission controls during the calendar year, calculated from equation 4.

$$E_o = \frac{\sum_{j=1}^n E_{hoj}}{n} \quad (Eq. 3)$$

where,

E<sub>hoj</sub> = Each hourly SO<sub>2</sub> emission rate in lb/mmBtu, measured by the continuous emission monitoring system at the outlet to the post-combustion emission controls.

n = Total unit operating hours during which the SO<sub>2</sub> continuous emission monitoring system at the outlet of the emission controls collected quality-assured data.

$$E_i = \frac{\sum_{j=1}^m E_{hij}}{m} \quad (Eq. 4)$$

where,

E<sub>hij</sub> = Each hourly SO<sub>2</sub> emission rate in lb/mmBtu, measured by the continuous emission monitoring system at the inlet to the post-combustion emission controls.

m = Total unit operating hours during which the SO<sub>2</sub> continuous emission monitoring system at the inlet to the emission controls collected quality-assured data.

$$\%R_c = 100 \left[ 1.0 - \frac{E_{co}}{E_{ci}} \right] \quad (Eq. 5)$$

where,

E<sub>co</sub> = Average hourly SO<sub>2</sub> emission rate in lb/mmBtu, measured at the outlet of the combustion emission controls during the calendar year, calculated from equation 6.

E<sub>ci</sub> = Average hourly SO<sub>2</sub> emission rate in lb/mmBtu, determined by coal sampling and analysis according to the methods and procedures in paragraph (a)(1) of this section, calculated from equation 7.

$$E_{co} = \frac{\sum_{j=1}^q E_{ocj}}{q}$$

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(Eq. 6)

where,

$E_{ocj}$  = Each hourly SO<sub>2</sub> emission rate in lb/mmBtu, measured by the continuous emission monitoring system at the outlet to the combustion controls.

$q$  = Total unit operating hours for which the outlet SO<sub>2</sub> continuous emission monitoring system collected quality-assured data during the calendar year.

$$E_{ci} = \frac{\sum_{j=1}^p E_{icj}}{p} \quad \text{Eq. 7}$$

where,

$E_{icj}$  = Each average hourly SO<sub>2</sub> emission rate in lb/mmBtu, determined by the coal sampling and analysis methods and procedures in paragraph (a)(1) of this section and calculated using appendix A, method 19 of part 60 of this chapter, performed once a day.

$p$  = Total unit operation hours during which coal sampling and analysis is performed to determine SO<sub>2</sub> emissions at the inlet to the combustion controls.

(2) The owner or operator shall include all periods when fuel is being combusted in determining total unit operating hours for the purpose of calculating the average SO<sub>2</sub> emissions removal efficiency during the calendar year.

(3) The owner or operator shall use only quality-assured SO<sub>2</sub> emissions data in the calculation of SO<sub>2</sub> emissions removal efficiency.

(4) Compliance with the 90-percent SO<sub>2</sub> emissions removal efficiency requirement under this part is determined annually beginning January 1, 1997 through December 31, 1999.

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26521, May 17, 1995; 61 FR 25582, May 22, 1996]

**§ 75.16 Special provisions for monitoring emissions from common, by-pass, and multiple stacks for SO<sub>2</sub> emissions and heat input determinations.**

(a) *Phase I common stack procedures.* Prior to January 1, 2000, the following procedures shall be used when more than one unit utilize a common stack:

(1) *Only Phase I units or only Phase II units using common stack.* When a Phase

I unit uses a common stack with one or more other Phase I units, but no other units, or when a Phase II unit uses a common stack with one or more Phase II units, but no other units, the owner or operator shall either:

(i) Install, certify, operate, and maintain an SO<sub>2</sub> continuous emission monitoring system and flow monitoring system in the duct to the common stack from each affected unit; or

(ii) Install, certify, operate, and maintain an SO<sub>2</sub> continuous emission monitoring system and flow monitoring system in the common stack; and

(A) Combine emissions for the affected units for recordkeeping and compliance purposes; or

(B) Provide information satisfactory to the Administrator on methods for apportioning SO<sub>2</sub> mass emissions measured in the common stack to each of the affected units. The designated representative shall provide the information to the Administrator through a petition submitted under § 75.66. The Administrator may approve such substitute methods for apportioning SO<sub>2</sub> mass emissions measured in a common stack whenever the method ensures complete and accurate accounting of all emissions regulated under this part.

(2) *Phase I unit using common stack with non-Phase I unit(s).* When one or more Phase I units uses a common stack with one or more Phase II or nonaffected units, the owner or operator shall either:

(i) Install, certify, operate, and maintain an SO<sub>2</sub> continuous emission monitoring system and flow monitoring system in the duct to the common stack from each affected unit; or

(ii) Install, certify, operate, and maintain an SO<sub>2</sub> continuous emission monitoring system and flow monitoring system in the common stack; and

(A) Designate any Phase II unit(s) as a substitution or compensating unit(s) in accordance with part 72 of this chapter and any nonaffected unit(s) as opt-in units in accordance with part 74 of this chapter and combine emissions for recordkeeping and compliance purposes; or

(B) Install, certify, operate, and maintain an SO<sub>2</sub> continuous emission