calculations used to develop the operating limits and a description of why each operating limit indicates proper operation of the control device during the specific batch emission episode.

(4) If you elect to establish separate operating limits for different batch emission episodes within a batch process as specified in paragraph (d)(3) of this section, you must maintain daily records indicating each point at which you change from one operating limit to another, even if the monitoring duration for an operating limit is less than 15 minutes. You must maintain a daily record according to \$63.11990(e)(4)(i).

(e) Reduction of CPMS and CEMS data. You must reduce CEMS and CPMS data to 1-hour averages according to  $\S63.8(g)$ to compute the average values for demonstrating compliance specified in  $\$\S63.11925(e)(3)(ii)$ , 63.11925(e)(4)(ii)(B), and 63.11960(c)(2) for CEMS and CPMS, as applicable.

## §63.11940 What continuous monitoring requirements must I meet for control devices required to install CPMS to meet the emission limits for process vents?

As required in §63.11925(c), you must install and operate the applicable CPMS specified in paragraphs (a) through (g) of this section for each control device you use to comply with the emission limits for process vents in Table 1 or 2 to this subpart. You must monitor, record, and calculate CPMS data averages as specified in Table 7 to this subpart. Paragraph (h) of this section provides an option to propose alternative monitoring parameters or procedures.

(a) Flow indicator. If flow to a control device could be intermittent, you must install, calibrate, and operate a flow indicator at the inlet or outlet of the control device to identify periods of no flow.

(b) Thermal oxidizer monitoring. If you are using a thermal oxidizer to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in §63.11925(c), you must equip the thermal oxidizer with the monitoring equipment specified in paragraphs (b)(1) through (3) of this section, as applicable.

(1) If a thermal oxidizer other than a catalytic thermal oxidizer is used, you

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must install a temperature monitoring device in the fire box or in the ductwork immediately downstream of the fire box in a position before any substantial heat exchange occurs.

(2) Except as provided in paragraph (b)(3) of this section, where a catalytic thermal oxidizer is used, you must install temperature monitoring devices in the gas stream immediately before and after the catalyst bed. You must monitor the temperature differential across the catalyst bed.

(3) Instead of complying with paragraph (b)(2) of this section, and if the temperature differential between the inlet and outlet of the catalytic thermal oxidizer during normal operating conditions is less than 10 degrees Celsius (18 degrees Fahrenheit), you may elect to monitor the inlet temperature and conduct catalyst checks as specified in paragraphs (b)(3)(i) and (ii) of this section.

(i) You must conduct annual sampling and analysis of the catalyst activity (*i.e.*, conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures. If problems are found during the catalyst activity test, you must replace the catalyst bed or take other corrective action consistent with the manufacturer's recommendations within 15 days or by the next time any process vent stream is collected by the control device, whichever is sooner.

(ii) You must conduct annual internal inspections of the catalyst bed to check for fouling, plugging, or mechanical breakdown. You must also inspect the bed for channeling, abrasion, and settling. If problems are found during the annual internal inspection of the catalyst, you must replace the catalyst bed or take other corrective action consistent with the manufacturer's recommendations within 15 days or by the next time any process vent stream is collected by the control device, whichever is later. If the catalyst bed is replaced and is not of like or better kind and quality as the old catalyst then you must conduct a new performance test according to §63.11945 to determine destruction efficiency. If a catalyst bed is replaced and the replacement catalyst is of like or better kind and quality as the old catalyst, then a

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new performance test to determine destruction efficiency is not required.

(c) Absorber and acid gas scrubber monitoring. If you are using an absorber or acid gas scrubber to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in 63.11925(c), you must install the monitoring equipment specified in paragraphs (c)(1) through (3) of this section.

(1) Install and operate the monitoring equipment as specified in either paragraph (c)(1)(i) or (ii) of this section.

(i) A flow meter to monitor the absorber or acid gas scrubber influent liquid flow.

(ii) A flow meter to monitor the absorber or acid gas scrubber influent liquid flow and the gas stream flow using one of the procedures specified in paragraphs (c)(1)(ii)(A), (B), or (C) of this section. You must monitor the liquidto-gas ratio determined by dividing the flow rate of the absorber or acid gas scrubber influent by the gas flow rate. The units of measure must be consistent with those used to calculate this ratio during the performance test.

(A) Determine gas stream flow using the design blower capacity, with appropriate adjustments for pressure drop.

(B) Measure the gas stream flow at the absorber or acid gas scrubber inlet.

(C) If you have previously determined compliance for a scrubber that requires a determination of the liquid-to-gas ratio, you may use the results of that test provided the test conditions are representative of current operation.

(2) Install and operate the monitoring equipment as specified in either paragraph (c)(2)(i), (ii), or (iii) of this section.

(i) Install and operate pressure gauges at the inlet and outlet of the absorber or acid gas scrubber to monitor the pressure drop through the absorber or acid gas scrubber.

(ii) If the difference in the inlet gas stream temperature and the inlet liquid stream temperature is greater than 38 degrees Celsius, you may install and operate a temperature monitoring device at the scrubber gas stream exit.

(iii) If the difference between the specific gravity of the scrubber effluent scrubbing fluid and specific gravity of the scrubber inlet scrubbing fluid is greater than or equal to 0.02 specific gravity units, you may install and operate a specific gravity monitoring device on the inlet and outlet of the scrubber.

(3) If the scrubbing liquid is a reactant (e.g., lime, ammonia hydroxide), you must install and operate one of the devices listed in either paragraph (c)(3)(i), (ii) or (iii) of this section.

(i) A pH monitoring device to monitor the pH of the scrubber liquid effluent.

(ii) A caustic strength monitoring device to monitor the caustic strength of the scrubber liquid effluent.

(iii) A conductivity monitoring device to monitor the conductivity of the scrubber liquid effluent.

(d) Regenerative adsorber monitoring. If you are using a regenerative adsorber to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in §63.11925(c), you must install and operate the applicable monitoring equipment listed in paragraphs (d)(1) through (5) of this section, and comply with the requirements in paragraphs (d)(6) and (7) of this section. If the adsorption system water is wastewater as defined in §63.12005, then it is subject to the requirements of §63.11965.

(1) For non-vacuum regeneration systems, an integrating regeneration stream flow monitoring device having an accuracy of  $\pm 10$  percent, capable of recording the total regeneration stream mass for each regeneration cycle. For non-vacuum regeneration systems, an integrating regeneration stream flow monitoring device capable of continuously recording the total regeneration stream mass flow for each regeneration cycle.

(2) For non-vacuum regeneration systems, an adsorber bed temperature monitoring device, capable of continuously recording the adsorber bed temperature after each regeneration and within 15 minutes of completing any temperature regulation (cooling or warming to bring bed temperature closer to vent gas temperature) portion of the regeneration cycle.

(3) For non-vacuum and non-steam regeneration systems, an adsorber bed

temperature monitoring device capable of continuously recording the bed temperature during regeneration, except during any temperature regulating (cooling or warming to bring bed temperature closer to vent gas temperature) portion of the regeneration cycle.

(4) For a vacuum regeneration system, a pressure transmitter installed in the vacuum pump suction line capable of continuously recording the vacuum level for each minute during regeneration. You must establish a minimum target and a length of time at which the vacuum must be below the minimum target during regeneration.

(5) A device capable of monitoring the regeneration frequency (i.e., oper-ating time since last regeneration) and duration.

(6) You must perform a verification of the adsorber during each day of operation. The verification must be through visual observation or through an automated alarm or shutdown system that monitors and records system operational parameters. The verification must verify that the adsorber is operating with proper valve sequencing and cycle time.

(7) You must conduct weekly measurements of the carbon bed outlet volatile organic compounds concentration over the last 5 minutes of an adsorption cycle for each carbon bed. For regeneration cycles longer than 1 week, you must perform the measurement over the last 5 minutes of each adsorption cycle for each carbon bed. The outlet concentration of volatile organic compounds must be measured using a portable analyzer, in accordance with Method 21 at 40 CFR part 60, appendix A-7, for open-ended lines. Alternatively, outlet concentration of HAP(s) may be measured using chromatographic analysis using Method 18 at 40 CFR part 60, appendix A-6.

(e) Non-regenerative adsorber monitoring. If you are using a non-regenerative adsorber, or canister type system that is sent off site for regeneration or disposal, to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in  $\S63.11925(c)$ , you must install a system of dual adsorber units in series and conduct the monitoring and bed re40 CFR Ch. I (7–1–13 Edition)

placement as specified in paragraphs (e)(1) through (4) of this section.

(1) Establish the average adsorber bed life by conducting daily monitoring of the outlet volatile organic compound or HAP concentration, as specified in this paragraph (e)(1), of the first adsorber bed in series until breakthrough occurs for the first three adsorber bed change-outs. The outlet concentration of volatile organic compounds must be measured using a portable analyzer, in accordance with Method 21 at 40 CFR part 60, appendix A-7, for open-ended lines. Alternatively, outlet concentration of HAP may be measured using chromatographic analysis using Method 18 at 40 CFR part 60, appendix A-6. Breakthrough of the bed is defined as the time when the level of HAP detected is at the highest concentration allowed to be discharged from the adsorber system.

(2) Once the average life of the bed is determined, conduct ongoing monitoring as specified in paragraphs (e)(2)(i) through (iii) of this section.

(i) Except as provided in paragraphs (e)(2)(i) and (iii) of this section, conduct daily monitoring of the adsorber bed outlet volatile organic compound or HAP concentration, as specified in paragraph (e)(1) of this section.

(ii) You may conduct monthly monitoring if the adsorbent has more than 2 months of life remaining, as determined by the average primary adsorber bed life, established in paragraph (e)(1)of this section, and the date the adsorbent was last replaced.

(iii) You may conduct weekly monitoring if the adsorbent has more than 2 weeks of life remaining, as determined by the average primary adsorber bed life, established in paragraph (e)(1) of this section, and the date the adsorbent was last replaced.

(3) The first adsorber in series must be replaced immediately when breakthrough is detected between the first and second adsorber. The original second adsorber (or a fresh canister) will become the new first adsorber and a fresh adsorber will become the second adsorber. For purposes of this paragraph (e)(3), "immediately" means within 8 hours of the detection of a

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breakthrough for adsorbers of 55 gallons or less, and within 24 hours of the detection of a breakthrough for adsorbers greater than 55 gallons.

(4) In lieu of replacing the first adsorber immediately, you may elect to monitor the outlet of the second canister beginning on the day the breakthrough between the first and second canister is identified and each dav thereafter. This daily monitoring must continue until the first canister is replaced. If the constituent being monitored is detected at the outlet of the second canister during this period of daily monitoring, both canisters must be replaced within 8 hours of the time of detection of volatile organic compounds or HAP at 90 percent of the allowed level (90 percent of breakthrough definition).

(f) Condenser monitoring. If you are using a condenser to meet an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in §63.11925(c), you must install and operate a condenser exit gas temperature monitoring device.

(g) Other control devices. If you use a control device other than those listed in this subpart to comply with an emission limit in Table 1 or 2 to this subpart and you are required to use CPMS as specified in  $\S63.11925(c)$ , you must comply with the requirements as specified in paragraphs (g)(1) and (2) of this section.

(1) Submit a description of the planned monitoring, recordkeeping, and reporting procedures. The Administrator will approve, deny or modify the proposed monitoring, reporting and recordkeeping requirements as part of the review of the plan or through the review of the permit application or by other appropriate means.

(2) You must establish operating limits for monitored parameters that are approved by the Administrator. To establish the operating limit, the information required in \$63.11935(d) must be submitted in the notification of compliance status report specified in \$63.11985(a).

(h) Alternatives to monitoring requirements. (1) You may request approval to use alternatives to the continuous operating parameter monitoring listed in this section, as specified in \$ (63.11985(c)(4) and 63.8.

(2) You may request approval to monitor a different parameter than those established in  $\S63.11935(d)$  or to set unique monitoring parameters, as specified in  $\S\S63.11985(c)(5)$  and 63.8. Until permission to use an alternative monitoring parameter has been granted by the Administrator, you remain subject to the requirements of this subpart.

## §63.11945 What performance testing requirements must I meet for process vents?

(a) General. For each control device used to meet the emission limits for process vents in Table 1 or 2 to this subpart, you must conduct the initial and periodic performance tests required in §63.11925(d) and (e) and as specified in §63.11896 using the applicable test methods and procedures specified in Table 8 to this subpart and paragraphs (b) through (d) of this section.

(b) Process operating conditions. You must conduct performance tests under the conditions specified in paragraphs (b)(1) through (3) of this section, as applicable. 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. In all cases, a site-specific plan must be submitted to the Administrator for approval prior to testing in accordance with  $\S63.7(c)$ . The test plan must include the emission profiles described in  $\S63.11925(g)$ .

(1) Continuous process vents. For continuous process vents, you must conduct all performance tests at maximum representative operating conditions for the process. For continuous compliance, you must conduct subsequent performance tests within the range of operating limit(s) that were established for the control device during the initial or subsequent performance tests specified in §63.11925(d) and (e). If an operating limit is a range, then you must conduct subsequent performance tests within the range of maximum or minimum operating limits for the control device, which result in highest emissions (i.e., lowest emission reduction).

(2) Batch process operations. Testing must be conducted at absolute worst-