

The EPA Acting Administrator, Andrew R. Wheeler, signed the following notice on 11/5/2018, and EPA is submitting it for publication in the *Federal Register* (FR). While we have taken steps to ensure the accuracy of this Internet version of the rule, it is not the official version of the rule for purposes of compliance. Please refer to the official version in a forthcoming FR publication, which will appear on the Government Printing Office's FDSys website (<http://gpo.gov/fdsys/search/home.action>) and on Regulations.gov (<http://www.regulations.gov>) in Docket No. EPA-HQ-OAR-2016-0510. Once the official version of this document is published in the FR, this version will be removed from the Internet and replaced with a link to the official version.

6560-50-P

## **ENVIRONMENTAL PROTECTION AGENCY**

### **40 CFR Parts 51, 60, and 63**

**[EPA-HQ-OAR-2016-0510; FRL- ]**

**RIN 2060-AS95**

### **Revisions to Testing Regulations for Air Emission Sources**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** This action amends certain existing testing regulations to reflect corrections, updates, and the addition of alternative equipment and methods for source testing of emissions. These revisions will improve the quality of data and provide flexibility in the use of approved alternative procedures. The revisions do not impose any new substantive requirements on source owners or operators.

**DATES:** The final rule is effective on **[insert date 60 days after publication in the *Federal Register*]**.

The incorporation by reference materials listed in the rule are approved by the Director of the Federal Register as of **[insert date 60 days after publication in the *Federal Register*]**.

**ADDRESSES:** The EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2016-0510. All documents in the docket are listed on the <http://www.regulations.gov> Web site. Although listed in the index, some information is not publicly available, e.g., confidential business information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted

material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available electronically through <http://www.regulations.gov>.

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## **I. General Information**

### *A. Does this action apply to me?*

The revisions promulgated in this final rule apply to industries that are subject to the current provisions of 40 Code of Federal Regulations (CFR) parts 51, 60, and 63. We did not list all of the specific affected industries or their North American Industry Classification System (NAICS) codes

herein since there are many affected sources in numerous NAICS categories. If you have any questions regarding the applicability of this action to a particular entity, consult either the air permitting authority for the entity or your EPA Regional representative as listed in 40 CFR 63.13.

*B. What action is the agency taking?*

We are promulgating corrections and updates to regulations for source testing of emissions. More specifically, we are correcting typographical and technical errors, updating obsolete testing procedures, adding approved testing alternatives, and clarifying testing requirements.

*C. Judicial Review*

Under section 307(b)(1) of the Clean Air Act (CAA), judicial review of this final rule is available by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit by **[Insert date 60 days from date of publication in the *Federal Register*]**. Under section 307(d)(7)(B) of the CAA, only an objection to this final rule that was raised with reasonable specificity during the period for public comment can be raised during judicial review. Moreover, under section 307(b)(2) of the CAA, the requirements that are the subject of this final rule may not be challenged later in civil or criminal proceedings brought by the EPA to enforce these requirements.

## **II. Background**

The revisions to testing regulations for air emission sources were proposed in the *Federal Register* on January 26, 2018 (83 FR 3636). The public comment period ended March 27, 2018, and 83 comment letters were received from the public; 23 of the comment letters were relevant, and the other 60 comment letters were considered beyond the scope of the proposed rule. This final rule was developed based on public comments that the agency received on the proposed rule.

## **III. Summary of Amendments**

*A. Method 201A of Appendix M of Part 51*

In Method 201A, in section 12.5, the denominator of equation 24 is corrected as proposed; the proposed  $C'_p$  in the denominator is changed to  $C_p'$  to be consistent with the nomenclature in section 12.1. The  $C_p$  in the numerator is changed to  $C_p$  also to be consistent with the nomenclature in section 12.1.

*B. Method 204 of Appendix M of Part 51*

In Method 204, in section 8.2, the statement regarding equation 204-2 is corrected to “The NEAR must be  $\leq 0.05$ ,” as proposed.

*C. Method 205 of Appendix M of Part 51*

In Method 205, section 2.1.1 is revised to allow the use of National Institute of Standards and Technology (NIST)-traceable transfer standards to calibrate the gas dilution system as proposed. The agency continues to believe that these standards are widely available and provide the accuracy necessary to perform the calibration. Section 2.1.1 is also revised as proposed to require testers to report the results of the calibration of the dilution system to enable the regulatory authority to review this information.

*D. General Provisions (Subpart A) of Part 60*

In the General Provisions of part 60, § 60.17(h) is revised as proposed to add ASTM D6216-12 to the list of incorporations by reference and to re-number the remaining consensus standards that are incorporated by reference in alpha-numeric order.

*E. Fossil-Fuel-Fired Steam Generators (Subpart D) Part 60*

In a change from proposal, the allowed filter temperature in section 60.46(b)(2)(i) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the

proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

*F. Electric Utility Steam Generating Units (Subpart Da) Part 60*

In a change from proposal, the allowed filter temperature in § 60.50Da (b)(1)(ii)(A) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

*G. Industrial-Commercial-Institutional Steam Generating Units (Subpart Db) Part 60*

In a change from proposal, the allowed filter temperature in § 60.46b(d)(4) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

*H. Small Industrial-Commercial-Institutional Steam Generating Units (Subpart Dc) Part 60*

In a change from proposal, the allowed filter temperature in § 60.45c(a)(5) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

*I. Municipal Waste Combustors for Which Construction is Commenced After December 20, 1989 and on or Before September 20, 1994 (Subpart Ea) Part 60*

In a change from proposal, the allowed filter temperature in § 60.58a(b)(3) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed

revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

*J. Glass Manufacturing Plants (Subpart CC) Part 60*

In a change from proposal, the allowed filter temperatures in §§ 60.293(f) and 60.296(d)(2) are not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

*K. New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces (Subpart QQQQ) Part 60*

In subpart QQQQ, in Method 28WHH, in section 13.5.1, equation 8 is corrected as proposed.

*L. Method 2B of Appendix A-1 of Part 60*

In Method 2B, in section 12.1, the definition of ambient carbon dioxide concentration is revised as proposed. The agency continues to believe that the global monthly mean  $(\text{CO}_2)_a$  concentration varies over time. Also, a Web site link is added to the definition as specified at proposal.

*M. Method 5 of Appendix A-3 of Part 60*

In a change from proposal, allowed filter temperatures in Method 5, sections 2.0, 6.1.1.2, 6.1.1.6, 6.1.1.7, and 8.5 are not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

Section 6.1.1.9 is revised as proposed to allow the use of a single temperature sensor in lieu of two temperature sensors on the dry gas meter as allowed by Technical Information Document 19 (TID-19) and the approved broadly applicable alternative, ALT-117 (see <https://www.epa.gov/emc>). Consistent with our response to the comment regarding allowing flexibility for the weighing container in section 11.2.1, Method 5B, the first sentence in section 11.2.1, Method 5 is revised similarly.

*N. Method 5B of Appendix A-3 of Part 60*

In a change from proposal, the allowed filter temperatures in Method 5B, sections 2.0, 6.1, and 8.2 are not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

Section 11.0 is revised as proposed to replace the reference to Method 5, section 11.0 with specific analytical procedures and to report the results using Figure 5B-1 for complete data review. Section 17.0 is revised as proposed to delete the word “Reserved” from the title, and Figure 5B-1 (Analytical Data Sheet) is added.

*O. Method 5I of Appendix A-3 of Part 60*

In a change from proposal, Method 5I, sections 2.1 and 8.5.2.2 are not revised to tighten the allowed filter temperatures. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

*P. Method 7 of Appendix A-4 of Part 60*

In Method 7, sections 10.1.2 and 11.3 reference erroneous sections; the correct section is inserted, as proposed. The proposed referenced section 10.1.1.2 is changed to 10.1.1 to include procedures in both sections 10.1.1.1 and 10.1.1.2.

*Q. Method 8 of Appendix A-4 of Part 60*

As proposed, Method 8, sections 6.1.1.1 through 6.1.1.4 are renumbered to 6.1.1.2 through 6.1.1.5; a new section 6.1.1.1 is added to clarify the requirements that apply to the probe nozzle; and, in response to comments, Figure 8-1 (Sulfuric Acid Sampling Train) is corrected by: (1) modifying the impinger graphics to make it consistent with the text in section 6.1.1.4 and (2) revising the proposed label S-Type Pitot Tube to Type S Pitot Tube for consistency. The proposed first sentence in section 6.1.1.1 is revised to “Borosilicate or quartz glass with a sharp, tapered leading edge and coupled to the probe liner using a polytetrafluoroethylene (PTFE) or glass-lined union (e.g., fused silica, Silico, or equivalent).” Based on a public comment that recommended adding Silco coated stainless steel unions as an option for Teflon unions, and for consistency with other test methods, we have replaced Teflon with the generic option polytetrafluoroethylene (PTFE).

*R. Method 18 of Appendix A-6 of Part 60*

In Method 18, in section 13.1, the erroneous paragraph (c) designation is re-designated as (b), as proposed.

*S. Method 22 of Appendix A-7 of Part 60*

In Method 22, sections 11.2.1 and 11.2.2 are revised as proposed to allow digital photography to be used for a subset of the recordkeeping requirements. As proposed, section 11.2.3 is added to specify the requirements for digital photographic records. In response to comments on the proposal, the next to the last sentence in section 11.2.3 regarding photographs that must be taken within 15 minutes of the observation period is revised from the proposal, and another sentence is added to provide clarity. The revised and new sentences read: “The photograph(s) representing the environmental conditions

including the sky conditions and the position of the sun relative to the observer and the emission point must be taken within a reasonable time of the observation (i.e., 15 minutes). When observations are taken from exactly the same observation point on a routine basis (e.g., daily) and as long as there are no modifications to the units depicted, only a single photograph each day is necessary to document the observer's location relative to the emissions source, the process unit being observed, and the location of potential and actual emission points." The agency notes that ALT-109 (see <https://www.epa.gov/emc>) is the associated broadly applicable alternative that allows the use of digital photographs for specific recordkeeping requirements.

*T. Method 26 of Appendix A-8 of Part 60*

As proposed, Method 26, section 6.2.2 is revised to allow the use of glass sample storage containers as an option to allow flexibility and to be consistent with Method 26A. The proposed title of section 6.2.2, "Storage Bottles," is changed to "Storage Containers" to be consistent with the language in section 6.2.2.

*U. Method 26A of Appendix A-8 of Part 60*

As proposed, in Method 26A, section 6.2.1 is revised to remove the language regarding sample storage containers. In response to comments on our proposal, we have determined that high-density polyethylene is an acceptable material for sample storage containers in addition to the currently allowed glass. Therefore, in a new section 6.2.4., we have specified that both high-density polyethylene and glass are acceptable sample storage containers.

*V. Test Method 28WHH of Appendix A-8 of Part 60*

In Test Method 28WHH, equation 8 in section 13.5.1 is corrected, as proposed.

*W. Performance Specification 1 of Appendix B of Part 60*

As proposed, in Performance Specification 1, references to ASTM D6216-98 (in sections 2.1, 3.1, 6.1, 8.1(1), 8.1(3)(ii), 8.2(1), 8.2(2), 8.2(3), 9.0, 12.1, 13.0, 13.1, 13.2, and 16.0 paragraph 8) are

replaced with ASTM D6216-12. As noted at proposal, if the initial certification of the continuous opacity monitoring system (COMS) has already occurred using D6216-98, D6216-03, or D6216-07, it will not be necessary to recertify using D6216-12. In response to comments on our decision to add ASTM D6216 to the list of consensus standards, the April 1998 publication date for ASTM D6216 in paragraph 8 in section 16.0 is replaced with October 2012, the ASTM D6216-12 publication date. In response to comments, for consistency with section 2.1, and for purposes of clarification, the note at the end of section 2.1 is added to section 13.0.

*X. Performance Specification 2 of Appendix B of Part 60*

In Performance Specification 2, section 13.2 is replaced with a table that indicates the relative accuracy performance specifications, as proposed. Given that the equals to (=) signs were erroneously omitted from several of the < and > values during publication of the table in the proposed rule, these values have been corrected.

*Y. Performance Specification 3 of Appendix B of Part 60*

In Performance Specification 3, the two sentences in section 12.0 that read, “Calculate the arithmetic difference between the RM and the CEMS output for each run. The average difference of the nine (or more) data sets constitute the RA.” are deleted, as proposed; these two sentences are no longer necessary since equations 3-1 and 3-2 would be moved from section 13.2 to section 12.0. The sentence, “Calculate the RA using equations 3-1 and 3-2.” is added to the beginning of section 12.0.

*Z. Performance Specification 11 of Appendix B of Part 60*

In Performance Specification 11, section 13.1, the word “average” erroneously exists in the second sentence and is deleted, as proposed.

*AA. Performance Specification 15 of Appendix B of Part 60*

As proposed, in Performance Specification 15, section 13.0 is added as “Method Performance [Reserved].”

*BB. Performance Specification 18 of Appendix B of Part 60*

As proposed, in Performance Specification 18, in section 11.8.7, the last sentence is revised to clarify the duration of the drift check. In Table 1, the erroneous acronym “NO<sub>2</sub>” is replaced with “NO,” as proposed. In the appendix of Performance Specification 18, the inadvertently omitted reserved section 12.0 is added, as proposed.

*CC. Procedure 1 of Appendix F of Part 60*

As proposed, in Procedure 1, in section 5.1.2 (1), the sentence immediately following the table that reads, “Challenge the CEMS three times at each audit point, and use the average of the three responses in determining accuracy.” is replaced with, “Introduce each of the audit gases, three times each for a total of six challenges. Introduce the gases in such a manner that the entire CEMS is challenged. Do not introduce the same gas concentration twice in succession.” In order to obtain six distinct readings during the cylinder gas audit (CGA), the same gas must not be introduced twice in succession, and this revised language accurately reflects this standard scientific practice. As also proposed, in section 5.1.2 (3), the reference to EPA’s traceability protocol for gaseous calibration standards is updated, and the language regarding the use of EPA Method 205 for dilution of audit gases is clarified.

*DD. General Provisions (Subpart A) of Part 63*

Sections 63.7(g)(2), 63.7(g)(2)(v), and 63.8(e)(5)(i) of the General Provisions (subpart A) of part 63 are revised, as proposed, to require the reporting of specific test data for continuous monitoring system performance evaluation tests and ongoing quality assurance (QA) tests. These data elements are required regardless of the format of the report, i.e., electronic or paper. These modifications will ensure that performance evaluation and QA test reporting include all data necessary for the compliance authority to assess and assure the quality of the reported data and that the reported information describes and identifies the specific unit covered by the evaluation test report. In response

to comment, we specified the level of reporting needed for continuous parameter monitoring systems (CPMS) versus other continuous monitoring systems including continuous emission monitoring systems (CEMS), COMS, and predictive emissions monitoring systems (PEMS).

*EE. Wool Fiberglass Manufacturing (Subpart NNN) Part 63*

In a change from proposal, the allowed filter temperature in § 63.1385(a)(5) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

*FF. Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (Subpart DDDDD) Part 63*

As proposed, in Table 6 of subpart DDDDD, row 1.f. is revised to allow the use of EPA SW-846-7471B (for liquid samples) in addition to EPA SW-846-7470A for measuring mercury to allow for compliance flexibility.

*GG. Coal- and Oil-Fired Electric Utility Steam Generating Units (Subpart UUUUU) Part 63*

In a change from proposal, the allowed filter temperature in § 63.10010(h)(7)(i)(1) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

As proposed, in Table 5, Method 5I is specified as a test method option because, as explained at proposal, Method 5I is designed for low particulate matter (PM) application.

*HH. Method 303 of Appendix A of Part 63*

In Method 303, section 12.4, equation 303-3 is corrected, as proposed, by inserting “where  $y =$ ” in front of the equation.

## II. Method 308 of Appendix A of Part 63

As proposed, in Method 308, deionized distilled water replaces the aqueous n-proponal solution; the affected sections are 2.0, 7.2.2, 7.2.3.3, and 11.3.2. Section 7.2.2, which defines the aqueous n-proponal solution, is removed, as proposed. In section 7.2.3.3, the erroneous “four” is replaced as proposed, with “three” in the sentence that reads “Pipette 5, 15, and 25 ml of this standard, respectively into four 50-ml volumetric flasks.” Section 8.1.2 is revised, as proposed, to require a leak check prior to the sampling run (in addition to after the sampling run) for QA purposes; as explained at proposal, requiring a leak check prior to the sampling run would potentially save time and money. In section 9.1, methanol spike recovery check is added as a quality control (QC) measure in Table 9.1, as proposed. In section 12.1, variables used in equations 308-4 and 308-5 are added and section 12.5, which includes equations 308-4 and 308-5, is added, as proposed. In section 13.0, the title “Reserved” is replaced with “Method Performance” and QA requirements would be added to be consistent with other methods, as proposed. The erroneous proposed paragraph (a) of section 13.0 is replaced, as proposed, with “Calibration standards must meet the requirements in section 10.2.1 or 10.2.2 as applicable.”

## JJ. Method 320 of Appendix A of Part 63

In section 8.2.2.4, the denominator in equation 2 is corrected from  $P_{SS}$  to  $P_S$ , as proposed. In section 9.2.3, the word “where” in the statement, “Calculate the dilution ratio using the tracer gas as follows: where:” is deleted, as proposed. Also in section 9.2.3, the inadvertently superscripted “dir” on the definition of spike is subscripted, as proposed.

## KK. Method 323 of Appendix A of Part 63

In Method 323, section 12.9, the denominator in equation 323-8 is corrected, as proposed.

*LL. Method 325A of Appendix A of Part 63*

In Method 325A, section 8.2.1.3 is revised, as proposed, to clarify that only one extra sampling site is required near known sources of volatile organic compounds (VOCs) when the source is located both within 50 meters of the boundary and between two monitors. Based on a public comment we received on the proposed regulatory text, wording changes have been made to the language in section 8.2.1.3. As proposed, the label under Figure 8.1 is corrected from “Refinery (20% angle)” to “Refinery (20° angle).” Section 8.2.3.2 is revised, as proposed, to include facilities with a monitoring perimeter length equal to 7,315 meters (24,000 feet). Section 8.2.3.3 is added, as proposed, to provide clarification and an equivalent procedure in Option 2 (linear distance between sites) for site locations that parallel section 8.2.2.2.4 in Option 1 (radial distance between sites). In response to comments, section 8.4.3 is added to address worker safety during extenuating circumstances.

*MM. Method 325B of Appendix A of Part 63*

In Method 325B, section 9.3.2 is revised, as proposed, to correct an error in the number of field blank samples required for a sampling period and to provide consistency with the sample analysis required in Method 325B. In sections 9.13 and 11.3.2.5, the erroneous reference to section 10.6.3 is corrected to 10.0, as proposed. Also in section 11.3.2.5, the erroneous reference to section 10.9.5 is corrected to 9.13, as proposed. Section 12.2.2 is revised, as proposed, to correct the calculation of target compound concentrations at standard conditions, and the erroneous reference to  $U_{std}$  in the note in section 12.2.2 is revised to  $U_{NTP}$ . Sections 12.2.3 and 12.2.4 are deleted, as proposed, because the equations for target concentrations are incorrect. Table 17-1 is revised, as proposed, to add inadvertently omitted QC criteria from section 9.3.3.

#### **IV. Public Comments on the Proposed Rule**

Eighty-three (83) comment letters were received from the public; 23 of the comment letters were relevant, and the other 60 comment letters were considered as beyond the scope of the proposed rule.

The public comments and the agency's responses are summarized in the Response to Comments document located in the docket for this rule. See the **ADDRESSES** section of this preamble.

A summary of the relevant portions of significant comments that we received on the proposal and agency responses are presented below.

*Comment:* Three commenters provided comments on our proposed revisions to the General Provisions (Subpart A) of Part 63. One commenter stated that the proposed revisions impose new requirements on CMS performance evaluations and QA testing for types of monitors not previously subject to such requirements. Another commenter remarked that the proposed revisions to various requirements in Part 63 revisions were vague. Yet another commenter remarked that the proposed revisions to § 63.8(e)(5) would shorten the CMS performance evaluation reporting period for CMS associated with performance tests.

*Response:* We disagree with the comment that the proposed changes to § 63.8(e)(5)(i) would impose new requirements given that at proposal, the agency had explained that they were intended to clarify and codify data elements and reporting requirements that are already routinely requested by the Administrator's delegated authorities. With regard to § 63.8(e)(5), in a change from proposal, we have retained the existing requirement that allows for the simultaneous submission of the report of a CMS performance evaluation with results of performance testing required under 40 CFR 63.7. We also edited the final rule language for 40 CFR 63.7(g)(2)(v) to improve clarity and to eliminate confusion.

*Comment:* Fifteen commenters provided comments arguing against the proposal to tighten the filter temperature tolerance in 40 CFR 60.46(b)(2)(i); 60.50Da(b)(1)(ii)(A); 60.45c(a)(5); 60.58a(b)(3); 60.293(f); 60.296(d)(2); 63.1385(a)(5); and sections 2.0, 6.1.1.2, 6.1.1.6, 6.1.1.7 and 8.5 of Method 5, Appendix A-3 of Part 60. They cited issues that included: weather (e.g., ambient temperature fluctuations and windy conditions); costs; lack of justification and data for the revision; inconsistent

language (e.g., the use of “shall” vs. “may” and proposed revisions to temperature tolerance in Methods 5, 5B, and 5I but not in Methods 5D, 5E, and 5F); and safety risks. Nine commenters remarked that ambient conditions (cold climates, wind gusts, etc.) can cause temperature fluctuations that are difficult to manage. More specifically, one commenter stated that the reduced allowable temperature range would be problematic during testing in cold, windy ambient conditions that are persistent in the winter months in northern climates because the time required for temperature recovery after a component change in these conditions could add hours and possibly days to testing programs. One commenter remarked that the proposed  $\pm 5$  °C is unattainable for sources in cold or windy climates.

Eight commenters stated that alteration or replacement of equipment components would likely be necessary to achieve the proposed temperature tolerances resulting in additional costs. One commenter noted potential equipment improvements, such as increased probe sheath tubing diameter to make room for added insulation around every probe heater; re-design of filter heating ovens; improved sealing and insulation of the openings at the inlet and outlet of filter heating ovens; and/or for sources with high stack temperatures, more frequent use of air-cooled or water-cooled probes. One commenter remarked that this revision would force cold weather stack testers to replace or retrofit equipment with higher power heating devices and possibly more refined control devices which would be costly. One commenter remarked that this revision will most likely require air sampling equipment suppliers to redesign sample probes by either increasing sheath diameter, altering the placement or increasing the number of thermocouples used to control the probe heating system, and/or increasing the insulation around the sample liner. The commenter added that an increase in the diameter of the probe sheath would have a cascading effect either requiring test companies to purchase new sample hot boxes or retrofit existing sample hot boxes to accommodate the increased probe sheath diameter.

Seven commenters stated that neither information nor data was provided to support, justify, or quantify the claimed increased precision of filterable PM measurements, and a few of these commenters

noted that the Electric Power Research Institute (EPRI) paper that the EPA used as the basis for tightening the filter temperature tolerance was from a comparison of results measured at four coal-fired power plants.

One commenter requested that the statement in § 60.50Da(b)(1)(ii)(A), “The probe and filter holder heating system in the sampling train may be set to provide an average gas temperature of no greater than  $160 \pm 5$  °C ( $320 \pm 9$  °F),” be changed to, “The probe and filter holder heating system in the sampling train shall be set to provide an average gas temperature of  $160 \pm 5$  °C ( $320 \pm 9$  °F),” because they believe that this was the agency’s intent. Similarly, another commenter requested that the statement in § 60.296(d)(2), “The probe and filter holder heating system may be set to provide a gas temperature no greater than  $177 \pm 5$  °C ( $320 \pm 9$  °F),” be changed to, “The probe and filter holder heating system shall be set to provide an average gas temperature  $160 \pm 5$  °C ( $320 \pm 9$  °F),” because they believe that this was the agency’s intent. One commenter also recommended changing the sentence in Method 5B to, “The collected sample is then heated in an oven at 160 °C (320 °F) for 6 hours ...,” to, “The collected sample is then heated in an oven at  $160 \pm 5$  °C ( $320 \pm 9$  °F) for 6 hours ...,” to be internally consistent.

Three commenters noted that if the temperature tolerances are changed in Method 5, methods that reference Method 5 (namely Method 5D, section 2.1; Method 5E, section 2.0; and Method 5F, section 2.0) would also need to be revised.

Three commenters remarked that tightening the filter temperature tolerance conflicts with the assertion that the proposed rule will improve the quality of data but will not impose new substantive requirements. Two of the three commenters further remarked that the proposed rule does not meet the requirements of Executive Order 13771 nor the Paperwork Reduction Act (PRA).

Three commenters acknowledged that an improvement in measurement precision could benefit the data quality in limited situations, such as the Mercury and Air Toxics Standards (MATS).

Four commenters remarked that if the proposed revisions to the temperature tolerances lead to a measurable change in reported PM emissions, sources that were previously in compliance with their emission standards may become non-compliant; one commenter added that the opposite situation may occur. One commenter stated that the proposed revision may have the unintended consequence of redefining the filterable PM being measured leading to either higher or lower PM measurements as compared to sampling runs conducted with wider tolerances.

Two commenters mentioned that this revision could result in a potential safety risk. One of the commenters remarked that the added weight and handling difficulties associated with air- or water-cooled probes (if necessary to control the probe temperature) can increase safety risks to testing personnel, and the other commenter remarked that the proposed requirements may require the use of encapsulated probes which are heavy and cumbersome resulting in hazards.

*Response:* In response to these comments and in a change from proposal, we are deferring finalizing proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

## **V. Statutory and Executive Order Reviews**

Additional information about these statutes and Executive Orders can be found at

<http://www2.epa.gov/laws-regulations/laws-and-executive-orders>.

### *A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

This action is not a significant regulatory action and was, therefore, not submitted to the Office of Management and Budget (OMB) for review.

### *B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs*

This action is considered an Executive Order 13771 deregulatory action. This final rule provides meaningful burden reduction by allowing regulated facilities the flexibility to use newly-approved alternative procedures for compliance demonstration purposes, which may result in lower labor costs for some facilities (e.g., allowing digital photography in lieu of manual documentation in EPA Method 22); lower compliance testing costs (e.g., additional sample storage container options now allowed by Method 26); reducing the likelihood of re-testing (e.g., revised QA requirements in Method 308); and expediting data processing (e.g., simplified calculations in Method 325B).

*C. Paperwork Reduction Act (PRA)*

This action does not impose an information collection burden under the PRA. The revisions do not substantively revise the existing information collection requirements but simply corrects, updates, and clarifies performance testing and continuous monitoring requirements.

*D. Regulatory Flexibility Act (RFA)*

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden or otherwise has a positive economic effect on the small entities subject to the rule. This action will not impose emission measurement requirements beyond those specified in the current regulations, nor does it change any emission standard. We have, therefore, concluded that this action will have no net regulatory burden for all directly regulated small entities.

*E. Unfunded Mandates Reform Act (UMRA)*

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531-1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local or tribal governments or the private sector.

*F. Executive Order 13132: Federalism*

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

*G. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments*

This action does not have tribal implications, as specified in Executive Order 13175. This action simply corrects and updates existing testing regulations. Thus, Executive Order 13175 does not apply to this action.

*H. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks*

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of “covered regulatory action” in section 2-202 of the Executive Order. This action is not subject to Executive Order 13045 because it does not concern an environmental health risk or safety risk.

*I. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use*

This action is not subject to Executive Order 13211, because it is not a significant regulatory action under Executive Order 12866.

*J. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR Part 51*

This action involves technical standards. The EPA used ASTM D6216-12 for continuous opacity monitors in Performance Specification 1. The ASTM D6216-12 standard covers the procedure for certifying continuous opacity monitors and includes design and performance specifications, test procedures, and QA requirements to ensure that continuous opacity monitors meet minimum design and

calibration requirements necessary, in part, for accurate opacity monitoring measurements in regulatory environmental opacity monitoring applications subject to 10 percent or higher opacity standards.

The ASTM D6216-12 standard was developed and adopted by the American Society for Testing and Materials (ASTM). The standard may be obtained from <http://www.astm.org> or from the ASTM at 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

*K. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*

The EPA believes that this action is not subject to Executive Order 12898 (59 FR 7629, February 16, 1994) because it does not establish an environmental health or safety standard. This action is a technical correction to previously promulgated regulatory actions and does not have an impact on human health or the environment.

*L. Congressional Review Act (CRA)*

This action is subject to the CRA, and the EPA will submit a rule report to each house of the Congress and to the Comptroller General of the United States. This action is not a “major rule” as defined by 5 U.S.C. 804(2).

**List of Subjects**

**40 CFR Part 51**

Environmental protection, Air pollution control, Performance specifications, Test methods and procedures.

**40 CFR Part 60**

Environmental protection, Air pollution control, Incorporation by reference, Performance specifications, Test methods and procedures.

**40 CFR Part 63**

Environmental protection, Air pollution control, Incorporation by reference, Performance specifications, Test methods and procedures.

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Dated:

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Andrew R. Wheeler,  
Acting Administrator.

For the reasons stated in the preamble, the Environmental Protection Agency amends title 40, chapter I of the Code of Federal Regulations as follows:

**PART 51 – REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS**

1. The authority citation for part 51 continues to read as follows:

**Authority:** 23 U.S.C. 101; 42 U.S.C. 7401-7671q.

2. Amend appendix M to part 51 as follows:

a. Revise section 12.5, equation 24, in Method 201A.

b. Revise the last sentence in section 8.2 in Method 204.

c. Revise section 2.1.1 in Method 205.

The revisions read as follows:

**Appendix M to Part 51-Recommended Test Methods for State Implementation Plans**

\* \* \* \* \*

**Method 201A-Determination of PM<sub>10</sub> and PM<sub>2.5</sub> Emissions From Stationary Sources (Constant Sampling Rate Procedure)**

\* \* \* \* \*

12.5 Equations. Use the following equations to complete the calculations required in this test method.

\* \* \* \* \*

*Sampling Dwell Time at Each Point.*  $N_{tp}$  is the total number of traverse points. You must use the preliminary velocity traverse data.

$$t_n = \left[ \frac{C_p \sqrt{\Delta P_n}}{C_p' [(\Delta p)^{0.5}]_{avg}} \right] \left[ \frac{t_r}{N_{tp}} \right] \quad (\text{Eq. 24})$$

\* \* \* \* \*

**Method 204-Criteria for and Verification of a Permanent or Temporary Total Enclosure**

\* \* \* \* \*

8.2 \* \* \*

The NEAR must be  $\leq 0.05$ .

\* \* \* \* \*

**Method 205-Verification of Gas Dilution Systems for Field Instrument Calibrations**

\* \* \* \* \*

2.1.1 The gas dilution system shall be recalibrated once per calendar year using NIST-traceable flow standards with an uncertainty  $\leq 0.25$  percent. You shall report the results of the calibration by the person or manufacturer who carried out the calibration whenever the dilution system is used, listing the date of the most recent calibration, the due date for the next calibration, calibration point, reference flow device (ID, S/N), and acceptance criteria. Follow the manufacturer's instructions for the operation and use of the gas dilution system. A copy of the manufacturer's instructions for the operation of the instrument, as well as the most recent calibration documentation, shall be made available for inspection at the test site.

\* \* \* \* \*

**PART 60-STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES**

This document is a prepublication version, signed by EPA Acting Administrator, Andrew R. Wheeler on 11/5/2018. We have taken steps to ensure the accuracy of this version, but it is not the official version.

3. The authority citation for part 60 continues to read as follows:

**Authority:** 42 U.S.C. 7401 *et seq.*

4. Revise §60.17 (h)(177) to read as follows:

**§ 60.17 Incorporations by reference.**

\* \* \* \* \*

(h) \* \* \*

(177) ASTM D6216-12, Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications, approved October 1, 2012; IBR approved for appendix B to part 60.

\* \* \* \* \*

5. In Appendix A-1 to part 60, revise “(CO<sub>2</sub>)<sub>a</sub>” in section 12.1 in Method 2B to read as follows:

**Appendix A-1 to Part 60-Test Methods 1 through 2F**

\* \* \* \* \*

**Method 2B-Determination of Exhaust Gas Volume Flow Rate From Gasoline Vapor Incinerators**

\* \* \* \* \*

**12.1 Nomenclature.**

\* \* \* \* \*

(CO<sub>2</sub>)<sub>a</sub> = Ambient carbon dioxide concentration, ppm (if not measured during the test period, may be assumed to equal the global monthly mean CO<sub>2</sub> concentration posted at [http://www.esrl.noaa.gov/gmd/ccgg/trends/global.html#global\\_data](http://www.esrl.noaa.gov/gmd/ccgg/trends/global.html#global_data)).

\* \* \* \* \*

6. In appendix A-3 to part 60:

- a. Revise sections 6.1.1.9 and 11.2.1 in Method 5.
- b. Revise section 11.0 in Method 5B.
- c. Add section 17.0 in Method 5B.

The revisions read as follows:

#### **Appendix A-3 to Part 60-Test Methods 4 through 5I**

\* \* \* \* \*

#### **Method 5-Determination of Particulate Matter Emissions From Stationary Sources**

\* \* \* \* \*

6.1.1.9 Metering System. Vacuum gauge, leak-free pump, calibrated temperature sensors, dry gas meter (DGM) capable of measuring volume to within 2 percent, and related equipment, as shown in Figure 5-1. Other metering systems capable of maintaining sampling rates within 10 percent of isokinetic and of determining sample volumes to within 2 percent may be used, subject to the approval of the Administrator. When the metering system is used in conjunction with a pitot tube, the system shall allow periodic checks of isokinetic rates. The average DGM temperature for use in the calculations of Section 12.0 may be obtained by averaging the two temperature sensors located at the inlet and outlet of the

DGM as shown in Figure 5-3 or alternatively from a single temperature sensor located at the immediate outlet of the DGM or the plenum of the DGM.

\* \* \* \* \*

11.2.1 Container No. 1. Leave the contents in the shipping container or transfer the filter and any loose PM from the sample container to a tared weighing container. Desiccate for 24 hours in a desiccator containing anhydrous calcium sulfate. Weigh to a constant weight, and report the results to the nearest 0.1 mg. For the purposes of this section, the term “constant weight” means a difference of no more than 0.5 mg or 1 percent of total weight less tare weight, whichever is greater, between two consecutive weighings, with no less than 6 hours of desiccation time between weighings. Alternatively, the sample may be oven dried at 104 °C (220 °F) for 2 to 3 hours, cooled in the desiccator, and weighed to a constant weight, unless otherwise specified by the Administrator. The sample may be oven dried at 104 °C (220 °F) for 2 to 3 hours. Once the sample has cooled, weigh the sample, and use this weight as a final weight.

\* \* \* \* \*

**Method 5B-Determination of Nonsulfuric Acid Particulate Matter Emissions From Stationary Sources**

\* \* \* \* \*

11.0 Analytical Procedure

11.1 Record and report the data required on a sheet such as the one shown in Figure 5B-1.

11.2 Handle each sample container as follows:

11.2.1 Container No. 1. Leave the contents in the shipping container or transfer the filter and any loose PM from the sample container to a tared non-reactive oven-proof container. Oven dry the filter sample at a temperature of  $160 \pm 5$  °C ( $320 \pm 9$  °F) for 6 hours. Cool in a desiccator for 2 hours, and weigh to constant weight. Report the results to the nearest 0.1 mg. For the purposes of this section, the term “constant weight” means a difference of no more than 0.5 mg or 1 percent of total weight less tare weight, whichever is greater, between two consecutive weighings, with no less than 6 hours of desiccation time between weighings.

11.2.2 Container No. 2. Note the level of liquid in the container, and confirm on the analysis sheet whether leakage occurred during transport. If a noticeable amount of leakage has occurred, either void the sample or use methods, subject to the approval of the Administrator, to correct the final results. Measure the liquid in this container either volumetrically to  $\pm 1$  ml or gravimetrically to  $\pm 0.5$  g. Transfer the contents to a tared 250 ml beaker, and evaporate to dryness at ambient temperature and pressure. Then oven dry the probe sample at a temperature of  $160 \pm 5$  °C ( $320 \pm 9$  °F) for 6 hours. Cool in a desiccator for 2 hours, and weigh to constant weight. Report the results to the nearest 0.1 mg.

11.2.3 Container No. 3. Weigh the spent silica gel (or silica gel plus impinger) to the nearest 0.5 g using a balance. This step may be conducted in the field.

11.2.4 Acetone Blank Container. Measure the acetone in this container either volumetrically or gravimetrically. Transfer the acetone to a tared 250 ml beaker, and evaporate to dryness at ambient temperature and pressure. Desiccate for 24 hours, and weigh to a constant weight. Report the results to the nearest 0.1 mg.

NOTE: The contents of Container No. 2 as well as the acetone blank container may be evaporated at temperatures higher than ambient. If evaporation is done at an elevated temperature, the temperature

must be below the boiling point of the solvent; also, to prevent “bumping,” the evaporation process must be closely supervised, and the contents of the beaker must be swirled occasionally to maintain an even temperature. Use extreme care, as acetone is highly flammable and has a low flash point.

\* \* \* \* \*

#### 17.0 Tables, Diagrams, Flowcharts, and Validation Data

Container number	Weight of particulate collected, mg		
	Final weight	Tare weight	Weight gain
1.			
2.			
Total:			
Less acetone blank			
Weight of particulate matter			
	Volume of liquid water collected		
	Impinger volume, ml	Silica gel weight, g	
Final			
Initial			
Liquid collected			
Total volume collected		g* ml	

\*Convert weight of water to volume by dividing total weight increase by density of water (1 g/ml).

Figure 5B-1. Analytical Data Sheet

\* \* \* \* \*

7. In appendix A-4 to part 60:

- a. Revise sections 10.1.2 and 11.3 in Method 7.
- b. Redesignate sections 6.1.1.1 through 6.1.1.4 to read as sections 6.1.1.2 through 6.1.1.5 in Method 8.
- c. Add a new section 6.1.1.1 in Method 8.
- d. Revise Figure 8-1 in Method 8.

#### **Appendix A-4 to Part 60-Test Methods 6 Through 10B**

\* \* \* \* \*

#### **Method 7-Determination of Nitrogen Oxide Emissions From Stationary Sources**

\* \* \* \* \*

10.1.2 Determination of Spectrophotometer Calibration Factor  $K_c$ . Add 0 ml, 2.0 ml, 4.0 ml, 6.0 ml, and 8.0 ml of the  $KNO_3$  working standard solution (1 ml = 100  $\mu g$   $NO_2$ ) to a series of five 50-ml volumetric flasks. To each flask, add 25 ml of absorbing solution and 10 ml water. Add 1 N NaOH to each flask until the pH is between 9 and 12 (about 25 to 35 drops). Dilute to the mark with water. Mix thoroughly, and pipette a 25-ml aliquot of each solution into a separate porcelain evaporating dish. Beginning with the evaporation step, follow the analysis procedure of section 11.2 until the solution has been transferred to the 100-ml volumetric flask and diluted to the mark. Measure the absorbance of each solution at the optimum wavelength as determined in section 10.1.1. This calibration procedure must be repeated on

each day that samples are analyzed. Calculate the spectrophotometer calibration factor as shown in section 12.2.

\* \* \* \* \*

11.3 Sample Analysis. Mix the contents of the flask thoroughly, and measure the absorbance at the optimum wavelength used for the standards (section 10.1.1), using the blank solution as a zero reference. Dilute the sample and the blank with equal volumes of water if the absorbance exceeds  $A_4$ , the absorbance of the 400- $\mu\text{g}$   $\text{NO}_2$  standard (see section 10.1.3).

\* \* \* \* \*

## **Method 8-Determination of Sulfuric Acid and Sulfur Dioxide Emissions From Stationary Sources**

\* \* \* \* \*

6.1.1.1 Probe Nozzle. Borosilicate or quartz glass with a sharp, tapered leading edge and coupled to the probe liner using a polytetrafluoroethylene (PTFE) or glass-lined union (e.g., fused silica, Slico, or equivalent). When the stack temperature exceeds 210 °C (410 °F), a leak-free ground glass fitting or other leak free, non-contaminating fitting must be used to couple the nozzle to the probe liner. It is also acceptable to use a one-piece glass nozzle/liner assembly. The angle of the taper shall be  $\leq 30^\circ$ , and the taper shall be on the outside to preserve a constant internal diameter. The probe nozzle shall be of the button-hook or elbow design, unless otherwise specified by the Administrator. Other materials of construction may be used, subject to the approval of the Administrator. A range of nozzle sizes suitable for isokinetic sampling should be available. Typical nozzle sizes range from 0.32 to 1.27 cm ( $\frac{1}{8}$  to  $\frac{1}{2}$  in) inside diameter (ID) in increments of 0.16 cm ( $\frac{1}{16}$  in). Larger nozzle sizes are also available if higher volume sampling trains are used.

6.1.1.2 Probe Liner. Borosilicate or quartz glass, with a heating system to prevent visible condensation during sampling. Do not use metal probe liners.

6.1.1.3 Filter Holder. Borosilicate glass, with a glass frit filter support and a silicone rubber gasket. Other gasket materials (*e.g.*, Teflon or Viton) may be used, subject to the approval of the Administrator. The holder design shall provide a positive seal against leakage from the outside or around the filter. The filter holder shall be placed between the first and second impingers. Do not heat the filter holder.

6.1.1.4 Impingers. Four, of the Greenburg-Smith design, as shown in Figure 8-1. The first and third impingers must have standard tips. The second and fourth impingers must be modified by replacing the insert with an approximately 13-mm ( $\frac{1}{2}$  -in.) ID glass tube, having an unstricted tip located 13 mm ( $\frac{1}{2}$  in.) from the bottom of the impinger. Similar collection systems, subject to the approval of the Administrator, may be used.

6.1.1.5 Temperature Sensor. Thermometer, or equivalent, to measure the temperature of the gas leaving the impinger train to within 1 °C (2 °F).

\* \* \* \* \*

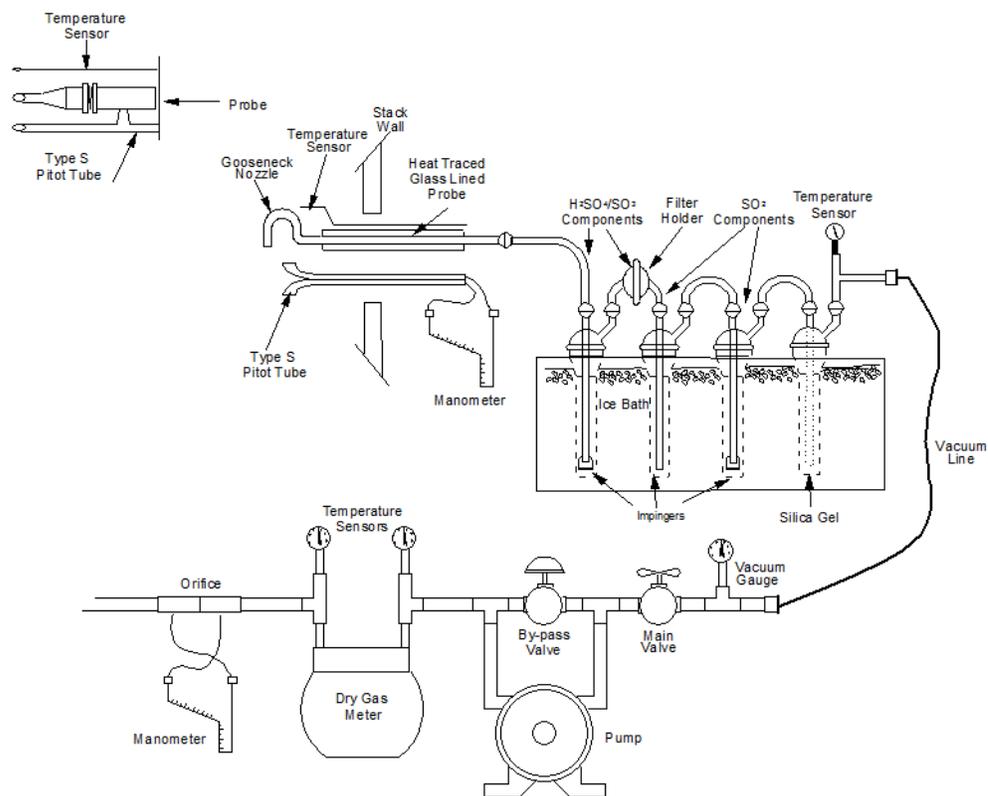


Figure 8-1. Sulfuric Acid Sampling Train

\* \* \* \* \*

8. In Appendix A-6 to part 60, redesignate paragraph (c) as paragraph (b) in section 13.1 in Method 18 to read as follows:

**Appendix A-6 to Part 60-Test Methods 16 Through 18**

\* \* \* \* \*

**Method 18-Measurement of Gaseous Organic Compound Emissions By Gas Chromatography**

\* \* \* \* \*

13.1 \* \* \* \* \*

(b) Recovery. After developing an appropriate sampling and analytical system for the pollutants of interest, conduct the procedure in section 8.4. Conduct the appropriate recovery study in section 8.4 at each sampling point where the method is being applied. Submit the data and results of the recovery procedure with the reporting of results under section 8.3.

\* \* \* \* \*

9. In appendix A-7 to part 60:

- a. Revise sections 11.2.1 and 11.2.2 in Method 22.
- b. Add section 11.2.3 in Method 22.

The revisions read as follows:

#### **Appendix A-7 to Part 60-Test Methods 19 Through 25E**

\* \* \* \* \*

#### **Method 22-Visual Determination of Fugitive Emissions From Material Sources and Smoke Emissions From Flares**

\* \* \* \* \*

11.2.1 Outdoor Location. Record the following information on the field data sheet (Figure 22–1):

Company name, industry, process unit, observer's name, observer's affiliation, and date. Record also the estimated wind speed, wind direction, and sky condition. Sketch the process unit being observed, and note the observer location relative to the source and the sun. Indicate the potential and actual emission

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points on the sketch. Alternatively, digital photography as described in Section 11.2.3 may be used for a subset of the recordkeeping requirements of this section.

11.2.2 Indoor Location. Record the following information on the field data sheet (Figure 22–2):

Company name, industry, process unit, observer's name, observer's affiliation, and date. Record as appropriate the type, location, and intensity of lighting on the data sheet. Sketch the process unit being observed, and note the observer location relative to the source. Indicate the potential and actual fugitive emission points on the sketch. Alternatively, digital photography as described in Section 11.2.3 may be used for a subset of the recordkeeping requirements of this section.

11.2.3 Digital Photographic Records. Digital photographs, annotated or unaltered, may be used to record and report sky conditions, observer's location relative to the source, observer's location relative to the sun, process unit being observed, potential emission points and actual emission points for the requirements in Sections 11.2.1 and 11.2.2. The image must have the proper lighting, field of view and depth of field to properly distinguish the sky condition (if applicable), process unit, potential emission point and actual emission point. At least one digital photograph must be from the point of the view of the observer. The photograph(s) representing the environmental conditions including the sky conditions and the position of the sun relative to the observer and the emission point must be taken within a reasonable time of the observation (i.e., 15 minutes). When observations are taken from exactly the same observation point on a routine basis (i.e., daily) and as long as there are no modifications to the units depicted, only a single photograph each is necessary to document the observer's location relative to the emissions source, the process unit being observed, and the location of potential and actual emission points. Any photographs altered or annotated must be retained in an unaltered format for recordkeeping purposes.

\* \* \* \* \*

10. In appendix A-8 to part 60:

- a. Revise section 6.2.2 in Method 26.
- b. Revise section 6.2.1 in Method 26A.
- c. Add section 6.2.4 in Method 26A.
- d. Revise equation 8 in section 13.5.1 in Test Method 28WHH.

The revisions read as follows:

### **Appendix A-8 to Part 60-Test Methods 26 Through 30B**

\* \* \* \* \*

### **Method 26-Determination of Hydrogen Halide and Halogen Emissions From Stationary Sources**

#### **Non-Isokinetic Method**

\* \* \* \* \*

6.2.2 Storage Containers. 100- or 250-ml, high-density polyethylene or glass sample storage containers with Teflon screw cap liners to store impinger samples.

\* \* \* \* \*

### **Method 26A-Determination of Hydrogen Halide and Halogen Emissions From Stationary Sources**

#### **Isokinetic Method**

\* \* \* \* \*

6.2.1 Probe-Liner and Probe-Nozzle Brushes, Wash Bottles, Petri Dishes, Graduated Cylinder and/or Balance, and Rubber Policeman. Same as Method 5, sections 6.2.1, 6.2.2, 6.2.4, 6.2.5, and 6.2.7.

\* \* \* \* \*

6.2.4 Sample Storage Containers. High-density polyethylene or glass sample storage containers with Teflon screw cap liners to store impinger samples.

\* \* \* \* \*

**Test Method 28WHH for Measurement of Particulate Emissions and Heating Efficiency of Wood-Fired Hydronic Heating Appliances**

\* \* \* \* \*

13.5.1 \* \* \*

$$\sigma_i = (62.56 + (-.0003413 \times T3_i) + (-.00006225 \times T3_i^2)) 0.1337, \text{ lbs/gal} \quad \text{Eq. 8}$$

\* \* \* \* \*

11. In appendix B to part 60:

a. Add the following entries to the list of Performance Specifications in numeric order:

Performance Specification 12B-Specifications and Test Procedures for Monitoring Total Vapor Phase Mercury Emissions From Stationary Sources Using A Sorbent Trap Monitoring System

Performance Specification 17-Reserved

Performance Specification 18-Performance Specifications and Test Procedures for Gaseous Hydrogen Chloride (HCl) Continuous Emission Monitoring Systems at Stationary Sources

PS-18-Appendix A Standard Additional Procedures

b. In Performance Specification 1, remove “D 6216-98” and replace it with “D6216-12”, and revise sections 13.0 and 16.0 8.

c. In Performance Specification 2, revise section 13.2.

d. In Performance Specification 3, revise sections 12.0 and 13.2.

e. In Performance Specification 11, revise section 13.1.

f. In Performance Specification 15, add section 13.0.

g. In Performance Specification 18, revise section 11.8.7 and table 1 in section 17.0, add add section 12.0 to PS-18.

The revisions read as follows:

## Appendix B to Part 60-Performance Specifications

\* \* \* \* \*

### Performance Specification 1-Specifications and Test Procedures for Continuous Opacity Monitoring Systems in Stationary Sources

\* \* \* \* \*

2.1 ASTM D6216-12 (incorporated by reference, see § 60.17) is the reference for design specifications, manufacturer's performance specifications, and test procedures. The opacity monitor manufacturer must periodically select and test an opacity monitor, that is representative of a group of monitors produced during a specified period or lot, for conformance with the design specifications in ASTM D6216-12.

The opacity monitor manufacturer must test each opacity monitor for conformance with the manufacturer's performance specifications in ASTM D6216-12. Note: If the initial certification of the opacity monitor occurred before **[date of publication in the *Federal Register*]** using D6216-98, D6216-03, or D6216-07, it is not necessary to recertify using D6216-12.

\* \* \* \* \*

3.1 All definitions and discussions from section 3 of ASTM D6216-12 are applicable to PS-1.

\* \* \* \* \*

6.1 *Continuous Opacity Monitoring System.* You, as owner or operator, are responsible for purchasing an opacity monitor that meets the specifications of ASTM D6216-12, including a suitable data recorder or automated data acquisition handling system. Example data recorders include an analog strip chart recorder or more appropriately an electronic data acquisition and reporting system with an input signal range compatible with the analyzer output.

\* \* \* \* \*

8.1 \* \* \*

(1) You must purchase an opacity monitor that complies with ASTM D6216-12 and obtain a certificate of conformance from the opacity monitor manufacturer.

(2) \* \* \*

(3) \* \* \*

(ii) Calibration Error Check. Conduct a three-point calibration error test using three calibration attenuators that produce outlet pathlength corrected, single-pass opacity values shown in ASTM D6216-12, section 7.5. If your applicable limit is less than 10 percent opacity, use attenuators as described in ASTM D6216-12, section 7.5 for applicable standards of 10 to 19 percent opacity. Confirm the external audit device produces the proper zero value on the COMS data recorder. Separately, insert each calibration attenuators (low, mid, and high-level) into the external audit device. While inserting each

attenuator, (1) ensure that the entire light beam passes through the attenuator, (2) minimize interference from reflected light, and (3) leave the attenuator in place for at least two times the shortest recording interval on the COMS data recorder. Make a total of five nonconsecutive readings for each attenuator. At the end of the test, correlate each attenuator insertion to the corresponding value from the data recorder. Subtract the single-pass calibration attenuator values corrected to the stack exit conditions from the COMS responses. Calculate the arithmetic mean difference, standard deviation, and confidence coefficient of the five measurements value using equations 1-3, 1-4, and 1-5. Calculate the calibration error as the sum of the absolute value of the mean difference and the 95 percent confidence coefficient for each of the three test attenuators using equation 1-6. Report the calibration error test results for each of the three attenuators.

\* \* \* \* \*

8.2 \* \* \*

- (1) Conduct the verification procedures for design specifications in section 6 of ASTM D6216-12.
- (2) Conduct the verification procedures for performance specifications in section 7 of ASTM D6216-12.
- (3) Provide to the owner or operator, a report of the opacity monitor's conformance to the design and performance specifications required in sections 6 and 7 of ASTM D6216-12 in accordance with the reporting requirements of section 9 in ASTM D6216-12.

\* \* \* \* \*

9.0 *What quality control measures are required by PS-1?*

Opacity monitor manufacturers must initiate a quality program following the requirements of ASTM D6216-12, section 8. The quality program must include (1) a quality system and (2) a corrective action program.

\* \* \* \* \*

12.1 Desired Attenuator Values. Calculate the desired attenuator value corrected to the emission outlet pathlength as follows:

$$OP_2 = 1 - (1 - OP_1)^{\frac{L_2}{L_1}} \quad Eq. 11$$

Where:

OP<sub>1</sub> = Nominal opacity value of required low-, mid-, or high-range calibration attenuators.

OP<sub>2</sub> = Desired attenuator opacity value from ASTM D6216-12, section 7.5 at the opacity limit required by the applicable subpart.

L<sub>1</sub> = Monitoring pathlength.

L<sub>2</sub> = Emission outlet pathlength.

\* \* \* \* \*

### 13.0 What Specifications Does a COMS Have to Meet for Certification?

A COMS must meet the following design, manufacturer's performance, and field audit performance specifications:

Note: If the initial certification of the opacity monitor occurred before **[date of publication in the *Federal Register*]** using D6216-98, D6216-03, or D6216-07, it is not necessary to recertify using D6216-12.A. COMS must meet the following design, manufacturer’s performance, and field audit performance specifications.

13.1 Design Specifications. The opacity monitoring equipment must comply with the design specifications of ASTM D6216-12.

13.2 Manufacturer's Performance Specifications. The opacity monitor must comply with the manufacturer's performance specifications of ASTM D6216-12.

\* \* \* \* \*

16.0 \* \* \*

8. ASTM D6216-12: Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications. ASTM. October 2012.

\* \* \* \* \*

**Performance Specification 2-Specifications and Test Procedures for SO<sub>2</sub> and NO<sub>x</sub> Continuous Emission Monitoring Systems in Stationary Sources**

\* \* \* \* \*

13.2 Relative Accuracy Performance Specification.

	Calculate...	RA Criteria
--	--------------	-------------

If average emissions during the RATA are $\geq 50\%$ of emission standard	Use Eq. 2-6, with RM in the denominator	$\leq 20.0\%$
If average emissions during the RATA are $< 50\%$ of emission standard	Use Eq. 2-6, emission standard in the denominator	$\leq 10.0\%$
For SO <sub>2</sub> emission standards $\leq 130$ but $\geq 86$ ng/J (0.30 and 0.20 lb/million Btu)	Use Eq. 2-6, emission standard in the denominator	$\leq 15.0\%$
For SO <sub>2</sub> emission standards $< 86$ ng/J (0.20 lb/million Btu)	Use Eq. 2-6, emission standard in the denominator	$\leq 20.0\%$

\* \* \* \* \*

### Performance Specification 3-Specifications and Test Procedures for O<sub>2</sub> and CO<sub>2</sub> Continuous Emission Monitoring Systems in Stationary Sources

\* \* \* \* \*

#### 12.0 Calculations and Data Analysis

Calculate the RA using equations 3-1 and 3-2. Summarize the results on a data sheet similar to that shown in Figure 2.2 of PS2.

$$RA = \frac{[|\bar{d}| + |CC|]}{\overline{RM}} \times 100$$

Eq. 3-1

Where:

$|\bar{d}|$  = Absolute value of the mean of the differences (from Equation 2-3 of Performance Specification 2).

$|CC|$  = Absolute value of the confidence coefficient (from Equation 2-5 of Performance Specification 2).

$\overline{RM}$  = Average Reference Method Value

$$RA = |\overline{RM} - \overline{CEMS}| \quad \text{Eq. 3 - 2}$$

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$\overline{RM}$  = Average Reference Method Value

$\overline{CEMS}$  = Average CEMS Value

\* \* \* \* \*

13.2 CEMS Relative Accuracy Performance Specification. The RA of the CEMS must be no greater than 20.0 percent of the mean value of the reference method (RM) data when calculated using equation 3-1. The results are also acceptable if the result of Equation 3-2 is less than or equal to 1.0 percent O<sub>2</sub> (or CO<sub>2</sub>).

\* \* \* \* \*

**Performance Specification 11-Specifications and Test Procedures for Particulate Matter  
Continuous Emission Monitoring Systems at Stationary Sources**

\* \* \* \* \*

13.1 What is the 7-day drift check performance specification? Your daily PM CEMS internal drift checks must demonstrate that the daily drift of your PM CEMS does not deviate from the value of the reference light, optical filter, Beta attenuation signal, or other technology-suitable reference standard by more than 2 percent of the response range. If your CEMS includes diluent and/or auxiliary monitors (for temperature, pressure, and/or moisture) that are employed as a necessary part of this performance specification, you must determine the calibration drift separately for each ancillary monitor in terms of its respective output (see the appropriate performance specification for the diluent CEMS specification). None of the calibration drifts may exceed their individual specification.

\* \* \* \* \*

**Performance Specification 15-Performance Specification for Extractive FTIR Continuous Emissions Monitor Systems in Stationary Sources**

\* \* \* \* \*

13.0 Method Performance [Reserved]

\* \* \* \* \*

**Performance Specification 18-Performance Specifications and Test Procedures for Gaseous Hydrogen Chloride (HCl) Continuous Emission Monitoring Systems at Stationary Sources**

\* \* \* \* \*

11.8.7 The zero-level and mid-level CD for each day must be less than 5.0 percent of the span value as specified in section 13.2 of this PS. You must meet this criterion for 7 consecutive operating days.

\* \* \* \* \*

**TABLE 1—INTERFERENCE TEST GAS CONCENTRATIONS**

<b>Potential interferent gas<sup>1</sup></b>	<b>Approximate concentration (balance N<sub>2</sub>)</b>
CO <sub>2</sub>	15% ± 1% CO <sub>2</sub> . <sup>2</sup>
CO	100 ± 20 ppm.
CH <sub>2</sub> O	20 ± 5 ppm.
CH <sub>4</sub>	100 ± 20 ppm.
NH <sub>3</sub>	10 ± 5 ppm (extractive CEMS only).
NO	250 ± 50 ppm.
SO <sub>2</sub>	200 ± 20 ppm.
O <sub>2</sub>	3% ± 1% O <sub>2</sub> . <sup>2</sup>
H <sub>2</sub> O	10% ± 1% H <sub>2</sub> O. <sup>2</sup>

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N <sub>2</sub>	Balance. <sup>2</sup>
----------------	-----------------------

<sup>1</sup>Any of these specific gases can be tested at a lower level if the manufacturer has provided reliable means for limiting or scrubbing that gas to a specified level in CEMS field installations.

<sup>2</sup>Gases for short path IP cell interference tests cannot be added above 100 percent stack equivalent concentration. Add these gases at the indicated percentages to make up the remaining cell volume.

\* \* \* \* \*

## PS-18 Appendix A Standard Addition Procedures

\* \* \* \* \*

### 12.0 [Reserved]

\* \* \* \* \*

12. Revise sections 5.1.2(1) and 5.1.2(3) in Procedure 1 of appendix F to part 60 to read as follows:

## **Appendix F to Part 60-Quality Assurance Procedures**

### **Procedure 1-Quality Assurance Requirements for Gas Continuous Emission Monitoring Systems Used For Compliance Determination**

\* \* \* \* \*

5.1.2 Cylinder Gas Audit (CGA). If applicable, a CGA may be conducted in three of four calendar quarters, but in no more than three quarters in succession.

To conduct a CGA: (1) Challenge the CEMS (both pollutant and diluent portions of the CEMS, if applicable) with an audit gas of known concentration at two points within the following ranges:

Audit point	Audit range		
	Pollutant monitors	Diluent monitors for—	
		CO <sub>2</sub>	O <sub>2</sub>
1	20 to 30% of span value	5 to 8% by volume	4 to 6% by volume.
2	50 to 60% of span value	10 to 14% by volume	8 to 12% by volume.

Introduce each of the audit gases, three times each for a total of six challenges. Introduce the gases in such a manner that the entire CEMS is challenged. Do not introduce the same gas concentration twice in succession.

Use of separate audit gas cylinder for audit points 1 and 2. Do not dilute gas from audit cylinder when challenging the CEMS.

The monitor should be challenged at each audit point for a sufficient period of time to assure adsorption-desorption of the CEMS sample transport surfaces has stabilized.

(2) \* \* \*

(3) Use Certified Reference Materials (CRM's) (See Citation 1) audit gases that have been certified by comparison to National Institute of Standards and Technology (NIST) Standard Reference Materials (SRM's) or EPA Protocol Gases following the most recent edition of the EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (See Citation 2). Procedures for preparation of CRM's are described in Citation 1. Procedures for preparation of EPA Protocol Gases are described in Citation 2. In the case that a suitable audit gas level is not commercially available, Method 205 (See Citation 3) may be used to dilute CRM's or EPA Protocol Gases to the needed level. The difference between the actual concentration of the audit gas and the concentration indicated by the monitor is used to assess the accuracy of the CEMS.

\* \* \* \* \*

**PART 63-NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES**

13. The authority citation for part 63 continues to read as follows:

**Authority:** 42 U.S.C. 7401 *et seq.*

14. In § 63.7, revise paragraphs (g)(2) introductory text and (g)(2)(v) to read as follows:

**§ 63.7 Performance testing requirements.**

\* \* \* \* \*

(g) \* \* \*

(2) Contents of a performance test, CMS performance evaluation, or CMS quality assurance test report (electronic or paper submitted copy). Unless otherwise specified in a relevant standard, test method, CMS performance specification, or quality assurance requirement for a CMS, or as otherwise approved by the Administrator in writing, the report shall include the elements identified in paragraphs (g)(2)(i) through (vi) of this section.

\* \* \* \* \*

(v) Where a test method, CEMS, PEMS, or COMS performance specification, or on-going quality assurance requirement for a CEMS, PEMS, or COMS requires you record or report, the following shall be included in your report: Record of preparation of standards, record of calibrations, raw data sheets for field sampling, raw data sheets for field and laboratory analyses, chain-of-custody documentation, and example calculations for reported results.

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\* \* \* \* \*

15. In § 63.8, revise paragraph (e)(5)(i) to read as follows:

**§ 63.8 Monitoring requirements.**

\* \* \* \* \*

(e) \* \* \*

(5) \* \* \* (i) The owner or operator shall furnish the Administrator a copy of a written report of the results of the performance evaluation containing the information specified in § 63.7(g)(2)(i) through (vi) simultaneously with the results of the performance test required under § 63.7 or within 60 days of completion of the performance evaluation, unless otherwise specified in a relevant standard.

\* \* \* \* \*

**Subpart DDDDD-National Emission Standards for Hazardous Air Pollutants for Major Sources:  
Industrial, Commercial, and Institutional Boilers and Process Heaters**

\* \* \* \* \*

16. Revise Table 6 to Subpart DDDDD of part 63 to read as follows:

**Table 6 to Subpart DDDDD of Part 63—Fuel Analysis Requirements**

As stated in § 63.7521, you must comply with the following requirements for fuel analysis testing for existing, new or reconstructed affected sources. However, equivalent methods (as defined in § 63.7575) may be used in lieu of the prescribed methods at the discretion of the source owner or operator:

To conduct a fuel analysis for the following pollutant . . .	You must . . .	Using . . .
1. Mercury	a. Collect fuel samples	Procedure in § 63.7521(c) or ASTM D5192 <sup>a</sup> , or ASTM D7430 <sup>a</sup> , or ASTM D6883 <sup>a</sup> , or ASTM D2234/D2234M <sup>a</sup> (for coal) or EPA 1631 or EPA 1631E or ASTM D6323 <sup>a</sup> (for solid), or EPA 821-R-01-013 (for liquid or solid), or ASTM D4177 <sup>a</sup> (for liquid), or ASTM D4057 <sup>a</sup> (for liquid), or equivalent.
	b. Composite fuel samples	Procedure in § 63.7521(d) or equivalent.
	c. Prepare composited fuel samples	EPA SW-846-3050B <sup>a</sup> (for solid samples), ASTM D2013/D2013M <sup>a</sup> (for coal), ASTM D5198 <sup>a</sup> (for biomass), or EPA 3050 <sup>a</sup> (for solid fuel), or EPA 821-R-01-013 <sup>a</sup> (for liquid or solid), or equivalent.
	d. Determine heat content of the fuel type	ASTM D5865 <sup>a</sup> (for coal) or ASTM E711 <sup>a</sup> (for biomass), or ASTM D5864 <sup>a</sup> for liquids and other solids, or ASTM D240 <sup>a</sup> or equivalent.
	e. Determine moisture content of the fuel type	ASTM D3173 <sup>a</sup> , ASTM E871 <sup>a</sup> , or ASTM D5864 <sup>a</sup> , or ASTM D240 <sup>a</sup> , or ASTM D95 <sup>a</sup> (for liquid fuels), or ASTM D4006 <sup>a</sup> (for liquid fuels), or equivalent.
	f. Measure mercury concentration in fuel sample	ASTM D6722 <sup>a</sup> (for coal), EPA SW-846-7471B <sup>a</sup> or EPA 1631 or EPA 1631E <sup>a</sup> (for solid samples), or EPA SW-846-7470A <sup>a</sup> or EPA SW-846-7471B <sup>a</sup> (for liquid samples), or EPA 821-R-01-013 <sup>a</sup> (for liquid or solid), or equivalent.
	g. Convert concentration into units of pounds of mercury per MMBtu of heat content	For fuel mixtures use Equation 8 in § 63.7530.
2. HCl	a. Collect fuel samples	Procedure in § 63.7521(c) or ASTM D5192 <sup>a</sup> , or ASTM D7430 <sup>a</sup> , or ASTM D6883 <sup>a</sup> , or ASTM D2234/D2234M <sup>a</sup> (for coal) or ASTM D6323 <sup>a</sup> (for coal or biomass), ASTM D4177 <sup>a</sup> (for liquid fuels) or ASTM D4057 <sup>a</sup> (for liquid fuels), or equivalent.
	b. Composite fuel samples	Procedure in § 63.7521(d) or equivalent.
	c. Prepare composited fuel samples	EPA SW-846-3050B <sup>a</sup> (for solid samples), ASTM D2013/D2013M <sup>a</sup> (for coal), or ASTM D5198 <sup>a</sup> (for biomass), or EPA 3050 <sup>a</sup> or equivalent.
	d. Determine heat content of the fuel type	ASTM D5865 <sup>a</sup> (for coal) or ASTM E711 <sup>a</sup> (for biomass), ASTM D5864 <sup>a</sup> , ASTM D240 <sup>a</sup> or equivalent.

	e. Determine moisture content of the fuel type	ASTM D3173 <sup>a</sup> or ASTM E871 <sup>a</sup> , or D5864 <sup>a</sup> , or ASTM D240 <sup>a</sup> , or ASTM D95 <sup>a</sup> (for liquid fuels), or ASTM D4006 <sup>a</sup> (for liquid fuels), or equivalent.
	f. Measure chlorine concentration in fuel sample	EPA SW-846-9250 <sup>a</sup> , ASTM D6721 <sup>a</sup> , ASTM D4208 <sup>a</sup> (for coal), or EPA SW-846-5050 <sup>a</sup> or ASTM E776 <sup>a</sup> (for solid fuel), or EPA SW-846-9056 <sup>a</sup> or SW-846-9076 <sup>a</sup> (for solids or liquids) or equivalent.
	g. Convert concentrations into units of pounds of HCl per MMBtu of heat content	For fuel mixtures use Equation 7 in § 63.7530 and convert from chlorine to HCl by multiplying by 1.028.
3. Mercury Fuel Specification for other gas 1 fuels	a. Measure mercury concentration in the fuel sample and convert to units of micrograms per cubic meter, or	Method 30B (M30B) at 40 CFR part 60, appendix A-8 of this chapter or ASTM D5954 <sup>a</sup> , ASTM D6350 <sup>a</sup> , ISO 6978-1:2003(E) <sup>a</sup> , or ISO 6978-2:2003(E) <sup>a</sup> , or EPA-1631 <sup>a</sup> or equivalent.
	b. Measure mercury concentration in the exhaust gas when firing only the other gas 1 fuel is fired in the boiler or process heater	Method 29, 30A, or 30B (M29, M30A, or M30B) at 40 CFR part 60, appendix A-8 of this chapter or Method 101A or Method 102 at 40 CFR part 61, appendix B of this chapter, or ASTM Method D6784 <sup>a</sup> or equivalent.
4. TSM	a. Collect fuel samples	Procedure in § 63.7521(c) or ASTM D5192 <sup>a</sup> , or ASTM D7430 <sup>a</sup> , or ASTM D6883 <sup>a</sup> , or ASTM D2234/D2234M <sup>a</sup> (for coal) or ASTM D6323 <sup>a</sup> (for coal or biomass), or ASTM D4177 <sup>a</sup> , (for liquid fuels) or ASTM D4057 <sup>a</sup> (for liquid fuels), or equivalent.
	b. Composite fuel samples	Procedure in § 63.7521(d) or equivalent.
	c. Prepare composited fuel samples	EPA SW-846-3050B <sup>a</sup> (for solid samples), ASTM D2013/D2013M <sup>a</sup> (for coal), ASTM D5198 <sup>a</sup> or TAPPI T266 <sup>a</sup> (for biomass), or EPA 3050 <sup>a</sup> or equivalent.
	d. Determine heat content of the fuel type	ASTM D5865 <sup>a</sup> (for coal) or ASTM E711 <sup>a</sup> (for biomass), or ASTM D5864 <sup>a</sup> for liquids and other solids, or ASTM D240 <sup>a</sup> or equivalent.
	e. Determine moisture content of the fuel type	ASTM D3173 <sup>a</sup> or ASTM E871 <sup>a</sup> , or D5864 <sup>a</sup> , or ASTM D240 <sup>a</sup> , or ASTM D95 <sup>a</sup> (for liquid fuels), or ASTM D4006 <sup>a</sup> (for liquid fuels), or ASTM D4177 <sup>a</sup> (for liquid fuels) or ASTM D4057 <sup>a</sup> (for liquid fuels), or equivalent.
	f. Measure TSM concentration in fuel sample	ASTM D3683 <sup>a</sup> , or ASTM D4606 <sup>a</sup> , or ASTM D6357 <sup>a</sup> or EPA 200.8 <sup>a</sup> or EPA SW-846-6020 <sup>a</sup> , or EPA SW-846-6020A <sup>a</sup> , or EPA SW-846-6010C <sup>a</sup> , EPA 7060 <sup>a</sup> or EPA 7060A <sup>a</sup> (for arsenic only), or EPA SW-846-7740 <sup>a</sup> (for selenium only).

	g. Convert concentrations into units of pounds of TSM per MMBtu of heat content	For fuel mixtures use Equation 9 in § 63.7530.
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<sup>a</sup> Incorporated by reference, see § 63.14.

\* \* \* \* \*

**Subpart UUUUU-National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units**

\* \* \* \* \*

17. Revise Table 5 to Subpart UUUUU of part 63 to read as follows:

**Table 5 to Subpart UUUUU of Part 63—Performance Testing Requirements**

As stated in § 63.10007, you must comply with the following requirements for performance testing for existing, new or reconstructed affected sources:<sup>1</sup>

<b>To conduct a performance test for the following pollutant . . .</b>	<b>Using . . .</b>	<b>You must perform the following activities, as applicable to your input- or output-based emission limit . . .</b>	<b>Using . . .<sup>2</sup></b>
1. Filterable Particulate matter (PM)	Emissions Testing	a. Select sampling ports location and the number of traverse points	Method 1 at appendix A-1 to part 60 of this chapter.
		b. Determine velocity and volumetric flow-rate of the stack gas	Method 2, 2A, 2C, 2F, 2G or 2H at appendix A-1 or A-2 to part 60 of this chapter.
		c. Determine oxygen and carbon dioxide concentrations of the stack gas	Method 3A or 3B at appendix A-2 to part 60 of this chapter, or ANSI/ASME PTC 19.10-1981. <sup>3</sup>
		d. Measure the moisture content of the stack gas	Method 4 at appendix A-3 to part 60 of this chapter.
		e. Measure the filterable PM concentration	Methods 5 and 5I at appendix A-3 to part 60 of this chapter. For positive pressure fabric filters,

			Method 5D at appendix A-3 to part 60 of this chapter for filterable PM emissions. Note that the Method 5 or 5I front half temperature shall be 160° ±14 °C (320° ±25 °F).
		f. Convert emissions concentration to lb/MMBtu or lb/MWh emissions rates	Method 19 F-factor methodology at appendix A-7 to part 60 of this chapter, or calculate using mass emissions rate and gross output data (see § 63.10007(e)).
	OR	OR	
	PM CEMS	a. Install, certify, operate, and maintain the PM CEMS	Performance Specification 11 at appendix B to part 60 of this chapter and Procedure 2 at appendix F to part 60 of this chapter.
		b. Install, certify, operate, and maintain the diluent gas, flow rate, and/or moisture monitoring systems	Part 75 of this chapter and § 63.10010(a), (b), (c), and (d).
		c. Convert hourly emissions concentrations to 30 boiler operating day rolling average lb/MMBtu or lb/MWh emissions rates	Method 19 F-factor methodology at appendix A-7 to part 60 of this chapter, or calculate using mass emissions rate and gross output data (see § 63.10007(e)).
2. Total or individual non-Hg HAP metals	Emissions Testing	a. Select sampling ports location and the number of traverse points.	Method 1 at appendix A-1 to part 60 of this chapter.
		b. Determine velocity and volumetric flow-rate of the stack gas	Method 2, 2A, 2C, 2F, 2G or 2H at appendix A-1 or A-2 to part 60 of this chapter.
		c. Determine oxygen and carbon dioxide concentrations of the stack gas	Method 3A or 3B at appendix A-2 to part 60 of this chapter, or ANSI/ASME PTC 19.10-1981. <sup>3</sup>
		d. Measure the moisture content of the stack gas	Method 4 at appendix A-3 to part 60 of this chapter.
		e. Measure the HAP metals emissions concentrations and determine each individual HAP metals emissions concentration, as well as the total filterable HAP metals emissions concentration and total HAP metals emissions concentration	Method 29 at appendix A-8 to part 60 of this chapter. For liquid oil-fired units, Hg is included in HAP metals and you may use Method 29, Method 30B at appendix A-8 to part 60 of this chapter; for Method 29, you must report the front half and back half results separately. When using Method 29, report metals matrix spike and recovery levels.

		f. Convert emissions concentrations (individual HAP metals, total filterable HAP metals, and total HAP metals) to lb/MMBtu or lb/MWh emissions rates	Method 19 F-factor methodology at appendix A-7 to part 60 of this chapter, or calculate using mass emissions rate and gross output data (see § 63.10007(e)).
3. Hydrogen chloride (HCl) and hydrogen fluoride (HF)	Emissions Testing	a. Select sampling ports location and the number of traverse points.	Method 1 at appendix A-1 to part 60 of this chapter.
		b. Determine velocity and volumetric flow-rate of the stack gas	Method 2, 2A, 2C, 2F, 2G or 2H at appendix A-1 or A-2 to part 60 of this chapter.
		c. Determine oxygen and carbon dioxide concentrations of the stack gas	Method 3A or 3B at appendix A-2 to part 60 of this chapter, or ANSI/ASME PTC 19.10-1981. <sup>3</sup>
		d. Measure the moisture content of the stack gas	Method 4 at appendix A-3 to part 60 of this chapter.
		e. Measure the HCl and HF emissions concentrations	Method 26 or Method 26A at appendix A-8 to part 60 of this chapter or Method 320 at appendix A to part 63 of this chapter or ASTM D6348-03 <sup>3</sup> with (1) the following conditions when using ASTM D6348-03: (A) The test plan preparation and implementation in the Annexes to ASTM D6348-03, Sections A1 through A8 are mandatory;
			(B) For ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent (%) R must be determined for each target analyte (see Equation A5.5);
			(C) For the ASTM D6348-03 test data to be acceptable for a target analyte, %R must be $70\% \geq R \leq 130\%$ ; and

3.e.1(D) The %R value for each compound must be reported in the test report and all field measurements corrected with the calculated %R value for that compound using the following equation:

$$\text{Reported Result} = \frac{(\text{Measured Concentration in Stack})}{\%R} \times 100$$

and

To conduct a performance test for the following pollutant . . . (cont'd)	Using . . . (cont'd)	You must perform the following activities, as applicable to your input- or output-based emission limit . . . (cont'd)	Using . . . <sup>2</sup> (cont'd)
			(2) spiking levels nominally no greater than two times the level corresponding to the applicable emission limit. Method 26A must be used if there are entrained water droplets in the exhaust stream.
		f. Convert emissions concentration to lb/MMBtu or lb/MWh emissions rates	Method 19 F-factor methodology at appendix A-7 to part 60 of this chapter, or calculate using mass emissions rate and gross output data (see § 63.10007(e)).
	OR	OR	
	HCl and/or HF CEMS	a. Install, certify, operate, and maintain the HCl or HF CEMS	Appendix B of this subpart.
		b. Install, certify, operate, and maintain the diluent gas, flow rate, and/or moisture monitoring systems	Part 75 of this chapter and § 63.10010(a), (b), (c), and (d).
		c. Convert hourly emissions concentrations to 30 boiler operating day rolling average lb/MMBtu or lb/MWh emissions rates	Method 19 F-factor methodology at appendix A-7 to part 60 of this chapter, or calculate using mass emissions rate and gross output data (see § 63.10007(e)).
4. Mercury (Hg)	Emissions Testing	a. Select sampling ports location and the number of traverse points	Method 1 at appendix A-1 to part 60 of this chapter or Method 30B at Appendix A-8 for Method 30B point selection.
		b. Determine velocity and volumetric flow-rate of the stack gas	Method 2, 2A, 2C, 2F, 2G or 2H at appendix A-1 or A-2 to part 60 of this chapter.
		c. Determine oxygen and carbon dioxide concentrations of the stack gas	Method 3A or 3B at appendix A-1 to part 60 of this chapter, or ANSI/ASME PTC 19.10-1981. <sup>3</sup>
		d. Measure the moisture content of the stack gas	Method 4 at appendix A-3 to part 60 of this chapter.

		e. Measure the Hg emission concentration	Method 30B at appendix A-8 to part 60 of this chapter, ASTM D6784 <sup>3</sup> , or Method 29 at appendix A-8 to part 60 of this chapter; for Method 29, you must report the front half and back half results separately.
		f. Convert emissions concentration to lb/TBtu or lb/GWh emission rates	Method 19 F-factor methodology at appendix A-7 to part 60 of this chapter, or calculate using mass emissions rate and gross output data (see § 63.10007(e)).
	OR	OR	
	Hg CEMS	a. Install, certify, operate, and maintain the CEMS	Sections 3.2.1 and 5.1 of appendix A of this subpart.
		b. Install, certify, operate, and maintain the diluent gas, flow rate, and/or moisture monitoring systems	Part 75 of this chapter and § 63.10010(a), (b), (c), and (d).
		c. Convert hourly emissions concentrations to 30 boiler operating day rolling average lb/TBtu or lb/GWh emissions rates	Section 6 of appendix A to this subpart.
	OR	OR	
	Sorbent trap monitoring system	a. Install, certify, operate, and maintain the sorbent trap monitoring system	Sections 3.2.2 and 5.2 of appendix A to this subpart.
		b. Install, operate, and maintain the diluent gas, flow rate, and/or moisture monitoring systems	Part 75 of this chapter and § 63.10010(a), (b), (c), and (d).
		c. Convert emissions concentrations to 30 boiler operating day rolling average lb/TBtu or lb/GWh emissions rates	Section 6 of appendix A to this subpart.
	OR	OR	
	LEE testing	a. Select sampling ports location and the number of traverse points	Single point located at the 10% centroidal area of the duct at a port location per Method 1 at appendix A-1 to part 60 of this chapter or Method 30B at Appendix A-8 for Method 30B point selection.

		b. Determine velocity and volumetric flow-rate of the stack gas	Method 2, 2A, 2C, 2F, 2G, or 2H at appendix A-1 or A-2 to part 60 of this chapter or flow monitoring system certified per appendix A of this subpart.
		c. Determine oxygen and carbon dioxide concentrations of the stack gas	Method 3A or 3B at appendix A-1 to part 60 of this chapter, or ANSI/ASME PTC 19.10-1981, <sup>3</sup> or diluent gas monitoring systems certified according to part 75 of this chapter.
		d. Measure the moisture content of the stack gas	Method 4 at appendix A-3 to part 60 of this chapter, or moisture monitoring systems certified according to part 75 of this chapter.
		e. Measure the Hg emission concentration	Method 30B at appendix A-8 to part 60 of this chapter; perform a 30 operating day test, with a maximum of 10 operating days per run ( <i>i.e.</i> , per pair of sorbent traps) or sorbent trap monitoring system or Hg CEMS certified per appendix A of this subpart.
		f. Convert emissions concentrations from the LEE test to lb/TBtu or lb/GWh emissions rates	Method 19 F-factor methodology at appendix A-7 to part 60 of this chapter, or calculate using mass emissions rate and gross output data (see § 63.10007(e)).
		g. Convert average lb/TBtu or lb/GWh Hg emission rate to lb/year, if you are attempting to meet the 29.0 lb/year threshold	Potential maximum annual heat input in TBtu or potential maximum electricity generated in GWh.
5. Sulfur dioxide (SO <sub>2</sub> )	SO <sub>2</sub> CEMS	a. Install, certify, operate, and maintain the CEMS	Part 75 of this chapter and § 63.10010(a) and (f).
		b. Install, operate, and maintain the diluent gas, flow rate, and/or moisture monitoring systems	Part 75 of this chapter and § 63.10010(a), (b), (c), and (d).
		c. Convert hourly emissions concentrations to 30 boiler operating day rolling average lb/MMBtu or lb/MWh emissions rates	Method 19 F-factor methodology at appendix A-7 to part 60 of this chapter, or calculate using mass emissions rate and gross output data (see § 63.10007(e)).

<sup>1</sup>Regarding emissions data collected during periods of startup or shutdown, see §§ 63.10020(b) and (c) and 63.10021(h).

<sup>2</sup>See Tables 1 and 2 to this subpart for required sample volumes and/or sampling run times.

<sup>3</sup>Incorporated by reference, see § 63.14.

\* \* \* \* \*

18. In appendix A to Part 63:

- a. Revise section 12.4 in Method 303.
- b. Revise sections 2.0, 7.2.3.3, 8.1.2, 9.1, 11.3.2, and 12.1 in Method 308.
- c. Remove and reserve section 7.2.2 in Method 308.
- d. Add sections 12.5 and 13.0 in Method 308.
- e. Revise sections 8.2.2.4 and 9.2.3 in Method 320.
- f. Revise section 12.9 in Method 323.
- g. Revise section 8.2.1.3, Figure 8.1. and section 8.2.3.2 in Method 325A.
- h. Add sections 8.2.3.3 and 8.4.3 in Method 325A.
- i. Revise sections 9.3.2, 9.13, 11.3.2.5, and 12.2.2 and table 17-1 in Method 325B.
- j. Remove sections 12.2.3 and 12.2.4 in Method 325B.

The revisions read as follows:

## **Appendix A to Part 63-Test Methods Pollutant Measurement Methods From Various Waste**

### **Media**

\* \* \* \* \*

### **Method 303-Determination of Visible Emissions From By-Product Coke Oven Batteries**

\* \* \* \* \*

12.4 Average Duration of VE from Charging Operations. Use Equation 303-3 to calculate the daily 30-day rolling log average of seconds of visible emissions from the charging operation for each battery using these current day's observations and the 29 previous valid daily sets of observations.

$$\text{logarithmic average} = e^y - 1 \quad (\text{Eq. 303-3})$$

$$\text{where } y = \frac{\ln(X_1 + 1) + \ln(X_2 + 1) + \dots + \ln(X_i + 1)}{A}$$

\* \* \* \* \*

### Method 308-Procedure for Determination of Methanol Emission From Stationary Sources

\* \* \* \* \*

#### 2.0 Summary of Method

A gas sample is extracted from the sampling point in the stack. The methanol is collected in deionized distilled water and adsorbed on silica gel. The sample is returned to the laboratory where the methanol in the water fraction is separated from other organic compounds with a gas chromatograph (GC) and is then measured by a flame ionization detector (FID). The fraction adsorbed on silica gel is extracted with deionized distilled water and is then separated and measured by GC/FID.

\* \* \* \* \*

#### 7.2.2 [Reserved]

\* \* \* \* \*

7.2.3.3 Methanol Standards for Adsorbent Tube Samples. Prepare a series of methanol standards by first pipetting 10 ml of the methanol working standard into a 100-ml volumetric flask and diluting the contents to exactly 100 ml with deionized distilled water. This standard will contain 10 µg/ml of methanol. Pipette 5, 15, and 25 ml of this standard, respectively, into three 50-ml volumetric flasks. Dilute each solution to 50 ml with deionized distilled water. These standards will have 1, 3, and 5 µg/ml of methanol, respectively. Transfer all four standards into 40-ml glass vials capped with Teflon<sup>®</sup>-lined septa and store under refrigeration. Discard any excess solution.

\* \* \* \* \*

8.1.2 Leak Check. A leak check before and after the sampling run is mandatory. The leak-check procedure is as follows:

Temporarily attach a suitable (e.g., 0- to 40-ml/min) rotameter to the outlet of the DGM, and place a vacuum gauge at or near the probe inlet. Plug the probe inlet, pull a vacuum of at least 250 mm (10 inch) Hg or the highest vacuum experienced during the sampling run, and note the flow rate as indicated by the rotameter. A leakage rate in excess of 2 percent of the average sampling rate is acceptable.

Note: Carefully release the probe inlet plug before turning off the pump.

\* \* \* \* \*

9.1 Miscellaneous Quality Control Measures. The following quality control measures are required:

Section	Quality control measure	Effect
8.1.2, 8.1.3, 10.1	Sampling equipment leak check and calibration	Ensures accurate measurement of sample volume.
10.2	GC calibration	Ensures precision of GC analysis.
13.0	Methanol spike recovery check	Verifies all methanol in stack gas is being captured in impinge/adsorbent tube setup

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\* \* \* \* \*

11.3.2 Desorption of Samples. Add 3 ml of deionized distilled water to each of the stoppered vials and shake or vibrate the vials for 30 minutes.

\* \* \* \* \*

## 12.1 Nomenclature.

$C_{af}$  = Concentration of methanol in the front of the adsorbent tube,  $\mu\text{g/ml}$ .

$C_{ab}$  = Concentration of methanol in the back of the adsorbent tube,  $\mu\text{g/ml}$ .

$C_i$  = Concentration of methanol in the impinger portion of the sample train,  $\mu\text{g/ml}$ .

$E$  = Mass emission rate of methanol,  $\mu\text{g/hr}$  (lb/hr).

$m_s$  = Total mass of compound measured in impinger and on adsorbent with spiked train (mg).

$m_u$  = Total mass of compound measured in impinger and on adsorbent with unspiked train (mg).

$m_v$  = Mass per volume of spiked compound measured (mg/L).

$M_{tot}$  = Total mass of methanol collected in the sample train,  $\mu\text{g}$ .

$P_{bar}$  = Barometric pressure at the exit orifice of the DGM, mm Hg (in. Hg).

$P_{std}$  = Standard absolute pressure, 760 mm Hg (29.92 in. Hg).

$Q_{std}$  = Dry volumetric stack gas flow rate corrected to standard conditions, dscm/hr (dscf/hr).

$R$  = fraction of spiked compound recovered

$s$  = theoretical concentration (ppm) of spiked target compound

$T_m$  = Average DGM absolute temperature, degrees K (°R).

$T_{std}$  = Standard absolute temperature, 293 degrees K (528 °R).

$V_{af}$  = Volume of front half adsorbent sample, ml.

$V_{ab}$  = Volume of back half adsorbent sample, ml.

$V_i$  = Volume of impinger sample, ml.

$V_m$  = Dry gas volume as measured by the DGM, dry cubic meters (dcm), dry cubic feet (dcf).

$V_{m(std)}$  = Dry gas volume measured by the DGM, corrected to standard conditions, dry standard cubic meters (dscm), dry standard cubic feet (dscf).

\* \* \* \* \*

## 12.5 Recovery Fraction (R)

$$m_v = \frac{m_s}{V_s} - \frac{m_u}{V_u} \quad \text{Equation 308-4}$$

$$R = \frac{m_v \times v_s}{s} \quad \text{Equation 308-5}$$

## 13.0 Method Performance

Since a potential sample may contain a variety of compounds from various sources, a specific precision limit for the analysis of field samples is impractical. Precision in the range of 5 to 10 percent relative standard deviation (RSD) is typical for gas chromatographic techniques, but an experienced GC operator

with a reliable instrument can readily achieve 5 percent RSD. For this method, the following combined GC/operator values are required.

(a) Precision. Calibration standards must meet the requirements in section 10.2.1 or 10.2.2 as applicable.

(b) Recovery. After developing an appropriate sampling and analytical system for the pollutants of interest, conduct the following spike recovery procedure at each sampling point where the method is being applied.

i. Methanol Spike. Set up two identical sampling trains. Collocate the two sampling probes in the stack. The probes shall be placed in the same horizontal plane, where the first probe tip is 2.5 cm from the outside edge of the other. One of the sampling trains shall be designated the spiked train and the other the unspiked train. Spike methanol into the impinger, and onto the adsorbent tube in the spiked train prior to sampling. The total mass of methanol shall be 40 to 60 percent of the mass expected to be collected with the unspiked train. Sample the stack gas into the two trains simultaneously. Analyze the impingers and adsorbents from the two trains utilizing identical analytical procedures and instrumentation. Determine the fraction of spiked methanol recovered (R) by combining the amount recovered in the impinger and in the adsorbent tube, using the equations in section 12.5. Recovery values must fall in the range:  $0.70 \leq R \leq 1.30$ . Report the R value in the test report.

\* \* \* \* \*

## **Method 320-Measurement of Vapor Phase Organic and Inorganic Emissions By Extractive Fourier Transform Infrared (FTIR) Spectroscopy**

\* \* \* \* \*

8.2.2.4 Determine the percent leak volume  $\%V_L$  for the signal integration time  $t_{SS}$  and for  $\Delta P_{max}$ , i.e., the larger of  $\Delta P_v$  or  $\Delta P_p$ , as follows:

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$$\%V_L = 50t_{ss} \frac{\Delta P_{max}}{P_s} \quad (2)$$

where 50 = 100% divided by the leak-check time of 2 minutes.

\* \* \* \* \*

9.2.3 Calculate the dilution ratio using the tracer gas as follows:

$$DF = \frac{SF_{6(spik)}}{SF_{6(dir)}} \quad (3)$$

Where:

$$CS = DF * Spike_{dir} + Unspike (1 - DF) \quad (4)$$

DF = Dilution factor of the spike gas; this value shall be  $\geq 10$ .

SF<sub>6(dir)</sub> = SF<sub>6</sub> (or tracer gas) concentration measured directly in undiluted spike gas.

SF<sub>6(spik)</sub> = Diluted SF<sub>6</sub> (or tracer gas) concentration measured in a spiked sample.

Spike<sub>dir</sub> = Concentration of the analyte in the spike standard measured by filling the FTIR cell directly.

CS = Expected concentration of the spiked samples.

Unspike = Native concentration of analytes in unspiked samples.

\* \* \* \* \*

## Method 323-Measurement of Formaldehyde Emissions From Natural Gas-Fired Stationary

### Sources-Acetyl Acetone Derivatization Method

\* \* \* \* \*

#### 12.9 Formaldehyde Concentration Corrected to 15% Oxygen

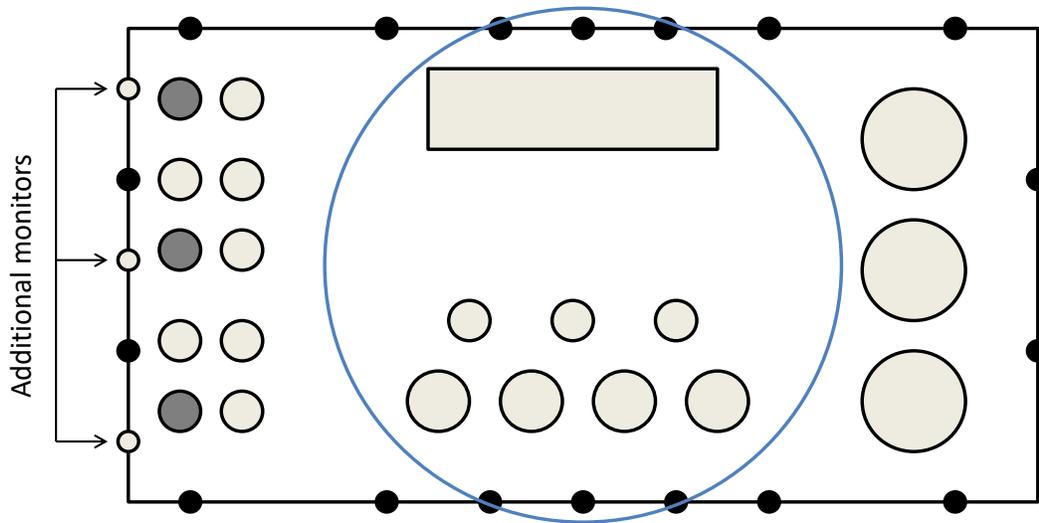
$$C_{form@15\%O_2} = C_{form} \frac{(20.9-15)}{(20.9-O_{2d})} \quad \text{Eq. 323-8}$$

\* \* \* \* \*

**Method 325A-Volatile Organic Compounds From Fugitive and Area Sources: Sampler  
Deployment and VOC Sample Collection**

\* \* \* \* \*

8.2.1.3 An extra sampler must be placed near known sources of VOCs if potential emission sources are within 50 meters (162 feet) of the boundary and the source or sources are located between two monitors. Measure the distance ( $x$ ) between the two monitors and place another monitor approximately halfway between ( $x/2 \pm 10$  percent) the two monitors. Only one extra sampler is required between two monitors to account for known sources of VOCs. For example, in Figure 8.1, the facility added three additional monitors (*i.e.*, light shaded sampler locations), and in Figure 8.2, the facility added two additional monitors to provide sufficient coverage of all area sources.



Refinery (20° Angle)

Note: Shaded sources are within 50 meters of the property boundary and are located between two monitors. Additional coverage required by this method was accomplished by placing the monitors halfway between two existing monitors.

**Figure 8.1. Facility with a Regular Shape Between 750 and 1,500 Acres in Area**

\* \* \* \* \*

8.2.3.2 For facilities with a monitoring perimeter length greater than or equal to 7,315 meters (24,000 feet), sampling locations are spaced  $610 \pm 76$  meters ( $2,000 \pm 250$  feet) apart.

8.2.3.3 Unless otherwise specified in an applicable regulation, permit or other requirement, for small disconnected subareas with known sources within 50 meters (162 feet) of the monitoring perimeter, sampling points need not be placed closer than 152 meters (500 feet) apart as long as a minimum of 3 monitoring locations are used for each subarea.

\* \* \* \* \*

8.4.3 When extenuating circumstances do not permit safe deployment or retrieval of passive samplers (e.g., extreme weather, power failure), sampler placement or retrieval earlier or later than the prescribed schedule is allowed but must occur as soon as safe access to sampling sites is possible.

\* \* \* \* \*

### **Method 325B-Volatile Organic Compounds From Fugitive and Area Sources: Sampler**

#### **Preparation and Analysis**

\* \* \* \* \*

9.3.2 Field blanks must be shipped to the monitoring site with the sampling tubes and must be stored at the sampling location throughout the monitoring exercise. The field blanks must be installed under a protective hood/cover at the sampling location, but the long-term storage caps must remain in place throughout the monitoring period (see Method 325A). The field blanks are then shipped back to the laboratory in the same container as the sampled tubes. Collect at least two field blank samples per sampling period to ensure sample integrity associated with shipment, collection, and storage.

\* \* \* \* \*

9.13 ROUTINE CCV AT THE START OF A SEQUENCE. Run CCV before each sequence of analyses and after every tenth sample to ensure that the previous multi-level calibration (see Section 10.0) is still valid.

\* \* \* \* \*

11.3.2.5 Whenever the thermal desorption — GC/MS analytical method is changed or major equipment maintenance is performed, you must conduct a new five-level calibration (see Section 10.0). System calibration remains valid as long as results from subsequent CCV are within 30 percent of the most

recent 5-point calibration (see Section 9.13). Include relevant CCV data in the supporting information in the data report for each set of samples.

\* \* \* \* \*

12.2.2 Determine the equivalent concentrations of compounds in atmospheres as follows. Correct target compound concentrations determined at the sampling site temperature and atmospheric pressure to standard conditions (25 °C and 760 mm mercury) using Equation 12.5.

$$C_c = \frac{(m_{meas}) * 10^6}{U_{NTP} * \left[ \frac{t_{ss}}{298.15} \right]^{\frac{1}{2}} * t} \quad \text{Eq. 12.5}$$

Where:

$m_{meas}$  = The mass of the compound as measured in the sorbent tube ( $\mu\text{g}$ ).

$t$  = The exposure time (minutes).

$t_{ss}$  = The average temperature during the collection period at the sampling site (K).

$U_{NTP}$  = The method defined diffusive uptake rate (sampling rate) (mL/min).

NOTE: Diffusive uptake rates ( $U_{NTP}$ ) for common VOCs, using carbon sorbents packed into sorbent tubes of the dimensions specified in Section 6.1, are listed in Table 12.1. Adjust analytical conditions to keep expected sampled masses within range (see Sections 11.3.1.3 to 11.3.1.5). Best possible method detection limits are typically in the order of 0.1 ppb for 1,3-butadiene and 0.05 ppb for volatile aromatics such as benzene for 14-day monitoring. However, actual detection limits will depend upon the analytical conditions selected.

\* \* \* \* \*

TABLE 17.1—SUMMARY OF GC/MS ANALYSIS QUALITY CONTROL PROCEDURES

Parameter	Frequency	Acceptance criteria	Corrective action
Bromofluorobenzene Instrument Tune Performance Check	Daily <sup>a</sup> prior to sample analysis	Evaluation criteria presented in Section 9.5 and Table 9.2	(1) Retune and or (2) Perform Maintenance.
Five point calibration bracketing the expected sample concentration	Following any major change, repair or maintenance or if daily CCV does not meet method requirements. Recalibration not to exceed three months	(1) Percent Deviation (%DEV) of response factors $\pm 30\%$ (2) Relative Retention Times (RRTs) for target peaks $\pm 0.06$ units from mean RRT	(1) Repeat calibration sample analysis. (2) Repeat linearity check. (3) Prepare new calibration standards as necessary and repeat analysis.
Calibration Verification (CCV Second source calibration verification check)	Following the calibration curve	The response factor $\pm 30\%$ DEV from calibration curve average response factor	(1) Repeat calibration check. (2) Repeat calibration curve.
Laboratory Blank Analysis	Daily <sup>a</sup> following bromofluorobenzene and calibration check; prior to sample analysis	(1) $\leq 0.2$ ppbv per analyte or $\leq 3$ times the LOD, whichever is greater (2) Internal Standard (IS) area response $\pm 40\%$ and IS Retention Time (RT) $\pm 0.33$ min. of most recent calibration check	(1) Repeat analysis with new blank tube. (2) Check system for leaks, contamination. (3) Analyze additional blank.
Blank Sorbent Tube Certification	One tube analyzed for each batch of tubes cleaned or 10 percent of tubes whichever is greater	$< 0.2$ ppbv per VOC targeted compound or 3 times the LOD, whichever is greater	Re-clean all tubes in batch and reanalyze.
Samples—Internal Standards	All samples	IS area response $\pm 40\%$ and IS RT $\pm 0.33$ min. of most recent calibration validation	Flag Data for possible invalidation.
Field Blanks	Two per sampling period	No greater than one-third of the measured target analyte or compliance limit.	Flag Data for possible invalidation due to high blank bias.

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<sup>a</sup>Every 24 hours.

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