

maintain an instrument using an air or O<sub>2</sub> dilution and oxidation system to convert any reduced sulfur to SO<sub>2</sub> for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of the total resultant SO<sub>2</sub>. The monitor must include an O<sub>2</sub> monitor for correcting the data for excess O<sub>2</sub>.

(i) The span value for this monitor is two times the applicable SO<sub>2</sub> emission limit.

(ii) The owner or operator shall conduct performance evaluations of each SO<sub>2</sub> monitor according to the requirements in § 60.13(c) and Performance Specification 5 of appendix B to part 60. The owner or operator shall use Methods 15 or 15A of appendix A-5 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see § 60.17) is an acceptable alternative to EPA Method 15A of appendix A-5 to part 60.

(iii) The owner or operator shall install, operate, and maintain each O<sub>2</sub> monitor according to Performance Specification 3 of appendix B to part 60.

(iv) The span value for the O<sub>2</sub> monitor must be selected between 10 and 25 percent, inclusive.

(v) The owner or operator shall conduct performance evaluations for the O<sub>2</sub> monitor according to the requirements of § 60.13(c) and Performance Specification 3 of appendix B to part 60. The owner or operator shall use Methods 3, 3A, or 3B of appendix A-2 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see § 60.17) is an acceptable alternative to EPA Method 3B of appendix A-2 to part 60.

(vi) The owner or operator shall comply with the applicable quality assurance procedures of appendix F to part 60 for each monitor, including quarterly accuracy determinations for each SO<sub>2</sub> monitor, annual accuracy determinations for each O<sub>2</sub> monitor, and daily calibration drift determinations.

(b) *Excess emissions.* For the purpose of reports required by § 60.7(c), periods of excess emissions for sulfur recovery plants subject to the emissions limita-

tions in § 60.102a(f) are defined as specified in paragraphs (b)(1) through (3) of this section. NOTE: Determine all averages as the arithmetic average of the applicable 1-hour averages, e.g., determine the rolling 12-hour average as the arithmetic average of 12 contiguous 1-hour averages.

(1) All 12-hour periods during which the average concentration of SO<sub>2</sub> as measured by the SO<sub>2</sub> continuous monitoring system required under paragraph (a)(1) of this section exceeds the applicable emission limit (dry basis, zero percent excess air); or

(2) All 12-hour periods during which the average concentration of reduced sulfur (as SO<sub>2</sub>) as measured by the reduced sulfur continuous monitoring system required under paragraph (a)(2) of this section exceeds the applicable emission limit; or

(3) All 12-hour periods during which the average concentration of H<sub>2</sub>S as measured by the H<sub>2</sub>S continuous monitoring system required under paragraph (a)(2) of this section exceeds the applicable emission limit (dry basis, 0 percent excess air).

**§ 60.107a Monitoring of emissions and operations for fuel gas combustion devices.**

(a) *Fuel gas combustion devices subject to SO<sub>2</sub> or H<sub>2</sub>S limit.* The owner or operator of a fuel gas combustion device that is subject to the requirements in § 60.102a(g) shall comply with the requirements in paragraph (a)(1) of this section for SO<sub>2</sub> emissions or paragraph (a)(2) of this section for H<sub>2</sub>S emissions.

(1) The owner or operator of a fuel gas combustion device subject to the SO<sub>2</sub> emissions limits in § 60.102a(g)(1)(i) shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of SO<sub>2</sub> emissions into the atmosphere. The monitor must include an O<sub>2</sub> monitor for correcting the data for excess air.

(i) The owner or operator shall install, operate, and maintain each SO<sub>2</sub> monitor according to Performance Specification 2 of appendix B to part 60. The span value for the SO<sub>2</sub> monitor is 50 ppm SO<sub>2</sub>.

(ii) The owner or operator shall conduct performance evaluations for the SO<sub>2</sub> monitor according to the requirements of § 60.13(c) and Performance Specification 2 of appendix B to part 60. The owner or operator shall use Methods 6, 6A, or 6C of appendix A–4 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses,” (incorporated by reference—see § 60.17) is an acceptable alternative to EPA Method 6 or 6A of appendix A–4 to part 60. Samples taken by Method 6 of appendix A–4 to part 60 shall be taken at a flow rate of approximately 2 liters/min for at least 30 minutes. The relative accuracy limit shall be 20 percent or 4 ppm, whichever is greater, and the calibration drift limit shall be 5 percent of the established span value.

(iii) The owner or operator shall install, operate, and maintain each O<sub>2</sub> monitor according to Performance Specification 3 of appendix B to part 60. The span value for the O<sub>2</sub> monitor must be selected between 10 and 25 percent, inclusive.

(iv) The owner or operator shall conduct performance evaluations for the O<sub>2</sub> monitor according to the requirements of § 60.13(c) and Performance Specification 3 of appendix B to part 60. The owner or operator shall use Methods 3, 3A, or 3B of appendix A–2 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses,” (incorporated by reference—see § 60.17) is an acceptable alternative to EPA Method 3B of appendix A–2 to part 60.

(v) The owner or operator shall comply with the applicable quality assurance procedures in appendix F to part 60, including quarterly accuracy determinations for SO<sub>2</sub> monitors, annual accuracy determinations for O<sub>2</sub> monitors, and daily calibration drift tests.

(vi) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location (i.e., after one of the combustion devices), if monitoring at this location accurately represents the SO<sub>2</sub> emissions into the atmosphere from each of the combustion devices.

(2) The owner or operator of a fuel gas combustion device subject to the H<sub>2</sub>S concentration limits in § 60.102a(g)(1)(ii) shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis) of H<sub>2</sub>S in the fuel gases before being burned in any fuel gas combustion device.

(i) The owner or operator shall install, operate, and maintain each H<sub>2</sub>S monitor according to Performance Specification 7 of appendix B to part 60. The span value for this instrument is 320 ppmv H<sub>2</sub>S.

(ii) The owner or operator shall conduct performance evaluations for each H<sub>2</sub>S monitor according to the requirements of § 60.13(c) and Performance Specification 7 of appendix B to part 60. The owner or operator shall use Method 11, 15, or 15A of appendix A–5 to part 60 or Method 16 of appendix A–6 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10–1981, “Flue and Exhaust Gas Analyses,” (incorporated by reference—see § 60.17) is an acceptable alternative to EPA Method 15A of appendix A–5 to part 60.

(iii) The owner or operator shall comply with the applicable quality assurance procedures in appendix F to part 60 for each H<sub>2</sub>S monitor.

(iv) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location, if monitoring at this location accurately represents the concentration of H<sub>2</sub>S in the fuel gas being burned.

(3) The owner or operator of a fuel gas combustion device is not required to comply with paragraph (a)(1) or (2) of this section for fuel gas streams that are exempt under § 60.102a(h) and fuel gas streams combusted in a process heater or other fuel gas combustion device that are inherently low in sulfur content. Fuel gas streams meeting one of the requirements in paragraphs (a)(3)(i) through (iv) of this section will be considered inherently low in sulfur content.

(i) Pilot gas for heaters and flares.

(ii) Fuel gas streams that meet a commercial-grade product specification for sulfur content of 30 ppmv or

less. In the case of a liquefied petroleum gas (LPG) product specification in the pressurized liquid state, the gas phase sulfur content should be evaluated assuming complete vaporization of the LPG and sulfur containing-compounds at the product specification concentration.

(iii) Fuel gas streams produced in process units that are intolerant to sulfur contamination, such as fuel gas streams produced in the hydrogen plant, catalytic reforming unit, isomerization unit, and HF alkylation process units.

(iv) Other fuel gas streams that an owner or operator demonstrates are low-sulfur according to the procedures in paragraph (b) of this section.

(4) If the composition of an exempt fuel gas stream changes, the owner or operator must follow the procedures in paragraph (b)(3) of this section.

(b) *Exemption from H<sub>2</sub>S monitoring requirements for low-sulfur fuel gas streams.* The owner or operator of a fuel gas combustion device may apply for an exemption from the H<sub>2</sub>S monitoring requirements in paragraph (a)(2) of this section for a fuel gas stream that is inherently low in sulfur content. A fuel gas stream that is demonstrated to be low-sulfur is exempt from the monitoring requirements of paragraphs (a)(1) and (2) of this section until there are changes in operating conditions or stream composition.

(1) The owner or operator shall submit to the Administrator a written application for an exemption from monitoring. The application must contain the following information:

(i) A description of the fuel gas stream/system to be considered, including submission of a portion of the appropriate piping diagrams indicating the boundaries of the fuel gas stream/system, and the affected fuel gas combustion device(s) to be considered;

(ii) A statement that there are no crossover or entry points for sour gas (high H<sub>2</sub>S content) to be introduced into the fuel gas stream/system (this should be shown in the piping diagrams);

(iii) An explanation of the conditions that ensure low amounts of sulfur in the fuel gas stream (i.e., control equip-

ment or product specifications) at all times;

(iv) The supporting test results from sampling the requested fuel gas stream/system demonstrating that the sulfur content is less than 5 ppm H<sub>2</sub>S. Sampling data must include, at minimum, 2 weeks of daily monitoring (14 grab samples) for frequently operated fuel gas streams/systems; for infrequently operated fuel gas streams/systems, seven grab samples must be collected unless other additional information would support reduced sampling. The owner or operator shall use detector tubes ("length-of-stain tube" type measurement) following the "Gas Processors Association Standard 2377-86, Test for Hydrogen Sulfide and Carbon Dioxide in Natural Gas Using Length of Stain Tubes," 1986 Revision (incorporated by reference—see §60.17), with ranges 0-10/0-100 ppm (N = 10/1) to test the applicant fuel gas stream for H<sub>2</sub>S; and

(v) A description of how the 2 weeks (or seven samples for infrequently operated fuel gas streams/systems) of monitoring results compares to the typical range of H<sub>2</sub>S concentration (fuel quality) expected for the fuel gas stream/system going to the affected fuel gas combustion device (e.g., the 2 weeks of daily detector tube results for a frequently operated loading rack included the entire range of products loaded out, and, therefore, should be representative of typical operating conditions affecting H<sub>2</sub>S content in the fuel gas stream going to the loading rack flare).

(2) The effective date of the exemption is the date of submission of the information required in paragraph (b)(1) of this section.

(3) No further action is required unless refinery operating conditions change in such a way that affects the exempt fuel gas stream/system (e.g., the stream composition changes). If such a change occurs, the owner or operator shall follow the procedures in paragraph (b)(3)(i), (b)(3)(ii), or (b)(3)(iii) of this section.

(i) If the operation change results in a sulfur content that is still within the range of concentrations included in the original application, the owner or operator shall conduct an H<sub>2</sub>S test on a

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grab sample and record the results as proof that the concentration is still within the range.

(ii) If the operation change results in a sulfur content that is outside the range of concentrations included in the original application, the owner or operator may submit new information following the procedures of paragraph (b)(1) of this section within 60 days (or within 30 days after the seventh grab sample is tested for infrequently operated process units).

(iii) If the operation change results in a sulfur content that is outside the range of concentrations included in the original application, and the owner or operator chooses not to submit new information to support an exemption, the owner or operator must begin H<sub>2</sub>S monitoring using daily stain sampling to demonstrate compliance. The owner or operator must begin monitoring according to the requirements in paragraphs (a)(1) or (a)(2) of this section as soon as practicable but in no case later than 180 days after the operation change. During daily stain tube sampling, a daily sample exceeding 162 ppmv is an exceedance of the 3-hour H<sub>2</sub>S concentration limit. The owner or operator must determine a rolling 365-day average using the stain sampling results; an average H<sub>2</sub>S concentration of 5 ppmv must be used for days prior to the operation change.

(c) *Process heaters subject to NO<sub>x</sub> limit.* The owner or operator of a process heater subject to the NO<sub>x</sub> emission limit in § 60.102a(g)(2) shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration (dry basis, 0 percent excess air) of NO<sub>x</sub> emissions into the atmosphere. The monitor must include an O<sub>2</sub> monitor for correcting the data for excess air.

(1) The owner or operator shall install, operate, and maintain each NO<sub>x</sub> monitor according to Performance Specification 2 of appendix B to part 60. The span value of this NO<sub>x</sub> monitor is 200 ppmv NO<sub>x</sub>.

(2) The owner or operator shall conduct performance evaluations of each NO<sub>x</sub> monitor according to the requirements in § 60.13(c) and Performance Specification 2 of appendix B to part 60. The owner or operator shall use Meth-

ods 7, 7A, 7C, 7D, or 7E of appendix A-4 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see § 60.17) is an acceptable alternative to EPA Method 7 or 7C of appendix A-4 to part 60.

(3) The owner or operator shall install, operate, and maintain each O<sub>2</sub> monitor according to Performance Specification 3 of appendix B to part 60. The span value of this O<sub>2</sub> monitor must be selected between 10 and 25 percent, inclusive.

(4) The owner or operator shall conduct performance evaluations of each O<sub>2</sub> monitor according to the requirements in § 60.13(c) and Performance Specification 3 of appendix B to part 60. Method 3, 3A, or 3B of appendix A-2 to part 60 shall be used for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see § 60.17) is an acceptable alternative to EPA Method 3B of appendix A-2 to part 60.

(5) The owner or operator shall comply with the quality assurance requirements in Procedure 1 of appendix F to part 60 for each NO<sub>x</sub> and O<sub>2</sub> monitor, including quarterly accuracy determinations for NO<sub>x</sub> monitors, annual accuracy determinations for O<sub>2</sub> monitors, and daily calibration drift tests.

(6) The owner or operator of a process heater that has a rated heating capacity of less than 100 MMBtu and is equipped with low-NO<sub>x</sub> burners (LNB) or ultra low-NO<sub>x</sub> burners (ULNB) is not subject to the monitoring requirements in paragraphs (c)(1) through (5) of this section. The owner or operator of such a process heater must conduct biennial performance tests to demonstrate compliance.

(d) *Sulfur monitoring for affected flares.* The owner or operator of an affected flare subject to § 60.103a(b) shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration of reduced sulfur in flare gas. The owner or operator of a modified flare shall install this instrument by no later than 1 year after the flare becomes an affected flare subject to this subpart.

(1) The owner or operator shall install, operate, and maintain each reduced sulfur CEMS according to Performance Specification 5 of appendix B to part 60.

(2) The owner or operator shall conduct performance evaluations of each reduced sulfur monitor according to the requirements in §60.13(c) and Performance Specification 5 of appendix B to part 60. The owner or operator shall use Methods 15 or 15A of appendix A-5 to part 60 for conducting the relative accuracy evaluations. The method ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference—see §60.17) is an acceptable alternative to EPA Method 15A of appendix A-5 to part 60.

(3) The owner or operator shall comply with the applicable quality assurance procedures in appendix F to part 60 for each reduced sulfur monitor.

(e) *Flow monitoring for flares.* The owner or operator of an affected flare subject to §60.102a(g)(3) shall install, operate, calibrate, and maintain CPMS to measure and record the exhaust gas flow rate. The owner or operator of a modified flare shall install this instrument by no later than 1 year after the flare becomes an affected flare subject to this subpart.

(1) The CPMS must be able to correct for the temperature and pressure of the system and output flow in standard conditions as defined in §60.2.

(2) The owner or operator shall install, operate, and maintain each CPMS according to the manufacturer's specifications and requirements.

(f) *Excess emissions.* For the purpose of reports required by §60.7(c), periods of excess emissions for fuel gas combustion devices subject to the emissions limitations in §60.102a(g) are defined as specified in paragraphs (f)(1) through (4) of this section. NOTE: Determine all averages as the arithmetic average of the applicable 1-hour averages, e.g., determine the rolling 3-hour average as the arithmetic average of three contiguous 1-hour averages.

(1) All rolling 3-hour periods during which the average concentration of SO<sub>2</sub> as measured by the SO<sub>2</sub> continuous monitoring system required under paragraph (a)(1) of this section exceeds 20 ppmv, and all rolling 365-day periods

during which the average concentration as measured by the SO<sub>2</sub> continuous monitoring system required under paragraph (a)(1) of this section exceeds 8 ppmv; or

(2) All rolling 3-hour periods during which the average concentration of H<sub>2</sub>S as measured by the H<sub>2</sub>S continuous monitoring system required under paragraph (a)(2) of this section exceeds 162 ppmv, all days in which the concentration of H<sub>2</sub>S as measured by daily stain tube sampling required under paragraph (b)(3)(iii) of this section exceeds 162 ppmv, and all rolling 365-day periods during which the average concentration as measured by the H<sub>2</sub>S continuous monitoring system under paragraph (a)(2) of this section exceeds 60 ppmv.

(3) All rolling 24-hour periods during which the average concentration of NO<sub>x</sub> as measured by the NO<sub>x</sub> continuous monitoring system required under paragraph (c) of this section exceeds 40 ppmv.

(4) All rolling 30-day periods during which the average flow rate to an affected flare as measured by the monitoring system required under paragraph (e) of this section exceeds 250,000 scfd.

#### § 60.108a Recordkeeping and reporting requirements.

(a) Each owner or operator subject to the emissions limitations in §60.102a shall comply with the notification, recordkeeping, and reporting requirements in §60.7 and other requirements as specified in this section.

(b) Each owner or operator subject to an emissions limitation in §60.102a shall notify the Administrator of the specific monitoring provisions of §§60.105a, 60.106a, and 60.107a with which the owner or operator seeks to comply. Notification shall be submitted with the notification of initial startup required by §60.7(a)(3).

(c) The owner or operator shall maintain the following records:

(1) A copy of the flare management plan and each root cause analysis of a discharge;

(2) Records of information to document conformance with bag leak detection system operation and maintenance requirements in §60.105a(c).