

requirements of paragraphs (a)(1) through (a)(7) of this section.

(1) Flares shall be operated at all times when emissions are vented to them.

(2) Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (b)(3)(i) of this section, except for periods not to exceed a total of 5 minutes during any two consecutive hours.

(3) Flares shall be operated with a flare flame or at least one pilot flame present at all times, as determined by the methods specified in paragraph (c) of this section.

(4) Flares shall be used only when the net heating value of the gas being combusted is 11.2 megajoules per standard cubic meter (300 British thermal units per standard cubic foot) or

greater if the flare is steam-assisted or air-assisted; or when the net heating value of the gas being combusted is 7.45 megajoules per standard cubic meter (200 British thermal units per standard cubic foot) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (b)(3)(ii) of this section.

(5) Flares used to comply with this section shall be steam-assisted, air-assisted, or nonassisted.

(6) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in paragraph (b)(3)(iii) of this section, of less than 18.3 meters per second (60 feet per second), except as provided in paragraphs (a)(6)(i) and (a)(6)(ii) of this section, as applicable.

(i) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in paragraph (b)(3)(iii) of this section, equal to or less than 122 meters per second (400 feet per second) if the net heating value of the gas being combusted is greater than 37.3 megajoules per standard cubic meter (1,000 British thermal units per standard cubic foot).

(ii) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in paragraph (b)(3)(iii) of this section, of less than the velocity,  $V_{\max}$ , and less than 122 meters per second (400 feet per second), where the maximum permitted velocity,  $V_{\max}$ , is determined by the following equation.

$$\text{Log}_{10}(V_{\max}) = (H_T + 28.8) / 31.7 \quad [\text{Eq. 1}]$$

Where:

$V_{\max}$  = Maximum permitted velocity, meters per second

28.8 = Constant

31.7 = Constant

$H_T$  = The net heating value as determined in paragraph (b)(3)(ii) of this section.

(7) Air-assisted flares shall be designed for and operated with an exit

velocity as determined by the methods specified in paragraph (b)(3)(iii) of this section less than the velocity,  $V_{\max}$ , where the maximum permitted velocity,  $V_{\max}$ , is determined by the following equation.

$$V_{\max} = 8.706 + 0.7084(H_T) \quad [\text{Eq. 2}]$$

Where:

$V_{\max}$  = Maximum permitted velocity, meters per second

8.706 = Constant

0.7084 = Constant

$H_T$  = The net heating value as determined in paragraph (b)(3)(ii) of this section.

*(b) Flare compliance determination.*

(1) The owner or operator shall conduct an initial flare compliance determination of any flare used to comply with the provisions of this subpart. Flare compliance determination records shall be kept as specified in § 63.998(a)(1) and a flare compliance determination report shall be submitted as specified in § 63.999(a)(2). An owner or operator is not required to conduct a performance test to determine percent emission reduction or outlet regulated material or total organic compound concentration when a flare is used.

(2) Unless already permitted by the applicable title V permit, if an owner or operator elects to use a flare to replace an existing control device at a later date, the owner or operator shall notify the Administrator, either by amendment of

the regulated source's title V permit or, if title V is not applicable, by submission of the notice specified in § 63.999(b)(7) before implementing the change. Upon implementing the change, a flare compliance determination shall be performed using the methods specified in paragraph (b)(3) of this section within 180 days. The compliance determination report shall be submitted to the Administrator within 60 days of completing the determination as provided in § 63.999(a)(2)(ii). If an owner or operator elects to use a flare to replace an existing final recovery device that is used on an applicable process vent, the owner or operator shall comply with the applicable provisions in referencing subpart.

(3) Flare compliance determinations shall meet the requirements specified in paragraphs (b)(3)(i) through (b)(3)(iv) of this section.

(i) Method 22 of appendix A of part 60 shall be used to determine the compliance of flares with the visible emission provisions of this subpart. The observation period is 2 hours, except for

transfer racks as provided in (b)(3)(i)(A) or (b)(3)(i)(B) of this section.

(A) For transfer racks, if the loading cycle is less than 2 hours, then the observation period for that run shall be for the entire loading cycle.

(B) For transfer racks, if additional loading cycles are initiated within the 2-hour period, then visible emissions observations shall be conducted for the additional cycles.

(ii) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K_1 \sum_{j=1}^n D_j H_j \quad [\text{Eq. 3}]$$

Where:

$H_T$  = Net heating value of the sample, megajoules per standard cubic meter; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 millimeters of mercury (30 inches of mercury), but the standard temperature for determining the volume corresponding to one mole is 20 °C;

$K_1 = 1.740 \times 10^{-7}$  (parts per million by volume) – 1 (gram-mole per standard cubic meter) (megajoules per kilocalories), where the standard temperature for gram mole per standard cubic meter is 20 °C;

$D_j$  = Concentration of sample component j, in parts per million by volume on a wet basis, as measured for organics by Method 18 of part 60, appendix A and measured for hydrogen and carbon monoxide by American Society for Testing and Materials (ASTM) D1946–77; and

$H_j$  = Net heat of combustion of sample component j, kilocalories per gram mole at 25 °C and 760 millimeters of mercury (30 inches of mercury). The heat of combustion of stream components may be determined using ASTM D2382–76 if published values are not available or cannot be calculated.

(iii) The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Methods 2, 2A, 2C, or 2D of 40 CFR part 60, appendix A as appropriate; by the unobstructed (free) cross sectional area of the flare tip.

(iv) Flare flame or pilot monitors, as applicable, shall be operated during any flare compliance determination.

(c) *Flare monitoring requirements.* Where a flare is used, the following monitoring equipment is required: a device (including but not limited to a thermocouple, ultra-violet beam sensor, or infrared sensor) capable of continuously detecting that at least one pilot flame or the flare flame is present. Flame monitoring and compliance records shall be kept as specified in § 63.998(a)(1).

#### § 63.988 Incinerators.

(a) *Incinerator equipment and operating requirements.* (1) Owners or operators using incinerators to meet a weight-percent emission reduction or parts per million by volume outlet concentration requirement specified in a referencing subpart shall meet the requirements of this section.

(2) Incinerators used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(b) *Incinerator performance test requirements.* (1) Except as specified in § 63.997(b), and paragraph (b)(2) of this section, the owner or operator shall conduct an initial performance test of any incinerator used to comply with the provisions of a referencing subpart and this subpart according to the procedures in §§ 63.997(a) through (e). Performance

test records shall be kept as specified in § 63.998(a)(2)(i) and (a)(2)(ii) and a performance test report shall be submitted as specified in § 63.999(a). As provided in § 63.985(b)(1), a performance test may be used as an alternative to the design evaluation for storage vessels and low throughput transfer rack controls. As provided in § 63.986(b), no performance test is required for equipment leaks.

(2) An owner or operator is not required to conduct a performance test for a hazardous waste incinerator for which the owner or operator has been issued a final permit under 40 CFR part 270 and complies with the requirements of 40 CFR part 264, subpart O, or has certified compliance with the interim status requirements of 40 CFR part 265, subpart O.

(3) Unless already permitted by the applicable title V permit, if an owner or operator elects to use an incinerator to replace an existing control device at a later date, the owner or operator shall notify the Administrator, either by amendment of the regulated source's title V permit or, if title V is not applicable, by submission of the notice specified in § 63.999(b)(7) before implementing the change. Upon implementing the change, an incinerator performance test shall be performed, using the methods specified in § 63.997(a) through (e) within 180 days, if required by paragraph (b)(1) of this section. The performance test report shall be submitted to the Administrator within 60 days of completing the determination, as provided in § 63.999(a)(1)(ii).

(c) *Incinerator monitoring requirements.* (1) Where an incinerator is used, a temperature monitoring device capable of providing a continuous record that meets the provisions specified in paragraph (c)(1)(i) or (c)(1)(ii) of this section is required. Monitoring results shall be recorded as specified in § 63.998(b). General requirements for monitoring and continuous parameter monitoring systems are contained in the referencing subpart and § 63.996.

(i) Where an incinerator other than a catalytic incinerator is used, a temperature monitoring device shall be installed in the fire box or in the ductwork immediately downstream of the fire box in a position before any substantial heat exchange occurs.

(ii) Where a catalytic incinerator is used, temperature monitoring devices shall be installed in the gas stream immediately before and after the catalyst bed.

(2) The owner or operator shall establish a range for monitored

parameters that indicate proper operation of the incinerator. In order to establish the range, the information required in § 63.999(b)(3) shall be submitted in the Initial Compliance Status Report or the operating permit application or amendment. The range may be based upon a prior performance test meeting the specifications of § 63.997(b)(1) or upon existing ranges or limits established under a referencing subpart.

#### § 63.989 Boilers and process heaters.

(a) *Boiler and process heater equipment and operating requirements.*

(1) Owners or operators using boilers and process heaters to meet a weight-percent emission reduction or parts per million by volume outlet concentration requirement specified in a referencing subpart shall meet the requirements of this section.

(2) The vent stream shall be introduced into the flame zone of the boiler or process heater.

(3) Boilers and process heaters used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(b) *Boiler and process heater performance test requirements.* (1) Except as specified in § 63.997(b), and paragraph (b)(2) of this section, the owner or operator shall conduct an initial performance test of any boiler or process heater used to comply with the provisions of a referencing subpart and this subpart according to the procedures in § 63.997(a) through (e). Performance test records shall be kept as specified in § 63.998(a)(2)(i) and (a)(2)(ii) and a performance test report shall be submitted as specified in § 63.999(a). As provided in § 63.985(b)(1), a performance test may be used as an alternative to the design evaluation for storage vessels and low throughput transfer rack control requirements. As provided in § 63.986(b), no performance test is required to demonstrate compliance for equipment leaks.

(2) An owner or operator is not required to conduct a performance test when any of the control devices specified in paragraphs (b)(2)(i) through (b)(2)(iii) are used.

(i) A boiler or process heater with a design heat input capacity of 44 megawatts (150 million British thermal units per hour) or greater.

(ii) A boiler or process heater into which the vent stream is introduced with the primary fuel or is used as the primary fuel.

(iii) A boiler or process heater burning hazardous waste for which the owner or operator meets the requirements

specified in paragraph (b)(2)(iii)(A) or (b)(2)(iii)(B) of this section.

(A) The boiler or process heater has been issued a final permit under 40 CFR part 270 and complies with the requirements of 40 CFR part 266, subpart H; or

(B) The boiler or process heater has certified compliance with the interim status requirements of 40 CFR part 266, subpart H.

(3) Unless already permitted by the applicable title V permit, if an owner or operator elects to use a boiler or process heater to replace an existing control device at a later date, the owner or operator shall notify the Administrator, either by amendment of the regulated source's title V permit or, if title V is not applicable, by submission of the notice specified in § 63.999(b)(7) before implementing the change. Upon implementing the change, a boiler or process heater performance test shall be performed using the methods specified in § 63.997(a) through (e) within 180 days, if required by paragraph (b)(1) of this section. The performance test report shall be submitted to the Administrator within 60 days of completing the determination as provided in § 63.999(a)(2)(ii).

(c) *Boiler and process heater monitoring requirements.* (1) Where a boiler or process heater of less than 44 megawatts (150 million British thermal units per hour) design heat input capacity is used and the regulated vent stream is not introduced as or with the primary fuel, a temperature monitoring device in the fire box capable of providing a continuous record is required. Any boiler or process heater in which all vent streams are introduced with primary fuel or are used as the primary fuel is exempt from monitoring. Monitoring results shall be recorded as specified in § 63.998(b). General requirements for monitoring and continuous parameter monitoring systems are contained in the referencing subpart and § 63.996.

(2) Where monitoring is required, the owner or operator shall establish a range for monitored parameters that indicates proper operation of the boiler or process heater. In order to establish the range, the information required in § 63.999(b)(3) shall be submitted in the Initial Compliance Status Report or the operating permit application or amendment. The range may be based upon a prior performance test meeting the specifications of § 63.997(b)(1) or upon existing ranges or limits established under a referencing subpart.

#### **§ 63.990 Absorbers used as control devices.**

(a) *Absorber equipment and operating requirements.* (1) Owners or operators using absorbers to meet a weight-percent or parts per million by volume outlet concentration requirement specified in a referencing subpart shall meet the requirements of this section.

(2) Absorbers used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(b) *Absorber performance test requirements.* (1) Except as specified in § 63.997(b), the owner or operator shall conduct an initial performance test of any absorber used as a recapture device to comply with the provisions of the referencing subpart and this subpart according to the procedures in § 63.997(a) through (e). Performance test records shall be kept as specified in § 63.998(a)(2)(i) and (a)(2)(ii) and a performance test report shall be submitted as specified in § 63.999(a). As provided in § 63.985(b)(1), a performance test may be used as an alternative to the design evaluation for storage vessels and low throughput transfer rack controls. As provided in § 63.986(b), no performance test is required to demonstrate compliance for equipment leaks.

(2) Unless already permitted by the applicable title V permit, if an owner or operator elects to use an absorber to replace an existing recovery or control device at a later date, the owner or operator shall notify the Administrator, either by amendment of the regulated source's title V permit or, if title V is not applicable, by submission of the notice specified in § 63.999(b)(7) before implementing the change. Upon implementing the change, the provisions specified in paragraphs (b)(2)(i) or (b)(2)(ii) as applicable shall be followed.

(i) *Replace final recovery device.* If an owner or operator elects to replace the final recovery device on a process vent with an absorber used as a control device, the owner or operator shall comply with the applicable applicability determination provisions of a referencing subpart.

(ii) *Replace control device.* If an owner or operator elects to replace a control device on a process vent or a transfer rack with an absorber used as a control device, the owner or operator shall perform a performance test using the methods specified in § 63.997(a) through (e) within 180 days. The performance test report shall be submitted to the Administrator within

60 days of completing the test as provided in § 63.999(a)(2)(ii).

(c) *Absorber monitoring requirements.*

(1) Where an absorber is used as a control device, either an organic monitoring device capable of providing a continuous record or a scrubbing liquid temperature monitoring device and a specific gravity monitoring device, each capable of providing a continuous record, shall be used. Monitoring results shall be recorded as specified in § 63.998(b). General requirements for monitoring and continuous parameter monitoring systems are contained in a referencing subpart and § 63.996.

(2) The owner or operator shall establish a range for monitored parameters that indicates proper operation of the absorber. In order to establish the range, the information required in § 63.999(b)(3) shall be submitted in the Initial Compliance Status Report or the operating permit application or amendment. The range may be based upon a prior performance test meeting the specifications of § 63.997(b)(1) or upon existing ranges or limits established under a referencing subpart.

#### **§ 63.991 Condensers used as control devices.**

(a) *Condenser equipment and operating requirements.* (1) Owners or operators using condensers to meet a weight-percent emission reduction or parts per million by volume outlet concentration requirement specified in a referencing subpart shall meet the requirements of this section.

(2) Condensers used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(b) *Condenser performance test requirements.* (1) Except as specified in § 63.997(b), the owner or operator shall conduct an initial performance test of any condenser used as a recapture device to comply with the provisions of a referencing subpart and this subpart according to the procedures in § 63.997(a) through (e). Performance test records shall be kept as specified in § 63.998(a)(2)(i) and (a)(2)(ii) and a performance test report shall be submitted as specified in § 63.999(a). As provided in § 63.985(b)(1), a performance test may be used as an alternative to the design evaluation for storage vessels and low throughput transfer rack controls. As provided in § 63.986(b), no performance test is required to demonstrate compliance for equipment leaks.

(2) Unless already permitted by the applicable title V permit, if an owner or operator elects to use a condenser to replace an existing recovery or control device at a later date, the owner or operator shall notify the Administrator, either by amendment of the regulated source's title V permit or, if title V is not applicable, by submission of the notice specified in § 63.999(b)(7) before implementing the change. Upon implementing the change, the provisions specified in paragraphs (b)(2)(i) or (b)(2)(ii) of this section, as applicable, shall be followed.

(i) *Replace final recovery device.* If an owner or operator elects to replace the final recovery device on a process vent with a condenser used as a control device, the owner or operator shall comply with the applicable applicability determination provisions of a referencing subpart.

(ii) *Replace control device.* If an owner or operator elects to replace a control device on a process vent or a transfer rack with a condenser used as a control device, the owner or operator shall perform a performance test using the methods specified in § 63.997(a) through (e) within 180 days. The performance test report shall be submitted to the Administrator within 60 days of completing the test as provided in § 63.999(a)(2)(ii).

(c) *Condenser monitoring requirements.* (1) Where a condenser is used as a control device, an organic monitoring device capable of providing a continuous record or a condenser exit (product side) temperature monitoring device capable of providing a continuous record shall be used. Monitoring results shall be recorded as specified in § 63.998(b). General requirements for monitoring and continuous parameter monitoring systems are contained in a referencing subpart and § 63.999(b)(iii).

(2) The owner or operator shall establish a range for monitored parameters that indicates proper operation of a condenser. In order to establish the range, the information required in § 63.999(b)(5) shall be submitted in the Initial Compliance Status Report or the operating permit application or amendment. The range may be based upon a prior performance test meeting the specifications in § 63.997(b)(1) or upon existing ranges or limits established under a referencing subpart.

#### **§ 63.992 Carbon adsorbers used as control devices.**

(a) *Carbon adsorber equipment and operating requirements.* (1) Owners or operators using carbon adsorbers to

meet a weight-percent emission reduction or parts per million by volume outlet concentration requirement specified in a referencing subpart shall meet the requirements of this section.

(2) Carbon adsorbers used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(b) *Carbon adsorber performance test requirements.* (1) Except as specified in § 63.997(b), the owner or operator shall conduct an initial performance test of any carbon adsorber used as a control device to comply with the provisions of a referencing subpart and this subpart according to the procedures in § 63.997(a) through (e). Performance test records shall be kept as specified in § 63.998(a)(1) and (a)(2) and a performance test report shall be submitted as specified in § 63.999(a). As provided in § 63.985(b)(1), a performance test may be used as an alternative to the design evaluation for storage vessels and low-throughput transfer rack controls. As provided in § 63.986(b), no performance test is required to demonstrate compliance for equipment leaks.

(2) Unless already permitted by the applicable title V permit, if an owner or operator elects to use a carbon adsorber to replace an existing recovery or control device at a later date, the owner or operator shall notify the Administrator, either by amendment of the regulated source's title V permit or, if title V is not applicable, by submission of the notice specified in § 63.999(b)(7) before implementing the change. Upon implementing the change, the provisions specified in paragraphs (b)(2)(i) or (b)(2)(ii), as applicable, shall be followed.

(i) *Replace final recovery device.* If an owner or operator elects to replace the final recovery device on a process vent with a carbon adsorber used as a control device, the owner or operator shall comply with the applicable applicability determination provisions of a referencing subpart.

(ii) *Replace control device.* If an owner or operator elects to replace a control device on a process vent or transfer rack with a carbon adsorber used as a recapture device, the owner or operator shall perform a performance test using the methods specified in § 63.997 (a) through (e) within 180 days. The performance test report shall be submitted to the Administrator within 60 days of completing the test as provided in § 63.999(a)(2)(ii).

(c) *Carbon adsorber monitoring requirements.* (1) Where a carbon

adsorber is used as a control device, an organic monitoring device capable of providing a continuous record or an integrating regeneration stream flow monitoring device having an accuracy of  $\pm 10$  percent or better, capable of recording the total regeneration stream mass or volumetric flow for each regeneration cycle; and a carbon bed temperature monitoring device, capable of recording the carbon bed temperature after each regeneration and within 15 minutes of completing any cooling cycle shall be used. Monitoring results shall be recorded as specified in § 63.998(b). General requirements for monitoring and continuous parameter monitoring systems are contained in a referencing subpart and § 63.996.

(2) The owner or operator shall establish a range for monitored parameters that indicates proper operation of the carbon adsorber. Where the regeneration stream flow and carbon-bed temperature are monitored, the range shall be in terms of the total regeneration stream flow per regeneration cycle and the temperature of the carbon bed determined within 15 minutes of the completion of the regeneration cooling cycle. In order to establish the range, the information required in § 63.999(b)(3) shall be submitted in the Initial Compliance Status Report or the operating permit application or amendment. The range may be based upon a prior performance test meeting the specifications in § 63.997(b)(1) or upon existing ranges or limits established under a referencing subpart.

#### **§ 63.993 Absorbers, condensers, carbon adsorbers and other recovery devices used as final recovery.**

(a) *Final recovery device equipment and operating requirements.* (1) Owners or operators using a recovery device to meet the requirement to operate to maintain a TRE above a level specified in a referencing subpart shall meet the requirements of this section.

(2) Recovery devices used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(b) *Recovery device performance test requirements.* (1) There are no performance test requirements for recovery devices. TRE index value determination records shall be generated as specified in § 63.998(a)(3).

(2) *Replace a final recovery device or control device.* Unless already permitted by the applicable title V permit, if an owner or operator elects to use a recovery device to replace an existing final recovery or control device at a later

date, the owner or operator shall notify the Administrator, either by amendment of the regulated source's title V permit or, if title V is not applicable, by submission of the notice specified in § 63.999(d) before implementing the change. Upon implementing the change, the owner or operator shall comply with the applicable applicability determination provisions of a referencing subpart.

(c) *Recovery device monitoring requirements.* (1) Where an absorber is the final recovery device in the recovery system and the TRE index value is between the level specified in a referencing subpart and 4.0, either an organic monitoring device capable of providing a continuous record or a scrubbing liquid temperature monitoring device and a specific gravity monitoring device, each capable of providing a continuous record shall be used. General requirements for monitoring and continuous parameter monitoring systems are contained in § 63.996.

(2) Where a condenser is the final recovery device in the recovery system and the TRE index value is between the level specified in a referencing subpart and 4.0, an organic monitoring device capable of providing a continuous record or a condenser exit (product side) temperature monitoring device capable of providing a continuous record shall be used. General requirements for monitoring and continuous parameter monitoring systems are contained in a referencing subpart and § 63.996.

(3) Where a carbon adsorber is the final recovery device in the recovery system and the TRE index value is between the level specified in a referencing subpart and 4.0, an organic monitoring device capable of providing a continuous record or an integrating regeneration stream flow monitoring device having an accuracy of  $\pm 10$  percent or better, capable of recording the total regeneration stream mass or volumetric flow for each regeneration cycle; and a carbon-bed temperature monitoring device, capable of recording the carbon-bed temperature after each regeneration and within 15 minutes of completing any cooling cycle shall be used. Monitoring results shall be recorded as specified in § 63.998(b). General requirements for monitoring and continuous parameter monitoring systems are contained in a referencing subpart and § 63.996.

(4) If an owner or operator uses a recovery device other than those listed in this subpart, the owner or operator shall submit a description of planned monitoring, reporting and recordkeeping procedures as required

under § 63.998(c)(5). The Administrator will approve or deny the proposed monitoring, reporting and recordkeeping requirements as part of the review of the submission or permit application or by other appropriate means.

(5) The owner or operator shall establish a range for monitored parameters that indicates proper operation of the recovery device. In order to establish the range, the information required in § 63.999(b)(3) shall be submitted in the Initial Compliance Status Report or the operating permit application or amendment. The range may be based upon a prior performance test meeting the specifications in § 63.997(b)(1) or upon existing ranges or limits established under a referencing subpart. Where the regeneration stream flow and carbon-bed temperature are monitored, the range shall be in terms of the total regeneration stream flow per regeneration cycle and the temperature of the carbon-bed determined within 15 minutes of the completion of the regeneration cooling cycle.

#### **§ 63.994 Halogen scrubbers and other halogen reduction devices.**

(a) *Halogen scrubber and other halogen reduction device equipment and operating requirements.* (1) An owner or operator of a halogen scrubber or other halogen reduction device subject to this subpart shall reduce the overall emissions of hydrogen halides and halogens by the control device performance level specified in a referencing subpart.

(2) Halogen scrubbers and other halogen reduction devices used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(b) *Halogen scrubber and other halogen reduction device performance test requirements.* (1) An owner or operator of a combustion device followed by a halogen scrubber or other halogen reduction device to control halogenated vent streams in accordance with a referencing subpart and this subpart shall conduct an initial performance test to determine compliance with the control efficiency or emission limits for hydrogen halides and halogens according to the procedures in § 63.997(a) through (e). Performance test records shall be kept as specified in § 63.998(a)(1) and (a)(2) and a performance test report shall be submitted as specified in § 63.999(a).

(2) An owner or operator of a halogen scrubber or other halogen reduction technique to reduce the vent stream

halogen atom mass emission rate prior to a combustion device to comply with a performance level specified in a referencing subpart shall determine the halogen atom mass emission rate prior to the combustor according to the procedures specified in the referencing subpart. Records of the halogen concentration in the vent stream shall be generated as specified in § 63.998(a)(4).

(c) *Halogen scrubber and other halogen reduction device monitoring requirements.* (1) Where a halogen scrubber is used, the monitoring equipment specified in paragraphs (c)(1)(i) and (c)(1)(ii) of this section is required for the scrubber. Monitoring results shall be recorded as specified in § 63.998(b). General requirements for monitoring and continuous parameter monitoring systems are contained in a referencing subpart and § 63.996.

(i) A pH monitoring device capable of providing a continuous record shall be installed to monitor the pH of the scrubber effluent.

(ii) A flow meter capable of providing a continuous record shall be located at the scrubber influent for liquid flow. Gas stream flow shall be determined using one of the procedures specified in paragraphs (c)(1)(ii)(A) through (c)(1)(ii)(D) of this section.

(A) The owner or operator may determine gas stream flow using the design blower capacity, with appropriate adjustments for pressure drop.

(B) The owner or operator may measure the gas stream flow at the scrubber inlet.

(C) If the scrubber is subject to regulations in 40 CFR parts 264 through 266 that have required a determination of the liquid to gas (L/G) ratio prior to the applicable compliance date for the process unit of which it is part as specified in a referencing subpart, the owner or operator may determine gas stream flow by the method that had been utilized to comply with those regulations. A determination that was conducted prior to that compliance date may be utilized to comply with this subpart if it is still representative.

(D) The owner or operator may prepare and implement a gas stream flow determination plan that documents an appropriate method that will be used to determine the gas stream flow. The plan shall require determination of gas stream flow by a method that will at least provide a value for either a representative or the highest gas stream flow anticipated in the scrubber during representative operating conditions other than startups, shutdowns, or malfunctions. The plan shall include a

description of the methodology to be followed and an explanation of how the selected methodology will reliably determine the gas stream flow, and a description of the records that will be maintained to document the determination of gas stream flow. The owner or operator shall maintain the plan as specified in a referencing subpart.

(2) Where a halogen reduction device other than a scrubber is used, the procedures in § 63.998(c)(5) shall be followed to establish monitoring parameters.

(3) The owner or operator shall establish a range for monitored parameters that indicates proper operation of the scrubber or other halogen reduction device. In order to establish the range, the information required in § 63.999(b)(3) shall be submitted in the Initial Compliance Status Report or the operating permit application or amendment. The range may be based upon a prior performance test meeting the specifications in § 63.997(b)(1) or upon existing ranges or limits established under a referencing subpart.

#### **§ 63.995 Other control devices.**

(a) *Other control device equipment and operating requirements.* (1) Owners or operators using another control device other than one listed in §§ 63.987 through 63.992 to meet a weight-percent emission reduction or parts per million by volume outlet concentration requirement specified in a referencing subpart shall meet the requirements of this section.

(2) Other control devices used to comply with the provisions of a referencing subpart and this subpart shall be operated at all times when emissions are vented to them.

(b) *Other control device performance test requirements.* An owner or operator of a control device other than those specified in §§ 63.987 through 63.992, to comply with a performance level specified in a referencing subpart shall perform an initial performance test according to the procedures in § 63.997(a) through (e). Performance test records shall be kept as specified in § 63.998(a)(1) and (a)(2) and a performance test report shall be submitted as specified in § 63.999(a).

(c) *Other control device monitoring requirements.* (1) If an owner or operator uses a control device other than those listed in this subpart, the owner or operator shall submit a description of planned monitoring, recordkeeping and reporting procedures as required under § 63.998(c)(5). The Administrator will approve, deny, or modify based on the

reasonableness of the proposed monitoring, reporting and recordkeeping requirements as part of the review of the submission or permit application or by other appropriate means.

(2) The owner or operator shall establish a range for monitored parameters that indicates proper operation of the control device. To establish the range, the information required in § 63.999(b)(3) shall be submitted in the Initial Compliance Status Report or the operating permit application or amendment. The range may be based upon a prior performance test meeting the specifications in § 63.997(b)(1) or upon existing ranges or limits established under a referencing subpart.

#### **§ 63.996 General monitoring requirements for control and recovery devices.**

(a) *General monitoring requirement applicability.* (1) This section applies to the owner or operator of a regulated source required to monitor under this subpart.

(2) Flares subject to § 63.987(c) are not subject to the requirements of this section.

(3) Flow indicators are not subject to the requirements of this section.

(b) *Conduct of monitoring.* (1) Monitoring shall be conducted as set forth in this section and in the relevant sections of this subpart unless the provision in either paragraph (b)(1)(i) or (b)(1)(ii) of this section applies.

(i) The Administrator specifies or approves the use of minor changes in methodology for the specified monitoring requirements and procedures; or

(ii) The Administrator approves the use of alternatives to any monitoring requirements or procedures as provided in the referencing subpart.

(2) When one CPMS is used as a backup to another CPMS, the owner or operator shall report the results from the CPMS used to meet the monitoring requirements of this subpart. If both such CPMS's are used during a particular reporting period to meet the monitoring requirements of this part, then the owner or operator shall report the results from each CPMS for the relevant compliance period.

(c) *Operation and maintenance of continuous parameter monitoring systems.* (1) All monitoring equipment shall be installed, calibrated, maintained, and operated according to manufacturers specifications or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately.

(2) The owner or operator of a regulated source shall maintain and operate each CPMS as specified in this section, or in a relevant subpart, and in a manner consistent with good air pollution control practices.

(i) The owner or operator of a regulated source shall ensure the immediate repair or replacement of CPMS parts to correct "routine" or otherwise predictable CPMS malfunctions. The necessary parts for routine repairs of the affected equipment shall be readily available.

(ii) If under the referencing subpart, an owner or operator has developed a startup, shutdown, and malfunction plan, the plan is followed, and the CPMS is repaired immediately, this action shall be reported in the semiannual startup, shutdown, and malfunction report.

(iii) The Administrator's determination of whether acceptable operation and maintenance procedures are being used for the CPMS will be based on information that may include, but is not limited to, review of operation and maintenance procedures, operation and maintenance records, manufacturer's recommendations and specifications, and inspection of the CPMS.

(3) All CPMS's shall be installed and operational, and the data verified as specified in this subpart either prior to or in conjunction with conducting performance tests. Verification of operational status shall, at a minimum, include completion of the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately.

(4) All CPMS's shall be installed such that representative measurements of parameters from the regulated source are obtained.

(5) In accordance with the referencing subpart, except for system breakdowns, repairs, maintenance periods, instrument adjustments, or checks to maintain precision and accuracy, calibration checks, and zero and span adjustments, all continuous parameter monitoring systems shall be in continuous operation when emissions are being routed to the monitored device.

(d) An owner or operator may request approval to monitor control, recovery, halogen scrubber, or halogen reduction device operating parameters other than those specified in this subpart by following the procedures specified in a referencing subpart.

**§ 63.997 Performance test and compliance determination requirements for control devices.**

(a) *Performance tests and flare compliance determinations.* Where §§ 63.985 through 63.995 require or the owner or operator elects to conduct a performance test of a control device or a halogen reduction device, or a compliance determination for a flare, the requirements of paragraphs (b) through (d) of this section apply.

(b) *Prior test results and waivers.* Initial performance tests and initial flare compliance determinations are required only as specified in this subpart.

(1) Unless requested by the Administrator, an owner or operator is not required to conduct a performance test or flare compliance determination under this subpart if a prior performance test or compliance determination was conducted using the same methods specified in § 63.997(e) and either no process changes have been made since the test, or the owner or operator can demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process changes.

(2) Individual performance tests and flare compliance determinations may be waived upon written application to the Administrator, per § 63.999(a)(1)(iii), if, in the Administrator's judgment, the source is meeting the relevant standard(s) on a continuous basis, the source is being operated under an extension or waiver of compliance, or the owner or operator has requested an extension or waiver of compliance and the Administrator is still considering that request.

(3) Approval of any waiver granted under this section shall not abrogate the Administrator's authority under the Act or in any way prohibit the Administrator from later canceling the waiver. The cancellation will be made only after notification is given to the owner or operator of the source.

(c) *Performance tests and flare compliance determinations schedule.*

(1) Unless a waiver of performance testing or flare compliance determination is obtained under this section or the conditions of a referencing subpart, the owner or operator shall perform such tests as specified in paragraphs (c)(1)(i) through (c)(1)(vii) of this section.

(i) Within 180 days after the effective date of a relevant standard for a new source that has an initial startup date before the effective date of that standard; or

(ii) Within 180 days after initial startup for a new source that has an

initial startup date after the effective date of a relevant standard; or

(iii) Within 180 days after the compliance date specified in a referencing subpart for an existing source, or within 180 days after startup of an existing source if the source begins operation after the effective date of the relevant emission standard; or

(iv) Within 180 days after the compliance date for an existing source subject to an emission standard established pursuant to section 112(f) of the Act; or

(v) Within 180 days after the termination date of the source's extension of compliance or a waiver of compliance for an existing source that obtains an extension of compliance under 40 CFR 63.6(i) of subpart A, or waiver of compliance under 40 CFR 61.11, subpart A; or

(vi) Within 180 days after the compliance date for a new source, subject to an emission standard established pursuant to section 112(f) of the Act, for which construction or reconstruction is commenced after the proposal date of a relevant standard established pursuant to section 112(d) of the Act but before the proposal date of the relevant standard established pursuant to section 112(f); or

(vii) When a referencing subpart promulgated emission standard is more stringent than the standard that was proposed, the owner or operator of a new or reconstructed source subject to that standard for which construction or reconstruction is commenced between the proposal and promulgation dates of the standard shall comply with performance testing requirements within 180 days after the standard's effective date, or within 180 days after startup of the source, whichever is later. If a referencing subpart promulgated standard is more stringent than the proposed standard, the owner or operator may choose to demonstrate compliance with either the proposed or the promulgated standard. If the owner or operator chooses to comply with the proposed standard initially, the owner or operator shall conduct a second performance test within 3 years and 180 days after the effective date of the standard, or after startup of the source, whichever is later, to demonstrate compliance with a referencing subpart promulgated standard.

(2) The Administrator may require an owner or operator to conduct performance tests and compliance determinations at the regulated source at any time when the action is authorized by section 114 of the Act.

(d) *Performance testing facilities.* If required to do performance testing, the

owner or operator of each new regulated source and, at the request of the Administrator, the owner or operator of each existing regulated source, shall provide performance testing facilities as specified in paragraphs (d)(1) through (d)(5) of this section.

(1) Sampling ports adequate for test methods applicable to such source. This includes, as applicable, the requirements specified in (d)(1)(i) and (d)(1)(ii) of this section.

(i) Constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures; and

(ii) Providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures;

(2) Safe sampling platform(s);

(3) Safe access to sampling platform(s);

(4) Utilities for sampling and testing equipment; and

(5) Any other facilities that the Administrator deems necessary for safe and adequate testing of a source.

(e) *Performance test procedures.*

Where §§ 63.985 through 63.995 require or the owner or operator elects to conduct a performance test of a control device or a halogen reduction device, an owner or operator shall follow the requirements of paragraphs (e)(1)(i) through (e)(1)(v) of this section, as applicable.

(1) *General procedures.*—(i) *Continuous unit operations.* For continuous unit operations, performance tests shall be conducted at maximum representative operating conditions for the process, unless the Administrator specifies or approves alternate operating conditions. During the performance test, an owner or operator may operate the control or halogen reduction device at maximum or minimum representative operating conditions for monitored control or halogen reduction device parameters, whichever results in lower emission reduction. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.

(ii) *Batch unit operations.* For batch unit operations, performance tests shall, at a minimum, include testing for peak emission episode(s). The peak emission episode shall be characterized by the criteria presented in paragraph (e)(ii)(A), (e)(1)(ii)(B), or (e)(1)(i)(C) of this section. For the purposes of testing the combustion, recovery, or recovery device the peak emission episode may

be simulated based on the emission profile described in paragraph (e)(1)(i)(D). A simulated peak emission episode must have a representative composition, HAP load, and duration that would be predicted from the emission profile.

(A) The period of combined batch cycles in which a process vent gas will contain at least 50 percent of the total regulated material load (in lb) from the batch cycle or combined batch cycles (if more than one cycle is vented through the same process vent) over a time duration that is sufficient to include all batch cycles routed to the common process vent. An emission profile as described in paragraph (e)(1)(ii)(D) of this section shall be used to identify the peak emission episode.

(B) A 1-hour period of time in which a process vent from the batch cycle or combination of batch cycles (if more than one cycle is vented through the same process vent) will contain the highest regulated material mass loading rate, in lb/hr, experienced over a time duration that is sufficient to include all batch cycles routed to the common process vent. An emission profile, as described in paragraph (e)(1)(ii)(D) of this section, shall be used to identify the peak emission episode.

(C) If a condenser is used to control the process vent stream(s), the peak emission episode(s) shall represent a 1-hour period of time in which a process vent from the batch cycle or combination of batch cycles (if more than one cycle is vented through the same process vent) will require the maximum heat removal capacity, in Btu/hr, to cool the process vent stream to a temperature that, upon calculation of regulated material concentration, will yield the required removal efficiency for the entire cycle. The calculation of maximum heat load shall be based on the emission profile described in paragraph (e)(1)(ii)(D) of this section and a concentration profile that will allow calculation of sensible and latent heat loads.

(D) *Emission profile.* For process vents from batch unit operations, the owner or operator may choose to perform tests only during those periods of the peak emission episode(s) that the owner or operator selects to control as part of achieving the required emission reduction. The owner or operator must develop an emission profile for the process vent, based on either process knowledge or test data collected, to demonstrate that test periods are representative. The emission profile must profile the regulated organic regulated material loading rate (in lb/hr) versus time for all emission episodes

contributing to the process vent stack for a period of time that is sufficient to include all batch cycles venting to the stack. Examples of information that could constitute process knowledge include calculations based on material balances, and process stoichiometry. Previous test results may be used to develop an emission profile, provided the results are still representative of the current process vent stream conditions.

(iii) *Combination of both continuous and batch unit operations.* For a combination of both continuous and batch unit operations, performance tests shall be conducted both at maximum representative operating conditions for the process for continuous unit operations as specified in paragraph (e)(1)(i) of this section, and at peak emission episode(s) for batch unit operations as specified in paragraph (e)(1)(ii) of this section.

(iv) Performance tests shall be conducted and data shall be reduced in accordance with the test methods and procedures set forth in this subpart, in each relevant standard, and, if required, in applicable appendices of 40 CFR parts 51, 60, 61, and 63 unless the Administrator specifies one of the provisions in paragraphs (e)(1)(iv)(A) through (e)(1)(iv)(E) of this section.

(A) Specifies or approves, in specific cases, the use of a test method with minor changes in methodology; or

(B) Approves the use of an alternative test method, the results of which the Administrator has determined to be adequate for indicating whether a specific regulated source is in compliance. The alternate method or data shall be validated using the applicable procedures of Method 301 of appendix A of 40 CFR part 63; or

(C) Approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors; or

(D) Waives the requirement for the performance test as specified in paragraph (b)(2) of this section because the owner or operator of a regulated source has demonstrated by other means to the Administrator's satisfaction that the regulated source is in compliance with the relevant standard; or

(E) Approves the use of an equivalent method.

(v) Except as provided in paragraphs (e)(1)(v)(A) through (e)(1)(v)(C) of this section, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for at least 1 hour and under the conditions specified in this section. For the purpose of determining compliance with an applicable standard, the arithmetic means of

results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs.

(A) For control devices, used to control emissions from transfer racks except low throughput transfer racks, that are capable of continuous vapor processing but do not handle continuous emissions or multiple loading arms of a transfer rack that load simultaneously, each run shall represent at least one complete tank truck or tank car loading period, during which regulated materials are loaded, and samples shall be collected using integrated sampling or grab samples taken at least four times per hour at approximately equal intervals of time, such as 15-minute intervals.

(B) For intermittent vapor processing systems used for controlling transfer rack emissions except low throughput transfer racks that do not handle continuous emissions or multiple loading arms of a transfer rack that load simultaneously, each run shall represent at least one complete control device cycle, and samples shall be collected using integrated sampling or grab samples taken at least four times per hour at approximately equal intervals of time, such as 15-minute intervals.

(C) For batch unit operations, testing of peak emission episodes less than or equal to 1 hour, testing shall include three runs, each of a duration not less than the duration of the peak emission episode.

(f) For testing of batch emission episodes of greater than 1 hour, the emission rate from a single test run may be used to determine compliance.

(2) For testing of batch emission episodes of duration greater than 8 hours, the owner or operator shall perform at least 8 hours of testing. The test period must include the period of time in which the peak emission episode(s) is predicted by the emission profile.

(3) For process vents from batch unit operations, the owner or operator may choose to perform tests only during those periods of peak emission episode(s) that the owner or operator selects to control as part of achieving the required emission reduction. The owner or operator must develop an emission profile for the process vent,



based on either process knowledge or test data collected, to demonstrate that test periods are representative. The emission profile must profile regulated material loading rate (in lb/hr) versus time for all emission episodes contributing to the process vent stack for a period of time that is sufficient to include all batch cycles venting to the stack. Examples of information that could constitute process knowledge include calculations based on material balances, and process stoichiometry. Previous test results may be used to develop an emissions profile, provided the results are still representative of the current process vent stream conditions.

(2) *Specific procedures.* Where §§ 63.985 through 63.995 require or the owner or operator elects to conduct a performance test of a control device, or a halogen reduction device, an owner or operator shall conduct that performance test using the procedures in paragraphs (e)(2)(i) through (e)(2)(iv) of this section, as applicable. The regulated material concentration and percent reduction may be measured as either total organic regulated material or as TOC minus methane and ethane according to the procedures specified.

(i) *Selection of sampling sites.* Method 1 or 1A of 40 CFR part 60, appendix A, as appropriate, shall be used for selection of the sampling sites.

(A) For determination of compliance with a percent reduction requirement of total organic regulated material or TOC, sampling sites shall be located as specified in paragraphs (e)(2)(i)(A)(1) and (e)(2)(i)(A)(2) of this section, and at the outlet of the control device.

(1) For process vents from continuous unit operations, the control device inlet sampling site shall be located after the final product recovery device.

(2) If a vent stream is introduced with the combustion air or as a secondary fuel into a boiler or process heater with a design capacity less than 44 megawatts, selection of the location of the inlet sampling sites shall ensure the measurement of total organic regulated material or TOC (minus methane and ethane) concentrations, as applicable, in all vent streams and primary and secondary fuels introduced into the boiler or process heater.

(3) For process vents from batch unit operations, the inlet sampling site shall be located at the exit from the batch unit operation before any recovery device.

(B) For determination of compliance with a parts per million by volume total regulated material or TOC limit in a referencing subpart, the sampling site shall be located at the outlet of the control device.

(ii) *Gas volumetric flow rate.* The gas volumetric flow rate shall be determined using Method 2, 2A, 2C, or 2D of 40 CFR part 60, appendix A, as appropriate. For batch unit operations, gas stream volumetric flow rates shall be measured at 15-minute intervals, or at least once during the peak emission episode(s).

(iii) *Total organic regulated material or TOC concentration.* To determine compliance with a parts per million by volume total organic regulated material or TOC (minus methane and ethane) limit, the owner or operator shall use method 18 of 40 CFR part 60, appendix A, to measure either TOC minus methane and ethane or total organic regulated material, as applicable. Alternatively, any other method or data that have been validated according to the applicable procedures in Method 301 of appendix A of 40 CFR part 63, may be used. Method 25A of 40 CFR part 60, appendix A may be used for transfer racks as detailed in paragraph (e)(2)(iii)(D) of this section. The procedures specified in paragraphs (e)(2)(iii)(A) through (e)(2)(iii)(D) of this section shall be used to calculate parts per million by volume concentration, corrected to 3 percent oxygen.

(A) *Sampling time.*—(1) *Continuous unit operations and a combination of both continuous and batch unit operations.* For continuous unit operations and for a combination of both continuous and batch unit operations, the minimum sampling time for each run shall be 1 hour in which either an integrated sample or a minimum of four grab samples shall be taken. If grab sampling is used, then the samples shall be taken at approximately equal intervals in time, such as 15 minute intervals during the run.

(2) *Batch unit operations.* For batch unit operations, the organic regulated material concentration shall be determined from samples collected in an integrated sample over the duration of the peak emission episode(s) characterized by the criteria presented in paragraph, or from grab samples collected simultaneously with flow rate measurements (at approximately equal intervals of about 15 minutes). If an integrated sample is collected for laboratory analysis, the sampling rate shall be adjusted proportionally to reflect variations in flow rate.

(B) *Concentration calculation.* The concentration of either TOC (minus methane or ethane) or total organic regulated material shall be calculated according to paragraph (e)(2)(iii)(B)(1) or (e)(2)(iii)(B)(2) of this section.

(1) The TOC concentration ( $C_{\text{TOC}}$ ) is the sum of the concentrations of the

individual components and shall be computed for each run using equation 4.

$$C_{\text{TOC}} = \sum_{i=1}^x \frac{\left( \sum_{j=1}^n C_{ji} \right)}{x} \quad [\text{Eq. 4}]$$

Where:

$C_{\text{TOC}}$  = Concentration of TOC (minus methane and ethane), dry basis, parts per million by volume.

$x$  = Number of samples in the sample run.

$n$  = Number of components in the sample.

$C_{ji}$  = Concentration of sample components  $j$  of sample  $i$ , dry basis, parts per million by volume.

(2) The total organic regulated material ( $C_{\text{REG}}$ ) shall be computed according to the equation in paragraph (e)(2)(iii)(B)(1) of this section except that only the regulated species shall be summed.

(C) *Concentration correction calculation.* The concentration of TOC or total organic regulated material, as applicable, shall be corrected to 3 percent oxygen if a combustion device is the control device.

(1) The emission rate correction factor (or excess air), integrated sampling and analysis procedures of Method 3B of 40 CFR part 60, appendix A, shall be used to determine the oxygen concentration. The sampling site shall be the same as that of the organic regulated material or organic compound samples, and the samples shall be taken during the same time that the organic regulated material or organic compound samples are taken.

(2) The concentration corrected to 3 percent oxygen ( $C_c$ ) shall be computed using equation 5.

$$C_c = C_m \left( \frac{17.9}{20.9 - \%O_{2d}} \right) \quad [\text{Eq. 5}]$$

where:

$C_c$  = Concentration of TOC or organic regulated material corrected to 3 percent oxygen, dry basis, parts per million by volume.

$C_m$  = Concentration of TOC (minus methane and ethane) or organic regulated material, dry basis, parts per million by volume.

$\%O_{2d}$  = Concentration of oxygen, dry basis, percentage by volume.

(D) Method 25A of 40 CFR part 60, appendix A may be used for the purpose of determining compliance with a parts per million by volume limit for transfer racks. If Method 25A of 40 CFR part 60, appendix A is used, the procedures specified in paragraphs (e)(2)(iii)(D)(1) through (e)(2)(iii)(D)(4) of this section

shall be used to calculate the concentration of organic compounds ( $C_{TOC}$ ):

(1) The principal organic regulated material in the vent stream shall be used as the calibration gas.

(2) The span value for Method 25A of 40 CFR part 60, appendix A, shall be between 1.5 and 2.5 times the concentration being measured.

(3) Use of Method 25A of 40 CFR part 60, appendix A, is acceptable if the response from the high-level calibration gas is at least 20 times the standard deviation of the response from the zero calibration gas when the instrument is zeroed on the most sensitive scale.

(4) The concentration of TOC shall be corrected to 3 percent oxygen using the procedures and equation in paragraph (e)(2)(iii)(C) of this section.

(iv) To determine compliance with a percent reduction requirement, the owner or operator shall use Method 18 of 40 CFR part 60, appendix A; alternatively, any other method or data that have been validated according to the applicable procedures in Method 301 of appendix A of this part may be used. Method 25A or 25B of 40 CFR part 60, appendix A may be used for transfer racks as detailed in paragraph (e)(2)(iv)(E) of this section. Procedures specified in paragraphs (e)(2)(iv)(A) through (e)(2)(iv)(E) of this section shall be used to calculate percent reduction efficiency.

(A) The minimum sampling time for each run shall be 1 hour in which either an integrated sample or a minimum of four grab samples shall be taken. If grab sampling is used, then the samples shall be taken at approximately equal intervals in time, such as 15-minute intervals during the run.

(B) The mass rate of either TOC (minus methane and ethane) or total organic regulated material ( $E_i$ ,  $E_o$ ) shall be computed as applicable.

(1) Equations 6 and 7 shall be used.

$$E_i = K_2 \left( \sum_{j=1}^n C_{ij} M_{ij} \right) Q_i \quad [\text{Eq. 6}]$$

$$E_o = K_2 \left( \sum_{j=1}^n C_{oj} M_{oj} \right) Q_o \quad [\text{Eq. 7}]$$

Where:

$E_i$ ,  $E_o$  = Emission rate of TOC (minus methane and ethane) ( $E_{TOC}$ ) or emission rate of total organic regulated material ( $E_{RM}$ ) in the sample at the inlet and outlet of the control device, respectively, dry basis, kilogram per hour.

$K_2$  = Constant,  $2.494 \times 10^{-6}$  (parts per million)<sup>-1</sup> (gram-mole per standard

cubic meter) (kilogram per gram) (minute per hour), where standard temperature (gram-mole per standard cubic meter) is 20 °C.

$n$  = Number of components in the sample.

$C_{ij}$ ,  $C_{oj}$  = Concentration on a dry basis of organic compound  $j$  in parts per million by volume of the gas stream at the inlet and outlet of the control device, respectively. If the TOC emission rate is being calculated,  $C_{ij}$  and  $C_{oj}$  include all organic compounds measured minus methane and ethane; if the total organic regulated material emissions rate is being calculated, only organic regulated material are included.

$M_{ij}$ ,  $M_{oj}$  = Molecular weight of organic compound  $j$ , gram per gram-mole, of the gas stream at the inlet and outlet of the control device, respectively.

$Q_i$ ,  $Q_o$  = Process vent flow rate, dry standard cubic meter per minute, at a temperature of 20°C, at the inlet and outlet of the control device, respectively.

(2) Where the mass rate of TOC is being calculated, all organic compounds (minus methane and ethane) measured by method 18 of 40 CFR part 60, appendix A, are summed using the equation in paragraph (e)(2)(iv)(B)(1) of this section.

(3) Where the mass rate of total organic regulated material is being calculated, only the species comprising the regulated material shall be summed using the equation in paragraph (e)(2)(iv)(B)(1) of this section.

(C) *Percent reduction in TOC or total organic regulated material—(1) Continuous unit operations and a combination of both continuous and batch unit operations.* For continuous unit operations and for a combination of both continuous and batch unit operations, the percent reduction in TOC (minus methane and ethane) or total organic regulated material shall be calculated using Equation 8.

$$R = \frac{E_i - E_o}{E_i} (100) \quad [\text{Eq. 8}]$$

where:

$R$  = Control efficiency of control device, percent.

$E_i$  = Mass rate of TOC (minus methane and ethane) or total organic regulated material at the inlet to the control device as calculated under paragraph (e)(2)(iv)(B) of this section, kilograms TOC per hour or kilograms organic regulated material per hour.

$E_o$  = Mass rate of TOC (minus methane and ethane) or total organic

regulated material at the outlet of the control device, as calculated under paragraph (e)(2)(iv)(B) of this section, kilograms TOC per hour or kilograms total organic regulated material per hour.

(2) *Batch unit operations.* For process vents from batch unit operations, the owner shall determine the organic regulated material emission reduction for process vents from batch unit operations using Equation 9.

$$RED_{PPU} = \left( \frac{\sum_{i=1}^n (E_{unc,i})(R_i)}{\sum_{j=1}^n (E_{unc,j}) + \sum_{j=1}^m (E_{unc,j})} \right) * 100 \quad [\text{Eq. 9}]$$

Where:

$RED_{PPU}$  = Organic regulated material emission reduction for the group of process vents from batch unit operations in the process unit, percent

$E_{unc,i}$  = Uncontrolled organic regulated material emissions from process vent  $i$  that is controlled using a combustion, recovery, or recapture device, kilograms per batch cycle for process vents from batch unit operations.

$n$  = Number of process vents from batch unit operations in the applicable production process unit and controlled using a combustion, recovery, or recapture device

$R_i$  = Control efficiency of the combustion, recovery, or recapture device used to control organic regulated material emissions from vent  $i$ , determined in accordance with paragraph (e)(2)(iv)(C)(3) of this section.

$E_{unc,j}$  = Uncontrolled organic regulated material emissions from process vent  $j$  that is not controlled using a combustion, recovery, or recapture device, kilograms per batch cycle for process vents from batch unit operations, kilograms per hour for process vents from continuous unit operations.

$m$  = Number of process vents in the applicable production process unit that are subject to the same requirements of a referencing subpart and that are not controlled using a combustion, recovery, or recapture device.

(3) *Batch unit operations—control efficiency.* The control efficiency,  $R_i$ , shall be assigned as specified below in (e)(2)(iv)(C)(3)(i) or (e)(2)(iv)(C)(3)(ii) of this section.

(i) If the process vent is controlled using a flare, or a combustion device as specified in this subpart and a

performance test has not been conducted, the control efficiency shall be assumed to be 98 percent.

(ii) If the process vent is controlled using a combustion, recovery, or recapture device for which a performance test has been conducted in accordance with the provisions of this section, the control efficiency shall be the efficiency determined by the performance test.

(D) If the vent stream entering a boiler or process heater with a design capacity less than 44 megawatts is introduced with the combustion air or as a secondary fuel, the weight-percent reduction of total organic regulated material or TOC (minus methane and ethane) across the device shall be determined by comparing the TOC (minus methane and ethane) or total organic regulated material in all combusted vent streams and primary and secondary fuels with the TOC (minus methane and ethane) or total organic regulated material exiting the combustion device, respectively.

(E) Method 25A of 40 CFR part 60, appendix A, may also be used for the purpose of determining compliance with the percent reduction requirement for transfer racks.

(i) If Method 25A of 40 CFR part 60, appendix A, is used to measure the concentration of organic compounds ( $C_{TOC}$ ), the principal organic regulated material in the vent stream shall be used as the calibration gas.

(ii) An emission testing interval shall consist of each 15-minute period during the performance test. For each interval, a reading from each measurement shall be recorded.

(iii) The average organic compound concentration and the volume measurement shall correspond to the same emissions testing interval.

(iv) The mass at the inlet and outlet of the control device during each testing interval shall be calculated using equation 10.

$$M_j = FKV_s C_t \quad [\text{Eq. 10}]$$

Where:

$M_j$  = Mass of organic compounds emitted during testing interval  $j$ , kilograms.

$F = 10^{-6}$  = Conversion factor, (cubic meters regulated material per cubic meters air) \* (parts per million by volume) $^{-1}$ .

$K$  = Density, kilograms per standard cubic meter organic regulated material; 659 kilograms per standard cubic meter organic regulated material.

(NOTE: The density term cancels out when the percent reduction is calculated.

Therefore, the density used has no effect. The density of hexane is given so that it can be used to maintain the units of  $M_j$ .)

$V_s$  = Volume of air-vapor mixture exhausted at standard conditions, 20 °C and 760 millimeters mercury, standard cubic meters.

$C_t$  = Total concentration of organic compounds (as measured) at the exhaust vent, parts per million by volume, dry basis.

(v) The organic compound mass emission rates at the inlet and outlet of the control device shall be calculated as follows:

$$E_i = \frac{\sum_{j=1}^n M_{ij}}{T} \quad [\text{Eq. 11}]$$

$$E_o = \frac{\sum_{j=1}^n M_{oj}}{T} \quad [\text{Eq. 12}]$$

Where:

$E_i$ ,  $E_o$  = Mass flow rate of organic compounds at the inlet (i) and outlet (o) of the control device, kilograms per hour.

$n$  = Number of testing intervals.

$M_{ij}$ ,  $M_{oj}$  = Mass of organic compounds at the inlet (i) or outlet (o) during testing interval  $j$ , kilograms.

$T$  = Total time of all testing intervals, hours.

(3) An owner or operator using a halogen scrubber or other halogen reduction device to control process vent and transfer rack halogenated vent streams in compliance with a referencing subpart, who is required to conduct a performance test to determine compliance with a control efficiency or emission limit for hydrogen halides and halogens, shall follow the procedures specified in paragraphs (e)(3)(i) through (e)(3)(iv) of this section.

(i) For an owner or operator determining compliance with the percent reduction of total hydrogen halides and halogens, sampling sites shall be located at the inlet and outlet of the scrubber or other halogen reduction device used to reduce halogen emissions. For an owner or operator determining compliance with a kilogram per hour outlet emission limit for total hydrogen halides and halogens, the sampling site shall be located at the outlet of the scrubber or other halogen reduction device and prior to any releases to the atmosphere.

(ii) Except as provided in paragraph (e)(1)(ii) of this section, Method 26 or Method 26A of 40 CFR part 60, appendix A, shall be used to determine

the concentration, in milligrams per dry standard cubic meter, of total hydrogen halides and halogens that may be present in the vent stream. The mass emissions of each hydrogen halide and halogen compound shall be calculated from the measured concentrations and the gas stream flow rate.

(iii) To determine compliance with the percent removal efficiency, the mass emissions for any hydrogen halides and halogens present at the inlet of the halogen reduction device shall be summed together. The mass emissions of the compounds present at the outlet of the scrubber or other halogen reduction device shall be summed together. Percent reduction shall be determined by comparison of the summed inlet and outlet measurements.

(iv) To demonstrate compliance with a kilogram per hour outlet emission limit, the test results must show that the mass emission rate of total hydrogen halides and halogens measured at the outlet of the scrubber or other halogen reduction device is below the kilogram per hour outlet emission limit specified in a referencing subpart.

#### § 63.998 Recordkeeping requirements.

(a) *Compliance determination, monitoring, and compliance records—*

(1) *Conditions of flare compliance determination, monitoring, and compliance records.* Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of flare compliance determinations performed pursuant to § 63.987(b).

(i) *Flare compliance determination records.* When using a flare to comply with this subpart, record the information specified in paragraphs (a)(1)(i)(A) through (a)(1)(i)(C) of this section for each flare compliance determination performed pursuant to § 63.987(b). As specified in § 63.999(a)(1)(i), the owner or operator shall include this information in the flare compliance determination report.

(A) Flare design (i.e., steam-assisted, air-assisted, or non-assisted);

(B) All visible emission readings, heat content determinations, flow rate measurements, and exit velocity determinations made during the flare compliance determination; and

(C) All periods during the flare compliance determination when all pilot flames are absent or, if only the flare flame is monitored, all periods when the flare flame is absent.

(ii) *Monitoring records.* Each owner or operator shall keep up to date and readily accessible hourly records of

whether the monitor is continuously operating and whether the flare flame or at least one pilot flame is continuously present. For transfer racks, hourly records are required only while the transfer rack vent stream is being vented.

(iii) *Compliance records.* (A) Each owner or operator shall keep records of the times and duration of all periods during which the flare flame or all the pilot flames are absent. This record shall be submitted in the periodic reports as specified in § 63.999(b)(9).

(B) Each owner or operator shall keep records of the times and durations of all periods during which the monitor is not operating.

(2) *Performance test and TRE index value determination records for process vents and transfer racks except low throughput transfer racks—(i)*

*Conditions of performance tests records.* Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests performed pursuant to §§ 63.988(b), 63.989(b), 63.990(b), 63.991(b), 63.992(b), 63.994(b), or 63.995(b).

(ii) *Nonflare combustion control device and halogen reduction device performance test records.* (A) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible continuous records of the data specified in (a)(2)(ii)(B)(1) through (a)(2)(ii)(B)(3) of this section, as applicable, measured during each performance test performed pursuant to §§ 63.988(b), 63.989(b), 63.990(b), 63.991(b), 63.992(b), 63.994(b), or 63.995(b), and also include that data in the Initial Compliance Status Report required under § 63.999(a)(1). The same data specified in this section shall be submitted in the reports of all subsequently required performance tests where either the emission control efficiency of a combustion device, or the outlet concentration of TOC or regulated material is determined.

(B) *Nonflare combustion device.* Where an owner or operator subject to the provisions of this paragraph seeks to demonstrate compliance with a percent reduction requirement or a parts per million by volume requirement using a nonflare combustion device the information specified in (a)(2)(ii)(B)(1) through (a)(2)(ii)(B)(6) of this section shall be recorded.

(1) For thermal incinerators, record the fire box temperature averaged over the full period of the performance test.

(2) For catalytic incinerators, record the upstream and downstream

temperatures and the temperature difference across the catalyst bed averaged over the full period of the performance test.

(3) For a boiler or process heater with a design heat input capacity less than 44 megawatts and a vent stream that is not introduced with or as the primary fuel, record the fire box temperature averaged over the full period of the performance test.

(4) For an incinerator, record the percent reduction of organic regulated material, if applicable, or TOC achieved by the incinerator determined as specified in § 63.997 (e)(2)(i) and (e)(2)(ii), as applicable, or the concentration of organic regulated material (parts per million by volume, by compound) determined as specified in § 63.997 (e)(2)(iii)(B)(1) and (e)(2)(iii)(B)(2) at the outlet of the incinerator.

(5) For a boiler or process heater, record a description of the location at which the vent stream is introduced into the boiler or process heater.

(6) For a boiler or process heater with a design heat input capacity of less than 44 megawatts and where the process vent stream is introduced with combustion air or used as a secondary fuel and is not mixed with the primary fuel, record the percent reduction of organic regulated material or TOC, or the concentration of regulated material or TOC (parts per million by volume, by compound) determined as specified in § 63.997(e)(2) at the outlet of the combustion device.

(C) *Other nonflare control devices.* Where an owner or operator seeks to use an absorber, condenser, or carbon adsorber as a control device, the information specified in paragraphs (a)(2)(ii)(C)(1) through (a)(2)(ii)(C)(5) shall be recorded, as applicable.

(1) Where an absorber is used as the control device, the exit specific gravity and average exit temperature of the absorbing liquid averaged over the same time period as the performance test (both measured while the vent stream is normally routed and constituted); or

(2) Where a condenser is used as the control device, the average exit (product side) temperature averaged over the same time period as the performance test while the vent stream is routed and constituted normally; or

(3) Where a carbon adsorber is used as the control device, the total regeneration stream mass flow during each carbon-bed regeneration cycle during the period of the performance test, and temperature of the carbon-bed after each regeneration during the period of the performance test (and

within 15 minutes of completion of any cooling cycle or cycles; or

(4) As an alternative to paragraph (a)(2)(ii)(B)(1), (a)(2)(ii)(B)(2), or (a)(2)(ii)(B)(3) of this section, the concentration level or reading indicated by an organics monitoring device at the outlet of the absorber, condenser, or carbon adsorber averaged over the same time period as the TRE determination while the vent stream is normally routed and constituted.

(5) For an absorber, condenser, or carbon adsorber used as a control device, the percent reduction of regulated material achieved by the control device or concentration of regulated material (parts per million by volume, by compound) at the outlet of the control device.

(D) *Halogen reduction devices.* When using a scrubber following a combustion device to control a halogenated vent stream, record the information specified in paragraphs (a)(2)(ii)(D)(1) through (a)(2)(ii)(D)(3) of this section.

(1) The percent reduction or scrubber outlet mass emission rate of total hydrogen halides and halogens as specified in § 63.997(e)(3).

(2) The pH of the scrubber effluent averaged over the time period of the performance test; and

(3) The scrubber liquid-to-gas ratio averaged over the time period of the performance test.

(3) *Recovery device monitoring records during TRE index value determination.* For process vents that require control of emissions under a referencing subpart shall maintain the continuous records specified in paragraph (a)(3)(i) through (a)(3)(v) of this section, as applicable.

(i) Where an absorber is the final recovery device in the recovery system, the exit specific gravity (or alternative parameter that is a measure of the degree of absorbing liquid saturation if approved by the Administrator) and average exit temperature of the absorbing liquid averaged over the same time period as the TRE index value determination (both measured while the vent stream is normally routed and constituted); or

(ii) Where a condenser is the final recovery device in the recovery system, the average exit (product side) temperature averaged over the same time period as the TRE index value determination while the vent stream is routed and constituted normally; or

(iii) Where a carbon adsorber is the final recovery device in the recovery system, the total regeneration stream mass flow during each carbon-bed regeneration cycle during the period of the TRE index value determination, and

temperature of the carbon-bed after each regeneration during the period of the TRE index value determination (and within 15 minutes of completion of any cooling cycle or cycles; or

(iv) As an alternative to paragraph (a)(3)(i), (a)(3)(ii), or (a)(3)(iii) of this section, the concentration level or reading indicated by an organics monitoring device at the outlet of the absorber, condenser, or carbon adsorber averaged over the same time period as the TRE index value determination while the vent stream is normally routed and constituted.

(v) All measurements and calculations performed to determine the TRE index value of the vent stream as specified in a referencing subpart.

(4) *Halogen concentration records.* Record the halogen concentration in the vent stream determined according to the procedures specified in a referencing subpart. Submit this record in the Initial Compliance Status Report, as specified in § 63.999(b)(8).

(b) *Continuous records and monitoring system data handling.*

(1) Where this subpart requires a continuous record, the owner or operator shall maintain the record specified in paragraphs (b)(1)(i) or (b)(1)(ii) of this section, as applicable:

(i) A record of values measured at least once every 15 minutes or each measured value for systems which measure more frequently than once every 15 minutes; or

(ii) A record of block average values for 15-minutes or shorter periods calculated from all measured data values during each period or at least one measured data value per minute if measured more frequently than once per minute.

(iii) The owner or operator may calculate and retain block hourly average values from each 15 minute block averages period or from at least one measured value per minute if measured more frequently than once per minute, and discard all but the most recent three valid hours of continuous (15-minute or shorter) records.

(iv) A record as required by an alternative approved under paragraph (c)(5) of this section.

(2) Monitoring data recorded during periods identified in paragraphs (b)(2)(i) through (b)(2)(iii) of this section, shall not be included in any average computed to determine compliance under this subpart.

(i) Monitoring system breakdowns, repairs, preventive maintenance, calibration checks, and zero (low-level) and high-level adjustments;

(ii) Periods of non-operation of the process unit (or portion thereof),

resulting in cessation of the emissions to which the monitoring applies; and

(iii) Startups, shutdowns, and malfunctions.

(3) Owners or operators shall also keep records as specified in paragraphs (b)(3)(i) and (b)(3)(ii) of this section, unless an alternative monitoring or recordkeeping system has been requested and approved under paragraph (c)(5) of this section.

(i) Except as specified in paragraph (b)(3)(ii) of this section, 3-hour average values of each continuously monitored parameter shall be calculated from data meeting the specifications of paragraph (b)(2) of this section for each 3-hour period of operation, and retained for 5 years.

(A) The 3-hour average shall be calculated as the average of all values for a monitored parameter recorded during 3-hours of operation. The average shall cover a 3-hour period if operation is continuous, or the period of operation per 3 hours if operation is not continuous (e.g., for transfer racks the average shall cover periods of loading). If values are measured more frequently than once per minute, a single value for each minute may be used to calculate the 3-hour average instead of all measured values.

(B) The 3-hour periods of operation that are to be included in the 3-hour averages shall be defined in the operating permit or the Initial Compliance Status Report.

(ii) If all recorded values for a monitored parameter during a 3-hour period are within the range established in the Initial Compliance Status Report or in the operating permit, the owner or operator may record that all values were within the range and retain this record for 5 years rather than calculating and recording a 3-hour average for that 3-hour period.

(4) Unless determined otherwise according to paragraph (b)(5) of this section, the data collected pursuant to paragraphs (b)(1) through (b)(3) of this section shall be considered valid.

(5) For any parameter with respect to any item of equipment associated with a process vent or transfer rack (except low throughput transfer loading racks), the owner or operator may implement the recordkeeping requirements in paragraphs (b)(5)(i) or (b)(5)(ii) of this section as alternatives to the continuous parameter monitoring and recordkeeping provisions listed in paragraphs (b)(1) through (b)(3) of this section. The owner or operator shall retain each record required by paragraphs (b)(5)(i) or (b)(5)(ii) of this section as provided in a referencing subpart, except as provided otherwise in

paragraphs (b)(5)(i) or (b)(5)(ii) of this section.

(i) The owner or operator may retain only the 3-hour average value, and is not required to retain more frequently monitored operating parameter values, for a monitored parameter with respect to an item of equipment, if the requirements of paragraphs (b)(5)(i)(A) through (b)(5)(i)(F) of this section are met. The owner or operator shall notify the Administrator in the Initial Compliance Status Report or, if the Initial Compliance Status Report has already been submitted in the Periodic Report immediately preceding implementation of the requirements of this paragraph.

(A) The monitoring system is capable of detecting unrealistic or impossible data during periods of operation other than startups, shutdowns or malfunctions (e.g., a temperature reading of  $-200^{\circ}\text{C}$  on a boiler), and will alert the operator by alarm or other means. The owner or operator shall record the occurrence. All instances of the alarm or other alert in a 3-hour period constitute a single occurrence.

(B) The monitoring system generates a running average of the monitoring values, updated at least hourly throughout each 3-hour period, that have been obtained during that 3-hour period, and the capability to observe this average is readily available to the Administrator on-site during the 3-hour period. The owner or operator shall record the occurrence of any period meeting the criteria in paragraphs (b)(5)(i)(B)(1) through (b)(5)(i)(B)(2) of this section. All instances in a 3-hour period constitute a single occurrence.

(1) The running average is above the maximum or below the minimum established limits;

(2) The running average is based on at least three one-hour average values; and

(3) The running average reflects a period of operation other than a startup, shutdown, or malfunction.

(C) The monitoring system is capable of detecting unchanging data during periods of operation other than startups, shutdowns or malfunctions, except in circumstances where the presence of unchanging data is the expected operating condition based on past experience (e.g., pH in some scrubbers), and will alert the operator by alarm or other means. The owner or operator shall record the occurrence. All instances of the alarm or other alert in a 3-hour period constitute a single occurrence.

(D) The monitoring system will alert the owner or operator by an alarm, if the running average parameter value calculated under paragraph (b)(5)(i)(B)

of this section reaches a set point that is appropriately related to the established limit for the parameter that is being monitored.

(E) The owner or operator shall verify the proper functioning of the monitoring system, including its ability to comply with the requirements of paragraph (b)(5)(i) of this section, at the times specified in paragraphs (b)(5)(i)(E)(1) through (b)(5)(i)(E)(3) of this section. The owner or operator shall document that the required verifications occurred.

(1) Upon initial installation.

(2) Annually after initial installation.

(3) After any change to the programming or equipment constituting the monitoring system, that might reasonably be expected to alter the monitoring system's ability to comply with the requirements of this section.

(F) The owner or operator shall retain the records identified in paragraphs (b)(5)(i)(F)(1) through (b)(5)(i)(F)(3) of this section.

(1) Identification of each parameter, for each item of equipment, for which the owner or operator has elected to comply with the requirements of paragraph (c)(5) of this section.

(2) A description of the applicable monitoring system(s), and of how compliance will be achieved with each requirement of paragraph (b)(5)(i)(A) through (b)(5)(i)(E) of this section. The description shall identify the location and format (e.g., on-line storage; log entries) for each required record. If the description changes, the owner or operator shall retain both the current and the most recent superseded description. The description, and the most recent superseded description, shall be retained as provided in the subpart that references this subpart, except as provided in paragraph (b)(5)(i)(F)(1) of this section.

(3) A description, and the date, of any change to the monitoring system that would reasonably be expected to affect its ability to comply with the requirements of paragraph (b)(5)(i) of this section.

(4) Owners and operators subject to paragraph (b)(5)(i)(F)(2) of this section shall retain the current description of the monitoring system as long as the description is current, but not less than 5 years from the date of its creation. The current description shall be retained on-site at all times or be accessible from a central location by computer or other means that provides access within 2 hours after a request. The owner or operator shall retain the most recent superseded description at least until 5 years from the date of its creation. The superseded description shall be retained on-site (or accessible from a central

location by computer that provides access within 2 hours after a request) at least 6 months after being superseded. Thereafter, the superseded description may be stored off-site.

(ii) If an owner or operator has elected to implement the requirements of paragraph (b)(5)(i) of this section, and a period of 6 consecutive months has passed without an excursion as defined in paragraph (b)(5)(ii)(D) of this section, the owner or operator is no longer required to record the 3-hour average value for that parameter for that unit of equipment, for any 3-hour period when the 3-hour average value is less than the maximum, or greater than the minimum established limit. With approval by the Administrator, monitoring data generated prior to the compliance date of this subpart shall be credited toward the period of 6 consecutive months, if the parameter limit and the monitoring were required and/or approved by the Administrator.

(A) If the owner or operator elects not to retain the 3-hour average values, the owner or operator shall notify the Administrator in the next Periodic Report. The notification shall identify the parameter and unit of equipment.

(B) If there is an excursion as defined in paragraph (b)(5)(ii)(D) of this section in any 3-hour period after the owner or operator has ceased recording 3-hour averages as provided in paragraph (b)(5)(ii) of this section, the owner or operator shall immediately resume retaining the 3-hour average value for each 3-hour period, and shall notify the Administrator in the next Periodic Report. The owner or operator shall continue to retain each 3-hour average value until another period of 6 consecutive months has passed without an excursion as defined in paragraph (b)(5)(ii)(D) of this section.

(C) The owner or operator shall retain the records specified in paragraphs (b)(5)(i)(A) through (b)(5)(i)(F) of this section for the duration specified in a referencing subpart. For any calendar week, if compliance with paragraphs (b)(5)(i)(A) through (b)(5)(i)(D) of this section does not result in retention of a record of at least one occurrence or measured parameter value, the owner or operator shall record and retain at least one parameter value during a period of operation other than a startup, shutdown, or malfunction.

(D) For purposes of paragraph (b)(5)(ii) of this section, an excursion means that the 3-hour average value of monitoring data for a parameter is greater than the maximum, or less than the minimum established value, except as provided in paragraphs (b)(5)(ii)(D)(1) and (b)(5)(ii)(D)(2) of this section.

(1) The 3-hour average value during any startup, shutdown or malfunction shall not be considered an excursion for purposes of paragraph (b)(5)(ii), if the owner or operator follows the applicable provisions of the startup, shutdown, and malfunction plan required by a referencing subpart.

(2) An excused excursion, as described in paragraph (b)(5)(ii)(E), shall not be considered an excursion for purposes of this paragraph.

(E) One excused excursion for each control device or recovery device for each semiannual period is allowed. If a source has developed a startup, shutdown and malfunction plan, and a monitored parameter is outside its established range or monitoring data are not collected during periods of startup, shutdown, or malfunction (and the source is operated during such periods in accordance with the startup, shutdown, and malfunction plan) or during periods of nonoperation of the process unit or portion thereof (resulting in cessation of the emissions to which monitoring applies), then the excursion is not a violation and, in cases where continuous monitoring is required, the excursion does not count as the excused excursion for determining compliance.

(c) *Nonflare control and recovery device regulated source monitoring records*—(1) *Monitoring system records*. The owner or operator subject to this subpart shall keep the records specified in this paragraph, as well as records specified elsewhere in this part.

(i) For CPMS's used to comply with this part, a record of the procedure used for calibrating the CPMS.

(ii) For a CPMS used to comply with this subpart, records of the information specified in paragraphs (c)(1)(ii)(A) through (c)(1)(ii)(E) of this section, as indicated in a referencing subpart.

(A) The date and time of completion of calibration and preventive maintenance of the CPMS.

(B) The "as found" and "as left" CPMS readings, whenever an adjustment is made that affects the CPMS reading and a "no adjustment" statement otherwise.

(C) The start time and duration or start and stop times of any periods when the CPMS is inoperative.

(D) Records of the occurrence and duration of each startup, shutdown, and malfunction of CPMS used to comply with this subpart during which excess emissions (as defined in a referencing subpart).

(E) For each startup, shutdown, and malfunction during which excess emissions as defined in a referencing subpart occur, records that the procedures specified in the source's

startup, shutdown, and malfunction plan were followed, and documentation of actions taken that are not consistent with the plan. These records may take the form of a "checklist," or other form of recordkeeping that confirms conformance with the startup, shutdown, and malfunction plan for the event.

(iii) *Batch unit operation compliance monitoring records.* If all recorded values for a monitored parameter during a 3-hour period are above the minimum or below the maximum level established in accordance with what is specified in the referencing subpart, the owner or operator may record that all values were above the minimum or below the maximum level established, rather than calculating and recording a 3-hour average or batch cycle 3-hour average for that 3-hour period. Monitoring data recorded during periods of non-operation of the process resulting in cessation of regulated material emissions shall not be included in computing the batch cycle 3-hour averages.

(2) *Combustion control and halogen reduction device monitoring records.*

(i) Each owner or operator using a combustion control or halogen reduction device to comply with this subpart shall keep the following records up-to-date and readily accessible, as applicable. Continuous records of the equipment operating parameters specified to be monitored under §§ 63.988(c) (incinerator monitoring), 63.989(c) (boiler and process heater monitoring), 63.994(c) (halogen reduction device monitoring), and 63.995(c) (other combustion systems used as a control device) or specified by the Administrator in accordance with paragraph (c)(5) of this section.

(ii) Each owner or operator shall keep records of the 3-hour average value of each continuously monitored parameter for each 3-hour period determined according to the procedures specified in paragraph (b)(3)(i) of this section. For catalytic incinerators, record the 3-hour average of the temperature upstream of the catalyst bed and the 3-hour average of the temperature differential across the bed. For halogen scrubbers record the pH and the liquid-to-gas ratio.

(iii) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible records of periods of operation during which the parameter boundaries are exceeded. The parameter boundaries are the 3-hour average values established pursuant to §§ 63.988(c)(2) (incinerator monitoring), 63.989(c)(2) (boiler and process heater monitoring), 63.994(c)(3) (halogen reduction device monitoring), or 63.995

(c)(2) (other combustion systems used as control devices monitoring), as applicable.

(3) *Monitoring records for recovery device process vents, and for absorbers, condensers, carbon adsorbers or other noncombustion systems used as control devices.*

(i) Each owner or operator using a recovery device to achieve and maintain a TRE index value greater than the control applicability level specified in the referencing subpart but less than 4.0 or using an absorber, condenser, carbon adsorber or other non-combustion system as a control device shall keep readily accessible, continuous records of the equipment operating parameters specified to be monitored under §§ 63.990(c) (absorber monitoring), 63.991(c) (condenser monitoring), 63.992(c) (carbon adsorber monitoring), or 63.995(c) (other noncombustion systems used as a control device monitoring) or specified by the Administrator in accordance with paragraph (c)(5) of this section. For transfer racks, continuous records are required while the transfer vent stream is being vented.

(ii) Each owner or operator shall keep records of the 3-hour average value of each continuously monitored parameter for each 3-hour period determined according to the procedures specified in § 63.998(b)(1)(iii)(A). If carbon adsorber regeneration stream flow and carbon bed regeneration temperature are monitored, the records specified in paragraphs (c)(3)(ii)(A) and (c)(3)(ii)(B) of this section shall be kept instead of the 3-hour averages.

(A) Records of total regeneration stream mass or volumetric flow for each carbon-bed regeneration cycle.

(B) Records of the temperature of the carbon bed after each regeneration and within 15 minutes of completing any cooling cycle.

(iii) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible records of periods of operation during which the parameter boundaries are exceeded. The parameter boundaries are the 3-hour average values established pursuant to §§ 63.990(c)(2) (absorber monitoring), 63.991(c)(2) (condenser monitoring), 63.992(c)(2) (carbon adsorber monitoring), or 63.995(c)(2) (other noncombustion systems used as control devices monitoring), as applicable.

(4) *Alternatives to the continuous operating parameter monitoring and recordkeeping provisions.* An owner or operator may request approval to use alternatives to the continuous operating parameter monitoring and recordkeeping provisions listed in

§§ 63.988(c), 63.989(c), 63.990(c), 63.991(c), 63.992(c), 63.993(c), 63.994(c), 63.998(a)(2) through (a)(4), and paragraphs (c)(2) and (c)(3) of this section.

(i) Requests shall be included in the operating permit application or as otherwise specified by the permitting authority, and shall contain the information specified in paragraphs (c)(4)(iii) of this section.

(ii) The provisions specified in a referencing subpart will govern the review and approval of requests.

(iii) An owner or operator may request approval to use other alternative monitoring and recordkeeping systems as specified in a referencing subpart. The application shall contain a description of the proposed alternative system. In addition, the application shall include information justifying the owner or operator's request for an alternative monitoring method, such as the technical or economic infeasibility, or the impracticality, of the regulated source using the required method.

(5) *Monitoring a different parameter than those listed.* The owner or operator who has been directed by any section of this subpart that expressly references this paragraph to set unique monitoring parameters or who requests, as allowed by § 63.996(d), approval to monitor a different parameter than those listed in §§ 63.988(c), 63.989(c), 63.990(c), 63.991(c), 63.992(c), 63.993(c), 63.994(c), 63.998(a)(2) through (a)(4), or paragraphs (c)(2) or (c)(3) of this section, or who has been directed by §§ 63.994(c)(2) or 63.995(c)(1) to set unique monitoring parameters shall submit the information specified in paragraphs (c)(5)(i) through (c)(5)(iii) of this section with the operating permit application or as otherwise specified by the permitting authority.

(i) A description of the parameter(s) to be monitored to ensure the control technology or pollution prevention measure is operated in conformance with its design and achieves the specified emission limit, percent reduction, or nominal efficiency, and an explanation of the criteria used to select the parameter(s).

(ii) A description of the methods and procedures that will be used to demonstrate that the parameter indicates proper operation of the control device, the schedule for this demonstration, and a statement that the owner or operator will establish a range for the monitored parameter as part of the Initial Compliance Status Report if required under a referencing subpart, unless this information has already been included in the operating permit application.

(iii) The frequency and content of monitoring, recording, and reporting if monitoring and recording is not continuous, or if reports of 3-hour average values when the monitored parameter value is outside the range established in the operating permit or Initial Compliance Status Report will not be included in Periodic Reports required under § 63.999(b)(6)(i). The rationale for the proposed monitoring, recording, and reporting system shall be included.

(d) *Other records.*—(1) *Closed vent system records.* For closed vent systems the owner or operator shall record the information specified in paragraphs (d)(1)(i) through (d)(1)(iv) of this section, as applicable.

(i) For closed vent systems collecting regulated material from a regulated source, the owner or operator shall record the identification of all parts of the closed vent system, that are designated as unsafe or difficult to inspect, an explanation of why the equipment is unsafe or difficult to inspect, and the plan for inspecting the equipment required by § 63.983(b)(2)(ii) or (b)(3)(ii).

(ii) For each closed vent system that contains bypass lines that could divert a vent stream away from the control device and to the atmosphere, the owner or operator shall keep a record of the information specified in either paragraph (d)(1)(ii)(A) or (d)(1)(ii)(B) of this section, as applicable.

(A) Hourly records of whether the flow indicator specified under § 63.983(a)(3)(i) was operating and whether a diversion was detected at any time during the hour, as well as records of the times of all periods when the vent stream is diverted from the control device or the flow indicator is not operating.

(B) Where a seal mechanism is used to comply with § 63.983(a)(3)(ii), hourly records of flow are not required. In such cases, the owner or operator shall record that the monthly visual inspection of the seals or closure mechanisms has been done, and shall record the occurrence of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out, and records of any car-seal that has been broken.

(iii) For a closed vent system collecting regulated material from a regulated source, when a leak is detected as specified in § 63.983(d)(1), the information specified in paragraphs (d)(1)(iii)(A) through (d)(1)(iii)(F) of this section shall be recorded and kept for 2 years.

(A) The instrument and the equipment identification number and the operator name, initials, or identification number.

(B) The date the leak was detected and the date of the first attempt to repair the leak.

(C) The date of successful repair of the leak.

(D) The maximum instrument reading measured by the procedures in § 63.983(c) after the leak is successfully repaired or determined to be nonrepairable.

(E) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak. The owner or operator may develop a written procedure that identifies the conditions that justify a delay of repair. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.

(F) Copies of the periodic reports as specified in § 63.999(b), if records are not maintained on a computerized database capable of generating summary reports from the records.

(iv) For each instrumental or visual inspection conducted in accordance with § 63.983(b)(1) for closed vent systems collecting regulated material from a regulated source during which no leaks are detected, the owner or operator shall record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

(2) *Storage vessel records.* An owner or operator shall keep readily accessible records of the information specified in paragraphs (d)(2)(i) through (d)(2)(iii) of this section, as applicable.

(i) A record of the measured values of the parameters monitored in accordance with § 63.985(c) or § 63.987(c).

(ii) A record of the planned routine maintenance performed on the control system during which the control system does not meet the applicable specifications of §§ 63.983(a), 63.985(a), or 63.987(a), as applicable, due to the planned routine maintenance. Such a record shall include the information specified in paragraphs (d)(2)(ii)(A) through (d)(2)(ii)(C) of this section. This information shall be submitted in the periodic reports as specified in § 63.999(b)(1)(i).

(A) The first time of day and date the requirements of §§ 63.983(a), § 63.985(a), or § 63.987(a), as applicable, were not met at the beginning of the planned routine maintenance, and

(B) The first time of day and date the requirements of §§ 63.983(a), 63.985(a), or 63.987(a), as applicable, were met at

the conclusion of the planned routine maintenance.

(C) A description of the type of maintenance performed.

(iii) *Bypass records for storage vessel emissions routed to a process or fuel gas system.* An owner or operator who uses the bypass provisions of § 63.983(a)(3) shall keep in a readily accessible location the records specified in paragraphs (d)(2)(iii)(A) through (d)(2)(iii)(C) of this section.

(A) The reason it was necessary to bypass the process equipment or fuel gas system;

(B) The duration of the period when the process equipment or fuel gas system was bypassed;

(C) Documentation or certification of compliance with the applicable provisions of § 63.983(a)(3)(i) or (a)(3)(ii).

(3) *Regulated source and control equipment startup, shutdown and malfunction records.*

(i) Records of the occurrence and duration of each startup, shutdown, and malfunction of operation of process equipment or of air pollution control equipment used to comply with this part during which excess emissions (as defined in a referencing subpart) occur.

(ii) For each startup, shutdown, and malfunction during which excess emissions occur, records that the procedures specified in the source's startup, shutdown, and malfunction plan were followed, and documentation of actions taken that are not consistent with the plan. For example, if a startup, shutdown, and malfunction plan includes procedures for routing control device emissions to a backup control device (e.g., the incinerator for a halogenated stream could be routed to a flare during periods when the primary control device is out of service), records must be kept of whether the plan was followed. These records may take the form of a "checklist," or other form of recordkeeping that confirms conformance with the startup, shutdown, and malfunction plan for the event.

(4) *Equipment leak records.* The owner or operator shall maintain records of the information specified in paragraphs (d)(4)(i) and (d)(4)(ii) of this section for closed vent systems and control devices if specified by the equipment leak provisions in a referencing subpart. The records specified in paragraph (d)(4)(i) of this section shall be retained for the life of the equipment. The records specified in paragraph (d)(4)(ii) of this section shall be retained for 2 years.

(i) The design specifications and performance demonstrations specified



in paragraphs (d)(4)(i)(A) through (d)(4)(i)(C) of this section.

(A) Detailed schematics, design specifications of the control device, and piping and instrumentation diagrams.

(B) The dates and descriptions of any changes in the design specifications.

(C) A description of the parameter or parameters monitored, as required in a referencing subpart, to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

(ii) Records of operation of closed vent systems and control devices, as specified in paragraphs (d)(4)(ii)(A) through (d)(4)(ii)(C) of this section.

(A) Dates and durations when the closed vent systems and control devices required are not operated as designed as indicated by the monitored parameters, including periods when a flare pilot light system does not have a flame.

(B) Dates and durations during which the monitoring system or monitoring device is inoperative.

(C) Dates and durations of startups and shutdowns of control devices required in this subpart.

#### **§ 63.999 Notifications and other reports.**

(a) *Performance test and flare compliance determination notifications and reports.*

(1) *General requirements.* General requirements for performance test and flare compliance determination notifications and reports are specified in paragraphs (a)(1)(i) through (a)(1)(iii) of this section.

(i) The owner or operator shall notify the Administrator of the intention to conduct a performance test at least 30 calendar days before the performance test is scheduled to allow the Administrator the opportunity to have an observer present. If after 30 days notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting the scheduled performance test, the owner or operator of an affected facility shall notify the Administrator as soon as possible of any delay in the original test date. The owner or operator shall provide at least 7 days prior notice of the rescheduled date of the performance test, or arrange a rescheduled date with the Administrator by mutual agreement.

(ii) Unless specified differently in this subpart or a referencing subpart, performance test and flare compliance determination reports, not submitted as part of an Initial Compliance Status Report, shall be submitted to the

Administrator within 60 days of completing the test or determination.

(iii) Any application for a waiver of an initial performance test or flare compliance determination, as allowed by § 63.997(b)(2), shall be submitted no later than 90 calendar days before the performance test or compliance determination is required. The application for a waiver shall include information justifying the owner or operator's request for a waiver, such as the technical or economic infeasibility, or the impracticality, of the source performing the test.

(2) *Performance test and flare compliance determination report submittal and content requirements.* Performance test and flare compliance determination reports shall be submitted as specified in paragraphs (a)(2)(i) through (a)(2)(iii) of this section.

(i) For performance tests of flare compliance determinations, the Initial Compliance Status Report or performance test and flare compliance determination report shall include one complete test report as specified in paragraph (a)(2)(ii) of this section for each test method used for a particular kind of emission point and other applicable information specified in (a)(2)(iii) of this section. For additional tests performed for the same kind of emission point using the same method, the results and any other information required in applicable sections of this subpart shall be submitted, but a complete test report is not required.

(ii) A complete test report shall include a brief process description, sampling site description, description of sampling and analysis procedures and any modifications to standard procedures, quality assurance procedures, record of operating conditions during the test, record of preparation of standards, record of calibrations, raw data sheets for field sampling, raw data sheets for field and laboratory analyses, documentation of calculations, and any other information required by the test method.

(iii) The performance test or flare compliance determination report shall also include the information specified in (a)(2)(iii)(A) through (a)(2)(iii)(C), as applicable.

(A) For flare compliance determinations, the owner or operator shall submit the records specified in § 63.998(a)(1)(i).

(B) For nonflare combustion device and halogen reduction device performance tests as required under §§ 63.988(b), 63.989(b), 63.990(b), 63.991(b), 63.992(b), 63.994(b), or 63.995(b), also submit the records

specified in § 63.998(a)(2)(ii), as applicable.

(C) For process vents also submit the records specified in § 63.998(a)(3), as applicable.

(b) *Control device monitoring reports.*

(1) *Control of emissions from storage vessels, periodic reports.* For storage vessels, the owner or operator shall include in each periodic report required the information specified in paragraphs (b)(1)(i) through (b)(1)(iii) of this section.

(i) For the 6-month period covered by the periodic report, the information recorded in § 63.998(d)(2)(ii)(A) through (d)(2)(iii)(C).

(ii) For the time period covered by the periodic report and the previous periodic report, the total number of hours that the control system did not meet the requirements of §§ 63.983(a), 63.985(a), or 63.987(a) due to planned routine maintenance.

(iii) A description of the planned routine maintenance during the next 6-month periodic reporting period that is anticipated to be performed for the control system when it is not expected to meet the required control efficiency. This description shall include the type of maintenance necessary, planned frequency of maintenance, and expected lengths of maintenance periods.

(2) *Control of emissions from storage vessels and transfer racks through routing to a fuel gas system or process, Initial Compliance Status Report.* An owner or operator who elects to comply with § 63.984 by routing emissions from a storage vessel or transfer rack to a process or to a fuel gas system shall submit as part of the Initial Compliance Status Report the information specified in paragraphs (b)(2)(i) and (b)(2)(ii), or (b)(2)(iii) of this section, as applicable.

(i) *Storage vessels.* If storage vessels emissions are routed to a process, the owner or operator shall submit the information specified in § 63.984(b)(2).

(ii) *Storage vessels.* If storage vessels emissions are routed to a fuel gas system, the owner or operator shall submit a statement that the emission stream is connected to the fuel gas system and whether the conveyance system is subject to the requirements of § 63.983.

(iii) *Transfer racks.* Report that the transfer operation emission stream is being routed to a fuel gas system or process, when complying with a referencing subpart.

(3) *Control of emissions from storage vessels and low throughput transfer racks through a nonflare control device, Initial Compliance Status Report.* An owner or operator who elects to comply with § 63.985 by routing emissions from

a storage vessel or low throughput transfer rack to a nonflare control device shall submit, with the Initial Compliance Status Report required by a referencing subpart, the information specified in paragraphs (b)(3)(i) and (b)(3)(ii) of this section, and in either paragraph (b)(3)(iii) or (b)(3)(iv) of this section; and paragraph (b)(3)(v), if applicable.

(i) A description of the parameter or parameters to be monitored to ensure that the control device is being properly operated and maintained, an explanation of the criteria used for selection of that parameter (or parameters), and the frequency with which monitoring will be performed (e.g., when the liquid level in the storage vessel is being raised). If continuous records are specified, whether the provisions of paragraphs (b)(6)(i) and (b)(6)(iii) of this section apply.

(ii) The information specified in paragraphs (b)(3)(ii)(A) and, if applicable, (b)(3)(ii)(B) of this section.

(A) The operating range for each monitoring parameter identified in the monitoring plan. The specified operating range shall represent the conditions for which the control device is being properly operated and maintained.

(B) Summary of the results of the performance test described in § 63.985(b)(1)(ii) or (b)(1)(iii), as applicable. If a performance test is conducted as provided in § 63.985(b)(1)(ii), submit the results of the performance test, including the information specified in § 63.999(a)(1)(i) and (a)(1)(ii).

(iii) The documentation specified in § 63.985(b)(1)(i), if the owner or operator elects to prepare a design evaluation; or

(iv) The information specified in paragraphs (b)(3)(iv)(A) and (b)(3)(iv)(B) of this section if the owner or operator elects to submit the results of a performance test as specified in § 63.985(b)(1)(ii) or (b)(1)(iii).

(A) Identification of the storage vessel or transfer rack and control device for which the performance test will be submitted, and

(B) Identification of the emission point(s), if any, that share the control device with the storage vessel or transfer rack and for which the performance test will be conducted.

(v) The provisions of paragraphs (b)(6)(i) and (b)(6)(ii) of this section do not apply to any low throughput transfer rack for which the owner or operator has elected to comply with § 63.985 or to any storage vessel for which the owner or operator is not required, by the applicable monitoring

plan established under (b)(3)(i) and (b)(3)(ii) of this section to keep continuous records. If continuous records are required, the owner or operator shall specify in the monitoring plan whether the provisions of paragraphs (b)(6)(i) and (b)(6)(ii) of this section apply.

(4) *Control of emissions from storage vessels and low throughput transfer racks through a nonflare control device, periodic reports.* If a control device other than a flare is used to control emissions from storage vessels or low throughput transfer racks, the periodic report shall describe each occurrence when the monitored parameters were outside of the parameter ranges documented in the Initial Compliance Status Report in accordance with paragraph (b)(3) of this section. The description shall include the information specified in paragraphs (b)(4)(i) and (b)(4)(ii) of this section.

(i) Identification of the control device for which the measured parameters were outside of the established ranges, and

(ii) The cause for the measured parameters to be outside of the established ranges.

(5) *Control of emissions from process vents and transfer operations (except low throughput transfer racks), Initial Compliance Status Report.* The owner or operator shall submit as part of the Initial Compliance Status Report, the operating range for each monitoring parameter identified for each control, recovery, or halogen reduction device as determined in §§ 63.988(c)(2), 63.989(c)(2), 63.990(c)(2), 63.991(c)(2), 63.992(c)(2), 63.993(c)(5), 63.994(c)(3), and 63.995(c)(2). The specified operating range shall represent the conditions for which the control, recovery, or halogen reduction device is being properly operated and maintained. This report shall include the information in paragraphs (b)(5)(i) through (b)(5)(iii) of this section, as applicable, unless the range and the 3-hour periods have been established in the operating permit.

(i) The specific range of the monitored parameter(s) for each emission point;

(ii) The rationale for the specific range for each parameter for each emission point, including any data and calculations used to develop the range and a description of why the range indicates proper operation of the control, recovery, or halogen reduction device, as specified in paragraphs (b)(5)(ii)(A), (b)(5)(ii)(B), or (b)(5)(ii)(C) of this section, as applicable.

(A) If a performance test or TRE index value determination is required a referencing subpart for a control,

recovery or halogen removal device, the range shall be based on the parameter values measured during the TRE index value determination or performance test and may be supplemented by engineering assessments and/or manufacturer's recommendations. TRE index value determinations and performance testing is not required to be conducted over the entire range of permitted parameter values.

(B) If a performance test or TRE index value determination is not required by a referencing subpart for a control, recovery, or halogen reduction device, the range may be based solely on engineering assessments and/or manufacturer's recommendations.

(C) The range may be based on ranges or limits previously established under a referencing subpart.

(iii) A definition of the source's 3-hour periods for purposes of determining 3-hour average values of monitored parameters. The definition shall specify the times at which a 3-hour period begins and ends.

(6) *Control of emissions from regulated sources, periodic reports.* (i) Periodic reports shall include the 3-hour average values of monitored parameters, calculated as specified in § 63.998(c)(1) for any days when the 3-hour average value is outside the bounds as defined in § 63.998(b)(2) or the data availability requirements defined in paragraphs (b)(6)(i)(A) through (b)(6)(i)(D) of this section are not met, whether these excursions are excused or unexcused excursions. For excursions caused by lack of monitoring data, the duration of periods when monitoring data were not collected shall be specified. An excursion means any of the three cases listed in paragraphs (b)(6)(i)(A) through (b)(6)(i)(C) of this section. For a control device where multiple parameters are monitored, if one or more of the parameters meets the excursion criteria in paragraphs (b)(6)(i)(A) through (b)(6)(i)(C) of this section, this is considered a single excursion for the control device.

(A) When the 3-hour average value of one or more monitored parameters is outside the permitted range.

(B) When the period of control or recovery device operation is 4 hours or greater in a 3-hour period and monitoring data are insufficient to constitute a valid hour of data for at least 75 percent of the operating hours.

(C) When the period of control or recovery device operation is less than 4 hours in a 3-hour period and more than one of the hours during the period of operation does not constitute a valid hour of data due to insufficient monitoring data.

(D) Monitoring data are insufficient to constitute a valid hour of data as used in paragraphs (b)(6)(i)(B) and (b)(6)(i)(C) of this section, if measured values are unavailable for any of the 15-minute periods within the hour.

(ii) Report all carbon-bed regeneration cycles during which the parameters recorded under § 63.998(a)(2)(ii)(C) were outside the ranges established in the Initial Compliance Status Report or in the operating permit.

(7) *Replacing an existing control or recovery device.* As specified in §§ 63.987(b)(2), 63.988(b)(3), 63.989(b)(3), 63.990(b)(2), 63.991(b)(2), 63.992(b)(2), or 63.993(b)(2), if an owner or operator at a facility not required to obtain a title V permit elects at a later date to use a different control or recovery device, then the Administrator shall be notified by the owner or operator before implementing the change. This notification may be included in the facility's periodic reporting.

(8) *Halogen reduction device.* The owner or operator shall submit as part of the Initial Compliance Status Report the information recorded pursuant to § 63.998(a)(4).

(9) *Flare compliance monitoring results.* The owner or operator shall submit as part of the periodic reports the information recorded pursuant to § 63.998(a)(1)(iii).

3. Part 63 is amended by adding subpart TT to read as follows:

**Subpart TT—National Emission Standards for Equipment Leaks—Control Level 1**

Sec.

- 63.1000 Applicability.
- 63.1001 Definitions.
- 63.1002 Compliance determination.
- 63.1003 Equipment identification.
- 63.1004 Instrument and sensory monitoring for leaks.
- 63.1005 Leak repair.
- 63.1006 Valves in gas and vapor service and in light liquid service standards.
- 63.1007 Pumps in light liquid service standards.
- 63.1008 Connectors in gas and vapor service and in light liquid service standards.
- 63.1009 Agitators in gas and vapor service and in light liquid service.
- 63.1010 Pumps, valves, connectors, and agitators in heavy liquid service; pressure relief devices in liquid service; and instrumentation systems standards.
- 63.1011 Pressure relief devices in gas and vapor service standards.
- 63.1012 Compressor standards.
- 63.1013 Sampling connection systems standards.
- 63.1014 Open-ended valves or lines standards.
- 63.1015 Closed vent systems and control devices; or emissions routed to a fuel gas system or process standards.

63.1016 Alternative means of emission limitation: Enclosed-vented process units and affected facilities.

63.1017 Recordkeeping requirements.

63.1018 Reporting requirements.

**§ 63.1000 Applicability.**

(a) The provisions of this subpart apply to the control of air emissions from equipment leaks for which another subpart references the use of this subpart for such air emission control. These air emission standards for equipment leaks are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing subpart. The provisions of 40 CFR part 63 subpart A (General Provisions) do not apply to this subpart except as noted in the referencing subpart.

(b) *Equipment subject to this subpart.* This subpart applies to pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors and any closed vent systems and control devices used to meet the requirements of this subpart that contacts or services regulated material as specified in the referencing subpart.

(c) *Exemptions.* Paragraphs (c)(1) and (c)(2) delineate equipment that is excluded from the requirements of this subpart.

(1) *Equipment in vacuum service.* Equipment that is in vacuum service is excluded from the requirements of this subpart.

(2) *Equipment in service less than 300 hours per calendar year.*

(i) Equipment that is in regulated material service less than 300 hours per calendar year is excluded from the requirements of §§ 63.1006 through 63.1015 of this subpart if it is identified as required in paragraph (c)(2)(ii) of this section.

(ii) The identity, either by list, location (area or group), or other method, of equipment in regulated-material service less than 300 hours per calendar year within a process unit and affected facility subject to the provisions of this subpart shall be recorded.

(iii) *Lines and equipment not containing process fluids.* Except as provided in a referencing subpart, lines and equipment not containing process fluids are not subject to the provisions of this subpart. Utilities, and other nonprocess lines, such as heating and cooling systems which do not combine their materials with those in the processes they serve, are not considered to be part of a process unit or affected facility.

**§ 63.1001 Definitions.**

All terms used in this part shall have the meaning given them in the Act and in this section.

*Connector* means flanged, screwed, or other joined fittings used to connect two pipelines or a pipeline and a piece of equipment. A common connector is a flange. Joined fittings welded completely around the circumference of the interface are not considered connectors for the purpose of this regulation. For the purpose of reporting and recordkeeping, connector means joined fittings that are not inaccessible, ceramic, or ceramic-lined (e.g., porcelain, glass, or glass-lined) as described in § 63.1008(d)(2) of this subpart.

*Distance piece* means an open or enclosed casing through which the piston rod travels, separating the compressor cylinder from the crankcase.

*Double block and bleed system* means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

*Equipment* means each pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, valve, connector, and instrumentation system in regulated-material service; and any control devices or systems used to comply with this subpart.

*First attempt at repair*, for the purposes of this subpart, means to take action for the purpose of stopping or reducing leakage of organic material to the atmosphere, followed by monitoring as specified in § 63.1004(b) of this subpart, as appropriate, to verify whether the leak is repaired, unless the owner or operator determines by other means that the leak is not repaired.

*In gas or vapor service* means that a piece of equipment in regulated material service contains a gas or vapor at operating conditions.

*In heavy liquid service* means that a piece of equipment in regulated-material service is not in gas or vapor service or in light liquid service.

*In light liquid service* means that a piece of equipment in regulated-material service contains a liquid that meets the following conditions:

- (1) The vapor pressure of one or more of the organic compounds is greater than 0.3 kilopascals at 20 °C,
- (2) The total concentration of the pure organic compounds constituents having a vapor pressure greater than 0.3 kilopascals at 20 °C is equal to or greater than 20 percent by weight of the total process stream, and
- (3) The fluid is a liquid at operating conditions.

(NOTE: Vapor pressures may be determined by standard reference texts or ASTM D-2879.)

*In liquid service* means that a piece of equipment in regulated-material service is not in gas or vapor service.

*In regulated-material service* means, for the purposes of this subpart, equipment which meets the definition of "in VOC service", "in VHAP service", "in organic hazardous air pollutant service," or "in" other chemicals or groups of chemicals "service" as defined in the referencing subpart.

*In-situ sampling systems* means nonextractive samplers or in-line samplers.

*In vacuum service* means that equipment is operating at an internal pressure which is at least 5 kilopascals below ambient pressure.

*Instrumentation system* means a group of equipment components used to condition and convey a sample of the process fluid to analyzers and instruments for the purpose of determining process operating conditions (e.g., composition, pressure, flow, etc.). Valves and connectors are the predominant type of equipment used in instrumentation systems; however, other types of equipment may also be included in these systems. Only valves nominally 1.27 centimeters (0.5 inches) and smaller, and connectors nominally 1.91 centimeters (0.75 inches) and smaller in diameter are considered instrumentation systems for the purposes of this subpart. Valves greater than nominally 1.27 centimeters (0.5 inches) and connectors greater than nominally 1.91 centimeters (0.75 inches) associated with instrumentation systems are not considered part of instrumentation systems and must be monitored individually.

*Liquids dripping means* any visible leakage from the seal including dripping, spraying, misting, clouding, and ice formation. Indications of liquids dripping include puddling or new stains that are indicative of an existing evaporated drip.

*Nonrepairable* means that it is technically infeasible to repair a piece of equipment from which a leak has been detected without a process unit or affected facility shutdown.

*Open-ended valve or line* means any valve, except relief valves, having one side of the valve seat in contact with process fluid and one side open to atmosphere, either directly or through open piping.

*Organic monitoring device* means a unit of equipment used to indicate the concentration level of organic compounds based on a detection

principle such as infra-red, photo ionization, or thermal conductivity.

*Pressure relief device or valve* means a safety device used to prevent operating pressures from exceeding the maximum allowable working pressure of the process equipment. A common pressure relief device is a spring-loaded pressure relief valve. Devices that are actuated either by a pressure of less than or equal to 2.5 pounds per square inch gauge or by a vacuum are not pressure relief devices.

*Pressure release* means the emission of materials resulting from the system pressure being greater than the set pressure of the relief device. This release can be one release or a series of releases over a short time period due to a malfunction in the process.

*Referencing subpart* means the subpart which refers an owner or operator to this subpart.

*Regulated material*, for purposes of this subpart, refers to gases from volatile organic liquids (VOL), volatile organic compounds (VOC), hazardous air pollutants (HAP), or other chemicals or groups of chemicals that are regulated by the referencing subpart.

*Regulated source* for the purposes of this subpart, means the stationary source, the group of stationary sources, or the portion of a stationary source that is regulated by a referencing subpart.

*Relief device or valve* means a valve used only to release an unplanned, nonroutine discharge. A relief valve discharge can result from an operator error, a malfunction such as a power failure or equipment failure, or other unexpected cause that requires immediate venting of gas from process equipment in order to avoid safety hazards or equipment damage.

*Repaired*, for the purposes of this subpart and subpart SS of this part, means the following:

(1) Equipment is adjusted, or otherwise altered, to eliminate a leak as defined in the applicable sections of this subpart, and

(2) Equipment, unless otherwise specified in applicable provisions of this subpart, is monitored as specified in § 63.1004(b) and subpart SS of this part, as appropriate, to verify that emissions from the equipment are below the applicable leak definition.

*Sampling connection system* means an assembly of equipment within a process unit or affected facility used during periods of representative operation to take samples of the process fluid. Equipment used to take nonroutine grab samples is not considered a sampling connection system.

*Screwed (threaded) connector* means a threaded pipe fitting where the threads are cut on the pipe wall and the fitting requires only two pieces to make the connection (i.e., the pipe and the fitting).

#### § 63.1002 Compliance determination.

(a) *General procedures for compliance determination.* Compliance with this subpart will be determined by review of the records required by § 63.1017 and the reports required by § 63.1018, by review of performance test results, and by inspections.

(b) *Alternative means of emission limitation.* (1) An owner or operator may request a determination of alternative means of emission limitation to the requirements of §§ 63.1006 through 63.1015 as provided in paragraphs (b)(2) through (b)(6) of this section. If the Administrator makes a determination that an alternative means of emission limitation is a permissible alternative, the owner or operator shall comply with the alternative.

(2) Permission to use an alternative means of emission limitation shall be governed by the following procedures in paragraphs (b)(3) through (b)(6) of this section.

(3) Where the standard is an equipment, design, or operational requirement the criteria specified in paragraphs (b)(3)(i) and (b)(3)(ii) shall be met.

(i) Each owner or operator applying for permission to use an alternative means of emission limitation shall be responsible for collecting and verifying emission performance test data for an alternative means of emission limitation.

(ii) The Administrator will compare test data for the means of emission limitation to test data for the equipment, design, and operational requirements.

(4) Where the standard is a work practice the criteria specified in paragraphs (b)(4)(i) through (b)(4)(vi) shall be met.

(i) Each owner or operator applying for permission shall be responsible for collecting and verifying test data for an alternative means of emission limitation.

(ii) For each kind of equipment for which permission is requested, the emission reduction achieved by the required work practices shall be demonstrated for a minimum period of 12 months.

(iii) For each kind of equipment for which permission is requested, the emission reduction achieved by the alternative means of emission limitation shall be demonstrated.

(iv) Each owner or operator applying for permission shall commit, in writing, for each kind of equipment to work practices that provide for emission reductions equal to or greater than the emission reductions achieved by the required work practices.

(v) The Administrator will compare the demonstrated emission reduction for the alternative means of emission limitation to the demonstrated emission reduction for the required work practices and will consider the commitment in paragraph (b)(4)(iv) of this section.

(vi) The Administrator may condition the permission on requirements that may be necessary to ensure operation and maintenance to achieve the same or greater emission reduction as the required work practices of this subpart.

(5) An owner or operator may offer a unique approach to demonstrate the alternative means of emission limitation.

(6) If, in the judgement of the Administrator, an alternative means of emission limitation will be approved, the Administrator will publish a notice of the determination in the **Federal Register**.

(7)(i) Manufacturers of equipment used to control equipment leaks of a regulated material may apply to the Administrator for permission for an alternative means of emission limitation that achieves a reduction in emissions of the regulated material achieved by the equipment, design, and operational requirements of this subpart.

(ii) The Administrator will grant permission according to the provisions of paragraphs (b)(3), (b)(4), (b)(5) and (b)(6) of this section.

### **§ 63.1003 Equipment identification.**

(a) *General equipment identification.* Equipment subject to this subpart shall be identified. Identification of the equipment does not require physical tagging of the equipment. For example, the equipment may be identified on a plant site plan, in log entries, by designation of process unit or affected facility boundaries by some form of weatherproof identification, or by other appropriate methods.

(b) *Additional equipment identification.* In addition to the general identification required by paragraph (a) of this section, equipment subject to any of the provisions in §§ 63.1006 to 63.1015 shall be specifically identified as required in paragraphs (b)(1) through (b)(6) of this section, as applicable.

(1) *Connectors.* Except for inaccessible, ceramic, or ceramic-lined connectors meeting the provisions of § 63.1108(e)(2) and instrumentation

systems identified pursuant to paragraph (b)(4) of this section, identify the connectors subject to the requirements of this subpart. Connectors need not be individually identified if all connectors in a designated area or length of pipe subject to the provisions of this subpart are identified as a group, and the number of connectors subject is indicated. With respect to connectors, the identification shall be complete no later than the completion of the initial survey required by § 63.1008(a)(1)(i).

(2) *Routed to a process or fuel gas system or equipped with a closed vent system and control device.* Identify the equipment that the owner or operator elects to route to a process or fuel gas system or equip with a closed vent system and control device, under the provisions of § 63.1007(e)(3) (pumps in light liquid service), § 63.1009 (agitators in gas and vapor service and in light liquid service), § 63.1011(d) (pressure relief devices in gas and vapor service), § 63.1012(e) (compressors), or § 63.1016 (alternative means of emission limitation for enclosed vented process units) of this subpart.

(3) *Pressure relief devices.* Identify the pressure relief devices equipped with rupture disks, under the provisions of § 63.1011(e) of this subpart.

(4) *Instrumentation systems.* Identify instrumentation systems subject to the provisions of this subpart. Individual components in an instrumentation system need not be identified.

(5) *Equipment in service less than 300 hours per calendar year.* The identity, either by list, location (area or group), or other method, of equipment in regulated material service less than 300 hours per calendar year within a process unit or affected facilities subject to the provisions of this subpart shall be recorded.

(c) *Special equipment designations: Equipment that is unsafe or difficult-to-monitor.*

(1) *Designation and criteria for unsafe-to-monitor.* Valves meeting the provisions of § 63.1006(e)(1), pumps meeting the provisions of § 63.1007(e)(5), and connectors meeting the provisions of § 63.1008(d)(1) may be designated unsafe-to-monitor if the owner or operator determines that monitoring personnel would be exposed to an immediate danger as a consequence of complying with the monitoring requirements of this subpart. Examples of an unsafe-to-monitor equipment include, but is not limited to, equipment under extreme pressure or heat.

(2) *Designation and criteria for difficult-to-monitor.* Valves meeting the provisions of § 63.1006(e)(2) of this

subpart may be designated difficult-to-monitor if the provisions of paragraph (c)(2)(i) of this section apply. Agitators meeting the provisions of § 63.1009(f)(5) may be designated difficult-to-monitor if the provisions of paragraph (c)(2)(ii) apply.

(i) *Valves.*

(A) The owner or operator of the valve determines that the equipment cannot be monitored without elevating the monitoring personnel more than 2 meters (7 feet) above a support surface or it is not accessible in a safe manner when it is in regulated material service.

(B) The process unit or affected facility within which the valve is located is an existing source, or a new source for which the owner or operator designates less than 3 percent of the total number of valves as difficult-to-monitor.

(ii) *Agitators.* The owner or operator determines that the agitator cannot be monitored without elevating the monitoring personnel more than 2 meters (7 feet) above a support surface or it is not accessible in a safe manner when it is in regulated material service.

(3) *Identification of equipment.* The information specified in paragraphs (c)(3)(i) and (c)(3)(ii) pertaining to equipment designated as unsafe-to-monitor or difficult-to-monitor according to the provisions of paragraph (c)(1) of this section shall be recorded.

(i) The identity of equipment designated as unsafe-to-monitor or difficult-to-monitor and the plan for monitoring this equipment.

(ii) The identity of the equipment designated as difficult-to-monitor, an explanation why the equipment is difficult-to-monitor, and the planned schedule for monitoring this equipment.

(4) *Identification of unsafe or difficult-to-monitor equipment.* The owner or operator shall record the identity of equipment designated as unsafe-to-monitor or difficult-to-monitor according to the provisions of paragraphs (c)(1) or (c)(2) of this section, the planned schedule for monitoring this equipment, and an explanation why the equipment is unsafe or difficult-to-monitor, if applicable. This record must be kept at the plant and be available for review by an inspector.

(5) *Written plan requirements.* (i) The owner or operator of equipment designated as unsafe-to-monitor according to the provisions of paragraph (c)(1)(i) of this section shall have a written plan that requires monitoring of the equipment as frequently as practical during safe-to-monitor times, but not more frequently than the periodic monitoring schedule otherwise applicable, and repair of the equipment

according to the procedures in § 63.1005 if a leak is detected.

(ii) The owner or operator of equipment designated as difficult-to-monitor according to the provisions of paragraph (c)(2) of this section shall have a written plan that requires monitoring of the equipment at least once per calendar year.

(d) *Special equipment designations: Unsafe-to-repair.*—(1) *Designation and criteria.* Connectors subject to the provisions of § 63.1005(e) may be considered unsafe-to-repair if the owner or operator determines that repair personnel would be exposed to an immediate danger as a consequence of complying with the repair requirements of this subpart, and if the connector will be repaired before the end of the next process unit or affected facility shutdown as specified in § 63.1005(e) of this subpart.

(2) *Identification of equipment.* The identity of connectors designated as unsafe-to-repair and an explanation why the connector is unsafe-to-repair shall be recorded.

(e) *Special equipment designations: Equipment operating with no detectable emissions.*—(1) *Designation and criteria.* Equipment may be designated as having no detectable emissions if it has no external actuating mechanism in contact with the process fluid, and is operated with emissions less than 500 parts per million above background as determined by the method specified in § 63.1004(c).

(2) *Identification of equipment.* The identity of equipment designated as no detectable emissions shall be recorded.

(3) *Identification of compressors operating under no detectable emissions.* Identify the compressors that the owner or operator elects to designate as operating with an instrument reading of less than 500 parts per million above background, under the provisions of § 63.1012(f).

#### **§ 63.1004 Instrument and sensory monitoring for leaks.**

(a) *Monitoring for leaks.* The owner or operator of a regulated source subject to this subpart shall monitor all regulated equipment as specified in paragraph (a)(1) of this section for instrument monitoring and paragraph (a)(2) of this section for sensory monitoring.

(1) *Instrument monitoring for leaks.* (i) Valves in gas and vapor service and in light liquid service shall be monitored pursuant to § 63.1006(b).

(ii) Pumps in light liquid service shall be monitored pursuant to § 63.1007(b).

(iii) Connectors in gas and vapor service and in light liquid service shall be monitored pursuant to § 63.1008(b).

(iv) Agitators in gas and vapor service and in light liquid service shall be monitored pursuant to § 63.1009(b).

(v) Pressure relief devices in gas and vapor service shall be monitored pursuant to § 63.1011(b) and (c).

(vi) Compressors designated to operate with an instrument reading less than 500 parts per million as described in § 63.1003(e), shall be monitored pursuant to § 63.1012(f).

(2) *Sensory monitoring for leaks.* (i) Pumps in light liquid service shall be observed pursuant to § 63.1007(b)(4) and (e)(1).

(ii) Inaccessible, ceramic, or ceramic-lined connectors in gas and vapor service and in light liquid service shall be observed pursuant to § 63.1008(d)(2).

(iii) Agitators in gas and vapor service and in light liquid service shall be monitored pursuant to § 63.1009(b)(3) or (e)(1).

(iv) Pumps, valves, agitators, and connectors in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service shall be observed pursuant to § 63.1010(b)(1).

(b) *Instrument monitoring methods.* Instrument monitoring, as required under this subpart, shall comply with the requirements specified in paragraphs (b)(1) through (b)(6) of this section.

(1) *Monitoring method.* Monitoring shall comply with Method 21 of 40 CFR part 60, appendix A.

(2) *Detection instrument performance criteria.*

(i) Except as provided for in paragraph (b)(2)(ii) of this section, the detection instrument shall meet the performance criteria of Method 21 of 40 CFR part 60, appendix A, except the instrument response factor criteria in section 3.1.2(a) of Method 21 shall be for the representative composition of the process fluid, and not for each individual HAP, VOC or other regulated material individual chemical compound in the stream. For process streams that contain nitrogen, air, or other inerts that are not regulated-materials, the representative stream response factor shall be calculated on an inert-free basis. The response factor may be determined at any concentration for which monitoring for leaks will be conducted.

(ii) If there is no instrument commercially available that will meet the performance criteria specified in paragraph (b)(2)(i) of this section, the instrument readings may be adjusted by multiplying by the representative response factor of the process fluid, calculated on an inert-free basis as described in paragraph (b)(2)(i) of this section.

(3) *Detection instrument calibration procedure.* The detection instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21 of 40 CFR part 60, appendix A.

(4) *Detection instrument calibration gas.* Calibration gases shall be zero air (less than 10 parts per million of hydrocarbon in air); and a mixture of methane in air at a concentration of approximately, but less than, 10,000 parts per million; or a mixture of n-hexane in air at a concentration of approximately, but less than, 10,000 parts per million. A calibration gas other than methane in air or n-hexane in air may be used if the instrument does not respond to methane or n-hexane or if the instrument does not meet the performance criteria specified in paragraph (b)(2)(i) of this section. In such cases, the calibration gas may be a mixture of one or more compounds to be measured in air.

(5) *Monitoring performance.* Monitoring shall be performed when the equipment is in regulated material service or is in use with any other detectable material.

(6) *Monitoring data.* Monitoring data obtained prior to the regulated source becoming subject to the referencing subpart that do not meet the criteria specified in paragraphs (b)(1) through (b)(5) of this section may still be used to initially qualify for less frequent monitoring under the provisions in § 63.1006(a)(2), (b)(3) or (b)(4) for valves or § 63.1008(b) for connectors provided the departures from the criteria specified or from the specified monitoring frequency of § 63.1006(b)(3) are minor and do not significantly affect the quality of the data. Examples of minor departures are monitoring at a slightly different frequency (such as every six weeks instead of monthly or quarterly), following the performance criteria of section 3.1.2(a) of Method 21 of Appendix A of 40 CFR part 60 instead of paragraph (b)(2) of this section, or monitoring at a different leak definition if the data would indicate the presence or absence of a leak at the concentration specified in the referencing subpart. Failure to use a calibrated instrument is not considered a minor departure.

(c) *Instrument monitoring using background adjustments.* The owner or operator may elect to adjust or not to adjust the instrument readings for background. If an owner or operator elects not to adjust instrument readings for background, the owner or operator shall monitor the equipment according to the procedures specified in paragraphs (b)(1) through (b)(4) of this

section. In such case, all instrument readings shall be compared directly to the applicable leak definition for the monitored equipment to determine whether there is a leak or to determine compliance with § 63.1011(b) (pressure relief devices in gas and vapor service) or § 63.1012(f) (compressors). If an owner or operator elects to adjust instrument readings for background, the owner or operator shall monitor the equipment according to the procedures specified in paragraphs (c)(1) through (c)(4) of this section.

(1) The requirements of paragraphs (b)(1) through (b)(4) of this section shall apply.

(2) The background level shall be determined, using the procedures in Method 21 of 40 CFR part 60, appendix A.

(3) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible (as described in Method 21 of 40 CFR part 60, appendix A).

(4) The arithmetic difference between the maximum concentration indicated by the instrument and the background level shall be compared to the applicable leak definitions for the monitored equipment to determine whether there is a leak or to determine compliance with § 63.1011(b) (pressure relief devices in gas and vapor service) or § 63.1012(f) (compressors).

(d) *Sensory monitoring methods.* Sensory monitoring, as required under this subpart, shall consist of detection of a potential leak to the atmosphere by visual, audible, olfactory, or any other detection method.

(e) *Leaking equipment identification and records.*

(1) When each leak is detected pursuant to the monitoring specified in paragraph (a) of this section, a weatherproof and readily visible identification, marked with the equipment identification, shall be attached to the leaking equipment.

(2) When each leak is detected, the information specified in paragraphs (e)(2)(i) and (e)(2)(ii) shall be recorded and kept pursuant to the referencing subpart.

(i) The instrument and the equipment identification and the operator name, initials, or identification number if a leak is detected or confirmed by instrument monitoring.

(ii) The date the leak was detected.

#### § 63.1005 Leak repair.

(a) *Leak repair schedule.* The owner or operator shall repair each leak detected as soon as practical, but not later than 15 calendar days after it is detected, except as provided in

paragraph (d) of this section. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected. First attempt at repair for pumps includes, but is not limited to, tightening the packing gland nuts and/or ensuring that the seal flush is operating at design pressure and temperature. First attempt at repair for valves includes, but is not limited to, tightening the bonnet bolts, and/or replacing the bonnet bolts, and/or tightening the packing gland nuts, and/or injecting lubricant into the lubricated packing.

(b) *Leak identification removal*—(1) *Valves and connectors.* The leak identification on a valve may be removed after it has been monitored as specified in § 63.1006(b), and no leak has been detected during that monitoring. The leak identification on a connector may be removed after it has been monitored as specified in § 63.1008(b) and no leak has been detected during that monitoring.

(2) *Other equipment.* The identification that has been placed, pursuant to § 63.1004(e), on equipment determined to have a leak, except for a valve or for a connector that is subject to the provisions of § 63.1008(b), may be removed after it is repaired.

(c) *Delay of repair.* Delay of repair can be used as specified in any of paragraphs (c)(1) through (c)(5) of this section. The owner or operator shall maintain a record of the facts that explain any delay of repairs and, where appropriate, why the repair was technically infeasible without a process unit shutdown.

(1) Delay of repair of equipment for which leaks have been detected is allowed if the repair is technically infeasible without a process unit or affected facility shutdown within 15 days after a leak is detected. Repair of this equipment shall occur as soon as practical, but not later than by the end of the next process unit or affected facility shutdown, except as provided in paragraph (c)(5) of this section.

(2) Delay of repair of equipment for which leaks have been detected is allowed for equipment that is isolated from the process and that does not remain in regulated-material service.

(3) Delay of repair for valves, connectors, and agitators is also allowed if the criteria specified in paragraphs (c)(3)(i) and (c)(3)(ii) are met.

(i) The owner or operator determines that emissions of purged material resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair, and

(ii) When repair procedures are effected, the purged material is collected

and destroyed or recovered in a control or recovery device complying with subpart SS of this part.

(4) Delay of repair for pumps is allowed if the criteria specified in paragraphs (c)(4)(i) and (c)(4)(ii) are met.

(i) Repair requires replacing the existing seal design with a new system that the owner or operator has determined will provide better performance or one of the specifications of paragraphs (c)(4)(i)(A) through (c)(4)(i)(C) of this section are met.

(A) A dual mechanical seal system that meets the requirements of § 63.1007(e)(1) will be installed,

(B) A pump that meets the requirements of § 63.1007(e) will be installed; or

(C) A system that routes emissions to a process or a fuel gas system or a closed vent system and control device that meets the requirements of § 63.1007(e)(3) will be installed.

(ii) Repair is to be completed as soon as practical, but not later than 6 months after the leak was detected.

(5) Delay of repair beyond a process unit or affected facility shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit or affected facility shutdown, and valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the second process unit or affected facility shutdown will not be allowed unless the third process unit or affected facility shutdown occurs sooner than 6 months after the first process unit or affected facility shutdown.

(d) *Unsafe-to-repair connectors.* Any connector that is designated, as described in § 63.1003(d), as an unsafe-to-repair connector is exempt from the requirements of § 63.1008(b), and paragraph (a) of this section.

(1) The owner or operator determines that repair personnel would be exposed to an immediate danger as a consequence of complying with paragraph (a) of this section; and

(2) The connector will be repaired before the end of the next scheduled process unit or affected facility shutdown.

(e) *Leak repair records.* For each leak detected, the information specified in paragraphs (e)(1) through (e)(5) of this section shall be recorded and maintained pursuant to the referencing subpart.

(1) The date of first attempt to repair the leak.

(2) The date of successful repair of the leak.

(3) Maximum instrument reading measured by Method 21 of 40 CFR part



60, appendix A at the time the leak is successfully repaired or determined to be nonreparable.

(4) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak as specified in paragraphs (e)(4)(i) and (e)(4)(ii) of this section.

(i) The owner or operator may develop a written procedure that identifies the conditions that justify a delay of repair. The written procedures may be included as part of the startup, shutdown, and malfunction plan, as required by the referencing subpart for the source, or may be part of a separate document that is maintained at the plant site. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.

(ii) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on site before depletion and the reason for depletion.

(5) Dates of process unit or affected facility shutdowns that occur while the equipment is unrepaired.

**§ 63.1006 Valves in gas and vapor service and in light liquid service standards.**

(a) *Compliance schedule.* (1) The owner or operator shall comply with this section no later than the compliance dates specified in the referencing subpart.

(2) The use of monitoring data generated before the regulated source became subject to the referencing subpart to initially qualify for less frequent monitoring is governed by the provisions of § 63.1004(b)(6).

(b) *Leak detection.* Unless otherwise specified in § 63.1002(b), or § 63.1005(c), or in paragraph (e) of this section, or the referencing subpart, the owner or operator shall monitor all valves at the intervals specified in paragraphs (b)(3) through (b)(6) of this section and shall comply with all other provisions of this section.

(1) *Monitoring method.* The valves shall be monitored to detect leaks by the method specified in § 63.1004(b) and (c).

(2) *Instrument reading that defines a leak.* The instrument reading that defines a leak is 10,000 parts per million or greater.

(3) *Monitoring period.* (i) Each valve shall be monitored monthly to detect leaks, except as provided in paragraphs (b)(3)(ii), (e)(1), (e)(2), and (e)(4) of this section. An owner or operator may otherwise elect to comply with one of the alternative standards in paragraphs (b)(5) or (b)(6) of this section as

specified in paragraph (b)(4) of this section.

(ii)(A) Any valve for which a leak is not detected for 2 successive months may be monitored the same month (first, second, or third month) of every quarter, beginning with the next quarter, until a leak is detected. The first quarterly monitoring shall occur less than 3 months following the last monthly monitoring.

(B) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months.

(C) For purposes of paragraph (b) of this section, quarter means a 3-month period with the first quarter concluding on the last day of the last full month during the 180 days following initial startup.

(4) *Allowance of alternative standards.* An owner or operator may elect to comply with one of the alternatives specified in either paragraph (b)(5) or (b)(6) of this section if the percentage of valves leaking is equal to or less than 2.0 percent as determined by the procedure in paragraph (c) of this section. An owner or operator must notify the Administrator before implementing one of the alternatives specified in either paragraph (b)(5) or (b)(6) of this section.

(5) *Allowable percentage alternative.* An owner or operator choosing to comply with the allowable percentage alternative shall have an allowable percentage of leakers no greater than 2.0 percent for each affected facility or process unit and shall comply with paragraphs (b)(5)(i) and (b)(5)(ii) of this section.

(i) A compliance demonstration for each affected facility or process unit or affected facility complying with this alternative shall be conducted initially upon designation, annually, and at other times requested by the Administrator. For each such demonstration, all valves in gas and vapor and light liquid service within the affected facility or process unit shall be monitored within 1 week by the methods specified in § 63.1004(b). If an instrument reading exceeds the equipment leak level specified in the referencing subpart, a leak is detected. The leak percentage shall be calculated as specified in paragraph (c) of this section.

(ii) If an owner or operator decides no longer to comply with this alternative, the owner or operator must notify the Administrator in writing that the work practice standard described in paragraph (b)(3) of this section will be followed.

(6) *Skip period alternatives.* An owner or operator may elect to comply with one of the alternative work practices

specified in paragraphs (b)(6)(i) or (b)(6)(ii) of this section. An owner or operator electing to use one of these skip period alternatives shall comply with paragraphs (b)(6)(iii) and (b)(6)(iv) of this section. Before using either skip period alternative, the owner or operator shall initially comply with the requirements of paragraph (b)(3) of this section. Monitoring data generated before the regulated source became subject to the referencing subpart that meets the criteria of either § 63.1004(b)(1) through (b)(5), or § 63.1004(b)(6), may be used to initially qualify for skip period alternatives.

(i) After 2 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0 as determined by the procedure in paragraph (c) of this section, an owner or operator may begin to monitor for leaks once every 6 months.

(ii) After 5 consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0 as determined by the procedure in paragraph (c) of this section, an owner or operator may begin to monitor for leaks once every year.

(iii) If the percent of valves leaking is greater than 2.0, the owner or operator shall comply with paragraph (b)(3) of this section, but can elect to comply with paragraph (b)(6) of this section if future percent of valves leaking is again equal to or less than 2.0.

(iv) The owner or operator shall keep a record of the monitoring schedule and the percent of valves found leaking during each monitoring period.

(c) *Percent leaking valves calculation—calculation basis and procedures.* (1) The owner or operator shall decide no later than the compliance date of this subpart, or upon revision of an operating permit whether to calculate percent leaking valves on a process unit or group of process units basis. Once the owner or operator has decided, all subsequent percentage calculations shall be made on the same basis and this shall be the basis used for comparison with the subgrouping criteria specified in paragraph (b)(4)(i) of this section.

(2) The percent of valves leaking shall be determined by dividing the sum of valves found leaking during current monitoring and valves for which repair has been delayed by the total number of valves subject to the requirements of this section.

(d) *Leak repair.* (1) If a leak is determined pursuant to paragraph (b), (e)(1), or (e)(2) of this section, then the leak shall be repaired using the procedures in § 63.1005, as applicable.



(2) When a leak has been repaired, the valve shall be monitored at least once within the first 3 months after its repair. The monitoring required by this paragraph is in addition to the monitoring required to satisfy the definition of repair.

(i) The monitoring shall be conducted as specified in § 63.1004(b) and (c), as appropriate, to determine whether the valve has resumed leaking.

(ii) Periodic monitoring required by paragraph (b) of this section may be used to satisfy the requirements of this paragraph, if the timing of the monitoring period coincides with the time specified in this paragraph. Alternatively, other monitoring may be performed to satisfy the requirements of this paragraph, regardless of whether the timing of the monitoring period for periodic monitoring coincides with the time specified in this paragraph.

(iii) If a leak is detected by monitoring that is conducted pursuant to this paragraph, the owner or operator shall follow the provisions of paragraphs (d)(2)(iii)(A) and (d)(2)(iii)(B) of this section, to determine whether that valve must be counted as a leaking valve for purposes of paragraph (c)(1)(ii) of this section.

(A) If the owner or operator elected to use periodic monitoring required by paragraph (b) of this section to satisfy the requirements of this paragraph, then the valve shall be counted as a leaking valve.

(B) If the owner or operator elected to use other monitoring, prior to the periodic monitoring required by paragraph (b) of this section, to satisfy the requirements of this paragraph, then the valve shall be counted as a leaking valve unless it is repaired and shown by periodic monitoring not to be leaking.

(e) *Special provisions for valves.*—(1) *Unsafe-to-monitor valves.* Any valve that is designated, as described in § 63.1003(c)(1), as an unsafe-to-monitor valve and the owner or operator monitors the valve according to the written plan specified in § 63.1003(c)(5), is exempt from the requirements of paragraph (b) of this section and the owner or operator shall monitor the valve according to the written plan specified in § 63.1003(c)(5).

(2) *Difficult-to-monitor.* Any valve that is designated, as described in § 63.1003(c)(2), as a difficult-to-monitor valve is exempt from the requirements of paragraph (b) of this section and the owner or operator shall monitor the valve according to the written plan specified in § 63.1003(c)(5).

(3) *Less than 250 valves.* Any equipment located at a plant site with fewer than 250 valves in regulated

material service is exempt from the monthly monitoring specified in paragraph (b)(3)(i) of this section. Instead, the owner or operator shall monitor each valve in regulated material service for leaks once each quarter, or comply with paragraphs (b)(3)(ii)(A), (b)(3)(ii)(B), or (b)(3)(ii)(C) of this section except as provided in paragraphs (e)(1) and (e)(2) of this section.

(4) *No detectable emissions.* (i) Any valve that is designated, as described in § 63.1003(e), as having no detectable emissions is exempt from the requirements of paragraphs (b) through (c) of this section if the owner or operator meets the criteria specified in paragraphs (e)(4)(i)(1) and (e)(4)(i)(2) of this section.

(1) Tests the valve for operation with emissions less than 500 parts per million above background as determined by the method specified in § 63.1004(c) initially upon designation, annually, and at other times requested by the Administrator, and

(2) Records the dates of each compliance demonstration, the background level measured during each compliance test, and the maximum instrument reading measured at the equipment during each compliance test.

(ii) A valve may not be designated or operated for no detectable emissions, as described in § 63.1003(e), if the valve has a maximum instrument reading minus background greater than 500 parts per million.

#### **§ 63.1007 Pumps in light liquid service standards.**

(a) *Compliance schedule.* The owner or operator shall comply with this section no later than the compliance date specified in the referencing subpart.

(b) *Leak detection.* Unless otherwise specified in § 63.1003(c) of this subpart or paragraphs (e)(1) through (e)(5) of this section, the owner or operator shall monitor each pump monthly to detect leaks and shall comply with all other provisions of this section.

(1) *Monitoring method.* The pumps shall be monitored to detect leaks by the method specified in § 63.1004(b) of this subpart.

(2) *Instrument reading that defines a leak.* The instrument reading that defines a leak is 10,000 parts per million.

(3) *Visual inspection.* Each pump shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal. The owner or operator shall document that the inspection was conducted and the date of the inspection. If there are

indications of liquids dripping from the pump seal, a leak is detected. Unless the owner or operator demonstrates (e.g., through instrument monitoring) that the indications of liquids dripping are due to a condition other than process fluid drips, the leak shall be repaired according to the procedures of paragraph (b)(4) of this section.

(4) *Visual inspection: Leak repair.* Where a leak is identified by visual indications of liquids dripping, repair shall mean that the visual indications of liquids dripping have been eliminated.

(c) *Percent leaking pumps calculation.*

(1) The owner or operator shall decide no later than the compliance date of this part or upon revision of an operating permit whether to calculate percent leaking pumps on a process unit basis or group of process units basis. Once the owner or operator has decided, all subsequent percentage calculations shall be made on the same basis.

(2) The number of pumps at a process unit shall be the sum of all the pumps in regulated material service, except that pumps found leaking in a continuous process unit or within 1 month after startup of the pump shall not count in the percent leaking pumps calculation for that one monitoring period only.

(3) Percent leaking pumps shall be determined by the following equation:

$$\%P_L = ((P_L - P_S)/(P_T - P_S)) \times 100 \text{ [Eq. 1]}$$

Where:

$\%P_L$  = Percent leaking pumps

$P_L$  = Number of pumps found leaking as determined through monthly monitoring as required in paragraph (b) of this section.

$P_T$  = Total pumps in regulated material service, including those meeting the criteria in paragraphs (e)(1) and (e)(2) of this section.

$P_S$  = Number of pumps leaking within 1 month of start-up during the current monitoring period.

(d) *Leak repair.* If a leak is detected pursuant to paragraph (b) of this section, then the leak shall be repaired using the procedures in § 63.1005, as applicable, unless otherwise specified in paragraph (b)(4) of this section for leaks identified by visual indications of liquids dripping.

(e) *Special provisions for pumps.*—(1) *Dual mechanical seal pumps.* Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (b) of this section, provided the requirements specified in paragraphs (e)(1)(i) through (e)(1)(viii) of this section are met.

(i) The owner or operator determines, based on design considerations and

operating experience, criteria applicable to the presence and frequency of drips and to the sensor that indicates failure of the seal system, the barrier fluid system, or both. The owner or operator shall keep records at the plant of the design criteria and an explanation of the design criteria, and any changes to these criteria and the reasons for the changes. This record must be available for review by an inspector.

(ii) Each dual mechanical seal system shall meet the requirements specified in paragraphs (e)(1)(ii)(A) through (e)(1)(ii)(C) of this section.

(A) Each dual mechanical seal system is operated with the barrier fluid at a pressure that is at all times (except periods of startup, shutdown, or malfunction) greater than the pump stuffing box pressure; or

(B) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that complies with the requirements of subpart SS of this part; or

(C) Equipped with a closed-loop system that purges the barrier fluid into a process stream.

(iii) The barrier fluid is not in light liquid service.

(iv) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(v) Each pump is checked by visual inspection each calendar week for indications of liquids dripping from the pump seal. The owner or operator shall document that the inspection was conducted and the date of the inspection. If there are indications of liquids dripping from the pump seal at the time of the weekly inspection, the owner or operator shall follow the procedure specified in either paragraph (e)(1)(v)(A) or (e)(1)(v)(B) of this section.

(A) The owner or operator shall monitor the pump as specified in § 63.1004(b) to determine if there is a leak of regulated material in the barrier fluid.

(B) If an instrument reading of 10,000 parts per million or greater is measured, a leak is detected and shall be repaired using the procedures in § 63.1005; or

(C) The owner or operator shall eliminate the visual indications of liquids dripping.

(vi) If indications of liquids dripping from the pump seal exceed the criteria established in paragraph (e)(1)(i) of this section, or if based on the criteria established in paragraph (e)(1)(i) of this section the sensor indicates failure of the seal system, the barrier fluid system, or both, a leak is detected.

(vii) Each sensor as described in paragraph (e)(1)(iv) of this section is observed daily or is equipped with an alarm unless the pump is located within the boundary of an unmanned plant site.

(viii) When a leak is detected pursuant to paragraph (e)(1)(vi) of this section, it shall be repaired as specified in § 63.1005.

(2) *No external shaft.* Any pump that is designed with no externally actuated shaft penetrating the pump housing is exempt from the monitoring requirements of paragraph (b) of this section.

(3) *Routed to a process or fuel gas system or equipped with a closed vent system.* Any pump that is routed to a process or a fuel gas system or equipped with a closed vent system that captures and transports leakage from the pump to a control device meeting the requirements of § 63.1015 is exempt from monitoring requirements of paragraph (b) of this section.

(4) *Unmanned plant site.* Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of paragraphs (b)(3), and (e)(1)(v) of this section, and the daily requirements of paragraph (e)(1)(vii) of this section, provided that each pump is visually inspected as often as practical and at least monthly.

(5) *Unsafe-to-monitor pumps.* Any pump that is designated, as described in § 63.1003(c)(1), as an unsafe-to-monitor pump is exempt from the monitoring requirements of paragraph (b) of this section and the repair requirements of § 63.1005 and the owner or operator shall monitor the pump according to the written plan specified in § 63.1003(c)(5).

#### **§ 63.1008 Connectors in gas and vapor service and in light liquid service standards.**

(a) *Compliance schedule.* The owner or operator shall comply with this section no later than the compliance dates specified in the referencing subpart.

(b) *Leak detection.* Connectors shall be monitored within 5 days by the method specified in § 63.1004(b) if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method. No monitoring is required if the evidence of a potential leak is eliminated within 5 days. If an instrument reading of 10,000 parts per million or greater is measured, a leak is detected. If a leak is detected, it shall be identified and repaired pursuant to the provisions of § 63.1004(e) and § 63.1005, respectively.

(c) *Leak repair.* If a leak is detected pursuant to paragraph (b) of this section, then the leak shall be repaired using the procedures in § 63.1005, as applicable.

(d) *Special provisions for connectors.*—(1) *Unsafe-to-monitor connectors.* Any connector that is designated, as described in § 63.1003(c)(1), as an unsafe-to-monitor connector is exempt from the requirements of paragraph (b) of this section and the owner or operator shall monitor according to the written plan specified in § 63.1003(c)(5).

(2) *Inaccessible, ceramic, or ceramic-lined connectors.* (i) Any connector that is inaccessible or that is ceramic or ceramic-lined (e.g., porcelain, glass, or glass-lined), is exempt from the monitoring requirements of paragraph (b) of this section and from the recordkeeping and reporting requirements of § 63.1017 and § 63.1018. An inaccessible connector is a connector that meets any of the provisions specified in paragraphs (d)(2)(i)(A) through (d)(2)(i)(F) of this section, as applicable.

(A) Buried;

(B) Insulated in a manner that prevents access to the connector by a monitor probe;

(C) Obstructed by equipment or piping that prevents access to the connector by a monitor probe; or

(D) Unable to be reached from a wheeled scissor-lift or hydraulic-type scaffold that would allow access to connectors up to 7.6 meters (25 feet) above the ground.

(E) Inaccessible because it would require elevating the monitoring personnel more than 2 meters (7 feet) above a permanent support surface or would require the erection of scaffold;

(F) Not able to be accessed at any time in a safe manner to perform monitoring. Unsafe access includes, but is not limited to, the use of a wheeled scissor-lift on unstable or uneven terrain, the use of a motorized man-lift basket in areas where an ignition potential exists, or access would require near proximity to hazards such as electrical lines, or would risk damage to equipment.

(ii) If any inaccessible ceramic or ceramic-lined connector is noted to have a leak by visual, audible, olfactory, or other means, the leak to the atmosphere shall be eliminated as soon as practical.

#### **§ 63.1009 Agitators in gas and vapor service and in light liquid service standards.**

(a) *Compliance schedule.* The owner or operator shall comply with this section no later than the compliance

dates specified in the referencing subpart.

(b) *Leak detection.* (1) *Monitoring method.* Each agitator seal shall be monitored monthly to detect leaks by the methods specified in § 63.1004(b), except as provided in § 63.1002(b).

(2) *Instrument reading that defines a leak.* If an instrument reading equivalent of 10,000 parts per million or greater is measured, a leak is detected.

(3) *Visual inspection.* Each agitator seal shall be checked by visual inspection each calendar week for indications of liquids dripping from the agitator seal. If there are indications of liquids dripping from the agitator seal, the owner or operator shall follow the procedures specified in paragraphs (b)(3)(i) and (b)(3)(ii) of this section.

(i) The owner or operator shall monitor the agitator seal as specified in § 63.1004(b) to determine if there is a leak of regulated material. If an instrument reading of 10,000 parts per million or greater is measured, a leak is detected, and it shall be repaired using the procedures in § 63.1005;

(ii) The owner or operator shall eliminate the indications of liquids dripping from the pump seal.

(c) [Reserved]

(d) *Leak repair.* If a leak is detected, then the leak shall be repaired using the procedures in § 63.1005(a).

(e) *Special provisions for agitators.*—(1) *Dual mechanical seal.* Each agitator equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (b) of this section, provided the requirements specified in paragraphs (e)(1)(i) through (e)(1)(vi) of this section are met.

(i) Each dual mechanical seal system shall meet the applicable requirement specified in paragraphs (e)(1)(i)(A), (e)(1)(i)(B), or (e)(1)(i)(C) of this section.

(A) Operated with the barrier fluid at a pressure that is at all times (except during periods of startup, shutdown, or malfunction) greater than the agitator stuffing box pressure; or

(B) Equipped with a barrier fluid degassing reservoir that is routed to a process or fuel gas system or connected by a closed vent system to a control device that meets the requirements of § 63.1015; or

(C) Equipped with a closed-loop system that purges the barrier fluid into a process stream.

(ii) The barrier fluid is not in light liquid service.

(iii) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(iv) Each agitator seal is checked by visual inspection each calendar week for indications of liquids dripping from the agitator seal. If there are indications of liquids dripping from the agitator seal at the time of the weekly inspection, the owner or operator shall follow the procedure specified in either paragraph (e)(1)(iv)(A) or (e)(1)(iv)(B) of this section.

(A) The owner or operator shall monitor the agitator seal as specified in § 63.1004(b) to determine the presence of regulated material in the barrier fluid. If an instrument reading of 10,000 parts per million or greater is measured, a leak is detected and it shall be repaired using the procedures in § 63.1005; or

(B) The owner or operator shall eliminate the visual indications of liquids dripping.

(v) Each sensor as described in paragraph (e)(1)(iii) of this section is observed daily or is equipped with an alarm unless the agitator seal is located within the boundary of an unmanned plant site.

(vi) The owner or operator of each dual mechanical seal system shall meet the requirements specified in paragraphs (e)(1)(vi)(A) through (e)(1)(vi)(D).

(A) The owner or operator shall determine, based on design considerations and operating experience, criteria applicable to the presence and frequency of drips and to the sensor that indicates failure of the seal system, the barrier fluid system, or both.

(B) The owner or operator shall keep records of the design criteria and an explanation of the design criteria; and any changes to these criteria and the reasons for the changes.

(C) If indications of liquids dripping from the agitator seal exceed the criteria established in paragraph (e)(1)(vi)(A) and (e)(1)(vi)(B) of this section, or if, based on the criteria established in paragraph (e)(1)(vi)(A) and (e)(1)(vi)(B) of this section, the sensor indicates failure of the seal system, the barrier fluid system, or both, a leak is detected.

(D) When a leak is detected, it shall be repaired using the procedures in § 63.1005.

(2) *No external shaft.* Any agitator that is designed with no externally actuated shaft penetrating the agitator housing is exempt from the requirements of paragraphs (b) of this section.

(3) *Routed to a process or fuel gas system or equipped with a closed vent system.* Any agitator that is routed to a process or fuel gas system or equipped with a closed vent system that captures

and transports leakage from the agitator to a control device meeting the requirements of § 63.1015 is exempt from the monitoring requirements of paragraphs (b) of this section.

(4) *Unmanned plant site.* Any agitator that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of paragraphs (b)(3) and (e)(1)(iv) of this section, and the daily requirements of paragraph (e)(1)(v) of this section, provided that each agitator is visually inspected as often as practical and at least monthly.

(5) *Difficult-to-monitor agitator seals.* Any agitator seal that is designated, as described in § 63.1003(c)(2), as a difficult-to-monitor agitator seal is exempt from the requirements of paragraph (b) of this section and the owner or operator shall monitor the agitator seal according to the written plan specified in § 63.1003(c)(5).

(6) *Equipment obstructions.* Any agitator seal that is obstructed by equipment or piping that prevents access to the agitator by a monitor probe is exempt from the monitoring requirements of paragraph (b) of this section.

(7) *Unsafe-to-monitor agitator seals.* Any agitator seal that is designated, as described in § 63.1003(c)(1), as an unsafe-to-monitor agitator seal is exempt from the requirements of paragraph (b) of this section and the owner or operator of the agitator seal monitors the agitator seal according to the written plan specified in § 63.1003(c)(5).

**§ 63.1010 Pumps, valves, connectors, and agitators in heavy liquid service; pressure relief devices in liquid service; and instrumentation systems standards.**

(a) *Compliance schedule.* The owner or operator shall comply with this section no later than the compliance dates specified in the referencing subpart.

(b) *Leak detection.*—(1) *Monitoring method.* Pumps, valves, connectors, and agitators in heavy liquid service; pressure relief devices in light liquid or heavy liquid service; and instrumentation systems shall be monitored within 5 calendar days by the method specified in § 63.1004(b) if evidence of a potential leak to the atmosphere is found by visual, audible, olfactory, or any other detection method. If such a potential leak is repaired as required in paragraph (c) of this section, it is not necessary to monitor the system for leaks by the method specified in § 63.1004(b).

(2) *Instrument reading that defines a leak.* For systems monitored by the

method specified in § 63.1004(b), if an instrument reading of 10,000 parts per million or greater is measured, a leak is detected. If a leak is detected, it shall be repaired pursuant to § 63.1005.

(c) *Leak repair.* For equipment identified in paragraph (b) of this section that is not monitored by the method specified in § 63.1004(b), repaired shall mean that the visual, audible, olfactory, or other indications of a leak to the atmosphere have been eliminated; that no bubbles are observed at potential leak sites during a leak check using soap solution; or that the system will hold a test pressure.

#### **§ 63.1011 Pressure relief devices in gas and vapor service standards.**

(a) *Compliance schedule.* The owner or operator shall comply with this section no later than the compliance dates specified in the referencing subpart.

(b) *Compliance standard.* Except during pressure releases as provided for in paragraph (c) of this section, each pressure relief device in gas or vapor service shall be operated with an instrument reading of less than 500 parts per million as measured by the method specified in § 63.1004(c).

(c) *Pressure relief requirements.* (1) After each pressure release, the pressure relief device shall be returned to a condition indicated by an instrument reading of less than 500 parts per million, as soon as practical, but no later than 5 calendar days after each pressure release, except as provided in paragraph (d) of this section.

(2) The pressure relief device shall be monitored no later than five calendar days after the pressure release and being returned to regulated material service to confirm the condition indicated by an instrument reading of less than 500 parts per million, as measured by the method specified in § 63.1004(c).

(3) The owner or operator shall record the dates and results of the monitoring required by paragraph (c)(2) of this section following a pressure release including maximum instrument reading measured during the monitoring and the background level measured if the instrument reading is adjusted for background.

(d) *Pressure relief devices routed to a process or fuel gas system or equipped with a closed vent system and control device.* Any pressure relief device that is routed to a process or fuel gas system or equipped with a closed vent system that captures and transports leakage from the pressure relief device to a control device meeting the requirements of either § 63.1015 or § 63.1002(b), is

exempt from the requirements of paragraphs (b) and (c) of this section.

(e) *Rupture disk exemption.* Any pressure relief device that is equipped with a rupture disk upstream of the pressure relief device is exempt from the requirements of paragraphs (b) and (c) of this section provided the owner or operator installs a replacement rupture disk upstream of the pressure relief device as soon as practical after each pressure release, but no later than 5 calendar days after each pressure release, except as provided in § 63.1005(d).

#### **§ 63.1012 Compressor standards.**

(a) *Compliance schedule.* The owner or operator shall comply with this section no later than the compliance dates specified in the referencing subpart.

(b) *Seal system standard.* Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of process fluid to the atmosphere, except as provided in § 63.1002(b) and paragraphs (e) and (f) of this section. Each compressor seal system shall meet the requirements specified in paragraphs (b)(1), (b)(2), or (b)(3) of this section.

(1) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure at all times (except during periods of startup, shutdown, or malfunction); or

(2) Equipped with a barrier fluid system degassing reservoir that is routed to a process or fuel gas system or connected by a closed-vent system to a control device that meets the requirements of § 63.1015; or

(3) Equipped with a closed-loop system that purges the barrier fluid directly into a process stream.

(c) *Barrier fluid system.* The barrier fluid shall not be in light liquid service. Each barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both. Each sensor shall be observed daily or shall be equipped with an alarm unless the compressor is located within the boundary of an unmanned plant site.

(d) *Failure criterion and leak detection.* (1) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both. If the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion, a leak is detected and shall be repaired pursuant to § 63.1005, as applicable.

(2) The owner or operator shall keep records of the design criteria and an explanation of the design criteria; and any changes to these criteria and the reasons for the changes.

(e) *Routed to a process or fuel gas system or equipped with a closed vent system and control device.* A compressor is exempt from the requirements of paragraphs (b) through (d) of this section if it is equipped with a system to capture and transport leakage from the compressor drive shaft seal to a process or a fuel gas system or to a closed vent system that captures and transports leakage from the compressor to a control device meeting the requirements of § 63.1015.

(f) *Alternative compressor standard.* (1) Any compressor that is designated as described in § 63.1003(e) as operating with no detectable emissions shall operate at all times with an instrument reading of less than 500 parts per million. A compressor so designated is exempt from the requirements of paragraphs (b) through (d) of this section if the compressor is demonstrated initially upon designation, annually, and at other times requested by the Administrator to be operating with an instrument reading of less than 500 parts per million as measured by the method specified in § 63.1004(c). A compressor may not be designated or operated having an instrument reading of less than 500 parts per million as described in § 63.1003(e) if the compressor has a maximum instrument reading greater than 500 parts per million.

(2) The owner or operator shall record the dates and results of each compliance test including the background level measured and the maximum instrument reading measured during each compliance test.

(g) *Reciprocating compressor exemption.* Any existing reciprocating compressor in a process unit or affected facility that becomes an affected facility under provisions of 40 CFR 60.14 or 60.15 of subpart VV is exempt from paragraphs (b), (c), and (d) of this section provided the owner or operator demonstrates that recasting the distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the provisions of the above exempted paragraphs of this section.

#### **§ 63.1013 Sampling connection systems standards.**

(a) *Compliance schedule.* The owner or operator shall comply with this section no later than the compliance dates specified in the referencing subpart.

(b) *Equipment requirement.* Each sampling connection system shall be equipped with a closed purge, closed loop, or closed vent system, except as provided in paragraph (d) of this section. Gases displaced during filling of the sample container are not required to be collected or captured.

(c) *Equipment design and operation.* Each closed-purge, closed-loop, or closed vent system except as provided in paragraph (d) of this section shall meet the applicable requirements specified in paragraphs (c)(1) through (c)(5) of this section.

(1) The system shall return the purged process fluid directly to a process line or fuel gas system; or

(2) Collect and recycle the purged process fluid to a process; or

(3) Be designed and operated to capture and transport all the purged process fluid to a control device that meets the requirements of § 63.1015; or

(4) Collect, store, and transport the purged process fluid to a system or facility identified in paragraph (c)(4)(i), (c)(4)(ii), or (c)(4)(iii) of this section.

(i) A waste management unit as defined in 40 CFR 63.111 or 40 CFR part 63, subpart G, if the waste management unit is complying with the provisions of 40 CFR part 63, subpart G, applicable to group 1 wastewater streams. If the purged process fluid does not contain any organic HAP listed in table 9 of 40 CFR part 63, subpart G, the waste management unit need not be subject to, and operated in compliance with the requirements of 40 CFR part 63, subpart G, applicable to subject wastewater streams provided the facility has an National Pollution Discharge Elimination System (NPDES) permit or sends the wastewater to an NPDES-permitted facility.

(ii) A treatment, storage, or disposal facility subject to regulation under 40 CFR parts 262, 264, 265, or 266; or

(iii) A facility permitted, licensed, or registered by a State to manage municipal or industrial solid waste, if the process fluids are not hazardous waste as defined in 40 CFR part 261.

(5) Containers that are part of a closed-purge system must be covered or closed when not being filled or emptied.

(d) *In-situ sampling systems.* In-situ sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (b) and (c) of this section.

#### **§ 63.1014 Open-ended valves or lines standards.**

(a) *Compliance schedule.* The owner or operator shall comply with this section no later than the compliance

dates specified in the referencing subpart.

(b) *Equipment and operational requirements.* (1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in § 63.1002(b) and paragraphs (c) and (d) of this section. The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line, or during maintenance. The operational provisions of paragraphs (b)(2) and (b)(3) of this section also apply.

(2) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

(3) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (b)(1) of this section at all other times.

(c) *Emergency shutdown exemption.* Open-ended valves or lines in an emergency shutdown system that are designed to open automatically in the event of a process upset are exempt from the requirements of paragraph (b) of this section.

(d) *Polymerizing materials exemption.* Open-ended valves or lines containing materials that would autocatalytically polymerize or, would present an explosion, serious over pressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in paragraph (b) of this section are exempt from the requirements of paragraph (b) of this section.

#### **§ 63.1015 Closed vent systems and control devices; or emissions routed to a fuel gas system or process.**

(a) *Compliance schedule.* The owner or operator shall comply with this section no later than the compliance dates specified in the referencing subpart.

(b) *Compliance standard.* (1) Owners or operators of closed vent systems and nonflare control devices used to comply with provisions of this subpart shall design and operate the closed vent system and nonflare control devices to reduce emissions of regulated material with an efficiency of 95 percent or greater or to reduce emissions of regulated material to a concentration of 20 parts per million by volume or, for an enclosed combustion device, to provide a minimum of 760 °C (1400 °F). Owners and operators of closed vent

systems and nonflare control devices used to comply with this subpart shall comply with the provisions of subpart SS of this part, except as provided in § 63.1002(b).

(2) Owners or operators of closed vent systems and flares used to comply with the provisions of this subpart shall design and operate the flare as specified in subpart SS of this part, except as provided in § 63.1002(b).

(3) Owners or operators routing emissions from equipment leaks to a fuel gas system or process shall comply with the provisions of subpart SS of this part, except as provided in § 63.1002(b).

#### **§ 63.1016 Alternative means of emission limitation: Enclosed-vented process units.**

(a) *Use of closed vent system and control device.* Process units or affected facilities enclosed in such a manner that all emissions from equipment leaks are vented through a closed vent system to a control device meeting the requirements of either subpart SS of this part or § 63.1002(b) are exempt from the requirements of §§ 63.1006 through 63.1015. The enclosure shall be maintained under a negative pressure at all times while the process unit or affected facility is in operation to ensure that all emissions are routed to a control device.

(b) *Recordkeeping.* Owners and operators choosing to comply with the requirements of this section shall maintain the records specified in paragraphs (b)(1) through (b)(3) of this section.

(1) Identification of the process unit(s) or affected facilities and the regulated materials they handle.

(2) A schematic of the process unit or affected facility, enclosure, and closed vent system.

(3) A description of the system used to create a negative pressure in the enclosure to ensure that all emissions are routed to the control device.

#### **§ 63.1017 Recordkeeping requirements.**

(a) *Recordkeeping system.* An owner or operator of more than one regulated source subject to the provisions of this subpart may comply with the recordkeeping requirements for these regulated sources in one recordkeeping system. The recordkeeping system shall identify each record by regulated source and the type of program being implemented (e.g., quarterly monitoring) for each type of equipment. The records required by this subpart are summarized in paragraphs (b) and (c) of this section.

(b) *General equipment leak records.*

(1) As specified in § 63.1003(a) through (c), the owner or operator shall keep

general and specific equipment identification if the equipment is not physically tagged and the owner or operator is electing to identify the equipment subject to this subpart through written documentation such as a log or other designation.

(2) The owner or operator shall keep a written plan as specified in § 63.1003(c)(5) for any equipment that is designated as unsafe or difficult-to-monitor.

(3) The owner or operator shall maintain the identity and an explanation as specified in § 63.1003(d)(1) for any equipment that is designated as unsafe-to-repair.

(4) As specified in § 63.1003(e), the owner or operator shall maintain the identity of compressors operating with an instrument reading of less than 500 parts per million.

(5) The owner or operator shall keep records for leaking equipment as specified in § 63.1004(e).

(6) The owner or operator shall keep records for leak repair as specified in § 63.1005(e) and records for delay of repair as specified in § 63.1005(c).

*(c) Specific equipment leak records.*

(1) For valves, the owner or operator shall maintain the records specified in paragraphs (c)(1)(i) and (c)(1)(ii) of this section.

(i) The monitoring schedule for each process unit as specified in § 63.1006(b).

(ii) If net credits for removed valves are used, a record of valves added to or removed from the process unit as specified in § 63.1006(b)(6)(iv).

(2) For pumps, the owner or operator shall maintain the records specified in paragraphs (c)(2)(i) through (c)(2)(iii) of this section.

(i) Documentation of pump visual inspections as specified in § 63.1007(b)(4).

(ii) Documentation of dual mechanical seal pump visual inspections as specified in § 63.1007(e)(1)(v).

(iii) For the criteria as to the presence and frequency of drips for dual mechanical seal pumps, records of the design criteria and explanations and any changes and the reason for the changes, as specified in § 63.1007(e)(1)(i).

(3) For connectors, the owner or operator shall maintain monitoring schedule for each process unit as specified in § 63.1008(b).

(4) For the criteria as to the presence and frequency of drips for agitators, the owner or operator shall keep records of the design criteria and explanations and any changes and the reason for the changes, as specified in § 63.1009(e)(1)(vi)(A).

(5) For pressure relief devices in gas and vapor or light liquid service, the owner or operator shall keep records of the dates and results of monitoring following a pressure release, as specified in § 63.1011(c)(3).

(6) For compressors, the owner or operator shall maintain the records specified in paragraphs (c)(6)(i) and (c)(6)(ii) of this section.

(i) For criteria as to failure of the seal system and/or the barrier fluid system, record the design criteria and explanations and any changes and the reason for the changes, as specified in § 63.1012(d)(2).

(ii) For compressors operating under the alternative compressor standard, record the dates and results of each compliance test as specified in § 63.1012(f)(2).

(7) For process units complying with the enclosed-vented process unit alternative, the owner or operator shall maintain the records for enclosed-vented process units as specified in § 63.1016(b).

**§ 63.1018 Reporting requirements.**

(a) *Periodic reports.* The owner or operator shall report the information specified in paragraphs (b)(1) through (b)(9) of this section, as applicable, in the periodic report specified in the referencing subpart.

(1) The initial Periodic Report shall include the information specified in paragraphs (a)(1)(i) through (a)(1)(iv) of this section in addition to the information listed in paragraph (a)(2) of this section.

(i) Process unit or affected facility identification.

(ii) Number of valves subject to the requirements of § 63.1006, excluding those valves designated for no detectable emissions under the provisions of § 63.1006(e)(4).

(iii) Number of pumps subject to the requirements of § 63.1007, excluding those pumps designated for no detectable emissions (e.g., no external shaft) under the provisions of § 63.1007(e)(2) and those pumps complying with the closed vent system provisions of § 63.1007(e)(3).

(iv) Number of compressors subject to the requirements of § 63.1012, excluding those compressors designated for no detectable emissions under the provisions of § 63.1012(f) and those compressors complying with the closed vent system provisions of § 63.1012(e).

(2) Each periodic report shall contain the information listed in paragraphs (a)(2)(i) through (a)(2)(iv) of this section, as applicable.

(i) Process unit identification.

(ii) For each month during the semiannual reporting period,

(A) Number of valves for which leaks were detected as described in § 63.1006(b),

(B) Number of valves for which leaks were not repaired as required in § 63.1006(d),

(C) Number of pumps for which leaks were detected as described in § 63.1007(b) and § 63.1007(e)(1)(vi),

(D) Number of pumps for which leaks were not repaired as required in §§ 63.1007(d) and (e)(5),

(E) Number of compressors for which leaks were detected as described in § 63.1012(d)(1),

(F) Number of compressors for which leaks were not repaired as required in § 63.1012(d)(1), and

(G) The facts that explain each delay of repair and, where appropriate, why the repair was technically infeasible without a process unit or affected facility shutdown.

(iii) Dates of process unit or affected facility shutdowns which occurred within the periodic report reporting period.

(iv) Revisions to items reported according to paragraph (a)(1) of this section if changes have occurred since the initial report or subsequent revisions to the initial report.

(b) *Special notifications.* An owner or operator electing to comply with either of the alternatives in § 63.1006(b)(5) or (6) shall notify the Administrator of the alternative standard selected before implementing either of the provisions.

4. Part 63 is amended by adding subpart UU as follows:

**Subpart UU—National Emission Standards for Equipment Leaks—Control Level 2 Standards**

Sec.

63.1019 Applicability.

63.1020 Definitions.

63.1021 Alternative means of emission limitation.

63.1022 Equipment identification.

63.1023 Instrument and sensory monitoring for leaks.

63.1024 Leak repair.

63.1025 Valves in gas and vapor service and in light liquid service standards.

63.1026 Pumps in light liquid service standards.

63.1027 Connectors in gas and vapor service and in light liquid service standards.

63.1028 Agitators in gas and vapor service and in light liquid service standards.

63.1029 Pumps, valves, connectors, and agitators in heavy liquid service; pressure relief devices in liquid service; and instrumentation systems standards.

63.1030 Pressure relief devices in gas and vapor service standards.

63.1031 Compressors standards.

63.1032 Sampling connection systems standards.