$$\overline{e_v} = \frac{\sum e_v}{n}$$

(Eq. 26)

where,

e_p=Hourly value generated by the alternative monitoring system.

e_v=Hourly value generated by the continuous emission monitoring system.

n=Total number of hours for which data were generated for the tests.

A separate graph shall be produced for the data generated at each of the operating levels or fuel supplies described in paragraphs (a)(4) and (a)(5) of this section.

(ii) Use the following equation to calculate the coefficient of correlation, r, between the emissions data from the alternative monitoring system and the continuous emission monitoring system using all hourly data for which paired values were available from both monitoring systems.

$$r = \frac{\sum e_p e_v - \left(\sum e_p\right)\left(\sum e_v\right)\ n}{\left(\left[\sum e_p^2 - \left(\sum e_p\right)^2\ n\right]\left[\sum e_p^2 - \left(\sum e_v\right)^2\ n\right]\right)^{(1\ 2)}}$$

(Eq. 27)

(iii) If the calculated r-value is less than 0.8, the proposed method is unacceptable.

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26530, May 17, 1995; 60 FR 40296, Aug. 8, 1995]

§ 75.42 Reliability criteria.

To demonstrate reliability equal to or better than the continuous emission monitoring system, the owner or operator shall demonstrate that the alternative monitoring system is capable of providing valid 1-hr averages for 95.0 percent or more of unit operating hours over a 1-yr period and that the system meets the applicable requirements of Appendix B of this part.

§ 75.43 Accessibility criteria.

To demonstrate accessibility equal to or better than the continuous emission monitoring system, the owner or operator shall provide reports and on-site records of emission data to demonstrate that the alternative monitoring system provides data meeting the requirements of subparts F and G of this part.

§ 75.44 Timeliness criteria.

To demonstrate timeliness equal to or better than the continuous emission monitoring system, the owner or operator shall demonstrate that the alternative monitoring system can meet the requirements of subparts F and G of this part; can provide a continuous, quality-assured, permanent record of certified emissions data on an hourly basis; and can issue a record of data for the previous day within 24 hours.

§ 75.45 Daily quality assurance criteria.

The owner or operator shall either demonstrate that daily tests equivalent to those specified in Appendix B of this part can be performed on the alternative monitoring system or demonstrate and document that such tests are unnecessary for providing quality-assured data.

§ 75.46 Missing data substitution criteria.

The owner or operator shall demonstrate that all missing data can be accounted for in a manner consistent with the applicable missing data procedures in subpart D of this part.

§ 75.47 Criteria for a class of affected units.

(a) The owner or operator of an affected unit may represent a class of affected units for the purpose of applying

to the Administrator for a class-approved alternative monitoring system.

(b) The owner or operator of an affected unit representing a class of affected units shall provide the following information:

(1) A description of the affected unit and how it appropriately represents the class of affected units;

(2) A description of the class of affected units, including data describing all the affected units which will comprise the class; and

(3) A demonstration that the magnitude of emissions of all units which will comprise the class of affected units are *de minimis*.

(c) If the Administrator determines that the emissions from all affected units which will comprise the class of units are *de minimis*, then the Administrator shall publish notice in the FEDERAL REGISTER, providing a 30-day period for public comment, prior to granting a class-approved alternative monitoring system.

[60 FR 40297, Aug. 8, 1995]

§ 75.48 Petition for an alternative monitoring system.

(a) The designated representative shall submit the following information in the application for certification or recertification of an alternative monitoring system.

(1) Source identification information.

(2) A description of the alternative monitoring system.

(3) Data, calculations, and results of the statistical tests, specified in § 75.41(c) of this part, including:

(i) Date and hour.

(ii) Hourly test data for the alternative monitoring system at each required operating level and fuel type.

(iii) Hourly test data for the continuous emissions monitoring system at each required operating level and fuel type.

(iv) Arithmetic mean of the alternative monitoring system measurement values, as specified in Equation 24 in § 75.41(c) of this part, of the continuous emission monitoring system values, as specified on Equation 25 in § 75.41(c) of this part, and of their differences.

(v) Standard deviation of the difference, as specified in Equation A–8 in appendix A of this part.

(vi) Confidence coefficient, as specified in Equation A–9 in appendix A of this part.

(vii) The bias test results as specified in § 7.6.4 in appendix A of this part.

(viii) Variance of the measured values for the alternative monitoring system and of the measured values for the continuous emissions monitoring system, as specified in Equation 22 in § 75.41(c) of this part.

(ix) F-statistic, as specified in Equation 23 in § 75.41(c) of this part.

(x) Critical value of F at the 95-percent confidence level with n–1 degrees of freedom.

(xi) Coefficient of correlation, r, as specified in Equation 26 in § 75.41(c) of this part.

(4) Data plots, specified in §§ 75.41(a)(9) and 75.41(c)(2)(i) of this part.

(5) Results of monitor reliability analysis.

(6) Results of monitor accessibility analysis.

(7) Results of monitor timeliness analysis.

(8) A detailed description of the process used to collect data, including location and method of ensuring an accurate assessment of operating hourly conditions on a real-time basis.

(9) A detailed description of the operation, maintenance, and quality assurance procedures for the alternative monitoring system as required in appendix B of this part.

(10) A description of methods used to calculate heat input or diluent gas concentration, if applicable.

(11) Results of tests and measurements (including the results of all reference method field test sheets, charts, laboratory analyses, example calculations, or other data as appropriate) necessary to substantiate that the alternative monitoring system is equivalent in performance to an appropriate, certified operating continuous emission monitoring system.

(b) [Reserved]

[60 FR 40297, Aug. 8, 1995]

Subpart F—Recordkeeping Requirements

§ 75.50 General recordkeeping provisions.

(a) *Recordkeeping requirements for affected sources.* The provisions of this section shall remain in effect prior to January 1, 1996. The owner or operator shall meet the requirements of either §§ 75.50 or 75.54 prior to January 1, 1996. On or after January 1, 1996, the owner or operator shall meet the requirements of § 75.54 only. The owner or operator of any affected source subject to the requirements of this part shall maintain for each affected unit (or for each group of affected or nonaffected units utilizing a common stack and common monitoring systems pursuant to § 75.16 through § 75.18 of this part (referred to hereafter as "each affected unit")) a file of all measurements, data, reports, and other information required by this part at the source in a form suitable for inspection for at least three (3) years from the date of each record. This file shall contain the following information:

(1) The data and information required in paragraphs (b) through (f) of this section;

(2) The component data and information used to calculate values required in paragraphs (b) through (f) of this section;

(3) The current monitoring plan as specified in § 75.53 of this part; and

(4) The quality control plan as described in Appendix B of this part.

(b) *Operating parameter record provisions.* The owner or operator shall record hourly the following information on unit operating time, heat input, and load for each affected unit, including individual affected units utilizing a common stack except as provided in paragraph (b)(6) of this section for when units combust gas:

(1) Date and hour;

(2) Unit operating time (rounded to nearest hour);

(3) Total integrated hourly gross unit load (rounded to nearest MW_{ge}) (or steam load in lb/hr at stated temperature and pressure, rounded to the nearest lb/hr, if elected in the monitoring plan);

(4) Operating load range corresponding to total integrated gross load of 1-10, except for units using a common stack, which may use the number of unit load ranges up to 20, specified in the monitoring plan for the common stack;

(5) Total heat input (mmBtu, rounded to the nearest tenth); and

(6) For when units combust gas, the owner or operator may record total heat input (mmBtu, rounded to the nearest tenth) daily.

(c) *SO_2 emission record provisions.* The owner or operator shall record hourly the information required by this paragraph for each affected unit or group of units using a common stack and common monitoring systems, except a gas-fired or oil-fired unit for which the owner or operator is using the optional protocol in appendix D to this part for estimating SO_2 mass emissions:

(1) For SO_2 concentration, as measured and reported from the certified primary monitor, certified back-up or certified portable monitor, or other approved method of emissions determination:

(i) Monitor-channel identification code as provided for in § 75.53;

(ii) Date and hour;

(iii) Hourly average SO_2 concentration (ppm, rounded to the nearest tenth),

(iv) Hourly average SO_2 concentration (ppm, rounded to the nearest tenth) adjusted for bias, if bias adjustment factor is required as provided for in § 75.24(d) of this part;

(v) Percent monitor data availability (recorded to the nearest tenth of a percent) calculated pursuant to § 75.32 of this part; and

(vi) Method of determination for hourly average SO_2 concentration using Codes 1-13 in Table 3 of this section.

(2) For flow as measured and reported from the certified primary monitor, certified back-up or certified portable monitor or other approved method of emissions determination:

(i) Monitor-channel identification code as provided for in § 75.53;

(ii) Date and hour;

(iii) Hourly average volumetric flow rate (in scfh, rounded to the nearest thousand);

(iv) Hourly average volumetric flow rate (in scfh, rounded to the nearest thousand) adjusted for bias, if bias adjustment factor required as provided for in § 75.24(d) of this part;

(v) Hourly average moisture content of flue gases (volume fraction) where SO_2 concentration is measured on dry basis;

(vi) Percent monitor data availability, (recorded to the nearest tenth of a percent), calculated pursuant to § 75.32 of this part; and

(vii) Method of determination for hourly average flow rate using Codes 1–13 in Table 3.

(3) For SO_2 mass emissions as measured and reported from the certified primary monitoring system, certified back-up or certified portable monitoring systems, or other approved method of emissions determination:

(i) Date and hour;

(ii) Hourly average SO_2 mass emissions (lb/hr, rounded to the nearest tenth);

(iii) Hourly average SO_2 mass emissions (lb/hr, rounded to the nearest tenth) adjusted for bias, if bias adjustment factor required, as provided for in § 75.24(d); and

(iv) Unique three-digit code identifying emissions formula used to derive hourly SO_2 mass emissions from SO_2 concentration and flow data in paragraphs (c)(1) and (c)(2) of this section as provided for in § 75.53.

TABLE 3.—CODES FOR METHOD OF EMISSIONS AND FLOW DETERMINATION

Code	Hourly emissions/flow measurement or estimation method
1	Certified primary emission/flow monitoring system.
2	Certified back-up or certified portable emission/flow monitoring system.
3	Approved alternative monitoring system.
4	Reference Method: SO_2: Method 6, 6A, 6B, or 6C. Flow: Method 2, 2A, 2C, or 2D. NO_x: Method 7, 7A, 7C, 7D, or 7E. CO_2 or O_2: Method 3, 3A or 3B.
5	For units with add-on SO_2 and/or NO_x emission controls: SO_2 concentration or NO_x emission rate estimate from Agency preapproved parametric monitoring method.
6	Average of the hourly SO_2 concentrations, flow, or NO_x emission rate for the hour before and the hour following a missing data period.
7	Average hourly SO_2 concentration, flow rate, or NO_x emission rate using initial missing data procedures.
8	90th percentile hourly SO_2 concentration, flow rate, or NO_x emission rate.
9	95th percentile hourly SO_2 concentration, flow rate, or NO_x emission rate.
10	Maximum hourly SO_2 concentration, flow rate, or NO_x emission rate.
11	Average hourly flow rate or NO_x emission rate in corresponding load range.
12	Maximum potential concentration of SO_2 maximum potential flow rate, or NO_x emission rate corresponding to maximum potential concentration of NO_x and minimum O_2 or maximum CO_2 concentration, as determined using section 2.1 of appendix A of this part.
13	Other data (specify method).

(d) *NO_x emission record provisions.* The owner or operator shall record hourly the information required by this paragraph for each affected unit, except for a gas-fired peaking unit or oil-fired peaking unit for which the owner or operator is using the optional protocol in appendix E to this part for estimating NO_x emission rate. For each NO_x emission rate as measured and reported from the certified primary monitor, certified back-up or certified portable monitor, or other approved method of emissions determination:

(1) Monitor-channel identification code as provided for in § 75.53;

(2) Date and hour;

(3) Hourly average NO_x concentration (ppm, rounded to the nearest tenth);

(4) Hourly average diluent gas concentration (percent O_2 or percent CO_2, rounded to the nearest tenth);

(5) Hourly average NO_x emission rate (lb/mmBtu, rounded to nearest hundredth);

(6) Hourly average NO_x emission rate (lb/mmBtu, rounded to nearest hundredth) adjusted for bias, if bias adjustment factor is required as provided for in § 75.24(d) of this part;

(7) Percent monitoring system data availability (recorded to the nearest tenth of a percent), calculated pursuant to § 75.32 of this part;

(8) Method of determination for hourly average NO_x emission rate using Codes 1–13 in Table 3; and

(9) Unique three-digit code identifying emissions formula used to derive hourly average NO_x emission rate, as provided for in § 75.53.

(e) *CO_2 emission record provisions.* The owner or operator shall record or calculate CO_2 emissions for each affected unit using one of the following methods specified in this section:

(1) If the owner or operator chooses to use a CO_2 continuous emission monitoring system (or an O_2 continuous emission monitor and flow monitor as specified in appendix F), then the owner or operator shall record hourly the following information for CO_2 mass emissions, as measured and reported from the certified primary monitor, certified back-up or certified portable monitor, or other approved method of emissions determination:

(i) Monitor-channel identification code as provided for in §75.53;

(ii) Date and hour;

(iii) Hourly average CO_2 (or O_2) concentration (in percent, rounded to the nearest tenth);

(iv) Hourly average volumetric flow rate (scfh, rounded to the nearest scf);

(v) Hourly average CO_2 mass emissions (tons/hr, rounded to the nearest tenth);

(vi) Percent monitor data availability (recorded to the nearest tenth of a percent), calculated pursuant to §75.32 of this part;

(vii) Method of determination for hourly average CO_2 mass emissions using Codes 1–13 in Table 3; and

(viii) Unique three-digit emissions formula used to derive hourly average CO_2 mass emissions, as provided for in §75.53.

(2) As an alternative to §75.50(e)(1), the owner or operator may use the procedures in §75.13 and in appendix G to this part, and shall record daily the following information for CO_2 mass emissions:

(i) Date;

(ii) Daily combustion-formed CO_2 mass emissions (tons/day, rounded to the nearest tenth);

(iii) For coal-fired units, flag indicating whether optional procedure to adjust combustion-formed CO_2 mass emissions for carbon retained in flyash has been used and, if so, the adjustment;

(iv) For a unit with a wet flue gas desulfurization system or other controls generating CO_2, daily sorbent-related CO_2 mass emissions (tons/day, rounded to the nearest tenth); and

(v) For a unit with a wet flue gas desulfurization system or other controls generating CO_2, total daily CO_2 mass emissions (tons/day, rounded to the nearest tenth) as sum of combustion-formed emissions and sorbent-related emissions.

(f) *Opacity record provisions.* The owner or operator shall record every six minutes (or other averaging period specified by the State or local air pollution control agency) the information required by this paragraph for each affected unit, except as provided for in §75.14 (b), (c), and (d). The owner or operator shall also keep records of all incidents of opacity monitor downtime during unit operation, including reason(s) for the monitor outage(s) and any corrective action(s) taken for opacity, as measured and reported by the continuous opacity monitoring system:

(1) Monitor-channel identification code;

(2) Date, hour, and minute;

(3) Average opacity of emissions (in percent opacity);

(4) If the average opacity of emissions exceeds the applicable standard, then a code indicating such an exceedance has occurred; and

(5) Percent monitor data availability, recorded to the nearest tenth of a percent, calculated pursuant to §75.32 of this part.

[58 FR 3701, Jan. 11, 1993, as amended at 58 FR 34126, June 23, 1993; 58 FR 40749, July 30, 1993; 61 FR 25582, May 22, 1996]

§75.51 General recordkeeping provisions for specific situations.

(a) *Specific SO_2 emission record provisions for units with qualifying Phase I technology.* In addition to the SO_2 emissions information required in §75.50(c) of this part, from January 1, 1997, through December 31, 1999, the owner or operator shall record the applicable information in this paragraph for each affected unit on which SO_2 emission controls have been installed and operated for the purpose of meeting qualifying Phase I technology requirements pursuant to §72.42 of this chapter and §75.15.

(1) For units with post-combustion emission controls:

(i) Monitor-channel identification codes for each inlet and outlet SO_2-diluent continuous emission monitoring system;

(ii) Date and hour;

(iii) Hourly average inlet SO_2 emission rate (lb/mmBtu, rounded to nearest hundredth);

(iv) Hourly average inlet SO_2 concentration (ppm, rounded to the nearest tenth) adjusted for bias, if bias adjustment factor required (see §75.24(d) of this part);

(v) Hourly average outlet SO_2 emission rate (lb/mmBtu, rounded to nearest hundredth);

(vi) Hourly average outlet SO_2 concentration (ppm, rounded to the nearest tenth) adjusted for bias, if bias adjustment factor required (see §75.24(d) of this part);

(vii) Percent data availability for both inlet and outlet SO_2-diluent continuous emission monitoring systems (recorded to the nearest tenth of a percent), calculated pursuant to Equation 8 of §75.32 (for the first 8,760 unit operating hours following initial certification) and Equation 9 of §75.32, thereafter; and

(viii) Emissions formula used to derive hourly average inlet and outlet SO_2 emission rates for each affected unit or group of units using a common stack.

(2) For units with combustion and/or pre-combustion emission controls:

(i) Monitor-channel identification codes for each outlet SO_2-diluent continuous emission monitoring system;

(ii) Date and hour;

(iii) Hourly average outlet SO_2 emission rate (lb/mmBtu, rounded to nearest hundredth);

(iv) For units with combustion controls, average daily inlet SO_2 emission rate (lb/mmBtu, rounded to nearest hundredth), determined by coal sampling and analysis procedures in appendix F to this part; and

(v) For units with pre-combustion controls (i.e., fuel pretreatment), fuel analysis demonstrating the weight, sulfur content, and gross calorific value of the product and raw fuel lots.

(b) *Specific parametric data record provisions for calculating substitute emissions data for units with add-on emission controls.* In addition to the SO_2 and NO_x emissions data to be recorded under §75.50, the owner or operator of an affected unit with add-on emission controls, where the owner or operator is using the approved site-specific parametric monitoring procedures for calculation of substitute data in accordance with §75.34, shall also record for each hour during each missing data period the applicable information in this paragraph (b):

(1) For units with add-on SO_2 emission controls, for each hour of missing SO_2 concentration or volumetric flow data:

(i) The information required in §75.50(b) of this part for SO_2 concentration and volumetric flow if either one of these monitors is still operating;

(ii) Date and hour;

(iii) Number of operating scrubber modules;

(iv) Feedrate of makeup slurry to each operating scrubber module (gal/min);

(v) Average pressure differential across each operating scrubber module (inches of water column);

(vi) For a unit with a wet flue gas desulfurization system, an inline measure of absorber pH for each operating scrubber module;

(vii) For a unit with a dry flue gas desulfurization system, the inlet and outlet temperatures across each operating scrubber module;

(viii) For a unit with a dry flue gas desulfurization system, the slurry feed rate (gal/min) to the atomizer nozzle; and

(ix) Method of determination of SO_2 concentration and volumetric flow, using Codes 1–13 in Table 3 of §75.50 of this part.

(2) For units with add-on NO_x emission controls, for each hour of missing NO_x emission rate data:

(i) Date and hour;

(ii) Inlet air flow rate (acfh, rounded to the nearest thousand);

(iii) Excess O_2 concentration of flue gas at stack outlet (rounded to nearest tenth of a percent);

(iv) CO concentration of flue gas at stack outlet (ppm, rounded to the nearest tenth);

(v) Temperature of flue gas at furnace exit or economizer outlet duct (°F); and

(vi) Other parameters specific to NO_x emission controls (e.g., average hourly reagent feedrate).

(c) *Specific SO_2 emission record provisions for gas-fired or oil-fired units using optional protocol in appendix D to this part.* In lieu of recording the information in §75.50(c) of this section, the owner or operator shall record the applicable information in this paragraph for each affected gas-fired or oil-fired unit for which the owner or operator is using the optional protocol in appendix D to this part for estimating SO_2 mass emissions.

(1) When the unit is combusting oil:

(i) Date and hour;

(ii) Hourly flow rate of oil with the units in which oil flow is recorded, (gal/hr, lb/hr, or bbl/hr, rounded to the nearest tenth);

(iii) Sulfur content of daily oil sample, rounded to nearest tenth of a percent;

(iv) Method of oil sampling (flow proportional, continuous drip, or manual);

(v) Mass of oil combusted each hour (lb/hr, rounded to the nearest tenth); and

(vi) Hourly SO_2 mass emissions (lb/hr, rounded to the nearest tenth).

(2) For gas-fired units or oil-fired units using the optional protocol in appendix D of this part of daily manual oil sampling, when the unit is combusting oil, the highest sulfur content recorded from the most recent 30 daily oil samples rounded to nearest tenth of a percent.

(3) When the unit is combusting natural gas:

(i) Date and hour;

(ii) Daily heat input from natural gas according to procedures in appendix F to this part (mmBtu, rounded to the nearest tenth);

(iii) Sulfur content or SO_2 emission rate, in one of the following formats, in accordance with the appropriate procedure from appendix D of this part:

(A) Sulfur content of daily gas sample, (rounded to the nearest 0.1 grains/100 scf) and the volume of gas combusted per day, in 100 scf; or

(B) SO_2 emission rate from NADB (in lb/mmBtu).

(d) *Specific NO_x emission record provisions for gas-fired peaking units or oil-fired peaking units using optional protocol in appendix E of this part.* In lieu of recording the information in paragraph §75.50(d), the owner or operator shall record the applicable information in this paragraph for each affected gas-fired peaking unit or oil-fired peaking unit for which the owner or operator is using the optional protocol in appendix E to this part for estimating NO_x emission rate.

(1) When the unit is combusting oil:

(i) Date and hour;

(ii) Average hourly fuel flow of oil with the units in which oil flow is recorded (gal/hour or bbl/hour);

(iii) NO_x emission rate F-factor for oil combusted according to procedure in appendix E to this part; and

(iv) Average hourly NO_x emission rate (lb/mmBtu, rounded to nearest tenth).

(2) When the unit is combusting natural gas:

(i) Date and hour;

(ii) Average daily fuel flow of natural gas (million cubic ft);

(iii) NO_x emission rate F-factor for gas combusted according to procedure in appendix E to this part; and

(iv) Average daily NO_x emission rate (lb/mmBtu, rounded to nearest tenth).

[58 FR 3701, Jan. 11, 1993, as amended at 58 FR 40749, July 30, 1993]

§75.52 Certification, quality assurance and quality control record provisions.

(a) The owner or operator shall record the applicable information in this section for each certified monitor or certified monitoring system (including certified backup or certified portable monitors) measuring and recording emissions or flow from an affected unit.

(1) For each SO_2 or NO_x pollutant concentration monitor, flow monitor, CO_2 monitor, or diluent gas monitor, the owner or operator shall record the following for all daily and 7-day calibration error tests, including any follow-up tests after corrective action:

(i) Monitor-channel identification code;

(ii) Instrument span;

(iii) Date and hour;

(iv) Reference value (i.e., calibration gas concentration or reference signal value, in ppm or other appropriate units);

(v) Observed value (monitor response during calibration, in ppm or other appropriate units);

(vi) Percent calibration error (rounded to nearest tenth of a percent);

(vii) Number of out-of-control hours, if any, following test; and

(viii) Description of any adjustments, corrective actions, or maintenance following test.

(2) For each flow monitor, the owner or operator shall record the following for all daily interference checks, including any follow-up tests after corrective action:

(i) Code indicating whether monitor passes or fails the interference check;

(ii) Number of out-of-control hours, if any, following test; and

(iii) Description of any adjustments, corrective actions, or maintenance following test.

(3) For each SO_2 or NO_x pollutant concentration monitor, CO_2 monitor, or diluent gas monitor, the owner or operator shall record the following for the initial and all subsequent linearity check(s), including any follow-up tests after corrective action:

(i) Monitor-channel identification code;

(ii) Instrument span;

(iii) Date and hour;

(iv) Reference value (i.e., reference gas concentration, in ppm or other appropriate units);

(v) Observed value (average monitor response at each reference gas concentration, in ppm or other appropriate units);

(vi) Percent error at each of three reference gas concentrations (rounded to nearest tenth of a percent);

(vii) Number of out-of-control hours, if any, following test; and

(viii) Description of any adjustments, corrective action, or maintenance following test.

(4) For each flow monitor, where applicable, the owner or operator shall record the following for all quarterly leak checks, including any follow-up tests after corrective action:

(i) Code indicating whether monitor passes or fails the quarterly leak check;

(ii) Number of out-of-control hours, if any, following test; and

(iii) Description of any adjustments, corrective actions, or maintenance following test.

(5) For each SO_2 pollutant concentration monitor, flow monitor, CO_2 pollutant concentration monitor, NO_x continuous emission monitoring system, SO_2-diluent continuous emission monitoring system, and approved alternative monitoring system, the owner or operator shall record the following information for the initial and all subsequent relative accuracy tests and test audits:

(i) Date and hour;

(ii) Reference method(s) used;

(iii) Individual test run data from the relative accuracy test audit for the SO_2 concentration monitor, flow monitor, CO_2 pollutant concentration monitor, NO_x continuous emission monitoring system, SO_2-diluent continuous emission monitoring system, or approved alternative monitoring systems, including:

(A) Date, hour, and minute of beginning of test run,

(B) Date, hour, and minute of end of test run,

(C) Monitor-channel identification code,

(D) Run number,

(E) Run data for monitor;

(F) Run data for reference method; and

(G) Flag value (0 or 1) indicating whether run has been used in calculating relative accuracy and bias values.

(iv) Calculations and tabulated results, as follows:

(A) Arithmetic mean of the monitoring system measurement values, of the reference method values, and of their differences, as specified in Equation A–7 in appendix A to this part.

(B) Standard deviation, as specified in Equation A–8 in appendix A to this part.

(C) Confidence coefficient, as specified in Equation A–9 in appendix A to this part.

(D) Relative accuracy test results, as specified in Equation A–10 in appendix A to this part. (For the 3-level flow

monitor test only, relative accuracy test results should be recorded at each of three gas velocities. Each of these three gas velocities shall be expressed as a total integrated gross unit load, rounded to the nearest MWe.)

(E) Bias test results as specified in section 7.6.4 in appendix A to this part.

(F) Bias adjustment factor from Equations A–11 and A–12 in appendix A to this part for any monitoring system or component that failed the bias test and 1.0 for any monitoring system or component that passed the bias test. (For flow monitors only, bias adjustment factors should be recorded at each of three gas velocities).

(v) Number of out-of-control hours, if any, following test.

(vi) Description of any adjustment, corrective action, or maintenance following test.

(6) F-factor value(s) used to convert NO_x pollutant concentration and diluent gas (O_2 or CO_2) concentration measurements into NO_x emission rates (in lb/mmBtu), heat input or CO_2 emissions.

(7) Results of all trial runs and certification tests and quality assurance activities and measurements (including all reference method field test sheets, charts, records of combined system responses, laboratory analyses, and example calculations) necessary to substantiate compliance with all relevant appendices in this part.

(b) [Reserved]

[58 FR 3701, Jan. 11, 1993, as amended at 58 FR 40749, July 30, 1993]

§ 75.53 Monitoring plan.

(a) *General provisions.* The owner or operator of an affected unit shall prepare and maintain a monitoring plan. Except as provided in paragraph (d) of this section, a monitoring plan shall contain sufficient information on the continuous emission or opacity monitoring systems or excepted monitoring systems under appendix D or E of this part and the use of data derived from these systems to demonstrate that all unit SO_2 emissions, NO_X emissions, CO_2 emissions, and opacity are monitored and reported.

(b) Whenever the owner or operator makes a replacement, modification, or change, either in the certified continuous emission monitoring system or continuous opacity monitoring system or excepted monitoring systems under appendix D or E of this part, including a change in the automated data acquisition and handling system or in the flue gas handling system, that requires recertification, then the owner or operator shall update the monitoring plan.

(c) *Contents of the monitoring plan.* Each monitoring plan shall contain the following:

(1) Precertification information, including, as applicable, the identification of the test strategy, protocol for the relative accuracy test audit, other relevant test information, span calculations, and apportionment strategies under §§ 75.13 through 75.17 of this part.

(2) *Unit table.* A table identifying ORISPL numbers developed by the Department of Energy and used in the National Allowance Database, for all affected units involved in the monitoring plan, with the following information for each unit:

(i) Short name;

(ii) Classification of unit as one of the following: Phase I (including substitution or compensating units), Phase II, new, or nonaffected;

(iii) Type of boiler (or boilers for a group of units using a common stack);

(iv) Type of fuel(s) fired, by boiler, and if more than one fuel, the fuel classification of the boiler;

(v) Type(s) of emission controls for SO_2, NO_x, and particulates installed or to be installed, including specifications of whether such controls are pre-combustion, post-combustion, or integral to the combustion process; and

(vi) Identification of all units using a common stack.

(3) *Description of monitor site location.* Description of site locations for each monitoring component in the continuous emission or opacity monitoring systems, including schematic diagrams and engineering drawings specified in paragraphs (c)(7) and (c)(8) of this section, and any other documentation that demonstrates each monitor location meets the appropriate siting criteria.

(4) *Monitoring component table.* Identification and description of each monitoring component (including each

monitor and its identifiable components such as analyzer and/or probe) in the continuous emission monitoring systems (i.e., SO_2 pollutant concentration monitor, flow monitor, moisture monitor; NO_X pollutant concentration monitor and diluent gas monitor) the continuous opacity monitoring system, or excepted monitoring system (i.e., fuel flowmeter, data acquisition and handling system), including:

(i) Manufacturer model number and serial number;

(ii) Component/system identification code assigned by the utility to each identifiable monitoring component (such as the analyzer and/or probe). The code shall use a six-digit format, unique to each monitoring component, where the first three digits indicate the number of the component and the second three digits indicate the system to which the component belongs;

(iii) Actual or projected installation date (month and year);

(iv) A brief description of the component type or method of operation, such as in situ pollutant concentration monitor or thermal flow monitor;

(v) A brief description of the flow monitor that is sufficiently detailed to allow a determination of whether the applicable interference check design specification meets the requirements specified in appendix A of this part; and

(vi) A designation of the system as a primary, redundant backup, non-redundant backup or reference method backup system, as provided for in §75.10(e).

(5) *Data acquisition and handling system table.* Identification and description of all major hardware and software components of the automated data acquisition and handling system, including:

(i) For hardware components, the manufacturer, model number, and actual or projected installation date;

(ii) For software components, identification of the provider and a brief description of features;

(iii) A data flow diagram denoting the complete information handling path from output signals of continuous emission monitoring system components to final reports;

(iv) A copy of the test results verifying the accuracy of the automated data acquisition and handling system (once such results are available).

(6) *Emissions formula table.* A table giving explicit formulas for each reported unit emission parameter, using component/system identification codes to link continuous emission monitoring system or excepted monitoring system observations with reported concentrations, mass emissions, or emission rates, according to the conversions listed in appendix D, E, or F to this part. The formulas must contain all constants and factors required to derive mass emissions or emission rates from component/system code observations, and each emissions formula is identified with a unique three digit code.

(7) *Schematic stack diagrams.* For units monitored by a continuous emission or opacity monitoring system, a schematic diagram identifying entire gas handling system from boiler to stack for all affected units, using identification numbers for units, monitor components, and stacks corresponding to the identification numbers provided in paragraphs (c)(2), (c)(4), (c)(5), and (c)(6) of this section. The schematic diagram must depict stack height and the height of any monitor locations. Comprehensive and/or separate schematic diagrams shall be used to describe groups of units using a common stack.

(8) *Stack and duct engineering diagrams.* For units monitored by a continuous emission or opacity monitoring system, stack and duct engineering diagrams showing the dimensions and location of fans, turning vanes, air preheaters, monitor components, probes, reference method sampling ports and other equipment which affects the monitoring system location, performance or quality control checks.

(9) Inside crosssectional area (ft^2) at flue exit and at flow monitoring location.

(10) *Span and calibration gas.* A table or description identifying maximum potential concentration, maximum expected concentration (if applicable), maximum potential flow rate, maximum potential NO_X emission rate, span value, and full-scale range for each SO_2, NO_X, CO_2, O_2, or flow component

monitor. In addition, the table must identify calibration gas levels for the calibration error test and the linearity check, and calculations made to determine each span value.

(d) *Contents of monitoring plan for specific situations.* The following additional information shall be included in the monitoring plan for gas-fired or oil-fired units or for units with add-on emission controls:

(1) For each gas-fired unit or oil-fired unit for which the owner or operator uses the optional protocol in appendix D of this part for estimating SO_2 mass emissions or appendix E of this part for estimating NO_X emission rate (using a fuel flow meter), the designated representative shall include in the monitoring plan:

(i) A description of the fuel flowmeter (and data demonstrating its flow meter accuracy, when available);

(ii) The installation location of each fuel flowmeter;

(iii) The fuel sampling location(s); and

(iv) Procedures used for calibrating each fuel flowmeter.

(2) For each gas-fired peaking unit and oil-fired peaking unit for which the owner or operator uses the optional procedures in appendix E of this part for estimating NO_X emission rate, the designated representative shall include in the monitoring plan:

(i) A protocol containing methods used to perform the baseline or periodic NO_X emission test, and a copy of initial performance test results (when such results are available);

(ii) Unit operating and capacity factor information demonstrating that the unit qualifies as a peaking unit, as defined in §72.2 of this chapter; and

(iii) Unit operating parameters related to NO_X formation by the unit.

(3) For each gas-fired unit and diesel-fired unit or unit with a wet flue gas pollution control system for which the designated representative claims an opacity monitoring exemption under §75.14, the designated representative shall include in the monitoring plan information demonstrating that the unit qualifies for the exemption.

(4) For each unit with add-on emission controls:

(i) A list of operating parameters for the add-on emission controls, including parameters from the list in §75.55 appropriate to the particular installation; and

(ii) The range of each operating parameter in the list that indicates the add-on emission controls are properly operating.

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26532, 26568, May 17, 1995]

§75.54 General recordkeeping provisions.

(a) *Recordkeeping requirements for affected sources.* On or after January 1, 1996, the owner or operator shall meet the requirements of this section. The owner or operator of any affected source subject to the requirements of this part shall maintain for each affected unit a file of all measurements, data, reports, and other information required by this part at the source in a form suitable for inspection for at least three (3) years from the date of each record. Unless otherwise provided, throughout this subpart the phrase "for each affected unit" also applies to each group of affected or nonaffected units utilizing a common stack and common monitoring systems, pursuant to §§75.13 through 75.18, or utilizing a common pipe header and common fuel flowmeter, pursuant to section 2.1.2 of appendix D of this part. The file shall contain the following information:

(1) The data and information required in paragraphs (b) through (f) of this section, beginning with the earlier of the date of provisional certification, or the deadline in §75.4(a), (b) or (c);

(2) The supporting data and information used to calculate values required in paragraphs (b) through (f) of this section, excluding the subhourly data points used to compute hourly averages under §75.10(d), beginning with the earlier of the date of provisional certification, or the deadline in §75.4(a), (b) or (c);

(3) The data and information required in §75.55 of this part for specific situations, as applicable, beginning with the earlier of the date of provisional certification, or the deadline in §75.4(a), (b) or (c);

(4) The certification test data and information required in §75.56 for tests

required under §75.20, beginning with the date of the first certification test performed, and the quality assurance and quality control data and information required in §75.56 for tests and the quality assurance/quality control plan required under §75.21 and appendix B of this part, beginning with the date of provisional certification;

(5) The current monitoring plan as specified in §75.53, beginning with the initial submission required by §75.62; and

(6) The quality control plan as described in appendix B to this part, beginning with the date of provisional certification.

(b) *Operating parameter record provisions.* The owner or operator shall record for each hour the following information on unit operating time, heat input, and load separately for each affected unit, and also for each group of units utilizing a common stack and a common monitoring system or utilizing a common pipe header and common fuel flowmeter, except that separate heat input data for each unit shall not be required after January 1, 2000 for any unit, other than an opt-in source, that does not have a NO_X emission limitation under part 76 of this chapter.

(1) Date and hour;

(2) Unit operating time (rounded up to nearest 15 minutes);

(3) Total hourly gross unit load (rounded to nearest MWge) (or steam load in lb/hr at stated temperature and pressure, rounded to the nearest 1000 lb/hr, if elected in the monitoring plan);

(4) Operating load range corresponding to total gross load of 1–10, except for units using a common stack or common pipe header, which may use the number of unit load ranges up to 20 for flow, as specified in the monitoring plan; and

(5) Total heat input (mmBtu, rounded to the nearest tenth).

(c) *SO_2 emission record provisions.* The owner or operator shall record for each hour the information required by this paragraph for each affected unit or group of units using a common stack and common monitoring systems, except as provided under §75.11(e) or for a gas-fired or oil-fired unit for which the owner or operator is using the optional protocol in appendix D to this part for estimating SO_2 mass emissions:

(1) For SO_2 concentration, as measured and reported from each certified primary monitor, certified back-up monitor, or other approved method of emissions determination:

(i) Component-system identification code as provided for in §75.53;

(ii) Date and hour;

(iii) Hourly average SO_2 concentration (ppm, rounded to the nearest tenth);

(iv) Hourly average SO_2 concentration (ppm, rounded to the nearest tenth) adjusted for bias, if bias adjustment factor is required as provided for in §75.24(d);

(v) Percent monitor data availability (recorded to the nearest tenth of a percent) calculated pursuant to §75.32; and

(vi) Method of determination for hourly average SO_2 concentration using Codes 1–15 in Table 4 of this section.

(2) For flow as measured and reported from each certified primary monitor, certified back-up monitor or other approved method of emissions determination:

(i) Component/system identification code as provided for in §75.53;

(ii) Date and hour;

(iii) Hourly average volumetric flow rate (in scfh, rounded to the nearest thousand);

(iv) Hourly average volumetric flow rate (in scfh, rounded to the nearest thousand) adjusted for bias, if bias adjustment factor required as provided for in §75.24(d);

(v) Hourly average moisture content of flue gases (percent, rounded to the nearest tenth) where SO_2 concentration is measured on dry basis;

(vi) Percent monitor data availability (recorded to the nearest tenth of a percent), calculated pursuant to §75.32; and

(vii) Method of determination for hourly average flow rate using Codes 1–15 in Table 4.

(3) For SO_2 mass emissions as measured and reported from the certified primary monitoring system(s), certified redundant or non-redundant back-up monitoring system(s), or other approved method(s) of emissions determination:

(i) Date and hour;

(ii) Hourly SO_2 mass emissions (lb/hr, rounded to the nearest tenth);

(iii) Hourly SO_2 mass emissions (lb/hr, rounded to the nearest tenth) adjusted for bias, if bias adjustment factor required, as provided for in §75.24(d); and

(iv) Identification code for emissions formula used to derive hourly SO_2 mass emissions from SO_2 concentration and flow data in paragraphs (c)(1) and (c)(2) of this section as provided for in §75.53.

TABLE 4.—CODES FOR METHOD OF EMISSIONS AND FLOW DETERMINATION

Code	Hourly emissions/flow measurement or estimation method
1	Certified primary emission/flow monitoring system.
2	Certified back-up emission/flow monitoring system.
3	Approved alternative monitoring system.
4	Reference method: SO_2: Method 6C. Flow: Method 2. NO_X: Method 7E. CO_2 or O_2: Method 3A.
5	For units with add-on SO_2 and/or NO_X emission controls: SO_2 concentration or NO_X emission rate estimate from Agency preapproved parametric monitoring method.
6	Average of the hourly SO_2 concentrations, CO_2 concentrations, flow, or NO_X emission rate for the hour before and the hour following a missing data period.
7	Hourly average SO_2 concentration, CO_2 concentration, flow rate, or NO_X emission rate using initial missing data procedures.
8	90th percentile hourly SO_2 concentration, flow rate, or NO_X emission rate.
9	95th percentile hourly SO_2 concentration, flow rate, or NO_X emission rate.
10	Maximum hourly SO_2 concentration, flow rate, or NO_X emission rate.
11	Hourly average flow rate or NO_X emission rate in corresponding load range.
12	Maximum potential concentration of SO_2, maximum potential flow rate, or maximum potential NO_X emission rate, as determined using section 2.1 of appendix A of this part, or maximum CO_2 concentration.
13	Other data (specify method).
14	Minimum CO_2 concentration of 5.0 percent CO_2 or maximum O_2 concentration of 14.0 percent to be substituted optionally for measured diluent gas concentrations during unit startup, for NO_X emission rate or SO_2 emission rate in lb/mmBtu or for CO_2 concentration.
15	Fuel analysis data from appendix G of this part for CO_2 mass emissions.

(d) *NO_X emission record provisions.* The owner or operator shall record the information required by this paragraph for each affected unit for each hour, except for a gas-fired peaking unit or oil-fired peaking unit for which the owner or operator is using the optional protocol in appendix E to this part for estimating NO_X emission rate. For each NO_X emission rate as measured and reported from the certified primary monitor, certified back-up monitor, or other approved method of emissions determination:

(1) Component/system identification code as provided for in §75.53;

(2) Date and hour;

(3) Hourly average NO_X concentration (ppm, rounded to the nearest tenth);

(4) Hourly average diluent gas concentration (percent O_2 or percent CO_2, rounded to the nearest tenth);

(5) Hourly average NO_X emission rate (lb/mmBtu, rounded to nearest hundredth);

(6) Hourly average NO_X emission rate (lb/mmBtu, rounded to nearest hundredth) adjusted for bias, if bias adjustment factor is required as provided for in §75.24(d);

(7) Percent monitoring system data availability, (recorded to the nearest tenth of a percent), calculated pursuant to §75.32;

(8) Method of determination for hourly average NO_X emission rate using Codes 1–15 in Table 4; and

(9) Identification code for emissions formula used to derive hourly average NO_X emission rate, as provided for in §75.53.

(e) *CO_2 emission record provisions.* The owner or operator shall record or calculate CO_2 emissions for each affected unit using one of the following methods specified in this section:

(1) If the owner or operator chooses to use a CO_2 continuous emission monitoring system (including an O_2 monitor and flow monitor as specified in appendix F of this part), then the owner or operator shall record for each hour the following information for CO_2 mass emissions, as measured and reported from the certified primary monitor, certified back-up monitor, or other approved method of emissions determination:

(i) Component/system identification code as provided for in §75.53;

(ii) Date and hour;

(iii) Hourly average CO_2 concentration (in percent, rounded to the nearest tenth);

(iv) Hourly average volumetric flow rate (scfh, rounded to the nearest thousand scfh);

(v) Hourly CO_2 mass emissions (tons/hr, rounded to the nearest tenth);

(vi) Percent monitor data availability (recorded to the nearest tenth of a percent); calculated pursuant to §75.32;

(vii) Method of determination for hourly CO_2 mass emissions using Codes 1–15 in Table 4; and

(viii) Identification code for emissions formula used to derive average hourly CO_2 mass emissions, as provided for in §75.53.

(2) As an alternative to §75.54(e)(1), the owner or operator may use the procedures in §75.13 and in appendix G to this part, and shall record daily the following information for CO_2 mass emissions:

(i) Date;

(ii) Daily combustion-formed CO_2 mass emissions (tons/day, rounded to the nearest tenth);

(iii) For coal-fired units, flag indicating whether optional procedure to adjust combustion-formed CO_2 mass emissions for carbon retained in flyash has been used and, if so, the adjustment;

(iv) For a unit with a wet flue gas desulfurization system or other controls generating CO_2, daily sorbent-related CO_2 mass emissions (tons/day, rounded to the nearest tenth); and

(v) For a unit with a wet flue gas desulfurization system or other controls generating CO_2, total daily CO_2 mass emissions (tons/day, rounded to the nearest tenth) as sum of combustion-formed emissions and sorbent-related emissions.

(f) *Opacity records.* The owner or operator shall record opacity data as specified by the State or local air pollution control agency. If the State or local air pollution control agency does not specify recordkeeping requirements for opacity, then record the information required by paragraphs (f) (1) through (5) of this section for each affected unit, except as provided for in §75.14 (b), (c), and (d). The owner or operator shall also keep records of all incidents of opacity monitor downtime during unit operation, including reason(s) for the monitor outage(s) and any corrective action(s) taken for opacity, as measured and reported by the continuous opacity monitoring system:

(1) Component/system identification code;

(2) Date, hour, and minute;

(3) Average opacity of emissions for each six minute averaging period (in percent opacity);

(4) If the average opacity of emissions exceeds the applicable standard, then a code indicating such an exceedance has occurred; and

(5) Percent monitor data availability, recorded to the nearest tenth of a percent, calculated according to the requirements of the procedure recommended for State Implementation Plans in appendix M of part 51 of this chapter.

[60 FR 26533, May 17, 1995]

§75.55 General recordkeeping provisions for specific situations.

(a) *Specific SO_2 emission record provisions for units with qualifying Phase I technology.* In addition to the SO_2 emissions information required in §75.54(c), from January 1, 1997, through December 31, 1999, the owner or operator shall record the applicable information in this paragraph for each affected unit on which SO_2 emission controls have been installed and operated for the purpose of meeting qualifying Phase I technology requirements pursuant to §72.42 of this chapter and §75.15.

(1) For units with post-combustion emission controls:

(i) Component/system identification codes for each inlet and outlet SO_2-diluent continuous emission monitoring system;

(ii) Date and hour;

(iii) Hourly average inlet SO_2 emission rate (lb/mmBtu, rounded to nearest hundredth);

(iv) Hourly average outlet SO_2 emission rate (lb/mmBtu, rounded to nearest hundredth);

(v) Percent data availability for both inlet and outlet SO_2-diluent continuous emission monitoring systems (recorded to the nearest tenth of a percent), calculated pursuant to Equation 8 of §75.32 (for the first 8,760 unit operating hours following initial certification) and Equation 9 of §75.32, thereafter; and

(vi) Identification code for emissions formula used to derive hourly average inlet and outlet SO_2 mass emissions rates for each affected unit or group of units using a common stack.

(2) For units with combustion and/or pre-combustion emission controls:

(i) Component/system identification codes for each outlet SO_2-diluent continuous emission monitoring system;

(ii) Date and hour;

(iii) Hourly average outlet SO_2 emission rate (lb/mmBtu, rounded to nearest hundredth);

(iv) For units with combustion controls, average daily inlet SO_2 emission rate (lb/mmBtu, rounded to nearest hundredth), determined by coal sampling and analysis procedures in §75.15; and

(v) For units with pre-combustion controls (i.e., fuel pretreatment), fuel analysis demonstrating the weight, sulfur content, and gross calorific value of the product and raw fuel lots.

(b) *Specific parametric data record provisions for calculating substitute emissions data for units with add-on emission controls.* In accordance with §75.34, the owner or operator of an affected unit with add-on emission controls shall either record the applicable information in paragraph (b)(3) of this section for each hour of missing SO_2 concentration data or NO_X emission rate (in addition to other information), or shall record the information in paragraph (b)(1) of this section for SO_2 or paragraph (b)(2) of this section for NO_X through an automated data acquisition and handling system, as appropriate to the type of add-on emission controls:

(1) For units with add-on SO_2 emission controls petitioning to use or using the optional parametric monitoring procedures in appendix C of this part, for each hour of missing SO_2 concentration or volumetric flow data:

(i) The information required in §75.54(b) for SO_2 concentration and volumetric flow if either one of these monitors is still operating;

(ii) Date and hour;

(iii) Number of operating scrubber modules;

(iv) Total feedrate of slurry to each operating scrubber module (gal/min);

(v) Pressure differential across each operating scrubber module (inches of water column);

(vi) For a unit with a wet flue gas desulfurization system, an inline measure of absorber pH for each operating scrubber module;

(vii) For a unit with a dry flue gas desulfurization system, the inlet and outlet temperatures across each operating scrubber module;

(viii) For a unit with a wet flue gas desulfurization system, the percent solids in slurry for each scrubber module.

(ix) For a unit with a dry flue gas desulfurization system, the slurry feed rate (gal/min) to the atomizer nozzle;

(x) For a unit with SO_2 add-on emission controls other than wet or dry limestone, corresponding parameters approved by the Administrator;

(xi) Method of determination of SO_2 concentration and volumetric flow, using Codes 1–15 in Table 3 of §75.54; and

(xii) Inlet and outlet SO_2 concentration values recorded by an SO_2 continuous emission monitoring system and the removal efficiency of the add-on emission controls.

(2) For units with add-on NO_X emission controls petitioning to use or using the optional parametric monitoring procedures in appendix C of this part, for each hour of missing NO_X emission rate data:

(i) Date and hour;

(ii) Inlet air flow rate (acfh, rounded to the nearest thousand);

(iii) Excess O_2 concentration of flue gas at stack outlet (percent, rounded to nearest tenth of a percent);

(iv) Carbon monoxide concentration of flue gas at stack outlet (ppm, rounded to the nearest tenth);

(v) Temperature of flue gas at furnace exit or economizer outlet duct (°F); and

(vi) Other parameters specific to NO_X emission controls (e.g., average hourly reagent feedrate);

(vii) Method of determination of NO_X emission rate using Codes 1–15 in Table 3 of §75.54; and

(viii) Inlet and outlet NO_X emission rate values recorded by a NO_X continuous emission monitoring system and the removal efficiency of the add-on emission controls.

(3) For units with add-on SO_2 or NO_X emission controls following the provisions of §75.34(a) (1) or (2), for each hour of missing data record:

(i) Parametric data which demonstrate the proper operation of the add-on emission controls, as described in the monitoring plan for the unit (to be maintained on site, and to be submitted upon request from the Administrator or by an EPA Regional office);

(ii) A flag indicating that the add-on emission controls are operating with all parameters within the ranges specified in the monitoring plan or that the add-on emission controls are not operating properly;

(iii) For units petitioning under §75.66 for substituting a representative SO_2 concentration during missing data periods, any available inlet and outlet SO_2 concentration values recorded by an SO_2 continuous emission monitoring system; and

(iv) For units petitioning under §75.66 for substituting a representative NO_X emission rate during missing data periods, any available inlet and outlet NO_X emission rate values recorded by a NO_X continuous emission monitoring system.

(c) *Specific SO_2 emission record provisions for gas-fired or oil-fired units using optional protocol in appendix D of this part.* In lieu of recording the information in §75.54(c) of this section, the owner or operator shall record the applicable information in this paragraph for each affected gas-fired or oil-fired unit for which the owner or operator is using the optional protocol in appendix D of this part for estimating SO_2 mass emissions.

(1) For each hour when the unit is combusting oil:

(i) Date and hour;

(ii) Hourly average flow rate of oil with the units in which oil flow is recorded, (gal/hr, lb/hr, m^3/hr, or bbl/hr, rounded to the nearest tenth)(flag value if derived from missing data procedures);

(iii) Sulfur content of oil sample used to determine SO_2 mass emissions, rounded to nearest hundredth for diesel fuel or to the nearest tenth of a percent for other fuel oil (flag value if derived from missing data procedures);

(iv) Method of oil sampling (flow proportional, continuous drip, as delivered or manual);

(v) Mass of oil combusted each hour (lb/hr, rounded to the nearest tenth);

(vi) SO_2 mass emissions from oil (lb/hr, rounded to the nearest tenth);

(vii) For units using volumetric oil flowmeters, density of oil (flag value if derived from missing data procedures);

(viii) Gross calorific value (heat content) of oil, used to determine heat input (Btu/mass unit) (flag value if derived from missing data procedures);

(ix) Hourly heat input rate from oil according to procedures in appendix F of this part (mmBtu/hr, to the nearest tenth); and

(x) Fuel usage time for combustion of oil during the hour, rounded up to the nearest 15 min.

(2) For gas-fired units or oil-fired units using the optional protocol in appendix D of this part of daily manual oil sampling, when the unit is combusting oil, the highest sulfur content recorded from the most recent 30 daily oil samples rounded to nearest tenth of a percent.

(3) For each hour when the unit is combusting gaseous fuel,

(i) Date and hour;

(ii) Hourly heat input rate from gaseous fuel according to procedures in appendix F to this part (mmBtu/hr, rounded to the nearest tenth);

(iii) Sulfur content or SO_2 emission rate, in one of the following formats, in accordance with the appropriate procedure from appendix D of this part:

(A) Sulfur content of gas sample, (rounded to the nearest 0.1 grains/100 scf) (flag value if derived from missing data procedures); or

(B) SO_2 emission rate of 0.0006 lb/mmBtu for pipeline natural gas;

(iv) Hourly flow rate of gaseous fuel, in 100 scfh (flag value if derived from missing data procedures);

(v) Gross calorific value (heat content) of gaseous fuel, used to determine heat input (Btu/scf) (flag value if derived from missing data procedures);

(vi) Heat input rate from gaseous fuel (mmBtu/hr, rounded to the nearest tenth);

(vii) SO_2 mass emissions due to the combustion of gaseous fuels, lb/hr; and

(viii) Fuel usage time for combustion of gaseous fuel during the hour, rounded up to the nearest 15 min.

(4) For each oil sample or sample of diesel fuel:

(i) Date of sampling;

(ii) Sulfur content (percent, rounded to the nearest hundredth for diesel fuel and to the nearest tenth for other fuel oil) (flag value if derived from missing data procedures);

(iii) Gross calorific value or heat content (Btu/lb) (flag value if derived from missing data procedures); and

(iv) Density or specific gravity, if required to convert volume to mass (flag value if derived from missing data procedures).

(5) For each daily sample of gaseous fuel:

(i) Date of sampling;

(ii) Sulfur content (grains/100 scf, rounded to the nearest tenth) (flag value if derived from missing data procedures);

(6) For each monthly sample of gaseous fuel:

(i) Date of sampling;

(ii) Gross calorific value or heat content (Btu/scf) (flag value if derived from missing data procedures).

(d) *Specific NO_X emission record provisions for gas-fired peaking units or oil-fired peaking units using optional protocol in appendix E of this part.* In lieu of recording the information in paragraph §75.54(d), the owner or operator shall record the applicable information in this paragraph for each affected gas-fired peaking unit or oil-fired peaking unit for which the owner or operator is using the optional protocol in appendix E of this part for estimating NO_X emission rate.

(1) For each hour when the unit is combusting oil,

(i) Date and hour;

(ii) Hourly average fuel flow rate of oil with the units in which oil flow is recorded (gal/hour, lb/hr or bbl/hour) (flag value if derived from missing data procedures);

(iii) Gross calorific value (heat content) of oil, used to determine heat input (Btu/lb) (flag value if derived from missing data procedures);

(iv) Hourly average NO_X emission rate from combustion of oil (lb/mmBtu);

(v) Heat input rate of oil (mmBtu/hr, rounded to the nearest tenth); and

(vi) Fuel usage time for combustion of oil during the hour, rounded to the nearest 15 min.

(2) For each hour when the unit is combusting gaseous fuel,

(i) Date and hour;

(ii) Hourly average fuel flow rate of gaseous fuel (100 scfh) (flag value if derived from missing data procedures);

(iii) Gross calorific value (heat content) of gaseous fuel, used to determine heat input (Btu/scf) (flag value if derived from missing data procedures);

(iv) Hourly average NO_X emission rate from combustion of gaseous fuel (lb/mmBtu, rounded to nearest hundredth);

(v) Heat input rate from gaseous fuel (mmBtu/hr, rounded to the nearest tenth); and

(vi) Fuel usage time for combustion of gaseous fuel during the hour, rounded to the nearest 15 min.

(3) For each hour when the unit combusts any fuel:

(i) Date and hour;

(ii) Total heat input from all fuels (mmBtu, rounded to the nearest tenth);

(iii) Hourly average NO_X emission rate for the unit for all fuels;

(iv) For stationary gas turbines and diesel or dual-fuel reciprocating engines, hourly averages of operating parameters under section 2.3 of appendix E (flag if value is outside of manufacturer's recommended range);

(v) For boilers, hourly average boiler O_2 reading (percent, rounded to the nearest tenth) (flag if value exceeds by more than 2 percentage points the O_2 level recorded at the same heat input during the previous NO_X emission rate test).

(4) For each fuel sample:

(i) Date of sampling;

(ii) Gross calorific value (heat content) (Btu/lb for oil, Btu/scf for gaseous fuel); and

(iii) Density or specific gravity, if required to convert volume to mass.

(e) *Specific SO_2* emission record provisions during the combustion of gaseous fuel. In accordance with the provisions in §75.11(e), the owner or operator of a unit with an SO_2 continuous emission monitoring system may record the information in paragraph (c)(3) of this

section in lieu of the information in §§75.54(c)(1) and 75.54(c)(3), for those hours when only pipeline natural gas or a gaseous fuel with a sulfur content no greater than natural gas is combusted.

(f) The owner or operator shall meet the requirements of this section on or after January 1, 1996.

[60 FR 26535, 26568, May 17, 1995]

EFFECTIVE DATE NOTE: At 60 FR 26560, 26569, May 17, 1995, §75.55 was amended by temporarily adding paragraph (e), effective July 17, 1995 through December 31, 1996.

§ 75.56 Certification, quality assurance and quality control record provisions.

(a) *Continuous emission or opacity monitoring systems.* The owner or operator shall record the applicable information in this section for each certified monitor or certified monitoring system (including certified backup monitors) measuring and recording emissions or flow from an affected unit.

(1) For each SO_2 or NO_X pollutant concentration monitor, flow monitor, CO_2 monitor, or diluent gas monitor, the owner or operator shall record the following for all daily and 7-day calibration error tests, including any follow-up tests after corrective action:

(i) Component/system identification code;

(ii) Instrument span;

(iii) Date and hour;

(iv) Reference value, (i.e., calibration gas concentration or reference signal value, in ppm or other appropriate units);

(v) Observed value (monitor response during calibration, in ppm or other appropriate units);

(vi) Percent calibration error (rounded to nearest tenth of a percent); and

(vii) For 7-day calibration tests for certification or recertification, a certification from the cylinder gas vendor or CEMS vendor, that calibration gas as defined in §72.2 and appendix A of this part, were used to conduct calibration error testing; and

(viii) Description of any adjustments, corrective actions, or maintenance following test.

(2) For each flow monitor, the owner or operator shall record the following for all daily interference checks, including any follow-up tests after corrective action:

(i) Code indicating whether monitor passes or fails the interference check; and

(ii) Description of any adjustments, corrective actions, or maintenance following test.

(3) For each SO_2 or NO_X pollutant concentration monitor, CO_2 monitor, or diluent gas monitor, the owner or operator shall record the following for the initial and all subsequent linearity check(s), including any follow-up tests after corrective action:

(i) Component/system identification code;

(ii) Instrument span;

(iii) Date and hour;

(iv) Reference value (i.e., reference gas concentration, in ppm or other appropriate units);

(v) Observed value (average monitor response at each reference gas concentration, in ppm or other appropriate units);

(vi) Percent error at each of three reference gas concentrations (rounded to nearest tenth of a percent); and

(vii) Description of any adjustments, corrective action, or maintenance following test.

(4) For each flow monitor, where applicable, the owner or operator shall record the following for all quarterly leak checks, including any follow-up tests after corrective action:

(i) Code indicating whether monitor passes or fails the quarterly leak check; and

(ii) Description of any adjustments, corrective actions, or maintenance following test.

(5) For each SO_2 pollutant concentration monitor, flow monitor, CO_2 pollutant concentration monitor; NO_X continuous emission monitoring system, SO_2-diluent continuous emission monitoring system, and approved alternative monitoring system, the owner or operator shall record the following information for the initial and all subsequent relative accuracy tests and test audits:

(i) Date and hour;

(ii) Reference method(s) used;

(iii) Individual test run data from the relative accuracy test audit for the SO_2 concentration monitor, flow monitor,

CO_2 pollutant concentration monitor, NO_X continuous emission monitoring system, SO_2-diluent continuous emission monitoring system, or approved alternative monitoring systems, including:

(A) Date, hour, and minute of beginning of test run,

(B) Date, hour, and minute of end of test run,

(C) Component/system identification code,

(D) Run number,

(E) Run data for monitor;

(F) Run data for reference method; and

(G) Flag value (0 or 1) indicating whether run has been used in calculating relative accuracy and bias values.

(iv) Calculations and tabulated results, as follows:

(A) Arithmetic mean of the monitoring system measurement values, reference method values, and of their differences, as specified in Equation A-7 in appendix A to this part.

(B) Standard deviation, as specified in Equation A-8 in appendix A to this part.

(C) Confidence coefficient, as specified in Equation A-9 in appendix A to this part.

(D) Relative accuracy test results, as specified in Equation A-10 in appendix A to this part. (For the 3-level flow monitor test only, relative accuracy test results should be recorded at each of three gas velocities. Each of these three gas velocities shall be expressed as a total gross unit load, rounded to the nearest MWe or as steam load, rounded to the nearest thousand lb/hr.)

(E) Bias test results as specified in section 7.6.4 in appendix A to this part.

(F) Bias adjustment factor from Equations A-11 and A-12 in appendix A to this part for any monitoring system or component that failed the bias test and 1.0 for any monitoring system or component that passed the bias test. (For flow monitors only, bias adjustment factors should be recorded at each of three gas velocities).

(v) Description of any adjustment, corrective action, or maintenance following test.

(vi) F-factor value(s) used to convert NO_X pollutant concentration and diluent gas (O_2 or CO_2) concentration measurements into NO_X emission rates (in lb/mmBtu), heat input or CO_2 emissions.

(6) For each SO_2, NO_X, CO_2, or O_2 pollutant concentration monitor, NOx-diluent continuous emission monitoring system, or SO_2-diluent continuous emission monitoring system, the owner or operator shall record the following information for the cycle time test:

(i) Component/system identification code;

(ii) Date;

(iii) Start and end times;

(iv) Upscale and downscale cycle times for each component;

(v) Stable start monitor value;

(vi) Stable end monitor value;

(vii) Reference value of calibration gas(es);

(viii) Calibration gas level; and

(ix) Cycle time result for the entire system.

(7) Results of all trial runs and certification tests and quality assurance activities and measurements (including all reference method field test sheets, charts, records of combined system responses, laboratory analyses, and example calculations) necessary to substantiate compliance with all relevant appendices in this part. This information shall include, but shall not be limited to, the following reference method data:

(i) For each run of each test using Method 2 in appendix A of part 60 of this chapter to determine volumetric flow rate:

(A) Pitot tube coefficient;

(B) Date of pitot tube calibration;

(C) Average square root of velocity head of stack gas (inches of water) for the run;

(D) Average absolute stack gas temperature, °R;

(E) Barometric pressure at test port, inches of mercury;

(F) Stack static pressure, inches of H_2O;

(G) Absolute stack gas pressure, inches of mercury;

(H) Moisture content of stack gas, percent;

(I) Molecular weight of stack gas, wet basis (lb/lb-mole);

(J) Number of reference method measurements during the run; and

(K) Total volumetric flowrate (scfh, wet basis).

(ii) For each test using Method 2 in appendix A of part 60 of this chapter to determine volumetric flow rate:

(A) Information indicating whether or not the location meets requirements of Method 1 in appendix A of part 60 of this chapter;

(B) Information indicating whether or not the equipment passed the leak check after every run included in the relative accuracy test;

(C) Stack inside diameter at test port (ft);

(D) Duct side height and width at test port (ft);

(E) Stack or duct cross-sectional area at test port (ft^2); and

(F) Designation as to the load level of the test.

(iii) For each run of each test using Method 6C, 7E, or 3A in appendix A of part 60 of this chapter to determine SO_2, NO_X, CO_2, or O_2 concentration:

(A) Run start date;

(B) Run start time;

(C) Run end date;

(D) Run end time;

(E) Span of reference method analyzer;

(F) Reference gas concentration (low, mid-, and high gas levels);

(G) Initial and final analyzer calibration response (low, mid- and high gas levels);

(H) Analyzer calibration error (low, mid-, and high gas levels);

(I) Pre-test and post-test analyzer bias (zero and upscale gas levels);

(J) Calibration drift and zero drift of analyzer;

(K) Indication as to which data are from a pretest and which are from a posttest;

(L) Calibration gas level (zero, mid-level, or high); and

(M) Moisture content of stack gas, in percent, if needed to convert to moisture basis of CEMS being tested.

(iv) For each test using Method 6C, 7E, or 3A in appendix A of part 60 of this chapter to determine SO_2, NO_X CO_2, or O_2 concentration:

(A) Pollutant being measured;

(B) Test number;

(C) Date of interference test;

(D) Results of interference test;

(E) Date of NO_2 to NO conversion test (Method 7E only);

(F) Results of NO_2 to NO conversion test (Method 7E only).

(v) For each calibration gas cylinder used to test using Method 6C, 7E, or 3A in appendix A of part 60 of this chapter to determine SO_2, NO_X, CO_2, or O_2 concentration:

(A) Cylinder gas vendor name from certification;

(B) Cylinder number;

(C) Cylinder expiration date;

(D) Pollutant(s) in cylinder; and

(E) Cylinder gas concentration(s).

(b) *Excepted monitoring systems for gas-fired and oil-fired units.* The owner or operator shall record the applicable information in this section for each excepted monitoring system following the requirements of appendix D of this part or appendix E of this part for determining and recording emissions from an affected unit.

(1) For each oil-fired unit or gas-fired unit using the optional procedures of appendix D of this part for determining SO_2 mass emissions and heat input or the optional procedures of appendix E of this part for determining NO_X emission rate, for certification and quality assurance testing of fuel flowmeters:

(i) Date of test,

(ii) Upper range value of the fuel flowmeter,

(iii) Flowmeter measurements during accuracy test,

(iv) Reference flow rates during accuracy test,

(v) Average flowmeter accuracy as a percent of upper range value,

(vi) Fuel flow rate level (low, mid-level, or high); and

(vii) Description of fuel flowmeter calibration specification or procedure (in the certification application, or periodically if a different method is used for annual quality assurance testing).

(2) For gas-fired peaking units or oil-fired peaking units using the optional procedures of appendix E of this part, for each initial performance, periodic, or quality assurance/quality control-related test:

(i) For each run of emissions data;

(A) Run start date and time;

(B) Run end date and time;

(C) Fuel flow (lb/hr, gal/hr, scf/hr, bbl/hr, or m^3/hr);

(D) Gross calorific value (heat content) of fuel (Btu/lb or Btu/scf);

(E) Density of fuel (if needed to convert mass to volume);

(F) Total heat input during the run (mmBtu);

(G) Hourly heat input rate for run (mmBtu/hr);

(H) Response time of the O_2 and NO_X reference method analyzers;

(I) NO_X concentration (ppm);

(J) O_2 concentration (percent O_2);

(K) NO_X emission rate (lb/mmBtu); and

(L) Fuel or fuel combination (by heat input fraction) combusted.

(ii) For each unit load and heat input;

(A) Average NO_X emission rate (lb/mmBtu);

(B) F-factor used in calculations;

(C) Average heat input rate (mmBtu/hr);

(D) Unit operating parametric data related to NO_X formation for that unit type (e.g., excess O_2 level, water/fuel ratio); and

(E) Fuel or fuel combination (by heat input fraction) combusted.

(iii) For each test report;

(A) Graph of NO_X emission rate against heat input rate;

(B) Results of the tests for verification of the accuracy of emissions calculations and missing data procedures performed by the automated data acquisition and handling system, and the calculations used to produce NO_X emission rate data at different heat input conditions; and

(C) Results of all certification tests and quality assurance activities and measurements (including reference method field test sheets, charts, laboratory analyses, example calculations, or other data as appropriate), necessary to substantiate compliance with the requirements of appendix E of this part.

(c) The owner or operator shall meet the requirements of this section on or after January 1, 1996.

[60 FR 26536, 26568, May 17, 1995]

EFFECTIVE DATE NOTE: At 60 FR 26560, 26569, May 17, 1995, §75.56 was amended by temporarily adding paragraph (a)(6), effective July 17, 1995 through December 31, 1996.

Subpart G—Reporting Requirements

§75.60 General provisions.

(a) The designated representative for any affected unit subject to the requirements of this part shall comply with all reporting requirements in this section and with the signatory requirements of §72.21 of this chapter for all submissions.

(b) *Submissions.* The designated representative shall submit all reports and petitions (except as provided in §75.61) as follows:

(1) All initial certification or recertification testing notifications, initial certification or recertification applications, monitoring plans, petitions for alternative monitoring systems, notifications, electronic quarterly reports, and other communications required by this subpart shall be submitted to the Administrator.

(2) Copies of initial certification or recertification testing notifications, certification or recertification applications and monitoring plans shall be submitted to the appropriate Regional office of the U.S. Environmental Protection Agency and appropriate State or local air pollution control agency.

(c) *Confidentiality of data.* The following provisions shall govern the confidentiality of information submitted under this part.

(1) All emission data reported in quarterly reports under §75.64 shall remain public information.

(2) For information submitted under this part other than emission data submitted in quarterly reports, the designated representative must assert a claim of confidentiality at the time of submission for any information he or she wishes to have treated as confidential business information (CBI) under subpart B of part 2 of this chapter. Failure to assert a claim of confidentiality at the time of submission may result in disclosure of the information by EPA without further notice to the designated representative.

(3) Any claim of confidentiality for information submitted in quarterly reports under §75.64 must include substantiation of the claim. Failure to provide substantiation may result in

disclosure of the information by EPA without further notice.

(4) As provided under subpart B of part 2 of this chapter, EPA may review information submitted to determine whether it is entitled to confidential treatment even when confidentiality claims are initially received. The EPA will contact the designated representative as part of such a review process.

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26538, May 17, 1995]

§ 75.61 Notifications.

(a) *Submission.* The designated representative for an affected unit (or owner or operator, as specified) shall submit notice to the Administrator, to the appropriate EPA Regional Office, and to the applicable State air pollution control agency for the following purposes, as required by this part.

(1) *Initial certification and recertification test notifications.* The owner or operator or designated representative for an affected unit shall submit written notification of initial certification tests, recertification tests, and revised test dates as specified in §75.20 for continuous emission monitoring systems, for alternative monitoring systems under subpart E of this part, or for excepted monitoring systems under appendix E of this part, except as provided in paragraph (a)(4) of this section and except for testing only of the data acquisition and handling system.

(i) *Notification of initial certification testing.* Initial certification test notifications shall be submitted not later than 45 days prior to the first scheduled day of initial certification testing. Testing may be performed on a date other than that already provided in a notice under this subparagraph as long as notice of the new date is provided either in writing or by telephone or other means at least 7 days prior to the original scheduled test date or the revised test date, whichever is earlier.

(ii) *Notification of certification retesting and recertification testing.* For retesting following a loss of certification under §75.20(a)(5) or for recertification under §75.20(b), notice of testing shall be submitted either in writing or by telephone at least 7 days prior to the first scheduled day of testing; except that in emergency situations when testing is required following an uncontrollable failure of equipment that results in lost data, notice shall be sufficient if provided within 2 business days following the date when testing is scheduled. Testing may be performed on a date other than that already provided in a notice under this subparagraph as long as notice of the new date is provided by telephone or other means at least 2 business days prior to the original scheduled test date or the revised test date, whichever is earlier.

(iii) *Repeat of testing without notice.* Notwithstanding the above notice requirements, the owner or operator may elect to repeat a certification test immediately, without advance notification, whenever the owner or operator has determined during the certification testing that a test was failed or that a second test is necessary in order to attain a reduced relative accuracy test frequency.

(2) *New unit, newly affected unit, new stack, or new flue gas desulfurization system operation notification.* The designated representative for an affected unit shall submit written notification: For a new unit or a newly affected unit, of the planned date when a new unit or newly affected unit will commence commercial operation or, for new stack or flue gas desulfurization system, of the planned date when a new stack or flue gas desulfurization system will be completed and emissions will first exit to the atmosphere.

(i) Notification of the planned date shall be submitted not later than 45 days prior to the date the unit commences commercial operation, or not later than 45 days prior to the date when a new stack or flue gas desulfurization system exhausts emissions to the atmosphere.

(ii) If the date when the unit commences commercial operation or the date when the new stack or flue gas desulfurization system exhausts emissions to the atmosphere, whichever is applicable, changes from the planned date, a notification of the actual date shall be submitted not later than 7 days following: The date the unit commences commercial operation or, the date when a new stack or flue gas desulfurization system exhausts emissions to the atmosphere.

(3) *Unit shutdown and recommencement of commercial operation.* The designated representative for an affected unit that will be shutdown on the relevant compliance date in §75.4(a) and that is relying on the provisions in §75.4(d) to postpone certification testing shall submit notification of unit shutdown and recommencement of commercial operation as follows:

(i) For planned unit shutdowns, written notification of the planned shutdown date and planned date of recommencement of commercial operation shall be submitted 45 calendar days prior to the deadline in §75.4(a). For unit shutdowns that are not planned 45 days prior to the deadline in §75.4(a), written notification of the planned shutdown date and planned date of recommencement of commercial operation shall be submitted no later than 7 days after the date the owner or operator is able to schedule the shutdown date and date of recommencement of commercial operation. If the actual shutdown date or the actual date of recommencement of commercial operation differs from the planned date, written notice of the actual date shall be submitted no later than 7 days following the actual date of shutdown or of recommencement of commercial operation, as applicable;

(ii) For unplanned unit shutdowns, written notification of actual shutdown date and the expected date of recommencement of commercial operation shall be submitted no later than 7 days after the shutdown. If the actual date of recommencement of commercial operation differs from the expected date, written notice of the actual date shall be submitted no later than 7 days following the actual date of recommencement of commercial operation.

(4) *Use of backup fuels for appendix E procedures.* The designated representative for an affected oil-fired or gas-fired peaking unit that is using an excepted monitoring system under appendix E of this part and that is relying on the provisions in §75.4(f) to postpone testing of a fuel shall submit written notification of that fact no later than 45 days prior to the deadline in §75.4(a). The designated representative shall also submit a notification that such a fuel has been combusted no later than 7 days after the first date of combustion of any fuel for which testing has not been performed under appendix E after the deadline in §75.4(a). Such notice shall also include notice that testing under Appendix E either was performed during the initial combustion or notice of the date that testing will be performed.

(5) [Reserved]

(6) *Notice of combustion of emergency fuel under appendix D or E.* The designated representative of an oil-fired unit or gas-fired unit using appendix D or E of this part shall provide notice of the combustion of emergency fuel according to the following:

(i) For an affected oil-fired or gas-fired unit that is using an excepted monitoring system under appendix D or E of this part, where the owner or operator is postponing installation or testing of a fuel flowmeter for emergency fuel under §75.4(g), the designated representative shall submit written notification of postponement of installation or testing no later than 45 days prior to the deadline in §75.4(a). The designated representative shall also submit a notification that emergency fuel has been combusted no later than 7 days after the first date of combustion of the emergency fuel after the deadline in §75.4(a).

(ii) The designated representative of a unit that has received approval of a petition under §75.66 for exemption from one or more of the requirements of appendix E of this part for certification of an excepted monitoring system under appendix E of this part for a unit combusting emergency fuel shall submit written notice of each period of combustion of the emergency fuel with the next quarterly report submitted under §75.64 for each calendar quarter in which emergency fuel is combusted, including notice specifying the exact dates and hours during which the emergency fuel was combusted.

(b) The owner or operator or designated representative shall submit notification of certification tests and recertification tests for continuous opacity monitoring systems, as specified in §75.20(c)(6) to the State or local air pollution control agency.

(c) If the Administrator determines that notification substantially similar to that required in this section is required by any other State or local agency, the owner or operator or designated representative may send the Administrator a copy of that notification to satisfy the requirements of this section, provided the ORISPL unit identification number(s) is denoted.

[60 FR 26538, May 17, 1995, as amended at 61 FR 25582, May 22, 1996]

§ 75.62 Monitoring plan.

(a) *Submission.* The designated representative for an affected unit shall submit the monitoring plan to the Administrator no later than 45 days prior to the first scheduled certification test, other than testing of a fuel flowmeter or an excepted monitoring system under appendix D of this part. The designated representative shall submit the monitoring plan for a Phase II unit using an excepted monitoring system under appendix D of this part to the Administrator no later than November 15, 1994.

(b) *Contents.* Monitoring plans shall contain the information specified in § 75.53 of this part.

(c) *Format.* Each monitoring plan shall be submitted in a format specified by the Administrator, including information in electronic format and on paper.

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26539, May 17, 1995]

§ 75.63 Initial certification or recertification application.

(a) *Submission.* The designated representative for an affected unit or a combustion source seeking to enter the Opt-in Program in accordance with part 74 of this chapter shall submit the application to the Administrator within 45 days after completing all initial certification tests or recertification tests.

(b) *Contents.* Each application for initial certification or recertification shall contain the following information:

(1) A copy of the monitoring plan (or any modifications to the monitoring plan) for the unit, or units, or combustion sources seeking to enter the Opt-in Program in accordance with part 74 of this chapter, if not previously submitted.

(2) The results of the test(s) required by § 75.20, including the type of test conducted, testing date, and field data sheets required by § 75.52 (or § 75.56, no later than January 1, 1996), and including the results of any failed tests that had been repeated pursuant to the requirements in § 75.20.

(3) Results of the tests for verification of the accuracy of emissions and volumetric flow calculations performed by the automated data acquisition and handling system, including a summary of equations used to convert component data to units of the standard and to calculate substitute data for missing data periods, including sample calculations.

(c) *Format.* Each certification application shall be submitted in a format to be specified by the Administrator, including test results in electronic format and field data sheets required by § 75.52 (or § 75.56, no later than January 1, 1996) on paper where the information required under § 75.56(a)(7) shall be submitted on paper.

[60 FR 26539, May 17, 1995]

§ 75.64 Quarterly reports.

(a) *Electronic submission.* The designated representative for an affected unit shall electronically report the data and information in paragraphs (a), (b), and (c) of this section to the Administrator quarterly, beginning with the data from the later of: the last (partial) calendar quarter of 1993 (where the calendar quarter data begins at November 15, 1993); or the calendar quarter corresponding to the relevant deadline for certification in § 75.4(a), (b), or (c). For any provisionally-certified monitoring system, some or all of the quarterly data may be invalidated, if the Administrator subsequently issues a notice of disapproval within 120 days of receipt of the complete initial certification application or within 60 days of receipt of the complete recertification application for the monitoring system. Each electronic report must be submitted to the Administrator within 30 days following the end of each calendar quarter and shall

include for each affected unit (or group of units using a common stack):

(1) The information and hourly data required in §§ 75.50 through 75.52 (or §§ 75.54 through 75.56), no later than the quarterly report due April 30, 1996), excluding:

(i) Descriptions of adjustments, corrective action, and maintenance;

(ii) Information which is incompatible with electronic reporting (e.g., field data sheets, lab analyses, quality control plan);

(iii) Opacity data listed in § 75.50(f) or § 75.54(f);

(iv) For units with SO_2 or NO_X add-on emission controls that do not elect to use the approved site-specific parametric monitoring procedures for calculation of substitute data, the information in § 75.55(b)(3); and

(v) The information recorded under § 75.56(a)(7) for the period prior to January 1, 1996.

(2) Tons (rounded to the nearest tenth) of SO_2 emitted during the quarter and cumulative SO_2 emissions for calendar year.

(3) Average NO_x emission rate (lb/mmBtu, rounded to the nearest hundredth) during the quarter and cumulative NO_x emission rate for calendar year.

(4) Tons of CO_2 emitted during quarter and cumulative CO_2 emissions for calendar year.

(5) Total heat input (mmBtu) for quarter and cumulative heat input for calendar year.

(6) If the affected unit is using a qualifying Phase I technology, then the quarterly report shall include the information required in paragraph (e) of this section.

(b) The designated representative shall affirm that the component/system identification codes and formulas in the quarterly electronic reports, submitted to the Administrator pursuant to § 75.53, represent current operating conditions.

(c) *Compliance certification.* The designated representative shall submit a certification in support of each quarterly emissions monitoring report based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit's emissions are correctly and fully monitored. The certification shall indicate whether the monitoring data submitted were recorded in accordance with the applicable requirements of this part including the quality control and quality assurance procedures and specifications of this part and its appendices, and any such requirements, procedures and specifications of an applicable excepted or approved alternative monitoring method. In the event of any missing data periods, the certification must describe the measures taken to cure the causes for the missing data periods. For a unit with add-on emission controls, the designated representative shall also include a certification for all hours where data are substituted following the provisions of § 75.34(a)(1), that the add-on emission controls were operating within the range of parameters listed in the monitoring plan, and that the substitute values recorded during the quarter do not systematically underestimate SO_2 or NO_X emissions, pursuant to § 75.34.

(d) *Electronic format.* Each quarterly report shall be submitted in a format to be specified by the Administrator, including both electronic submission of data and paper submission of compliance certifications.

(e) *Phase I qualifying technology reports.* In addition to reporting the information in paragraphs (a), (b), and (c) of this section, the designated representative for an affected unit on which SO_2 emission controls have been installed and operated for the purpose of meeting qualifying Phase I technology requirements pursuant to § 72.42 of this chapter shall also submit reports documenting the measured percent SO_2 emissions removal to the Administrator on a quarterly basis, beginning the first quarter of 1997 and continuing through the fourth quarter of 1999. Each report shall include all measurements and calculations necessary to substantiate that the qualifying technology achieves the overall percentage reduction in SO_2 emissions.

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26540, 26569, May 17, 1995]

§ 75.65 Opacity reports.

The owner or operator or designated representative shall report excess emissions of opacity recorded under

§§ 75.50(f) or 75.54(f) to the applicable State or local air pollution control agency, in a format specified by the applicable State or local air pollution control agency.

[60 FR 26540, May 17, 1995]

§ 75.66 Petitions to the Administrator.

(a) *General.* The designated representative for an affected unit subject to the requirements of this part may submit petitions to the Administrator. Any petitions shall be submitted in accordance with the requirements of this section. The designated representative shall comply with the signatory requirements of § 72.21 of this chapter for each submission.

(b) *Alternative flow monitoring method petition.* In cases where no location exists for installation of a flow monitor in either the stack or the ducts serving an affected unit that satisfies the minimum physical siting criteria in appendix A of this part or where installation of a flow monitor in either the stack or duct is demonstrated to the satisfaction of the Administrator to be technically infeasible, the designated representative for the affected unit may petition the Administrator for an alternative method for monitoring volumetric flow. The petition shall, at a minimum, contain the following information:

(1) Identification of the affected unit(s);

(2) Description of why the minimum siting criteria cannot be met within the existing ductwork or stack(s). This description shall include diagrams of the existing ductwork or stack, as well as documentation of any attempts to locate a flow monitor; and

(3) Description of proposed alternative method for monitoring flow.

(c) *Alternative to standards incorporated by reference.* The designated representative for an affected unit may apply to the Administrator for an alternative to any standard incorporated by reference and prescribed in this part. The designated representative shall include the following information in an application:

(1) A description of why the prescribed standard is not being used;

(2) A description and diagram(s) of any equipment and procedures used in the proposed alternative;

(3) Information demonstrating that the proposed alternative produces data acceptable for use in the Acid Rain Program, including accuracy and precision statements, NIST traceability certificates or protocols, or other supporting data, as applicable to the proposed alternative.

(d) *Alternative monitoring system petitions.* The designated representative for an affected unit may submit a petition to the Administrator for approval and certification of an alternative monitoring system or component according to the procedure in subpart E of this part. Each petition shall contain the information and data specified in subpart E, including the information specified in § 75.48, in a format to be specified by the Administrator.

(e) *Parametric monitoring procedure petitions.* The designated representative for an affected unit may submit a petition to the Administrator, where each petition shall contain the information specified in § 75.51(b) (or § 75.55(b), no later than January 1, 1996) for use of a parametric monitoring method. The Administrator will either:

(1) Publish a notice in the FEDERAL REGISTER indicating receipt of a parametric monitoring procedure petition;, or

(2) Notify interested parties of receipt of a parametric monitoring petition.

(f) *Missing data petitions for units with add-on emission controls.* The designated representative for an affected unit may submit a petition to the Administrator for the use of the maximum controlled emission rate, which the Administrator will approve if the petition adequately demonstrates that all the requirements in § 75.34(a)(2) are satisfied. Each petition shall contain the information listed below for the time period (or data gap) during which the affected unit experienced the monitor outage that would otherwise result in the substitution of an uncontrolled maximum value under the standard missing data procedures contained in subpart D of this part:

(1) Data demonstrating that the affected unit's monitor data availability

for the time period under petition was less than 90.0 percent;

(2) Data demonstrating that the add-on emission controls were operating properly during the time period under petition (i.e., within the range of operating parameters for the add-on emission controls in the monitoring plan for the unit);

(3) A list of the average hourly values for the previous 720 quality-assured monitor operating hours, highlighting both the maximum recorded value and the value corresponding to the maximum controlled emission rate; and

(4) An explanation and information on operation of the add-on emission controls demonstrating that the selected historical SO_2 concentration or NO_X emission rate does not underestimate the SO_2 concentration or NO_X emission rate during the missing data period.

(g) *Petitions for emissions or heat input apportionments.* The designated representative of an affected unit shall provide information to describe a method for emissions or heat input apportionment under §§75.13, 75.16, 75.17, or appendix D of this part. This petition may be submitted as part of the monitoring plan. Such a petition shall contain, at a minimum, the following information:

(1) A description of the units, including their fuel type, their boiler type, and their categorization as Phase I units, substitution units, compensating units, Phase II units, new units, or non-affected units;

(2) A formula describing how the emissions or heat input are to be apportioned to which units;

(3) A description of the methods and parameters used to apportion the emissions or heat input; and

(4) Any other information necessary to demonstrate that the apportionment method accurately measures emissions or heat input and does not underestimate emissions or heat input from affected units.

(h) *Partial recertification petition.* The designated representative of an affected unit may provide information and petition the Administrator to specify which of the certification tests required by §75.20 apply for partial recertification of the affected unit. Such a petition shall include the following information:

(1) Identification of the monitoring system(s) being changed;

(2) A description of the changes being made to the system;

(3) An explanation of why the changes are being made; and

(4) A description of the possible effect upon the monitoring system's ability to measure, record, and report emissions.

(i) *Any other petitions to the Administrator under this part.* The designated representative for an affected unit shall include sufficient information for the evaluation of any other petition submitted to the Administrator under this part.

[58 FR 3701, Jan. 11, 1993,as amended at 60 FR 26540, 26569, May 17, 1995]

§75.67 Retired units petitions.

(a) For units that will be permanently retired prior to January 1, 1995, if the designated representative submits a complete petition, as required in §72.8 of this chapter, to the Administrator prior to the deadline in §75.4 by which the continuous emission or opacity monitoring systems must complete the required certification tests, the Administrator will issue an exemption from the requirements of this part, including the requirement to install and certify continuous emission monitoring systems.

(b) For combustion sources seeking to enter the Opt-in Program in accordance with part 74 of this chapter that will be permanently retired and governed upon entry into the Opt-in Program by a thermal energy plan in accordance with §74.47 of this chapter, an exemption from the requirements of this part, including the requirement to install and certify a continuous emissions monitoring system, may be obtained from the Administrator if the designated representative submits to the Administrator a petition for such an exemption prior to the deadline in §75.4 by which the continuous emission or opacity monitoring systems must complete the required certification tests.

[60 FR 17131, Apr. 4, 1995, as amended at 60 FR 26541, May 17, 1995]

APPENDIX A TO PART 75—SPECIFICATIONS AND TEST PROCEDURES

1. INSTALLATION AND MEASUREMENT LOCATION

1.1 Pollutant Concentration and CO_2 or O_2 Monitors

Following the procedures in section 3.1 of Performance Specification 2 in Appendix B to part 60 of this chapter, install the pollutant concentration monitor or monitoring system at a location where the pollutant concentration and emission rate measurements are directly representative of the total emissions from the affected unit. Select a representative measurement point or path for the monitor probe(s) (or for the path from the transmitter to the receiver) such that the SO_2 pollutant concentration monitor or NO_x continuous emission monitoring system (NO_x pollutant concentration monitor and diluent gas monitor) will pass the relative accuracy test (see section 6 of this Appendix).

It is recommended that monitor measurements be made at locations where the exhaust gas temperature is above the dewpoint temperature. If the cause of failure to meet the relative accuracy tests is determined to be the measurement location, relocate the monitor probe(s).

1.1.1 Point Pollutant Concentration and CO_2 or O_2 Monitors

Locate the measurement point (1) within the centroidal area of the stack or duct cross section, or (2) no less than 1.0 meter from the stack or duct wall.

1.1.2 Path Pollutant Concentration and CO_2 or O_2 Gas Monitors

Locate the measurement path (1) totally within the inner area bounded by a line 1.0 meter from the stack or duct wall, or (2) such that at least 70.0 percent of the path is within the inner 50.0 percent of the stack or duct cross-sectional area, or (3) such that the path is centrally located within any part of the centroidal area.

1.2 Flow Monitors

Install the flow monitor in a location that provides representative volumetric flow over all operating conditions. Such a location is one that provides an average velocity of the flue gas flow over the stack or duct cross section, provides a representative SO_2 emission rate (in lb/hr), and is representative of the pollutant concentration monitor location. Where the moisture content of the flue gas affects volumetric flow measurements, use the procedures in both Reference Methods 1 and 4 of Appendix A to part 60 of this chapter to establish a proper location for the flow monitor. The EPA recommends (but does not require) performing a flow profile study following the procedures in 40 CFR part 60, appendix A, Method, 1, section 2.5 or 2.4 for each of the three operating or load levels indicated in section 6.5.2 of this appendix to determine the acceptability of the potential flow monitor location and to determine the number and location of flow sampling points required to obtain a representative flow value. The procedure in 40 CFR part 60, Appendix A, Test Method 1, section 2.5 may be used even if the flow measurement location is greater than or equal to 2 equivalent stack or duct diameters downstream or greater than or equal to ½ duct diameter upstream from a flow disturbance. If a flow profile study shows that cyclonic (or swirling) or stratified flow conditions exist at the potential flow monitor location that are likely to prevent the monitor from meeting the performance specifications of this part, then EPA recommends either (1) selecting another location where there is no cyclonic (or swirling) or stratified flow condition, or (2) eliminating the cyclonic (or swirling) or stratified flow condition by straightening the flow, e.g., by installing straightening vanes. EPA also recommends selecting flow monitor locations to minimize the effects of condensation, coating, erosion, or other conditions that could adversely affect flow monitor performance.

1.2.1 Acceptability of Monitor Location

The installation of a flow monitor is acceptable if either (1) the location satisfies the minimum siting criteria of Method 1 in Appendix A to part 60 of this chapter (i.e., the location is greater than or equal to eight stack or duct diameters downstream and two diameters upstream from a flow disturbance; or, if necessary, two stack or duct diameters downstream and one-half stack or duct diameter upstream from a flow disturbance), or (2) the results of a flow profile study, if performed, are acceptable (i.e., there are no cyclonic (or swirling) or stratified flow conditions), and the flow monitor also satisfies the performance specifications of this part. If the flow monitor is installed in a location that does not satisfy these physical criteria, but nevertheless the monitor achieves the performance specifications of this part, then the location is acceptable, notwithstanding the requirements of this section.

1.2.2 Alternative Monitoring Location

Whenever the designated representative successfully demonstrates that modifications to the exhaust duct or stack (such as installation of straightening vanes, modifications of ductwork, and the like) are necessary for the flow monitor to meet the performance specifications, the Administrator may approve an interim alternative flow monitoring methodology and an extension to

the required certification date for the flow monitor.

Whenever the owner or operator successfully demonstrates that modifications to the exhaust duct or stack (such as installation of straightening vanes, modifications of ductwork, and the like) are necessary for the flow monitor to meet the performance specifications, the Administrator may approve an interim alternative flow monitoring methodology and an extension to the required certification date for the flow monitor.

Where no location exists that satisfies the physical siting criteria in section 1.2.1, where the results of flow profile studies performed at two or more alternative flow monitor locations are unacceptable, or where installation of a flow monitor in either the stack or the ducts is demonstrated to be technically infeasible, the owner or operator may petition the Administrator for an alternative method for monitoring flow.

2. Equipment Specifications

2.1 Instrument Span

In implementing sections 2.1.1 through 2.1.4 of this appendix, to the extent practicable, measure at a range such that the majority of readings obtained during normal operation are between 25 and 75 percent of full-scale range of the instrument.

2.1.1 SO_2 Pollutant Concentration Monitors

Determine, as indicated below, the span value for an SO_2 pollutant concentration monitor so that all expected concentrations can be accurately measured and recorded.

2.1.1.1 Maximum Potential Concentration

The monitor must be capable of accurately measuring up to 125 percent of the maximum potential concentration (MPC) as calculated using Equation A-1a or A-1b. Calculate the maximum potential concentration by using Equation A-1a or A-1b and the maximum percent sulfur and minimum gross calorific value (GCV) for the highest sulfur fuel to be burned, using daily fuel sample data if they are available. If an SO_2 CEMS is already installed, the owner or operator may determine an MPC based upon the maximum concentration observed during the previous 30 unit operating days when using the type of fuel to be burned. For initial certification, base the maximum percent sulfur and minimum GCV on the results of all available fuel sampling and analysis data from the previous 12 months (where such data exists). If the unit has not been operated during that period, use the maximum sulfur content and minimum GCV from the fuel contract for fuel that will be combusted by the unit. Whenever the fuel supply changes such that these maximum sulfur and minimum GCV values may change significantly, base the maximum percent sulfur and minimum GCV on the new fuel with the highest sulfur content. Use the one of the two following methods that results in a higher MPC: (1) results of samples representative of the new fuel supply, or (2) maximum sulfur and minimum GCV from the fuel contract for fuel that will be combusted by the unit. Whenever performing fuel sampling to determine the MPC, use ASTM Methods ASTM D3177-89, "Standard Test Methods for Total Sulfur in the Analysis Sample of Coal and Coke," ASTM D4239-85, "Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods," ASTM D4294-90, "Standard Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectroscopy," ASTM D1552-90, "Standard Test Method for Sulfur in Petroleum Products (High Temperature Method)," ASTM D129-91, "Standard Test Method for Sulfur in Petroleum Products (General Bomb Method)," or ASTM D2622-92, "Standard Test Method for Sulfur in Petroleum Products by X-Ray Spectrometry" for sulfur content of solid or liquid fuels, or ASTM D3176-89, "Standard Practice for Ultimate Analysis of Coal and Coke", ASTM D240-87 (Reapproved 1991), "Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter", or ASTM D2015-91, "Standard Test Method for Gross Calorific Value of Coal and Coke by the Adiabatic Bomb Calorimeter" for GCV (incorporated by reference under §75.6). Multiply the maximum potential concentration by 125 percent, and round up the resultant concentration to the nearest multiple of 100 ppm to determine the span value. The span value will be used to determine the concentrations of the calibration gases. Include the full-scale range setting and calculations of the span and MPC in the monitoring plan for the unit. Select the full-scale range of the instrument to be consistent with section 2.1 of this appendix, and to be greater than or equal to the span value. This selected monitor range with a span rounded up from 125 percent of the maximum potential concentration will be the "high-scale" of the SO_2 pollutant concentration monitor.

$$MPC = 11.32 \times 10^6 \left(\frac{\%S}{GCV} \right) \left(\frac{20.9 - \%O_{2w}}{20.9} \right) \quad \text{(Eq. A-1a)}$$

or

$$MPC = 66.93 \times 10^6 \left(\frac{\%S}{GCV} \right) \left(\frac{\%CO_{2w}}{100} \right) \quad \text{(Eq. A-1b)}$$

Where,

MPC=Maximum potential concentration (ppm, wet basis). (To convert to dry basis, divide the MPC by 0.9.)

%S=Maximum sulfur content of fuel to be fired, wet basis, weight percent, as determined by ASTM D3177-89, ASTM D4239-85, ASTM D4294-90, ASTM D1552-90, ASTM D129-91, or ASTM D2622-92 for solid or liquid fuels (incorporated by reference under §75.6).

GCV=Minimum gross calorific value of the fuel lot consistent with the sulfur analysis (Btu/lb), as determined using ASTM D3176-89, ASTM D240-87 (Reapproved 1991), or ASTM D2015-91 (incorporated by reference under §75.6).

$\%O_{2w}$=Minimum oxygen concentration, percent wet basis, under normal operating conditions.

$\%CO_{2w}$=Maximum carbon dioxide concentration, percent wet basis, under normal operating conditions.

11.32×10^6=Oxygen-based conversion factor in (Btu/lb)(ppm)/%.

6.93×10^6=Carbon dioxide-based conversion factor in (Btu/lb)(ppm)/%

NOTE: All percent values to be inserted in the equations of this section are to be expressed as a percentage, not a fractional value, e.g., 3, not .03.

2.1.1.2 Maximum Expected Concentration

If the majority of SO_2 concentration values are predicted to be less than 25 percent of the full-scale range of the instrument selected under section 2.1.1.1 of this appendix, (e.g., where an SO_2 add-on emission control is used or where fuel with different sulfur contents are blended), use an additional (lower) measurement range. For this second range, use Equation A-2 to calculate the maximum expected concentration (MEC) for units with emission controls. For units blending fuels, calculate the MEC using a best estimate of the highest sulfur content and lowest gross calorific value expected for the blend and inserting these values into Equation A-1. If an SO_2 CEMS is already installed, the owner or operator may calculate an MEC based upon the maximum concentration measured by the CEMS over a thirty-day period, provided that there have been no full-scale exceedances since the range was last selected. Multiply the maximum expected concentration by 125 percent, and round up the resultant concentration to the nearest multiple of 10 ppm to determine the span value for the additional (lower) range. The span value of this additional range will also be used to determine concentrations of the calibration gases for this additional range. Report the full-scale range setting and calculations of the MEC and span in the monitoring plan for the unit. Select the full-scale range of the instrument of this additional (lower) range to be consistent with section 2.1 of this appendix, and to be greater than or equal to the lower range span value. This selected monitor range with a span rounded up from 125 percent of the MEC will be the "low-scale" of the SO_2 pollutant concentration monitor. Units using a low-scale range must also be capable of accurately measuring the anticipated concentrations up to and including 125 percent of the maximum potential concentration. If an existing State, local, or Federal requirement for span of an SO_2 pollutant concentration monitor requires a span other than that required in this section, but less than that required for the high-scale by this appendix, the State, local or Federal span value may be approved, where a satisfactory explanation is included in the monitoring plan.

$MEC = MPC[(100-RE)/100]$ (Eq. A-2)

Where:

MEC=Maximum expected concentration (ppm).

MPC=Maximum potential concentration (ppm), as determined by Eq. A-1a or A-1b.

RE = Expected average design removal efficiency of control equipment (%).

2.1.1.3 Auto-ranging Monitors

For monitors that can continuously and automatically adjust their range of measurement, the monitor must be capable at any time of accurately measuring up to 125 percent of the maximum potential concentration, as calculated using Equation A-1a or A-1b. Define the span value(s) for an auto-

ranging monitor as 125 percent of the maximum potential concentration and 125 percent of the maximum expected concentration if a second span is determined to be necessary under section 2.1.1.2 of this appendix. Determine concentrations of the calibration gases based upon the span value(s).

2.1.1.4 Adjustment of Span

Wherever the SO_2 concentration exceeds the maximum potential concentration but does not exceed the full-scale range during more than one clock-hour and the monitor can measure and record the SO_2 concentration accurately, it may be reported for use in the Acid Rain Program. If the concentration exceeds the monitor's ability to measure and record values accurately during a clock hour, and the full-scale exceedance is not during an out-of-control period, report the full-scale value as the SO_2 concentration for that clock hour. If full-scale exceedances occur during more than one clock hour since the last adjustment of the full-scale range setting, adjust the full-scale range setting to prevent future exceedances.

Whenever the fuel supply or emission controls change such that the maximum expected or potential concentration may change significantly, adjust the span and range setting to assure the continued proper operation of the monitoring system. Determine the adjusted span using the procedures in sections 2.1.1.1 or 2.1.1.2 of this appendix. Select the full scale range of the instrument to be greater than or equal to the new span value and to be consistent with the guidelines of section 2.1 of this appendix. Record and report the new full-scale range setting, calculations of the span, MPC, and MEC (if appropriate), and the adjusted span value, in an updated monitoring plan. In addition, record and report the adjusted span as part of the records for the daily calibration error test and linearity check specified by appendix B of this part. Whenever the span value is adjusted, use calibration gas concentrations based on the most recent adjusted span value. Perform a linearity check according to section 6.2 of this appendix whenever making a change to the monitor span or range. Recertification under §75.20(b) is required whenever a significant change in the monitor's range also requires an internal modification to the monitor (e.g., a change of measurement cell length).

2.1.2 NO_X Pollutant Concentration Monitors

Determine, as indicated below, the span value(s) for the NO_X pollutant concentration monitor so that all expected NO_X concentrations can be determined and recorded accurately including both the maximum expected and potential concentration.

2.1.2.1 Maximum Potential Concentration

The monitor must be capable of accurately measuring up to 125 percent of the maximum potential concentration (MPC) as determined below in this section. Use 800 ppm for coal-fired and 400 ppm for oil- or gas-fired units as the maximum potential concentration of NOx, unless a more representative MPC is determined by one of the following methods (If an MPC of 1600 ppm for coal-fired units or 480 ppm for oil- or gas-fired units was previously selected under this part, that value may still be used.): (1) NO_X emission test results, (2) historical CEM data over the previous 30 unit operating days; or (3) specific values based on boiler-type and fuel combusted, listed in Table 2-1 or Table 2-2 if other data under (1) or (2) were not available. Multiply the MPC by 125 percent and round up to the nearest multiple of 100 ppm to determine the span value. The span value will be used to determine the concentrations of the calibration gases.

Report the full-scale range setting, and calculations of the MPC, maximum potential NO_X emission rate, and span in the monitoring plan for the unit. Select the full-scale range of the instrument to be consistent with section 2.1 of this appendix, and to be greater than or equal to the span value. This selected monitor range with a span rounded up from 125 percent of the maximum potential concentration will be the "high-scale" of the NO_X pollutant concentration monitor.

If NO_X emission testing is used to determine the maximum potential NO_X concentration, use the following guidelines: Use Method 7E from appendix A of part 60 of this chapter to measure total NO_X concentration. Operate the unit, or group of units sharing a common stack, at the minimum safe and stable load, the normal load, and the maximum load. If the normal load and maximum load are identical, an intermediate level need not be tested. Operate at the highest excess O_2 level expected under normal operating conditions. Make at least three runs with three traverse points of at least 20 minutes duration at each operating condition. Select the highest NO_X concentration from all measured values as the maximum potential concentration for NOx. If historical CEM data are used to determine the MPC, the data must represent various operating conditions, including the minimum safe and stable load, normal load, and maximum load. Calculate the MPC and span using the highest hourly NO_X concentration in ppm. If no test data or historical CEM data are available, use Table 2-1 or Table 2-2 to estimate the maximum potential concentration based upon boiler type and fuel used.

TABLE 2–1.—MAXIMUM POTENTIAL CONCENTRATION FOR NO_X—Coal-Fired Units

Unit type	Maximum potential concentration for NO_X (ppm)
Tangentially-fired dry bottom and fluidized bed	460
Wall-fired dry bottom, turbo-fired dry bottom, stokers	675
Roof-fired (vertically-fired) dry bottom, cell burners, arch-fired	975
Cyclone, wall-fired wet bottom, wet bottom turbo-fired	1200
Others	As approved by the Administrator.

TABLE 2–2.—MAXIMUM POTENTIAL CONCENTRATION FOR NO_X—Gas- And Oil-Fired Units

Unit type	Maximum potential concentration for NO_X (ppm)
Tangentially-fired dry bottom	380
Wall-fired dry bottom	600
Roof-fired (vertically-fired) dry bottom, arch-fired	550
Existing combustion turbine or combined cycle turbine	200
New stationary gas turbine/combustion turbine	50
Others	As approved by the Administrator.

2.1.2.2 Maximum Expected Concentration

If the majority of NO_X concentrations are expected to be less than 25 percent of the full-scale range of the instrument selected under section 2.1.2.1 of this appendix (e.g., where a NO_X add-on emission control is used) use a "low-scale" measurement range. For units with add-on emission controls, determine the maximum expected concentration (MEC) of NO_X using Equation A–2, inserting the maximum potential concentration, as determined using the procedures in section 2.1.2.1 of this appendix. Where Equation A–2 is not appropriate, set the MEC, either (1) by measuring the NO_X concentration using the testing procedures in section 2.1.2.1 of this appendix, or (2) by using historical CEM data over the previous 30 unit operating days. Other methods for determining the MEC may be accepted if they are satisfactorily explained in the monitoring plan. If an existing State, local, or Federal requirement for span of an NO_X pollutant concentration monitor requires a span other than that required in this section, but less than that required for the high scale by this appendix, the State, local, or Federal span value may be approved, where a satisfactory explanation is included in the monitoring plan. Calculate the span for the additional (lower) range by multiplying the maximum expected concentration by 125 percent and by rounding up the resultant concentration to the nearest multiple of 10 ppm. The span value of this additional (lower) range will also be used to determine the concentrations of the calibration gases. Include the full-scale range setting and calculations of the MEC and span in the monitoring plan for the unit. Select the full-scale range of the instrument to be consistent with section 2.1 of this appendix, and to be greater or equal to the lower range span value. This selected monitor range with a span rounded up from 125 percent of the maximum expected concentration is the "low-scale" of NO_X pollutant concentration monitors. NO_X pollutant concentration monitors on affected units with NO_X emission controls, or on other units with monitors using a low-scale range, must also be capable of accurately measuring up to 125 percent of the maximum potential concentration. For dual-span NO_X pollutant concentration monitors, determine the concentration of calibration gases based on both span values.

2.1.2.3 Auto-ranging monitors

For monitors that can continuously and automatically adjust their range of measurement, the monitor must be capable at any time of accurately measuring up to 125 percent of the maximum potential concentration as defined in section 2.1.2.1 of this appendix. Define the span value(s) for an auto-ranging monitor as 125 percent of the maximum potential concentration and 125 percent of the maximum expected concentration if a second span is determined to be necessary under section 2.1.2.2 of this appendix. Determine concentrations of the calibration gases based upon the span value(s).

2.1.2.4 Adjustment of Span

Wherever the actual NO_X concentration exceeds the maximum potential concentration but does not exceed the full-scale range for more than one clock-hour and the monitor can measure and record the NO_X concentration values accurately, the NO_X concentration values may be reported for use in the Acid Rain Program. If the concentration exceeds the monitor's ability to measure and record values accurately during a clock hour, and the full-scale exceedance is not during an out-of-control period, report the full-scale value as the NO_X concentration for that clock hour. If full-scale exceedances occur during more than one clock hour since the last adjustment of the full-scale range

setting, adjust the full-scale range setting to prevent future exceedances.

Whenever the fuel supply, emission controls, or other process parameters change such that the maximum expected concentration or the maximum potential concentration may change significantly, adjust the NO_X pollutant concentration span and monitor range to assure the continued accuracy of the monitoring system. Determine the adjusted span value using the procedures in sections 2.1.2.1 or 2.1.2.2 of this appendix. Select the new full scale range of the instrument to be greater than or equal to the adjusted span value and to be consistent with the guidelines of section 2.1 of this appendix. Record and report the new full-scale range setting, calculations of the span value, MPC, and MEC (if appropriate), maximum potential NO_X emission rate and the adjusted span value in an updated monitoring plan for the unit. In addition, record and report the adjusted span as part of the records for the daily calibration error test and linearity check required by appendix B of this part. Whenever the span value is adjusted, use calibration gas concentrations based on the most recent adjusted span value. Perform a linearity check according to section 6.2 of this appendix whenever making a change to the monitor span or range. Recertification under §75.20(b) is required whenever a significant change is made in the monitor's range that requires an internal modification to the monitor (e.g., a change of measurement cell length).

2.1.3 CO_2 and O_2 Monitors

Define the "high scale" span value as 20 percent O_2 or 20 percent CO_2. All O_2 and CO_2 analyzers must have "high-scale" measurement capability. Select the full-scale range of the instrument to be consistent with section 2.1 of this appendix, and to be greater than or equal to the span value. If the O_2 or CO_2 concentrations are expected to be consistently low, a "low scale" measurement range may be used for increased accuracy, provided that it is consistent with section 2.1 of this appendix. Include a span value for the low-scale range in the monitoring plan. Select the calibration gas concentrations as percentages of the span value.

2.1.4 Flow Monitors

Select the full-scale range of the flow monitor so that it is consistent with section 2.1 of this appendix, and can accurately measure all potential volumetric flow rates at the flow monitor installation site. For this purpose, determine the span value of the flow monitor using the following procedure. Calculate the maximum potential velocity (MPV) using Equation A-3a or A-3b or determine the MPV or maximum potential flow rate (MPF) in scfh (wet basis) from velocity traverse testing. If using test values, use the highest velocity measured at or near the maximum unit operating load. Calculate the MPV in units of wet standard fpm. Then, if necessary, convert the MPV to equivalent units of flow rate (e.g., scfh or kscfh) or differential pressure (inches of water), consistent with the measurement units used for the daily calibration error test to calculate the span value. Multiply the MPV (in equivalent units) by 125 percent, and round up the result to no less than 2 significant figures. Report the full-scale range setting, and calculations of the span value, MPV and MPF in the monitoring plan for the unit.

$$MPV = \left(\frac{F_d H_f}{A}\right)\left(\frac{20.9}{20.9 - \%O_{2d}}\right)\left[\frac{100}{100 - \%H_2O}\right] \qquad \text{(Eq. A–3a)}$$

or

$$MPV = \left(\frac{F_c H_f}{A}\right)\left(\frac{100}{\%CO_{2d}}\right)\left[\frac{100}{100 - \%H_2O}\right] \qquad \text{(Eq. A–3b)}$$

Where:

MPV=maximum potential velocity (fpm, standard wet basis),

Fd=dry-basis F factor (dscf/mmBtu) from Table 1, Appendix F of this part,

Fc=carbon-based F factor (scfCO2/mmBtu) from Table 1, Appendix F of this part,

Hf=maximum heat input (mmBtu/minute) for all units, combined, exhausting to the stack or duct where the flow monitor is located,

A=inside cross sectional area (ft2) of the flue at the flow monitor location,

%O2d=maximum oxygen concentration, percent dry basis, under normal operating conditions,

%CO2d=minimum carbon dioxide concentration, percent dry basis, under normal operating conditions,

$\%H_2O$ = maximum percent flue gas moisture content under normal operating conditions.

If the volumetric flow rate exceeds the maximum potential flow calculated from the maximum potential velocity but does not exceed the full scale range during more than one clock hour and the flow monitor can accurately measure and record values, the flow rate may be reported for use in the Acid Rain Program. If the volumetric flow rate exceeds the monitor's ability to measure and record values accurately during a clock hour, and the full-scale exceedance is not during an out-of-control period, report the full-scale value as the flow rate for that clock hour. If full-scale exceedance occurs during more than one hour since the last adjustment of the full-scale range setting, adjust the full-scale range setting to prevent future exceedances. If the fuel supply, process parameters or other conditions change such that the maximum potential velocity may change significantly, adjust the range to assure the continued accuracy of the flow monitor. Calculate an adjusted span using the procedures in this section. Select the full-scale range of the instrument to be greater than or equal to the adjusted span value. Record and report the new full-scale range setting, calculations of the span value, MPV, and MPF, and the adjusted span value in an updated monitoring plan for the unit. Record and report the adjusted span and reference values as parts of the records for the calibration error test required by appendix B of this part. Whenever the span value is adjusted, use reference values for the calibration error test based on the most recent adjusted span value.

Perform a calibration error test according to section 2.1.2 of this appendix whenever making a change to the flow monitor span or range. Recertification under §75.20(b) is required whenever making a significant change in the flow monitor's range that requires an internal modification to the monitor.

2.2 Design for Quality Control Testing

2.2.1 Pollutant Concentration and CO_2 or O_2 Monitors

Design and equip each pollutant concentration and CO_2 or O_2 monitor with a calibration gas injection port that allows a check of the entire measurement system when calibration gases are introduced. For extractive and dilution type monitors, all monitoring components exposed to the sample gas, (e.g., sample lines, filters, scrubbers, conditioners, and as much of the probe as practicable) are included in the measurement system. For in situ type monitors, the calibration must check against the injected gas for the performance of all active electronic and optical components (e.g. transmitter, receiver, analyzer).

Design and equip each pollutant concentration or CO_2 or O_2 monitor to allow daily determinations of calibration error (positive or negative) at the zero- and high-level concentrations specified in Section 5.2 of this Appendix.

2.2.2 Flow Monitors

Design all flow monitors to meet the applicable performance specifications.

2.2.2.1 Calibration Error Test

Design and equip each flow monitor to allow for a daily calibration error test consisting of at least two reference values: (1) Zero to 20 percent of span or an equivalent reference value (e.g., pressure pulse or electronic signal) and (2) 50 to 70 percent of span. Flow monitor response, both before and after any adjustment, must be capable of being recorded by the data acquisition and handling system. Design each flow monitor to allow a daily calibration error test of (1) the entire flow monitoring system, from and including the probe tip (or equivalent) through and including the data acquisition and handling system, or (2) the flow monitoring system from and including the transducer through and including the data acquisition and handling system.

2.2.2.2 Interference Check

Design and equip each flow monitor with a means to ensure that the moisture expected to occur at the monitoring location does not interfere with the proper functioning of the flow monitoring system. Design and equip each flow monitor with a means to detect, on at least a daily basis, pluggage of each sample line and sensing port, and malfunction of each resistance temperature detector (RTD), transceiver or equivalent.

Design and equip each differential pressure flow monitor to provide (1) an automatic, periodic back purging (simultaneously on both sides of the probe) or equivalent method of sufficient force and frequency to keep the probe and lines sufficiently free of obstructions on at least a daily basis to prevent velocity sensing interference, and (2) a means for detecting leaks in the system on at least a quarterly basis (manual check is acceptable).

Design and equip each thermal flow monitor with a means to ensure on at least a daily basis that the probe remains sufficiently clean to prevent velocity sensing interference.

Design and equip each ultrasonic flow monitor with a means to ensure on at least a daily basis that the transceivers remain sufficiently clean (e.g., backpurging system) to prevent velocity sensing interference.

3. PERFORMANCE SPECIFICATIONS

3.1 Calibration Error

The initial calibration error performance specification of SO_2 and NO_x pollutant concentration monitors shall not deviate from the reference value of the calibration gas by more than 2.5 percent based upon the span of the instrument, as calculated using Eq. A-5 of this appendix. Alternatively, where the span value is less than 200 ppm, calibration error test results are also acceptable if the absolute value of the difference between the monitor response value and the reference value, | R-A| in Equation A-5 of this appendix, is less than or equal to 5 ppm. The calibration error of CO_2 or O_2 monitors shall not deviate from the reference value of the zero- or high-level calibration gas by more than 0.5 percent O_2 or CO_2 as calculated using the term | R-A | in the numerator of Eq. A-5 of this appendix. The calibration error of flow monitors shall not exceed 3.0 percent based upon the span of the instrument as calculated using Eq. A-6 of this appendix.

3.2 Linearity Check

For SO_2 and NO_x pollutant concentration monitors, the error in linearity for each calibration gas concentration (low-, mid-, and high-levels) shall not exceed or deviate from the reference value by more than 5.0 percent (as calculated using Equation A-4 of this appendix). Linearity check results are also acceptable if the absolute value of the difference between the average of the monitor response values and the average of the reference values, | R-A | in Equation A-4 of this appendix, is less than or equal to 5 ppm. For CO_2 or O_2 monitors:

(1) The error in linearity for each calibration gas concentration (low-, mid-, and high-levels) shall not exceed or deviate from the reference value by more than 5.0 percent as calculated using Equation A-4 of this appendix; or

(2) The absolute value of the difference between the average of the monitor response values and the average of the reference values, | R-A| in Equation A-4 of this appendix, shall be less than or equal to 0.5 percent CO_2 or O_2, whichever is less restrictive.

3.3 Relative Accuracy

3.3.1 Relative Accuracy for SO_2

The relative accuracy for SO_2 pollutant concentration monitors and for SO_2-diluent continuous emission monitoring systems used by units with a qualifying Phase I technology for the period during which the units are required to monitor SO_2 emission removal efficiency, from January 1, 1997 through December 31, 1999, shall not exceed 10.0 percent except as provided below in this section.

For affected units where the average of the monitor measurements of SO_2 concentration during the relative accuracy test audit is less than or equal to 250.0 ppm (or for SO_2-diluent monitors, less than or equal to 0.5 lb/mmBTU), the mean value of the monitor measurements shall not exceed ±15.0 ppm of the reference method mean value (or, for SO_2-diluent monitors, not to exceed ±0.03 lb/mmBTU for the period during which the units are required to monitor SO_2 emission removal efficiency, from January 1, 1997 through December 31, 1999) wherever the relative accuracy specification of 10.0 percent is not achieved.

3.3.2 Relative Accuracy for NO_x

The relative accuracy for NO_x continuous emission monitoring systems shall not exceed 10.0 percent.

For affected units where the average of the monitoring system measurements of NO_x emission rate during the relative accuracy test audit is less than or equal to 0.20 lb/mmBtu, the mean value of the NO_x continuous emission monitoring system measurements shall not exceed ±0.02 lb/mmBtu of the reference method mean value wherever the relative accuracy specification of 10.0 percent is not achieved.

3.3.3 Relative Accuracy for CO_2 and O_2 Pollutant Concentration Monitors

The relative accuracy for CO_2 and O_2 monitors shall not exceed 10.0 percent. The relative accuracy test results are also acceptable if the mean difference of the CO_2 or O_2 monitor measurements and the corresponding reference method measurement, calculated using Equation A-7 of this appendix, is within 1.0 percent CO_2 or O_2.

3.3.4 Relative Accuracy for Flow

Except as provided below in this section, the relative accuracy for flow monitors, where volumetric gas flow is measured in scfh, shall not exceed 15.0 percent through December 31, 1999. Beginning on January 1, 2000 (except as provided below in this section), the relative accuracy of flow monitors shall not exceed 10.0 percent.

For affected units where the average of the flow monitor measurements of gas velocity during one or more operating levels of the relative accuracy test audit is less than or equal to 10.0 fps, the mean value of the flow monitor velocity measurements shall not exceed ±2.0 fps of the reference method mean value in fps wherever the relative accuracy specification above is not achieved.

3.3.5 Combined SO_2/Flow Monitoring System [Reserved]

3.4 Bias

3.4.1 SO_2 Pollutant Concentration Monitors and NO_x Continuous Emission Monitoring Systems.

SO_2 pollutant concentration monitors and NO_x continuous emission monitoring systems shall not be biased low as determined by the test procedure in section 7.6 of this appendix. The bias specification applies to all SO_2 pollutant concentration monitors, including those measuring an average SO_2 concentration of 250.0 ppm or less, and to all NO_x continuous emission monitoring systems, including those measuring an average NO_x emission rate of 0.20 lb/mmBtu or less

3.4.2 Flow Monitors

Flow monitors shall not be biased low as determined by the test procedure in section 7.6 of this appendix. The bias specification applies to all flow monitors including those measuring an average gas velocity of 10.0 fps or less.

3.5 Cycle Time

The cycle time for pollutant concentration monitors, and continuous emission monitoring systems shall not exceed 15 min.

4. Data Acquisition and Handling Systems

Automated data acquisition and handling systems shall: (1) Read and record the full range of pollutant concentrations and volumetric flow from zero through span; and (2) provide a continuous, permanent record of all measurements and required information as an ASCII flat file capable of transmission via an IBM-compatible personal computer diskette or other electronic media. These systems also shall have the capability of interpreting and converting the individual output signals from an SO_2 pollutant concentration monitor, a flow monitor, and a NO_x continuous emission monitoring system to produce a continuous readout of pollutant mass emission rates in the units of the standard. Where CO_2 emissions are measured with a continuous emission monitoring system, the data acquisition and handling system shall also produce a readout of CO_2 mass emissions in tons.

Data acquisition and handling systems shall also compute and record monitor calibration error; any bias adjustments to pollutant concentration, flow rate, or NO_x emission rate data; and all missing data procedure statistics specified in subpart D of this part.

For an excepted monitoring system under appendix D or E of this part, data acquisition and handling systems shall:

(1) Read and record the full range of fuel flowrate through the upper range value;

(2) Calculate and record intermediate values necessary to obtain emissions, such as mass fuel flowrate and heat input rate;

(3) Calculate and record emissions in units of the standard (lb/hr of SO_2, lb/mmBtu of NO_X);

(4) Predict and record NO_X emission rate using the heat input rate and the NO_X/heat input correlation developed under appendix E of this part;

(5) Calculate and record all missing data substitution values specified in appendix D or E of this part; and

(6) Provide a continuous, permanent record of all measurements and required information as an ASCII flat file capable of transmission via an IBM-compatible personal computer diskette or other electronic media.

5. Calibration Gas

5.1 Reference Gases

For the purposes of part 75, calibration gases include the following.

5.1.1 Standard Reference Materials

These calibration gases may be obtained from the National Institute of Standards and Technology (NIST) at the following address: Quince Orchard and Cloppers Road, Gaithersburg, Maryland 20899.

5.1.2 NIST Traceable Reference Materials

Contact the Quality Assurance Division (MD 77), Environmental Monitoring System Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711 or the Organic Analytical Research Division of NIST at the above address for Standard Reference Materials for a list of vendors and cylinder gases.

5.1.3 EPA Traceability Protocol 1 Gases

Protocol 1 gases must be vendor-certified to be within 2.0 percent of the concentration specified on the cylinder label (tag value).

5.1.4 Research Gas Mixtures

Contact the Quality Assurance Division (MD 77), Environmental Monitoring System Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711 or the Organic Analytical Research Division of NIST at the above address for Standard Reference Materials for a list of vendors and cylinder gases.

5.1.5 Zero Air Material

Use zero air material for calibrating at zero-level concentrations only. Zero air material shall be certified by the gas vendor or instrument manufacturer or vendor not to contain concentrations of SO_2 or NO_X above

0.1 ppm or CO_2 above 400 ppm, and not to contain concentrations of other gases that will interfere with instrument readings or cause the instrument to read concentrations of SO_2, NO_X, or CO_2.

5.1.6 NIST/EPA-approved Certified Reference Materials

Existing certified reference materials as previously certified under EPA's former certified reference material program may be used for the remainder of the cylinder's shelf life.

5.2 Concentrations

Four concentration levels are required as follows.

5.2.1 Zero-level Concentration

0 to 20 percent of span, including span for high scale or both low- and high-scale for SO_2 and NO_x pollutant concentration monitors, as appropriate.

5.2.2 Low-level Concentration

20 to 30 percent of span, including span for high scale or both low- and high-scale for SO_2 and NO_x pollutant concentration monitors, as appropriate.

5.2.3 Mid-level Concentration

50 to 60 percent of span, including span for high scale or both low- and high-scale for SO_2 and NO_x pollutant concentration monitors, as appropriate.

5.2.4 High-level Concentration

80 to 100 percent of span, including span for high scale or both low- and high-scale for SO_2 and NO_x pollutant concentration monitors, as appropriate.

6. CERTIFICATION TESTS AND PROCEDURES

6.1 Pretest Preparation

Install the components of the continuous emission monitoring system (i.e., pollutant concentration monitors, CO_2 or O_2 monitor, and flow monitor) as specified in sections 1, 2, and 3 of this appendix, and prepare each system component and the combined system for operation in accordance with the manufacturer's written instructions. Operate the unit(s) during each period when measurements are made. Units may be tested on nonconsecutive days. To the extent practicable, test the DAHS software prior to testing the monitoring hardware.

6.2 Linearity Check

Measure the linearity of each pollutant concentration monitor and CO_2 or O_2 monitor according to the following procedures.

Challenge each pollutant concentration or CO_2 or O_2 monitor with NIST/EPA-approved certified reference material, NIST traceable reference material, standard reference material, or Protocol 1 calibration gases certified to be within 2 percent of the concentration specified on the label at the low-, mid-, or high-level concentrations specified in section 5.2 of this appendix. For units using emission controls and other units using a maximum expected concentration value to determine calibration gases, perform a linearity check on both the low- and high-scales.

Introduce the calibration gas at the gas injection port, as specified in section 2.2.1 of this appendix. Operate each monitor at its normal operating temperature and conditions. For extractive and dilution type monitors, pass the calibration gas through all filters, scrubbers, conditioners, and other monitor components used during normal sampling and through as much of the sampling probe as is practical. For in situ type monitors, perform calibration checking all active electronic and optical components, including the transmitter, receiver, and analyzer.

Repeat the procedure for SO_2 and NO_x pollutant concentration monitors using the low-scale for units equipped with emission controls with dual span monitors. Challenge the monitor three times with each reference gas. Do not use the same gas twice in succession. Record the monitor response from the data acquisition and handling system (see example data sheet in Figure 1). For each concentration, use the average of the responses to determine the error in linearity using Equation A-4 in this appendix.

Linearity checks are acceptable for monitor or monitoring system certification if none of the test results exceed the applicable performance specifications in section 3.2 of this appendix.

6.3 7-Day Calibration Error Test

6.3.1 7-day Calibration Error Test for Pollutant Concentration Monitors and CO_2 and O_2 Monitors

Measure the calibration error of each pollutant concentration monitor and CO_2 or O_2 monitor once each day for 7 consecutive operating days according to the following procedures. (In the event that extended unit outages occur after the commencement of the test, the 7 consecutive operating days need not be 7 consecutive calendar days.) Units using dual span monitors must perform the calibration error test on both high- and low-scales of the pollutant concentration monitor.

Do not make manual adjustments to the monitor settings during the 7-day test. If automatic adjustments are made, conduct the calibration error test in a way that the magnitude of the adjustments can be determined and recorded.

The calibration error tests should, to the extent practicable, be approximately 24

hours apart (unless the 7-day test is performed over non-consecutive days). Perform calibration error tests at two concentrations: (1) Zero-level and (2) high-level, as specified in section 5.2 of this appendix. In addition, repeat the procedure for SO_2 and NO_x pollutant concentration monitors using the low-scale for units equipped with emission controls or other units with dual span monitors. Use only NIST Traceable Reference Material (NTRM), standard reference material, Protocol 1 calibration gases certified by the vendor to be within 2 percent of the label value, or where applicable, zero ambient air material as defined in §72.2 of this part.

Introduce the calibration gas at the gas injection port, as specified in section 2.2.1 of this appendix. Operate each monitor in its normal sampling mode. For extractive and dilution type monitors, pass the audit gas through all filters, scrubbers, conditioners, and other monitor components used during normal sampling and through as much of the sampling probe as is practical. For in situ type monitors, perform calibration checking all active electronic and optical components, including the transmitter, receiver, and analyzer. Challenge the pollutant concentration monitors and CO_2 or O_2 monitors once with each gas. Record the monitor response from the data acquisition and handling system. Using Equation A–5 of this appendix, determine the calibration error at each concentration once each day (at 24-hour intervals) for 7 consecutive days according to the procedures given in this section.

Calibration error tests are acceptable for monitor or monitoring system certification if none of these daily calibration error test results exceed the applicable performance specifications in section 3.1 of this appendix. The provisions in this section are suspended from July 17, 1995 through December 31, 1996.

6.3.2 7-Day Calibration Error Test for Flow Monitors

Measure the calibration error of each flow monitor according to the following procedures.

Introduce the reference signal corresponding to the values specified in section 2.2.2.1 of this appendix to the probe tip (or equivalent), or to the transducer. During the 7-day certification test period, conduct the calibration error test once each day while the unit is operating (as close to 24-hour intervals as practicable). In the event that extended unit outages occur after the commencement of the test, the 7 consecutive operating days need not be 7 consecutive calendar days. Record the flow monitor responses by means of the data acquisition and handling system. Calculate the calibration error using Equation A–6 of this appendix.

Do not perform any corrective maintenance, repair, replacement or manual adjustment upon the flow monitor during the 7-day certification test period other than that required in the monitor operation and maintenance manual. If the flow monitor operates within the calibration error performance specification, (i.e., less than or equal to 3 percent error each day and requiring no corrective maintenance, repair, replacement or manual adjustment during the 7-day test period) the flow monitor passes the calibration error test portion of the certification test. Wherever automatic adjustments are made, record the magnitude of the adjustments. Record all maintenance and required adjustments. Record output readings from the data acquisition and handling system before and after all adjustments. The provisions in this section are suspended from July 17, 1995 through December 31, 1996.

6.3.3 Pollutant Concentration Monitor and CO_2 or O_2 Monitor 7-day Calibration Error Test

Measure the calibration error of each pollutant concentration monitor and CO_2 or O_2 monitor while the unit is operating once each day for 7 consecutive operating days according to the following procedures. (In the event that extended unit outages occur after the commencement of the test, the 7 consecutive unit operating days need not be 7 consecutive calendar days.) Units using dual span monitors must perform the calibration error test on both high- and low-scales of the pollutant concentration monitor.

Do not make manual adjustments to the monitor settings until after taking measurements at both zero and high concentration levels for that day during the 7-day test. If automatic adjustments are made, conduct the calibration error test in a way that the magnitude of the adjustments can be determined and recorded. Record and report test results for each day using the unadjusted concentration or flow rate measured in the calibration error test prior to making any manual adjustment or resetting the calibration.

The calibration error tests should be approximately 24 hours apart (unless the 7-day test is performed over non-consecutive days). Perform calibration error tests at two concentrations: (1) Zero-level and (2) high-level, as specified in section 5.2 of this appendix. In addition, repeat the procedure for SO_2 and NO_X pollutant concentration monitors using the low-scale for units equipped with emission controls or other units with dual span monitors. Use only NIST traceable reference material, standard reference material, NIST/EPA-approved certified reference material, research gas material, Protocol 1 calibration gases certified by the vendor to be within 2 percent of the label value or zero air material for the zero level only.

Introduce the calibration gas at the gas injection port, as specified in section 2.2.1 of

this appendix. Operate each monitor in its normal sampling mode. For extractive and dilution type monitors, pass the audit gas through all filters, scrubbers, conditioners, and other monitor components used during normal sampling and through as much of the sampling probe as is practical. For in situ type monitors, perform calibration checking all active electronic and optical components, including the transmitter, receiver, and analyzer. Challenge the pollutant concentration monitors and CO_2 or O_2 monitors once with each gas. Record the monitor response from the data acquisition and handling system. Using Equation A-5 of this appendix, determine the calibration error at each concentration once each day (at 24-hour intervals) for 7 consecutive days according to the procedures given in this section.

Calibration error tests are acceptable for monitor or monitoring system certification if none of these daily calibration error test results exceed the applicable performance specifications in section 3.1 of this appendix.

6.3.4 Flow Monitor 7-day Calibration Error Test

Measure the calibration error of each flow monitor according to the following procedures.

Introduce the reference signal corresponding to the values specified in section 2.2.2.1 of this appendix to the probe tip (or equivalent), or to the transducer. During the 7-day certification test period, conduct the calibration error test while the unit is operating once each unit operating day (as close to 24-hour intervals as practicable). In the event that extended unit outages occur after the commencement of the test, the 7 consecutive operating days need not be 7 consecutive calendar days. Record the flow monitor responses by means of the data acquisition and handling system. Calculate the calibration error using Equation A-6 of this appendix.

Do not perform any corrective maintenance, repair, or replacement upon the flow monitor during the 7-day certification test period other than that required in the quality assurance/quality control (QA/QC) plan required by appendix B of this part. Do not make adjustments between the zero and high reference level measurements on any day during the 7-day test. If the flow monitor operates within the calibration error performance specification (i.e., less than or equal to 3 percent error each day and requiring no corrective maintenance, repair, or replacement during the 7-day test period) the flow monitor passes the calibration error test portion of the certification test. Record all maintenance activities and the magnitude of any adjustments. Record output readings from the data acquisition and handling system before and after all adjustments. Record and report all calibration error test results using the unadjusted flow rate measured in the calibration error test prior to resetting the calibration. Record all adjustments made during the seven day period at the time the adjustment is made and report them in the certification application.

6.4 Cycle Time/Response Time Test

Perform cycle time/response time tests for each pollutant concentration monitor, and continuous emission monitoring system according to the following procedures. Use a low-level and a high-level calibration gas (as defined in section 5.2 of this appendix) alternately. While the monitor or monitoring system is measuring and recording the concentration or emission rate, inject either a low-level concentration or a high-level concentration calibration gas into the injection port. Continue injecting the gas until a stable response is reached. Record the amount of time required for the monitor or monitoring system to complete 95.0 percent of the concentration or emission rate stepchange using data acquisition and handling system output. Then repeat the procedure with the other gas. For monitors or monitoring systems that perform a series of operations (such as purge, sample, and analyze), time the injections of the calibration gases so they will produce the longest possible response time. (Note: for the NO_x continuous emission monitoring system test and SO_2-diluent continuous emission monitoring system test, it will be necessary to simultaneously inject calibration gases into the pollutant and diluent monitors, in order to measure the step change in the lb/mmBtu emission rate.)

Cycle time/response time test results are acceptable for monitoring or monitoring system certification if none of the response times exceed 15 min. The provisions in this section 6.4 are suspended from July 17, 1995 through December 31, 1996.

6.4.1 Cycle Time Test

Perform cycle time tests for each pollutant concentration monitor, and continuous emission monitoring system while the unit is operating according to the following procedures.

Use a zero-level and a high-level calibration gas (as defined in section 5.2 of this appendix) alternately. To determine the upscale elapsed time, inject a zero-level concentration calibration gas into the probe tip (or injection port leading to the calibration cell, for in situ systems with no probe). Record the stable starting monitor value and start time. Next, allow the monitor to measure the concentration of flue gas emissions until the response stabilizes. Determine the upscale elapsed time as the time at which 95.0 percent of the step change is achieved between the stable starting gas value and the stable ending monitor value. Record the

stable ending monitor value, the end time, and the upscale elapsed time for the monitor using data acquisition and handling system output. Then repeat the procedure, starting by injecting the high-level gas concentration to determine the downscale elapsed time, which is the time at which 95.0 percent of the step change is achieved between the stable starting gas value and the stable ending monitor value. End the downscale test by measuring the concentration of flue gas emissions. Record the stable starting and ending monitor values, the start and end times, and the downscale elapsed time for the monitor using data acquisition and handling system output. A stable value is equivalent to a reading with a change of less than 1 percent of the span value for 30 seconds, or a reading with a change of less than 5 percent from the measured average concentration over 5 minutes.

For monitors or monitoring systems that perform a series of operations (such as purge, sample, and analyze), time the injections of the calibration gases so they will produce the longest possible cycle time. Record the span, the zero and high gas concentrations, the start and end times, the stable starting and ending monitor values, and the upscale and downscale elapsed times. Report the slower of the two elapsed times as the cycle time for the analyzer. (See Figure 5 at the end of this appendix.) For the NO_X continuous emission monitoring system test and SO_2-diluent continuous emission monitoring system test, record and report the longer cycle time of the two component analyzers as the system cycle time.

For time-shared systems, this procedure must be done for all probe locations that will be polled within the same 15-minute period during monitoring system operations. For cycle time results for a time-shared system, add together the longest cycle time obtained from each location. Report the sum of the cycle time at each location plus the time required for all purge cycles (as determined by the CEMS manufacturer) for each location as the cycle time for each and all of those systems. For monitors with dual ranges, perform the test on the range giving the longest cycle time.

Cycle time test results are acceptable for monitor or monitoring system certification if none of the cycle times exceed 15 minutes.

6.5 Relative Accuracy and Bias Tests

Perform relative accuracy test audits for each CO_2 and SO_2 pollutant concentration monitor, each O_2 monitor used to calculate heat input or CO_2 concentration, each SO_2-diluent continuous emission monitoring system (lb/mmBtu) used by units with a qualifying Phase I technology for the period during which the units are required to monitor SO_2 emission removal efficiency, from January 1, 1997 through December 31, 1999, flow monitor, and NO_X continuous emission monitoring system. For monitors or monitoring systems with dual ranges, perform the relative accuracy test on one range measuring emissions in the stack at the time of testing. Record monitor or monitoring system output from the data acquisition and handling system. Perform concurrent relative accuracy test audits for each SO_2 pollutant concentration monitor and flow monitor, at least once a year (see section 2.3.1 of appendix B of this part), during the flow monitor test at the normal operating level specified in section 6.5.2 of this appendix. Concurrent relative accuracy test audits may be performed by conducting simultaneous SO_2 and flow relative accuracy test audit runs, or by alternating an SO_2 relative accuracy test audit run with a flow relative accuracy test audit run until all relative accuracy test audit runs are completed. Where two or more probes are in the same proximity, care should be taken to prevent probes from interfering with each other's sampling. For each SO_2 pollutant concentration monitor, each flow monitor, and each NO_X continuous emission monitoring system, calculate bias, as well as relative accuracy, with data from the relative accuracy test audits.

Complete each relative accuracy test audit within a 7-day period while the unit (or units, if more than one unit exhausts into the flue) is combusting the fuel that is normal for that unit. When relative accuracy test audits are performed on continuous emission monitoring systems or component(s) on bypass stacks/ducts, use the fuel normally combusted by the unit (or units, if more than one unit exhausts into the flue) when emissions exhaust through the bypass stack/ducts. Do not perform corrective maintenance, repairs, replacements or adjustments during the relative accuracy test audit other than as required in the operation and maintenance manual.

6.5.1 SO_2, O_2 and CO_2 Pollutant Concentration Monitors and SO_2-Diluent and NO_X Continuous Emission Monitoring Systems

Perform relative accuracy test audits for each SO_2, O_2 or CO_2 pollutant concentration monitor or NO_X continuous emission monitoring system or SO_2-diluent continuous emission monitoring system (lb/mmBtu) used by units with a qualifying Phase I technology for the period during which the units are required to monitor SO_2 emission removal efficiency, from January 1, 1997 through December 31, 1999, at a normal operating level for the unit (or combined units, if common stack).

6.5.2 Flow Monitors

Except for flow monitors on bypass stacks/ducts and peaking units, perform relative accuracy test audits for each flow monitor at

three different exhaust gas velocities, expressed in terms of percent of flow monitor span, or different operating or load levels. For a common stack/duct, the three different exhaust gas velocities may be obtained from frequently used unit/load combinations for units exhausting to the common stack. Select the operating levels as follows: (1) A frequently used low operating level selected within the range between the minimum safe and stable operating level and 50 percent load, (2) a frequently used high operating level selected within the range between 80 percent of the maximum operating level and the maximum operating level, and (3) the normal operating level. If the normal operating level is within 10.0 percent of the maximum operating level of either (1) or (2) above, use a level that is evenly spaced between the low and high operating levels used. The maximum operating level shall be equal to the nameplate capacity less any physical or regulatory limitations or other deratings. Calculate flow monitor relative accuracy at each of the three operating levels. If a flow monitor fails the relative accuracy test on any of the three levels of a three-level relative accuracy test audit, the three-level relative accuracy test audit must be repeated. For flow monitors on bypass stacks/ducts and peaking units, the flow monitor relative accuracy test audit is required only at the normal operating level.

6.5.3 CO_2 Pollutant Concentration Monitors

Perform relative accuracy test audits for each CO_2 monitor (measuring in percent CO_2) at a normal operating level for the unit (or combined units, if common stack).

6.5.4 Calculations

Using the data from the relative accuracy test audits, calculate relative accuracy and bias in accordance with the procedures and equations specified in section 7 of this appendix.

6.5.5 Reference Method Measurement Location

Select a location for reference method measurements that is (1) accessible; (2) in the same proximity as the monitor or monitoring system location; and (3) meets the requirements of Performance Specification 2 in appendix B of part 60 of this chapter for SO_2 and NO_X continuous emission monitoring systems, Performance Specification 3 in appendix B of part 60 of this chapter for CO_2 or O_2 monitors, or Method 1 (or 1A) in appendix A of part 60 of this chapter for volumetric flow, except as otherwise indicated in this section or as approved by the Administrator.

6.5.6 Reference Method Traverse Point Selection

Select traverse points that (1) ensure acquisition of representative samples of pollutant and diluent concentrations, moisture content, temperature, and flue gas flow rate over the flue cross section; and (2) meet the requirements of Performance Specification 2 in appendix B of part 60 of this chapter (for SO_2 and NO_X), Performance Specification 3 in appendix B of part 60 of this chapter (for O_2 and CO_2), Method 1 (or 1A) (for volumetric flow), Method 3 (for molecular weight), and Method 4 (for moisture determination) in appendix A of part 60 of this chapter.

6.5.7 Sampling Strategy

Conduct the reference method tests so they will yield results representative of the pollutant concentration, emission rate, moisture, temperature, and flue gas flow rate from the unit and can be correlated with the pollutant concentration monitor, CO_2 or O_2 monitor, flow monitor, and SO_2 or NO_X continuous emission monitoring system measurements. Conduct the diluent (O_2 or CO_2) measurements and any moisture measurements that may be needed simultaneously with the pollutant concentration and flue gas flow rate measurements. If an O_2 monitor is used as a CO_2 continuous emission monitoring system, but not as a diluent monitor, measure CO_2 with the reference method. To properly correlate individual SO_2 and CO_2 pollutant concentration monitor data, O_2 monitor data, SO_2 or NO_X continuous emission monitoring system data (in lb/mmBtu), and volumetric flow rate data with the reference method data, mark the beginning and end of each reference method test run (including the exact time of day) on the individual chart recorder(s) or other permanent recording device(s).

6.5.8 Correlation of Reference Method and Continuous Emission Monitoring System

Confirm that the monitor or monitoring system and reference method test results are on consistent moisture, pressure, temperature, and diluent concentration basis (e.g., since the flow monitor measures flow rate on a wet basis, Method 2 test results must also be on a wet basis). Compare flow-monitor and reference method results on a scfh basis. Also, consider the response times of the pollutant concentration monitor, the continuous emission monitoring system, and the flow monitoring system to ensure comparison of simultaneous measurements.

For each relative accuracy test audit run, compare the measurements obtained from the monitor or continuous emission monitoring system (in ppm, percent CO_2, lb/mmBtu, or other units) against the corresponding reference method values. Tabulate the paired

data in a table such as the one shown in Figure 2.

6.5.9 Number of Reference Method Tests

Perform a minimum of nine sets of paired monitor (or monitoring system) and reference method test data for every required (i.e., certification, semiannual, or annual) relative accuracy or bias test audit. For the certification and annual quality assurance relative accuracy test audits for flow monitors, perform a minimum of nine sets at each of the three operating levels specified in section 6.5.2 of this appendix. Conduct each set within a period of 30 to 60 minutes.

NOTE: The tester may choose to perform more than nine sets of reference method tests. If this option is chosen, the tester may reject a maximum of three sets of the test results as long as the total number of test results used to determine the relative accuracy or bias is greater than or equal to nine. Report all data, including the rejected data, and reference method test results.

6.5.10 Reference Methods

The following methods from appendix A to part 60 of this chapter or their approved alternatives are the reference methods for performing relative accuracy test audits: Method 1 or 1A for siting; Method 2 (or 2A, 2C, or 2D) for velocity; Methods 3, 3A, or 3B for O_2 or CO_2; Method 4 for moisture; Methods 6, 6A, or 6C for SO_2; Methods 7, 7A, 7C, 7D, 7E for NO_X, excluding the exception in section 5.1.2 of Method 7E. When using Method 7E for measuring NO_X concentration, total NO_X, both NO and NO_2, must be measured.

7. CALCULATIONS

7.1 Linearity Check

Analyze the linearity data for pollutant concentration and CO_2 or O_2 monitors as follows. Calculate the percentage error in linearity based upon the reference value at the low-level, mid-level, and high-level concentrations specified in section 6.2 of this appendix. Perform this calculation once during the certification test. Use the following equation to calculate the error in linearity for each reference value.

$$LE = \frac{|R-A|}{R} \times 100$$

(Eq. A-4)

where,

LE=Percentage Linearity error, based upon the reference value.

R=Reference value of Low-, mid-, or high-level calibration gas introduced into the monitoring system.

A=Average of the monitoring system responses.

7.2 Calibration Error

7.2.1 Pollutant Concentration and Diluent Monitors

For each reference value, calculate the percentage calibration error based upon instrument span for daily calibration error tests using the following equation:

$$CE = \frac{|R-A|}{S} \times 100$$

(Eq. A-5)

where,

CE=Percentage Calibration error based upon span of the instrument.

R=Reference value of zero- or high-level calibration gas introduced into the monitoring system.

A=Actual monitoring system response to the calibration gas.

S=Span of the instrument, as specified in Section 2 of this appendix.

7.2.2 Flow Monitor Calibration Error

For each reference value, calculate the percentage calibration error based upon span using the following equation:

$$CE = \frac{|R-A|}{S} \times 100 \qquad \text{(Eq. A-6)}$$

where:

CE=Calibration error;

R=Low or high level reference value specified in section 2.2.2.1 of this appendix;

A=Actual flow monitor response to the reference value; and

S=Flow monitor span or equivalent reference value (e.g., pressure pulse or electronic signal).

7.3 Relative Accuracy for SO_2 and CO_2 Pollutant Concentration Monitors, SO_2-Diluent Continuous Emission Monitoring Systems, and Flow Monitors

Analyze the relative accuracy test audit data from the reference method tests for SO_2 and CO_2 pollutant concentration monitors, SO_2-diluent continuous emission monitoring systems (lb/mmBtu) used by units with a qualifying Phase I technology for the period during which the units are required to monitor SO_2 emission removal efficiency, from January 1, 1997 through December 31, 1999, and flow monitors using the following procedures. Summarize the results on a data sheet. An example is shown in Figure 2. Calculate the mean of the monitor or monitoring system measurement values. Calculate the mean of the reference method values. Using data from the automated data acquisition and handling system, calculate the arithmetic differences between the reference method and monitor measurement data sets. Then calculate the arithmetic mean of the difference, the standard deviation, the confidence coefficient, and the monitor or monitoring system relative accuracy using the following procedures and equations.

7.3.1 Arithmetic Mean

Calculate the arithmetic mean of the differences, $\bar{d}$, of a data set as follows.

$$\bar{d} = \frac{1}{n}\sum_{i=1}^{n} d_i$$

(Eq. A-7)

where,

n=Number of data points.

$\sum_{i=1}^{n} d_i$=Algebraic sum of the individual differences d_i.

d_i=The difference between a reference method value and the corresponding continuous emission monitoring system value (RM_i-CEM_i) at a given point in time i.

When calculating the arithmetic mean of the difference of a flow monitor data set, be sure to correct the monitor measurements for moisture if applicable.

7.3.2 Standard Deviation

Calculate the standard deviation, S_d, of a data set as follows:

$$S_d = \sqrt{\frac{\sum_{i=1}^{n} d_i^2 - \left[\frac{\left(\sum_{i=1}^{n} d_i\right)^2}{n}\right]}{n-1}}$$

(Eq. A-8)

7.3.3 Confidence Coefficient

Calculate the confidence coefficient (one-tailed), cc, of a data set as follows.

$$cc = t_{0.025}\frac{S_d}{\sqrt{n}}$$

(eq. A-9)

where,

$t_{0.025}$=t value (see Table 7-1).

TABLE 7-1 T-VALUES

n-1	$t_{0.025}$	n-1	$t_{0.025}$	n-1	$t_{0.025}$
1	12.706	12	2.179	23	2.069
2	4.303	13	2.160	24	2.064
3	3.182	14	2.145	25	2.060
4	2.776	15	2.131	26	2.056
5	2.571	16	2.120	27	2.052
6	2.447	17	2.110	28	2.048
7	2.365	18	2.101	29	2.045
8	2.306	19	2.093	30	2.042
9	2.262	20	2.086	40	2.021
10	2.228	21	2.080	60	2.000
11	2.201	22	2.074	>60	1.960

7.3.4 Relative Accuracy

Calculate the relative accuracy of a data set using the following equation.

$$RA = \frac{|\bar{d}| + |cc|}{\overline{RM}} \times 100$$

(Eq. A-10)

where,

RM=Arithmetic mean of the reference method values.

$|\bar{d}|$=The absolute value of the mean difference between the reference method values and the corresponding continuous emission monitoring system values.

|cc|=The absolute value of the confidence coefficient.

7.4 Relative Accuracy for NO_x Continuous Emission Monitoring Systems

Analyze the relative accuracy test audit data from the reference method tests for NO_x continuous emissions monitoring system as follows.

7.4.1 Data Preparation

If C_{NOx}, the NO_x concentration, is in ppm, multiply it by 1.194×10^{-7} (lb/dscf)/ppm to convert it to units of lb/dscf. If C_{NOx} is in mg/dscm, multiply it by 6.24×10^{-8} (lb/dscf)/(mg/dscm) to convert it to lb/dscf. Then, use the diluent (O_2 or CO_2) reference method results for the run and the appropriate F or F_c factor from Table 1 in Appendix F of this part to convert C_{NOx} from lb/dscf to lb/mmBtu units. Use the equations and procedure in section 3 of Appendix F to this part, as appropriate.

7.4.2 NO_x Emission Rate (Monitoring System)

For each test run in a data set, calculate the average NO_x emission rate (in lb/mmBtu), by means of the data acquisition and handling system, during the time period of the test run. Tabulate the results as shown in example Figure 4.

7.4.3 Relative Accuracy

Use the equations and procedures in section 7.3 above to calculate the relative accuracy for the NO_x continuous emission monitoring system. In using Equation A–7, "d" is, for each run, the difference between the NO_x emission rate values (in lb/mmBtu) obtained from the reference method data and the NO_x continuous emission monitoring system.

7.5 Relative Accuracy for Combined SO_2/Flow [Reserved]

7.6 Bias Test and Adjustment Factor

Test the relative accuracy test audit data sets for SO_2 pollutant concentration monitors, flow monitors, and NO_X continuous emission monitoring systems for bias using the procedures outlined below.

7.6.1 Arithmetic Mean

Calculate the arithmetic mean of the difference, $\bar{d}$, of the data set using Equation A–7 of this appendix. To calculate bias for an SO_2 pollutant concentration monitor, "d" is, for each paired data point, the difference between the SO_2 concentration value (in ppm) obtained from the reference method and the monitor. To calculate bias for a flow monitor, "d" is, for each paired data point, the difference between the flow rate values (in scfh) obtained from the reference method and the monitor. To calculate bias for a NO_X continuous emission monitoring system, "d" is, for each paired data point, the difference between the NO_X emission rate values (in lb/mmBtu) obtained from the reference method and the monitoring system.

7.6.2 Standard Deviation

Calculate the standard deviation, S_d, of the data set using Equation A–8.

7.6.3 Confidence Coefficient

Calculate the confidence coefficient, cc, of the data set using Equation A–9.

7.6.4 Bias Test

If the mean difference, d, is greater than the absolute value of the confidence coefficient, |cc|, the monitor or monitoring system has failed to meet the bias test requirement. For flow monitor bias tests, if the mean difference, $\bar{d}$, is greater than |cc| at the operating level closest to normal operating level during the 3-level RATA, the monitor has failed to meet the bias test requirement. For flow monitors, apply the bias test at the operating level closest to normal operating level during the 3-level RATA.

7.6.5 Bias Adjustment

If the monitor or monitoring system fails to meet the bias test requirement, adjust the value obtained from the monitor using the following equation:

$$CEM_i^{Adjusted} = CEM_i^{Monitor} \times BAF \qquad \text{(Eq. A–11)}$$

Where:

$CEM_i^{Monitor}$=Data (measurement) provided by the monitor at time i.

$CEM_i^{Adjusted}$=Data value, adjusted for bias, at time i.

BAF=Bias adjustment factor, defined by

$$BAF = 1 + \frac{|\bar{d}|}{CEM} \qquad \text{(Eq. A–12)}$$

Where:

BAF=Bias adjustment factor, calculated to the nearest thousandth.

d=Arithmetic mean of the difference obtained during the failed bias test using Equation A–7.

CEM=Mean of the data values provided by the monitor during the failed bias test.

If the bias test is failed by a flow monitor at the operating level closest to normal on a 3-level relative accuracy test audit, calculate the bias adjustment factor for each of the three operating levels. Apply the largest of the three bias adjustment factors to subsequent flow monitor data using Equation A–11.

Apply this adjustment prospectively to all monitor or monitoring system data from the date and time of the failed bias test until the date and time of a relative accuracy test audit that does not show bias. Use the adjusted values in computing substitution values in the missing data procedure, as specified in subpart D of this part, and in reporting the concentration of SO_2, the flow rate, and the average NO_x emission rate and calculated mass emissions of SO_2 and CO_2 during the quarter and calendar year, as specified in subpart G of this part.

Figures for Appendix A of Part 75

FIGURE 1.—LINEARITY ERROR DETERMINATION

Day	Date and time	Reference value	Monitor value	Difference	Percent of reference value
Low-level:					
Mid-level:					
High-level:					

FIGURE 2.—RELATIVE ACCURACY DETERMINATION (POLLUTANT CONCENTRATION MONITORS)

Run No.	Date and time	SO_2 (ppm[c])			Date and time	CO_2 (Pollutant) (ppm[c])		
		RM[a]	M[b]	Diff		RM[a]	M[b]	Diff
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
Arithmetic Mean Difference (Eq. A–7). Confidence Coefficient (Eq. A–9). Relative Accuracy (Eq. A–10).								

[a] RM means "reference method data."
[b] M means "monitor data."
[c] Make sure the RM and M data are on a consistent basis, either wet or dry.

FIGURE 3.—RELATIVE ACCURACY DETERMINATION (FLOW MONITORS)

Run No.	Date and time	Flow rate (Low) (scf/hr)*			Date and time	Flow rate (Normal) (scf/hr)*			Date and time	Flow rate (High) (scf/hr)*		
		RM	M	Diff		RM	M	Diff		RM	M	Diff
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
Arithmetic Mean Difference (Eq. A–7). Confidence Coefficient (Eq. A–9). Relative Accuracy (Eq. A–10).												

* Make sure the RM and M data are on a consistent basis, either wet or dry.

FIGURE 4.—RELATIVE ACCURACY DETERMINATION (NO_X/Diluent Combined System)

Run No.	Date and time	Reference method data		NO_X system (lb/mmBtu)		
		NO_X( )[a]	O_2/CO_2%	RM	M	Difference
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
Arithmetic Mean Difference (Eq. A–7). Confidence Coefficient (Eq. A–9). Relative Accuracy (Eq. A–10).						

[a] Specify units: ppm, lb/dscf, mg/dscm.

FIGURE 5—CYCLE TIME

Date of test ————————————
Component/system ID#: ————————————
Analyzer type ————————————
Serial Number ————————————
High level gas concentration: _____ ppm/% (circle one)
Zero level gas concentration: _____ ppm/% (circle one)
Analyzer span setting: _____ ppm/% (circle one)
Upscale:
Stable starting monitor value: _____ ppm/% (circle one)
Stable ending monitor reading: _____ ppm/% (circle one)
Elapsed time: _____ seconds
Downscale:
Stable starting monitor value: _____ ppm/% (circle one)
Stable ending monitor value: _____ ppm/% (circle one)
Elapsed time: _____ seconds
Component cycle time= _____ seconds
System cycle time= _____ seconds

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26541–26546, 26569–26570, May 17, 1995; 61 FR 25582, May 22, 1996]

EFFECTIVE DATE NOTE: At 60 FR 26569, 26570, May 17, 1995, appendix A to part 75 was amended by temporarily adding sections 6.3.3, 6.3.4, 6.4.1 and Figure 5, and by temporarily suspending sections 6.3.1, 6.3.2, and 6.4, effective July 17, 1995 through December 31, 1996.

APPENDIX B TO PART 75—QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

1. QUALITY CONTROL PROGRAM

Develop and implement a quality control program for the continuous emission monitoring systems and their components. As a minimum, include in each quality control program a written plan that describes in detail complete, step-by-step procedures and operations for each of the following activities.

1.1 Calibration Error Test and Linearity Check Procedures

Identify calibration error test and linearity check procedures specific to the continuous emission monitoring system that may require variance from the procedures in Appendix A to this part (e.g., how gases are to

be injected, adjustments of flow rates and pressures, introduction of reference values, length of time for injection of calibration gases, steps for obtaining calibration error or error in linearity, determination of interferences, and when calibration adjustments should be made).

1.2 Calibration and Linearity Adjustments

Explain how each component of the continuous emission monitoring system will be adjusted to provide correct responses to calibration gases, reference values, and/or indications of interference both initially and after repairs or corrective action. Identify equations, conversion factors, assumed moisture content, and other factors affecting calibration of each continuous emission monitoring system.

1.3 Preventive Maintenance

Keep a written record of procedures, including those specified by the manufacturers, needed to maintain the continuous emission monitoring system in proper operating condition and a schedule for those procedures. Include provisions for maintaining an inventory of spare parts.

1.4 Audit Procedures

Keep a written record of procedures and details peculiar to the installed continuous emission monitoring system that are to be used for relative accuracy test audits, such as sampling and analysis methods.

1.5 Recordkeeping and Reporting

Keep a written record describing procedures that will be used to implement the recordkeeping and reporting requirements in subparts F and G of this part.

2. FREQUENCY OF TESTING

A summary chart showing each quality assurance test and the frequency at which each test is required is located at the end of this appendix in Figure 1.

2.1 Daily Assessments

For each monitor or continuous emission monitoring system, perform the following assessments during each day in which the unit combusts any fuel (hereafter referred to as a "unit operating day"), or for a monitor or continuous emission monitoring system on a bypass stack/duct, during each day that emissions pass through the by-pass stack or duct. These requirements are effective as of the date when the monitor or continuous emission monitoring system completes certification testing. The provisions in this section 2.1 are suspended from July 17, 1995 through December 31, 1996.

2.1.1 Calibration Error Test for Pollutant Concentration and CO_2 or O_2 Monitors

Test, record, and compute the calibration error of each SO_2 or NO_x pollutant concentration and CO_2 or O_2 monitor at least once on each unit operating day, or for monitors or monitoring systems on bypass ducts/stacks, on each day that emissions pass through the by-pass stack or duct. Conduct calibration error checks, to the extent practicable, approximately 24 hours apart. Perform the daily calibration error test according to the procedure in Appendix A, section 6.3.1 of this part.

For units with add-on emission controls and dual span or auto-ranging monitors, and other units that use maximum expected concentration value to determine calibration gas values, perform the daily calibration error test on each scale that has been used since the previous calibration error test. For example, if the emissions concentration has not exceeded the low-scale span value (based on the maximum expected concentration) since the calibration test during the previous calendar day, the calibration error test may be performed on the low-scale only. If, however, the emissions concentration has exceeded the low-scale span value for one hour or longer since the previous calibration error test, perform the calibration error on both the low- and high-scales.

2.1.2 Calibration Error Test for Flow Monitors

Test, compute, and record the calibration error of each flow monitor at least once on each unit operating day, or for monitors or monitoring systems on bypass ducts/stacks, on each day that emissions pass through the by-pass stack or duct. Introduce the reference values (specified in section 2.2.2.1 of Appendix A to this part) to the probe tip (or equivalent) or to the transducer. Record flow monitor output from the data acquisition and handling system before and after any adjustments to the flow monitor. Keep a record of all maintenance and adjustments. Calculate the calibration error using Equation A–6 in Appendix A of this part.

2.1.3 Interference Check

Perform the daily flow monitor interference checks specified in section 2.2.2.2 of Appendix A to this part at least once per operating day (when the unit(s) operate for any part of the day).

2.1.4 Recalibration

The EPA recommends adjusting the calibration, at a minimum, whenever the daily calibration error exceeds the limits of the applicable performance specification for the pollutant concentration monitor, CO_2, or O_2 monitor, or flow monitor in appendix A of this part.

2.1.5 Out-of-Control Period

An out-of-control period occurs when the calibration error of an SO_2 or NO_x pollutant concentration monitor exceeds 5.0 percent based upon the span value (or exceeds 10 ppm, for span values <200 ppm), when the calibration error of a diluent gas monitor exceeds 1.0 percent O_2 or CO_2, or when the calibration error of a flow monitor exceeds 6.0 percent based upon the span value, which is twice the applicable specification of Appendix A of this part. The out-of-control period begins with the hour of completion of the failed calibration error test and ends with the hour of completion following an effective recalibration. Whenever the failed calibration, corrective action, and effective recalibration occur within the same hour, the hour is not out of control if 2 or more valid readings are obtained during that hour as required by §75.10 of this part. A NO_x continuous emission monitoring system is considered out-of-control if either component monitor exceeds twice the applicable specification in Appendix A of this part.

An out-of-control period also occurs whenever interference of a flow monitor is identified. The out-of-control period begins with the hour of completion of the failed interference check and ends with the hour of completion of an interference check that is passed.

2.1.6 Data Recording

Record and tabulate all calibration error test data according to month, day, clock-hour, and magnitude in either ppm, percent volume, or scfh. Program monitors that automatically adjust data to the corrected calibration values (e.g., microprocessor control) to record either: (1) The unadjusted concentration or flow rate measured in the calibration error test prior to resetting the calibration, or (2) the magnitude of any adjustment. Record the following applicable flow monitor interference check data: (1) Sample line/sensing port pluggage, and (2) malfunction of each RTD, transceiver, or equivalent.

2.1.7 Daily Assessments

For each monitor or continuous emission monitoring system, perform the following assessments during each day in which the unit combusts any fuel (hereafter referred to as a "unit operating day"), or for a monitor on a bypass stack/duct, during each day that emissions pass through the by-pass stack or duct. If the unit discontinues operation or if use of the by-pass stack or duct is discontinued prior to performance of the calibration error test, data from the monitor or continuous emission monitoring system may be considered quality assured prospectively for 24 consecutive clock hours from the time of successful completion of the previous daily test performed while the unit is operating. These requirements are effective as of the date when the monitor or continuous emission monitoring system completes certification testing.

2.2 Quarterly Assessments

For each monitor or continuous emission monitoring system, perform the following assessments during each unit operating quarter, or for monitors or monitoring systems on bypass ducts or bypass stacks, during each bypass operating quarter to be performed not less than once every 2 calendar years. This requirement is effective as of the calendar quarter following the calendar quarter in which the monitor or continuous emission monitoring system is provisionally certified.

2.2.1 Linearity Check

Perform a linearity check for each SO_2 and NO_X pollutant concentration monitor and each CO_2 or O_2 monitor at least once during each unit operating quarter or each bypass operating quarter, in accordance with the procedures in appendix A, section 6.2 of this part. For units using emission controls and other units using a low-scale span value to determine calibration gases, perform a linearity check on both the low- and high-scales. Conduct the linearity checks no less than 2 months apart, to the extent practicable.

2.2.2 Leak Check

For differential pressure flow monitors, perform a leak check of all sample lines (a manual check is acceptable) at least once during each unit operating quarter or each bypass operating quarter. Conduct the leak checks no less than 2 months apart, to the extent practicable.

2.2.3 Out-of-Control Period

An out-of-control period occurs when the error in linearity at any of the three concentrations (six for dual range monitors) in the quarterly linearity check exceeds the applicable specification in Appendix A, section 3.2 of this part. The out-of-control period begins with the hour of the failed linearity check and ends with the hour of a satisfactory linearity check following corrective action and/or monitor repair. For the NO_x continuous emission monitoring system, the system is considered out-of-control if either of the component monitors exceed the applicable specification in Appendix A, section 3.2 of this part. An out-of-control period occurs when a flow monitor sample line leak is detected. The out-of-control period begins with the hour of the failed leak check and ends with the hour of a satisfactory leak check following corrective action.

2.3 Semiannual and Annual Assessments

For each monitor or continuous emission monitoring system, perform the following assessments once semiannually (within two calendar quarters) or once annually (within four calendar quarters) after the calendar quarter in which the monitor or monitoring system was last tested, as specified below for the type of test and the performance achieved, except as provided below in section 2.3.1 of this appendix for monitors or continuous emission monitoring systems on bypass ducts or stacks or on peaking units. This requirement is effective as of the calendar quarter, unit operating quarter (for peaking units), or bypass operating quarter (for bypass stacks or ducts) following the calendar quarter in which the monitor or continuous emission monitoring system is provisionally certified. A summary chart showing the frequency with which a relative accuracy test audit must be performed, depending on the accuracy achieved, is located at the end of this appendix in Figure 2.

2.3.1 Relative Accuracy Test Audit

Perform relative accuracy test audits semiannually and, to the extent practicable, no less than 4 months apart for each SO_2 or CO_2 pollutant concentration monitor, flow monitor, NO_X continuous emission monitoring system, or SO_2-diluent continuous emission monitoring systems used by units with a Phase I qualifying technology for the period during which the units are required to monitor SO_2 emission removal efficiency, from January 1, 1997 through December 31, 1999, except as provided for monitors or continuous emission monitoring systems on peaking units or bypass stacks or ducts. For monitors on bypass stacks/ducts, perform relative accuracy test audits no less than once every two successive bypass operating quarters, or once every two calendar years, whichever occurs first, in accordance with the procedures in section 6.5 of Appendix A of this part. For monitors on peaking units, perform relative accuracy test audits no less than once every two successive unit operating quarters, or once every two calendar years, whichever occurs first. Audits required under this section shall be performed no less than 4 months apart, to the extent practicable. The audit frequency may be reduced, as specified below for monitors or monitoring systems which qualify for less frequent testing.

For flow monitors, one-level and three-level relative accuracy test audits shall be performed alternately (when a flow RATA is conducted semiannually), such that the three-level relative accuracy test audit is performed at least once annually. The three-level audit shall be performed at the three different operating or load levels specified in appendix A, section 6.5.2 of this part, and the one-level audit shall be performed at the normal operating or load level. Notwithstanding that requirement, relative accuracy test audits need only be performed at the normal operating or load level for monitors and continuous emission monitoring systems on peaking units and bypass stacks/ducts.

Relative accuracy test audits may be performed on an annual basis rather than on a semiannual basis (or for monitors on peaking units and bypass ducts or bypass stacks, no less than (1) once every four successive unit or bypass operating quarters, or (2) every two calendar years, whichever occurs first) under any of the following conditions: (1) The relative accuracy during the previous audit for an SO_2 or CO_2 pollutant concentration monitor (including an O_2 pollutant monitor used to measure CO_2 using the procedures in appendix F of this part), or for a NO_X or SO_2-diluent continuous emissions monitoring system is 7.5 percent or less; (2) prior to January 1, 2000, the relative accuracy during the previous audit for a flow monitor is 10.0 percent or less at each operating level tested; (3) on and after January 1, 2000, the relative accuracy during the previous audit for a flow monitor is 7.5 percent or less at each operating level tested; (4) on low flow (≤10.0 fps) stacks/ducts, when the monitor mean, calculated using Equation A-7 in appendix A of this part is within ±1.5 fps of the reference method mean or achieves a relative accuracy of 7.5 percent (10 percent if prior to January 1, 2000) or less during the previous audit; (5) on low SO_2 emitting units (SO_2 concentrations ≤250.0 ppm, or equivalent lb/mmBtu value for SO_2-diluent continuous emission monitoring systems), when the monitor mean is within ±8.0 ppm (or equivalent in lb/mmBtu for SO_2-diluent continuous emission monitoring systems) of the reference method mean or achieves a relative accuracy of 7.5 percent or less during the previous audit; or (6) on low NO_X emitting units (NO_X emission rate ≤0.20 lb/mmBtu), when the NO_X continuous emission monitoring system achieves a relative accuracy of 7.5 percent or less or when the monitoring system mean, calculated using Equation A-7 in appendix A of this part is within ±0.01 lb/mmBtu of the reference method mean.

A maximum of two relative accuracy test audit trials may be performed for the purpose of achieving the results required to qualify for less frequent relative accuracy test audits. Whenever two trials are performed, the results of the second (later) trial must be used in calculating both the relative accuracy and bias.

2.3.2 Out-of-Control Period

An out-of-control period occurs under any of the following conditions: (1) The relative accuracy of an SO_2, CO_2, or O_2 pollutant concentration monitor or a NO_X or SO_2-diluent

continuous emission monitoring system exceeds 10.0 percent; (2) prior to January 1, 2000, the relative accuracy of a flow monitor exceeds 15.0 percent; (3) on and after January 1, 2000, the relative accuracy of a flow monitor exceeds 10.0 percent; (4) for low flow situations (≤10.0 fps), the flow monitor mean value (if applicable) exceeds ±2.0 fps of the reference method mean whenever the relative accuracy is greater than 15.0 percent for Phase I or 10 percent for Phase II; (5) for low SO_2 emitter situations, the monitor mean values exceeds ±15.0 ppm (or ± 0.03 lb/mmBtu for SO_2-diluent continuous emission monitoring systems from January 1, 1997 through December 31, 1999) of the reference method mean whenever the relative accuracy is greater than 10.0 percent; or (6) for low NO_X emitting units (NO_X emission rate ≤0.2 lb/mmBtu), the NO_X continuous emission monitoring system mean values exceed ±0.02 lb/mmBtu of the reference method mean whenever the relative accuracy is greater than 10.0 percent. For SO_2, CO_2, O_2, NO_X emission rate, and flow relative accuracy test audits performed at only one level, the out-of-control period begins with the hour of completion of the failed relative accuracy test audit and ends with the hour of completion of a satisfactory relative accuracy test audit. For a flow relative accuracy test audit at 3 operating levels, the out-of-control period begins with the hour of completion of the first failed relative accuracy test audit at any of the three operating levels, and ends with the hour of completion of a satisfactory three-level relative accuracy test audit.

Failure of the bias test does not result in the system or monitor being out-of-control.

2.3.3 Bias Adjustment Factor

2.3.3 Bias Adjustment Factor. If an SO_2 pollutant concentration monitor, flow monitor, or NO_x continuous emission monitoring system fails the bias test specified in Section 7.6 of Appendix A of this part, use the bias adjustment factor given in Equations A-11 and A-12 of Appendix A of this part to adjust the monitored data.

2.4 Other Audits

Affected units may be subject to relative accuracy test audits at any time. If a monitor or continuous emission monitoring system fails the relative accuracy test during the audit, the monitor or continuous emission monitoring system shall be considered to be out-of-control beginning with the date and time of completion of the audit, and continuing until a successful audit test is completed following corrective action. If a monitor or monitoring system fails the bias test during an audit, use the bias adjustment factor given by Equations A-11 and A-12 in Appendix A to this part to adjust the monitored data. Apply this adjustment factor from the date and time of completion of the audit until the date and time of completion of a relative accuracy test audit that does not show bias.

FIGURE 1.—QUALITY ASSURANCE TEST REQUIREMENTS

Test	QA test frequency requirements		
	Daily*	Quarterly*	Semiannual*
Calibration Error (2 pt.).	√		
Interference (flow).	√		
Leak (flow)		√	
Linearity (3 pt.)		√	
RATA (SO_2, NO_x, CO_2)[1].			√
RATA (flow, alternating 1-load and 3-load)[2].			√

*For monitors on bypass stack/duct, bypass operating days or quarters, only.
[1] Conduct annually, if monitor meets accuracy requirements to qualify for less frequent testing.
[2] Conduct 3-load RATAs annually, if requirements to qualify for less frequent testing are met.

FIGURE 2.—RELATIVE ACCURACY TEST FREQUENCY INCENTIVE SYSTEM

RATA	Semiannually[1] (percent)	Annual[1]
SO_2	RA ≤ 10	RA ≤ 7.5% or ±8.0 ppm.[2]
NO_X	RA ≤ 10	RA ≤ 7.5% or ±0.01 lb/mmBtu.[2]
Flow (Phase I)[3]	RA ≤ 15	RA ≤ 10% or ± 1.5 fps.[2]
Flow (Phase II)[3]	RA ≤ 10	RA ≤ 7.5% or ± 1.5 fps.[2]
CO_2/O_2	RA ≤ 10	RA ≤ 7.5%.

[1] For monitors on bypass stack/duct, bypass operating quarters, not to exceed two calendar years. For monitors on peaking units, unit operating quarters, not to exceed two calendar years.
[2] The difference between monitor and reference method mean values; low emitters or low flow, only.
[3] Conduct 3-load RATAs annually, if requirements to qualify for less frequent testing are met.

[58 FR 3701, Jan. 11, 1993, as amended at 60 FR 26546, 26571, May 17, 1995]

EFFECTIVE DATE NOTE: At 60 FR 26571, May 17, 1995, appendix B to part 75 was amended by temporarily suspending section 2.1 and