ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51, 60, 61, and 63

[EPA–HQ–OAR–2010–0114; FRL–9906–23–OAR]

RIN 2060–AQ01

Revisions to Test Methods and Testing Regulations

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action promulgates technical and editorial corrections for source testing of emissions and operations. Some current testing provisions contain inaccuracies and outdated procedures, and new alternatives that have been approved are being added. These revisions will improve the quality of data and will give testers additional flexibility to use the newly approved alternative procedures.

DATES: This final rule is effective on February 27, 2014. The incorporation by reference materials listed in the rule are approved by the Director of the Federal Register as of February 27, 2014.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2010–0114. All documents in the docket are listed in the *http://www.regulations.gov* index. Although listed in the index, some information is not publicly available, e.g., confidential business information (CBI) 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 form. Publicly available docket materials are available either electronically at *www.regulations.gov* or in hard copy at the Air Docket, EPA/DC, William Jefferson Clinton (WJC) Building, Room 3334, 1301 Constitution Avenue NW., Washington, DC. The Docket Facility and the Public Reading Room are open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566–1742.

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SUPPLEMENTARY INFORMATION:

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I. General Information

A. Does this action apply to me?

The revisions promulgated in this final rule apply to testing at a number of source categories. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

B. Where can I obtain a copy of this action?

In addition to being available in the docket, an electronic copy of this rule will also be available on the Worldwide Web (WWW) through the Technology Transfer Network (TTN). Following the Administrator's signature, a copy of the final rule will be placed on the TTN's policy and guidance page for newly proposed or promulgated rules at *http://www.epa.gov/ttn/oarpg.* The TTN provides information and technology exchange in various areas of air pollution control.

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 U.S. Court of Appeals for the District of Columbia Circuit by April 28, 2014. 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 established by this action may not be challenged separately in any civil or criminal proceedings brought by EPA to enforce these requirements.

II. Background

The revisions to test methods and testing regulations were proposed in the **Federal Register** on January 9, 2012, with a public comment period that ended March 9, 2012. Thirty-eight comment letters were received from the public. Changes were made to this final rule based on the public comments.

III. Summary of Amendments

A. Appendix M of Part 51

In the introduction of Appendix M of part 51, Methods 3A and 19 are added to the list of methods not requiring the use of audit samples.

B. Method 201A of Appendix M of Part 51

Revisions are made to Method 201A as published on December 21, 2010. Typographical errors in references to acetone blanks, isokinetic sampling rate, source gas temperatures, stack blockage dimensions by the sampling heads, and particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}) in Sections 7.2.1, 8.3.4(b), 8.3.4.1, 8.7.2.2, and 8.7.5.5(a), respectively, are corrected. An erroneous reference to Methods 4A and 5 in Section 10.1 when using a standard pitot tube is corrected to refer to Methods 1 and 2. Section 10.5, which addresses Class A volumetric glassware is deleted because it is not needed. For those filters that cannot be weighed to a constant weight in Section 11.2.1, instructions are added to flag and report the data as a minimum value. It is noted that the nozzle, front half, and in-stack filter samples need to be speciated into organic and inorganic fractions similar to the practice in Method 17. The method now notes that neither Method 17 nor 201A require a separate analysis of the filter for inorganic and organic particulate matter. Clarity is added for using Method 17 for quantifying condensable particulate matter. An incorrect term in Equation 9 of Section 12.5 is corrected. In the nomenclature in Section 12.1, V_b, the volume of aliquot taken for ion chromatography (IC) analysis, is deleted.

C. Method 202 of Appendix M of Part 51

Revisions are made to Method 202 as published on December 21, 2010. In Sections 7.2.1 and 7.2.2, an error in the units of the acetone blank is corrected. In Section 8.5.3.1, the text erroneously referring to empty impingers is deleted. Section 11.2.1 is clarified concerning the use of Method 17 for quantifying condensable particulate matter. Figures 2 and 3 are revised to correctly show the first impinger with an extended stem instead of a shortened one to be consistent with the method text, and the condensed moisture and sample portion of the sampling train are labeled to make it easy to identify. Figures 4, 5, and 6 are republished because of the poor print quality in the December 21, 2010, publication.

D. General Provisions (Subpart A) Part 60

In the General Provisions of part 60, Section 60.13(d)(1) is revised to remove the phrase ''automatically, intrinsic to the opacity monitor.'' Methods 3A and 19 are added to the list of methods not requiring the use of audit samples in Section 60.8(g). A new Section 60.8(i) is added to allow the use of Method 205 of 40 CFR part 51, Appendix M, ''Verification of Gas Dilution Systems for Field Instrument Calibrations,'' as an alternative provision whenever multiple calibration gases are required under part 60. The agency notes, however, that the use of calibration gas dilution devices continues to be disallowed for part 75 applications (see 40 CFR 75.22(a)(5)(i)). Section 60.17 is revised to arrange the consensus standards that are incorporated by reference in alpha-numeric order.

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

In subpart Db, Method 320 is allowed as an alternative for determining nitrogen oxides (NO_X) concentration in Section 60.46b(f)(1)(ii), (h)(1) and (2), and sulfur dioxide (SO_2) concentration in Section 60.47b(b)(2).

F. Hospital/Medical/Infectious Waste Incinerators (Subpart Ec) Part 60

In subpart Ec, the definition of medical/infectious wastes in Section 60.51c is revised to correct the misspelling of ''cremation.''

G. Sulfuric Acid Plants (Subpart H) Part 60

In subpart H, an equation for calculating the SO_2 emission rate in Section 60.84(d) is corrected.

H. Sewage Treatment Plants (Subpart O) Part 60

In subpart O, a reference to Method 209F in Section 60.154(b)(5) is revised to reflect a newer available version of the method (i.e., 2540G).

I. Kraft Pulp Mills (Subpart BB) Part 60

In subpart BB, a typographical error is corrected in the equation for correcting the total reduced sulfur concentration to 10 percent oxygen.

J. Stationary Gas Turbines (Subpart GG) Part 60

In subpart GG, the definitions of terms for the equation in Section 60.335(b)(l) are revised to allow the reference combustor inlet absolute pressure to be measured in millimeters of mercury (mm Hg). The site barometric pressure is allowed as an alternative to the observed combustor inlet absolute pressure for calculating the mean NO_X emission concentration.

K. Lead-Acid Battery Manufacturing Plants (Subpart KK) Part 60

In subpart KK, Method 29 is allowed as an alternative to Method 12 in Section 60.374(b)(1) and (c)(2) for determining the lead concentration and flow rate of the effluent gas. An error in the equation for calculating the lead emission concentration in 60.374(b)(2) is corrected.

L. Metallic Mineral Processing Plants (Subpart LL) Part 60

In subpart LL, an error in the value of the particulate matter standard in Section 60.382(a)(1) is corrected from 0.02 g/dscm to 0.05 g/dscm. An alternative procedure, wherein a single visible emission observer can conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval, is allowed.

M. Asphalt Processing and Asphalt Roofing Manufacture (Subpart UU) Part 60

In subpart UU, an error in the value of the particulate matter standard for saturated felt or smooth-surfaced roll roofing is corrected from 0.04 kg/Mg to 0.4 kg/Mg.

N. Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations (Subpart NNN) Part 60

In subpart NNN, references to paragraphs in Section 60.660(c)(4) and Section 60.665(h)(2) and (3) are corrected.

O. Stationary Compression Ignition Internal Combustion Engines (Subpart IIII) Part 60

In Subpart IIII, the requirement to use Method 1 or 1A for sampling point selection in testing gaseous emission from engines with smaller ducts is dropped, and single- or three-point sampling, depending on duct size, is added.

P. Stationary Spark Ignition Internal Combustion Engines (Subpart JJJJ) Part 60

In Subpart JJJJ, the requirement to use Method 1 or 1A for sampling point selection in testing gaseous emissions from engines with smaller ducts is dropped, and single- or three-point sampling, depending on duct size, is added.

Q. Method 1 of Appendix A–1 of Part 60

In Method 1, the distances from the sampling point to flow disturbances is clarified in Figure 1–1, and Figure 1–2 is corrected to show the proper demarcation between the requirement for 12 and 16 sampling points.

R. Method 2 of Appendix A–1 of Part 60

In Method 2, a pressure stability specification for the pitot tube leak-check is added. An erroneous reference to Figure 2–6B is corrected to reference Figure 2–7B. An error in a term in the denominator of Equation 2–7 is corrected. The velocity constant in English units used in Equation 2–7 is corrected by changing the units from m/sec to ft/sec. The term for absolute temperature in Equations 2–7 and 2–8 is corrected to represent the average of the absolute temperatures; an inadvertently omitted term is added to Section 12.1 for the average absolute temperature; and calibrating a barometer against a NIST-traceable barometer is allowed as an alternative to calibrating against a mercury barometer.

S. Method 2A of Appendix A–1 of Part 60

In Method 2A, calibrating a barometer against a NIST-traceable barometer is allowed as an alternative to calibrating against a mercury barometer.

T. Method 2B of Appendix A–1 of Part 60

In Method 2B, nomenclature errors are corrected and the assumed ambient carbon dioxide concentration used in the calculations is changed from 300 to 380 ppm to closer approximate current ambient levels.

U. Method 2D of Appendix A–1 of Part 60

In Method 2D, calibrating a barometer against a NIST-traceable barometer is allowed as an alternative to calibrating against a mercury barometer.

V. Method 3A of Appendix A–2 of Part 60

In Method 3A, a redundant sentence noting that pre-cleaned air may be used for the high-level calibration gas is deleted.

W. Method 3C of Appendix A–2 of Part 60

In Method 3C, an equation for correcting the sample nitrogen concentration for tank dilution is added as a supplemental calculation option for Method 25C samples.

X. Method 4 of Appendix A–3 of Part 60

In Method 4, the English value for the leak rate exceedance in Section 9.1 is corrected from 0.20 cfm to 0.020 cfm. Method 6A, Method 320, and a calculation using F-factors are added as alternatives to Method 4 for the moisture determination.

Y. Method 5 of Appendix A–3 of Part 60

In Method 5, it is clarified that the deionized water used in the analysis of material caught in the impingers must have ≤0.001 percent residue; the factor K is corrected to read K’ in Equation 5–13; calibrating a barometer against a NIST-traceable barometer is allowed as an alternative to calibrating against a mercury barometer; calibrating a temperature sensor against a thermometer equivalent to a mercury-in-glass thermometer is allowed as an alternative to calibrating against a mercury-in-glass thermometer; rechecking temperature sensors for the filter holder and metering system after each test is allowed in place of having sensors calibrated within 3 °F; the option to check the probe heater calibration after a test at a single point using a reference thermometer is added; the use of weather station barometric pressure corrected to testing point elevation is added as an option to having an on-site barometer; a single acetone blank per container is allowed in place of a blank from each wash bottle; Section 10.3.3 is clarified as a post-test metering system calibration check rather than a metering system calibration, and an alternative metering check procedure is added; the use of filter holder supports or frits made of Teflon is allowed without having to first obtain the Administrator’s approval; and Reference 13 for post-test calibration is added to the method.

Z. Method 5A of Appendix A–3 of Part 60

In Method 5A, mercury-free thermometers are allowed as an alternative to mercury-in-glass thermometers.

AA. Method 5E of Appendix A–3 of Part 60

In Method 5E, the requirement to use the Rosemount Model 2100A total organic content analyzer is replaced with the Tekmar-Dohrmann or equivalent analyzer. In Section 12.5, the equation for total particulate concentration is correctly labeled as Eq. 5E–5.

BB. Method 5H of Appendix A–3 of Part 60

In Method 5H, Section 12.1 is revised to add missing terms C_i, C_o, Q_i, and Q_o; and procedures for the determination of an alternative tracer gas flow rate are added.

CC. Method 6 of Appendix A–4 of Part 60

In Method 6, calibrating a temperature sensor against a thermometer equivalent to a mercury-in-glass thermometer is allowed as an alternative to using a mercury-in-glass thermometer, and calibrating a barometer against a NIST-traceable barometer is allowed as an alternative to calibrating against a mercury barometer.

DD. Method 6C of Appendix A–4 of Part 60

In Section 4.0 of Method 6C, an incorrect reference to Section 4.1 of Method 6 is corrected to reference Section 4.0 of Method 7E. Provisions that were removed from the original method that addressed potential quenching effects in fluorescence analyzers are added to the method.

EE. Method 7 of Appendix A–4 of Part 60

In Method 7, procedures are added to avoid biasing the results when sampling under conditions of high SO_2 concentrations; calibrating a barometer against a NIST-traceable barometer is added as an alternative to calibrating against a mercury barometer; and calibrating a temperature sensor against a thermometer equivalent to a mercury-in-glass thermometer is an acceptable alternative to using a mercury-in-glass thermometer.

FF. Method 7A of Appendix A–4 of Part 60

In Method 7A, new procedures are added to avoid biasing the results when sampling under conditions of high SO_2 concentrations, and calibrating a temperature sensor against a thermometer equivalent to a mercury-in-glass thermometer is added as an acceptable alternative to using a mercury-in-glass thermometer.

GG. Method 7E of Appendix A–4 of Part 60

In Method 7E, the instructions for choosing the high-level calibration gas are clarified. Instructions are added to minimize contact of the sample with any condensate to reduce the chance of sample loss, and an error in the traverse point locations used to determine stratification across large stacks is corrected. The basis of a stable response for measurements in the system response time determination is revised in Section 8.2.5 to conform with Section 8.2.6. Alternative sampling bags made of materials other than Tedlar are allowed if the materials are applicable for retaining the compounds of interest.

HH. Method 8 of Appendix A–4 of Part 60

In Method 8, an error in the definition of V_{soln} is corrected. Figure 8–1 is clarified to identify which impingers collect sulfuric acid/sulfur trioxide and which collect SO_2.

II. Method 10 of Appendix A–4 of Part 60

Method 10 is revised to allow the use of sample tanks as an alternative to flexible bags for sample collection.

JJ. Methods 10A and 10B of Appendix A–4 of Part 60

In Methods 10A and 10B, sampling bags made of materials other than Tedlar are allowed if the materials have the sample retaining qualities of Tedlar.

KK. Method 11 of Appendix A–5 of Part 60

Method 11 is revised to address sample breakthrough at high concentrations by using an additional collection impinger. Calibrating a temperature sensor against a thermometer equivalent to a mercury-in-glass thermometer is an acceptable alternative to using a mercury-in-glass thermometer.

LL. Method 12 of Appendix A–5 of Part 60

Method 12 is revised to allow for analysis by inductively coupled plasma-atomic emission spectrometry (ICP–AES) and cold vapor atomic fluorescence spectrometry (CVAFS) as alternatives to atomic absorption (AA) analysis.

MM. Method 14A of Appendix A–5 of Part 60

In Section 10.1.1 of Method 14A, an incorrect reference to Figure 5–6 is corrected to reference Figure 5–5.

NN. Method 16A of Appendix A–6 of Part 60

In Method 16A, the applicability section notes that method results may be biased low if used at sources other than kraft pulp mills where stack oxygen levels may be lower.

OO. Method 16C of Appendix A–6 of Part 60

In Method 16C, errors in the nomenclature and the equation for calculating the total reduced sulfur concentration are corrected.

PP. Method 18 of Appendix A–6 of Part 60

In Method 18, sampling bags made of materials other than Tedlar are allowed if the materials are applicable for retaining the compounds of interest.

QQ. Method 23 of Appendix A–7 of Part 60

In Method 23, the requirement in Section 2.2.7 that silica gel be stored in metal containers has been deleted. Section 4.2.7 is clarified to note that the used silica gel should be transferred to its original container or other suitable vessel if moisture is being determined or discarded if not needed. Mercury-free thermometers are allowed as alternatives to mercury-in-glass thermometers. Section 8.0, which was inadvertently removed in a previous rulemaking, has been added.

RR. Method 24 of Appendix A–7 of Part 60

In Method 24, ASTM Method D2369 is cited without referencing specific sections to preclude confusion if the method sections are revised in the future.

SS. Method 25 of Appendix A–7 of Part 60

In Method 25, more detailed information is given to describe the filters used for sample collection.

TT. Method 25C of Appendix A–7 of Part 60

Method 25C is revised to allow sampling lines made of Teflon. Probes that have closed points and are driven below the surface in a single step and withdrawn a distance to create a gas gap are allowed as acceptable substitutes to pilot probes and the auger procedure.

UU. Method 25D of Appendix A–7 of Part 60

In Method 25D, errors in cross-references within the method are corrected.

VV. Method 26 of Appendix A–8 of Part 60

Method 26 is revised to allow the use of heated Teflon probes in place of glass-lined probes. Conflicting temperature requirements for the sampling system are clarified, and the note to keep the probe and filter temperature at least 20 °C above the source temperature is removed. The location of the thermocouple that monitors the collected gas temperature is clarified as being as close to the filter holder as practicable instead of in the gas stream. Method 26A is allowed as an acceptable alternative when Method 26 is required.

WW. Method 26A of Appendix A–8 of Part 60

Method 26A is revised to clearly state that the temperature of the probe and filter must be maintained between 120 and 134 °C.

XX. Method 29 of Appendix A–8 of Part 60

Method 29 is revised to allow sample analysis by CVAFS as an alternative to AA analysis.

YY. Method 30B of Appendix A–8 of Part 60

In Method 30B, calibrating a barometer against a NIST-traceable barometer is allowed as an alternative to calibrating against a mercury barometer. Table 9–1 and the method text are revised to amend the quality assurance/quality control criteria for sorbent trap section 2 breakthrough and sample analysis to address compliance testing and relative accuracy testing of mercury monitoring systems currently being conducted at much lower emission concentrations. The method is revised to include the most up-to-date citation for determining the method detection limit.

ZZ. Performance Specification 3 of Appendix B of Part 60

In Performance Specification 3, a statement that was inadvertently removed that allows the relative accuracy to be within 20 percent of the reference method mean value is added to establish the original intent of the rule.

AAA. Performance Specification 4 of Appendix B of Part 60

Performance Specification 4 is revised to remove the interference trap specified in Method 10 when evaluating non-dispersive infrared continuous emission monitoring systems against Method 10.

BBB. Performance Specification 4B of Appendix B of Part 60

Performance Specification 4B is clarified to note that Equation 1 in Section 7.1.1 for calculating calibration error only applies to the carbon monoxide monitor and not the oxygen monitor. It is noted for the oxygen monitor that the calibration error should be expressed as the oxygen concentration difference between the mean monitor and reference value at three levels.

CCC. Performance Specification 7 of Appendix B of Part 60

Performance Specification 7 is revised to allow Methods 15 and 16 as reference methods in addition to Method 11.

DDD. Performance Specification 11 of Appendix B of Part 60

In Performance Specification 11, errors in the denominators of Equations 11–1 and 11–2 are corrected.

EEE. Performance Specification 12B of Appendix B of Part 60

In Performance Specification 12B, allowance is made for using a single good trap when one is lost, broken or damaged. More flexibility is also allowed in meeting the stack flow-to-sample flow ratio.

FFF. Performance Specification 15 of Appendix B of Part 60

In Performance Specification 15, the general references to 40 CFR part 60, Appendix B, for the relative accuracy analysis procedure are revised to specifically cite Performance Specification 2 of 40 CFR part 60, Appendix B.

GGG. Performance Specification 16 of Appendix B of Part 60

Performance Specification 16 is revised to clarify the retesting of a predictive emission monitoring system (PEMS) after a sensor is replaced. Relative accuracy testing at three load or production rate levels is allowed in cases where the key operating parameter is not readily alterable. Additional instruction is added for performing the relative accuracy audit (RAA). An error in the RAA acceptance criterion is corrected, and an alternative acceptance criterion for low concentration measurements is added. The yearly relative accuracy test audit clearly notes that the statistical tests in Section 8.3 are not required for this test. An incorrect reference to Equation 16–4 in Section 12.4 is corrected.

HHH. Procedure 1 of Appendix F of Part 60

In Procedure 1, the relevant performance specification would be cited for the RAA calculation instead of using the current Equation 1–1, which is not appropriate for all pollutants.

III. Procedure 2 of Appendix F of Part 60

In Procedure 2, Equations 2–2 and 2–3 are revised to have the full-scale value in the denominator, which is more appropriate than the up-scale check value. The denominator of equation 2–4 is revised to include the volume of the reference device rather than the full-scale value.

JJJ. Procedure 5 of Appendix F of Part 60

In Procedure 5, the second section listed as Section 6.2.6 is correctly numbered as Section 6.2.7.

KKK. General Provisions (Subpart A) Part 61

In the General Provisions of part 61, Methods 3A and 19 are added to the list of methods not requiring the use of audit samples in Section 61.13(e).

LLL. Beryllium (Subpart C) Part 61

In the Beryllium National Emission Standards for Hazardous Air Pollutants (NESHAP), Method 29 of part 60 is added as an acceptable alternative to Method 104 in Section 61.33(a) for emissions testing.

MMM. Beryllium Rocket Motor Firing (Subpart D) Part 61

In the beryllium rocket motor firing NESHAP, a conversion error in the emission standard in Section 61.42(a) is corrected.

NNN. Mercury (Subpart E) Part 61

In the mercury NESHAP, Method 29 of part 60 is added as an acceptable alternative to Method 101A in Section 61.53(d)(2) for emissions testing.

OOO. Inorganic Arsenic Emissions From Glass Manufacturing Plants (Subpart N) Part 61

In the glass manufacturing plants NESHAP, Method 29 in Appendix A of part 60 is added as an acceptable alternative to Method 108 in Section 61.164(d)(2)(i) for determining the arsenic emissions rate and in Section 61.164(e)(1)(i) and (e)(2) for determining the arsenic concentration in a gas stream.

PPP. Method 101 of Appendix B of Part 61

Method 101 is revised to allow analysis by ICP–AES or CVAFS as alternatives to AA analysis.

QQQ. Method 101A of Appendix B of Part 61

Method 101A is revised to allow analysis by ICP–AES or CVAFS as alternatives to AA analysis.

RRR. Method 102 of Appendix B of Part 61

In Method 102, mercury-free thermometers are allowed in place of mercury-in-glass thermometers.

SSS. Method 104 of Appendix B of Part 61

Method 104 is revised to allow analysis by ICP–AES and CVAFS as alternatives to AA analysis. A new alternative procedures section is added to address ICP–AES.

TTT. Methods 108 and 108A of Appendix B of Part 61

Methods 108 and 108A are revised to allow analysis by ICP–AES as an alternative to AA analysis. A new alternative procedures section is added to address ICP–AES.

UUU. General Provisions (Subpart A) Part 63

In the General Provisions of part 63, Methods 3A and 19 are added to the list of methods not requiring the use of audit samples in Section 63.7(c). In Section 63.8(f)(6)(iii), an incorrect reference to a section of Performance Specification 2 is corrected. Section 63.14 is revised to arrange the materials that are incorporated by reference in alpha-numeric order.

VVV. Synthetic Organic Chemical Manufacturing Industry (Subpart G) Part 63

Subpart G is revised to allow the use of Method 316 or Method 8260B in the SW–846 Compendium of Methods to determine hazardous air pollutant concentrations in wastewater streams in Section 63.144(b)(5)(i).

WWW. Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks (Subpart N) Part 63

South Coast Air Quality Management District Method 205.1 is added as a testing option for measuring total chromium.

XXX. Ethylene Oxide Emissions Standards for Sterilization Facilities (Subpart O) Part 63

The ethylene oxide emissions standard for sterilization facilities is revised to allow California Air Resources Board (CARB) Method 431 as an alternative to the procedures in Section 63.365(b) for determining the efficiency at the sterilization chamber vent. An error in a reference to a section in Performance Specification 8 is also corrected.

YYY. Marine Tank Vessel Loading Operations (Subpart Y) Part 63

The marine tank vessel loading operations emissions standard is revised to allow Method 25B as an alternative to Method 25A in Section 63.565(d)(5) for determining the average VOC concentration upstream and downstream of recovery devices. Method 25B is allowed as an alternative to Methods 25 and 25A for determining the percent reduction in VOC in Section 63.565(d)(8), and the requirement that Method 25B be validated according to Method 301 in Section 63.565(d)(10) is added. Method 25B is also added as an alternative to Method 25A in determining the baseline outlet VOC concentration in Section 63.565(g).

ZZZ. Aerospace Manufacturing and Rework Facilities (Subpart GG) Part 63

The aerospace manufacturing and rework facilities emissions standard is revised to remove an incorrect reference to the location of Method 319 in Section 63.750(o).

AAAA. Pharmaceuticals Production (Subpart GGG) Part 63

The pharmaceuticals production emissions standard is revised to allow Method 320 as an alternative to Method 18 for demonstrating that a vent is not a process vent.

BBBB. Secondary Aluminum Production (Subpart RRR) Part 63

The secondary aluminum production emissions standard is revised to allow Method 26 as an alternative to Method 26A in Section 63.1511(c)(9) for determining hydrochloric acid (HCl) concentration.

CCCC. Manufacturing of Nutritional Yeast (Subpart CCCC) Part 63

Table 2 in the manufacturing of nutritional yeast emissions standard is revised to delete the requirement to use Methods 1, 2, 3, and 4 when measuring VOC by Method 25A.

DDDD. Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units (Subpart UUUU) Part 63

Table 4 in the petroleum refineries emissions standard is revised to allow Method 320 as an alternative to Method 18 for determining control device efficiency for organic compounds.

EEEE. Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ) Part 63

Table 4 in the stationary reciprocating internal combustion engines emissions standard is revised to clarify that a heated probe is not necessary when using ASTM D6522 to measure oxygen or carbon dioxide concentrations. The requirement to use Method 1 or 1A for sampling site and sampling point selection in testing gaseous emissions from engines with smaller ducts is deleted, and single- or three-point sampling, depending on duct size, is added.

FFFF. Method 306 of Appendix A of Part 63

Method 306 is revised to remove references to two figures that do not exist and to clarify the conditions under which ICP is appropriate for sample analysis. Alternative mercury-free thermometers are allowed as alternatives to mercury-in-glass thermometers.

GGGG. Method 306A of Appendix A of Part 63

In Method 306A, information is added to clarify the conditions under which sample filtering is required.

HHHH. Methods 308, 315, and 316 of Appendix A of Part 63

In Methods 308, 315, and 316, calibrating a temperature sensor against a thermometer equivalent to a mercury-in-glass thermometer is added as an alternative to mercury-in-glass thermometers. Alternative mercury-free thermometers are allowed as alternatives to mercury-in-glass thermometers.

IIII. Method 321 of Appendix A of Part 63

In Method 321, the term for dilution factor in the calculations is clarified.

IV. Public Comments on the Proposed Amendments

Thirty-eight comment letters were received on the proposed rule. The public comments and the agency's responses are summarized in the Summary of Comments and Responses Document that has been added to the docket that is accessible at the address given in the **ADDRESSES** section of this preamble.

V. Statutory and Executive Order Reviews

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'' under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is, therefore, not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011). It does not involve the expenditure of $100 million in a year and does not raise significant issues. This final rule amends current testing regulations by removing errors and obsolete provisions and adding approved alternative procedures.

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* Burden is defined at 5 CFR 1320.3(b). This final rule does not add information collection requirements beyond those currently required under the applicable regulations. This final rule amends current testing regulations by removing errors and obsolete provisions and adding approved alternative procedures.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This final rule will not impose any requirements on small entities since it only corrects and updates current requirements and adds new testing options.

D. Unfunded Mandates Reform Act

This action contains no federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538, for state, local, or tribal governments or the private sector. This action imposes no enforceable duty on any state, local or tribal governments or the private sector. Therefore, this action is not subject to the requirements of sections 202 or 205 of the UMRA. This action is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments. The alternative procedure being added will give small entities more flexibility in choosing testing procedures in applicable situations.

E. 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, as specified in Executive Order 13132. This final rule corrects and updates current testing requirements. Thus, Executive Order 13132 does not apply to this action.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). This final rule corrects and updates testing provisions that are already currently mandated. It does not add any new requirements and does not affect pollutant emissions or air quality. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

The EPA interprets EO 13045 (62 FR 19885, April 23, 1997) as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it does not establish an environmental standard intended to mitigate health or safety risks.

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

This rule is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs the EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs the EPA to provide Congress, through OMB, explanations when the agency decides not to use available and applicable voluntary consensus standards. This action does not involve technical standards. Therefore, the EPA did not consider the use of any voluntary consensus standards.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order (EO) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

The EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment. This final rule does not relax the control measures on sources regulated by the rule and, therefore, will not cause emissions increases from these sources.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.,* as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. The EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2). This rule will be effective on February 27, 2014.

List of Subjects

40 CFR Parts 51 and 61

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

40 CFR Parts 60 and 63

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

Dated: January 28, 2014.

Gina McCarthy,

Administrator.

For the reasons set out in the preamble, Title 40, Chapter I of the Code of Federal Regulations is amended 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: 42 U.S.C. 7401, et. seq.

■ 2. Amend appendix M to part 51 as follows:

■ a. By revising section 4.0.a.

■ b. By amending Method 201A as follows:

■ i. By revising section 7.2.1.

■ ii. By revising paragraph 8.3.4(b).

■ iii. By revising section 8.3.4.1.

■ iv. By revising section 8.7.2.2.

■ v. By revising paragraph 8.7.5.5(a).

■ vi. By revising the introductory text of section 10.1.

■ vii. By removing section 10.5.

■ viii. By revising section 11.2.1.

■ ix. By removing the term ''Vb'' and its definition from section 12.1.

■ x. By revising Equations 8 and 9 in section 12.5.

■ c. By amending Method 202 as follows:

■ i. By revising sections 7.2.1 and 7.2.2.

■ ii. By revising section 8.5.1.

■ iii. By revising section 8.5.3.1.

■ iv. By revising sections 11.2.1 and 11.2.2.

■ vi. By revising Figures 2, 3, 4, 5, and 6 in section 18.0.

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

* * * * *

4.0. * * *

a. The source owner, operator, or representative of the tested facility shall obtain an audit sample, if commercially available, from an AASP for each test method used for regulatory compliance purposes. No audit samples are required for the following test methods: Methods 3A and 3C of appendix A–3 of part 60, Methods 6C, 7E, 9, and 10 of appendix A–4 of part 60, Methods 18 and 19 of appendix A–6 of part 60, Methods 20, 22, and 25A of appendix A–7 of part 60, and Methods 303, 318, 320, and 321 of appendix A of part 63 of this chapter. If multiple sources at a single facility are tested during a compliance test event, only one audit sample is required for each method used during a compliance test. The compliance authority responsible for the compliance test may waive the requirement to include an audit sample if they believe that an audit sample is not necessary. ''Commercially available'' means that two or more independent AASPs have blind audit samples available for purchase. If the source owner, operator, or representative cannot find an audit sample for a specific method, the owner, operator, or representative shall consult the EPA Web site at the following URL, *http://www.epa.gov/ttn/emc,* to confirm whether there is a source that can supply an audit sample for that method. If the EPA Web site does not list an available audit sample at least 60 days prior to the beginning of the compliance test, the source owner, operator, or representative shall not be required to include an audit sample as part of the quality assurance program for the compliance test. When ordering an audit sample, the source owner, operator, or representative shall give the sample provider an estimate for the concentration of each pollutant that is emitted by the source or the estimated concentration of each pollutant based on the permitted level and the name, address, and phone number of the compliance authority. The source owner, operator, or representative shall report the results for the audit sample along with a summary of the emission test results for the audited pollutant to the compliance authority and shall report the results of the audit sample to the AASP. The source owner, operator, or representative shall make both reports at the same time and in the same manner or shall report to the compliance authority first and report to the AASP. If the method being audited is a method that allows the samples to be analyzed in the field, and the tester plans to analyze the samples in the field, the tester may analyze the audit samples prior to collecting the emission samples provided a representative of the compliance authority is present at the testing site. The tester may request and the compliance authority may grant a waiver to the requirement that a representative of the compliance authority must be present at the testing site during the field analysis of an audit sample. The source owner, operator, or representative may report the results of the audit sample to the compliance authority and then report the results of the audit sample to the AASP prior to collecting any emission samples. The test protocol and final test report shall document whether an audit sample was ordered and utilized and the pass/fail results as applicable.

* * * * *

Method 201A—Determination of PM_{10} and $PM_{2.5}$ Emissions From Stationary Sources (Constant Sampling Rate Procedure)

* * * * *

7.2.1 Acetone. Use acetone that is stored in a glass bottle. Do not use acetone from a metal container because it will likely produce a high residue in the laboratory and field reagent blanks. You must use acetone with blank values less than 1 part per million by weight residue. Analyze acetone blanks prior to field use to confirm low blank values. In no case shall a blank value of greater than 0.0001 percent (1 part per million by weight) of the weight of acetone used in sample recovery be subtracted from the sample weight (*i.e.,* the maximum blank correction is 0.1 mg per 100 g of acetone used to recover samples).

* * * * *

8.3.4 * * *

(b) The appropriate nozzle to maintain the required gas sampling rate for the velocity pressure range and isokinetic range. If the isokinetic range cannot be met (e.g., batch processes, extreme process flow or temperature variation), void the sample or use methods subject to the approval of the Administrator to correct the data. The acceptable variation from isokinetic sampling is 80 to 120 percent and no more than 100 ± 21 percent (2 out of 12 or 5 out of 24) sampling points outside of this criteria.

* * * * *

8.3.4.1 Preliminary traverse. You must use an S-type pitot tube with a conventional thermocouple to conduct the traverse. Conduct the preliminary traverse as close as possible to the anticipated testing time on sources that are subject to hour-by-hour gas flow rate variations of approximately ± 20 percent and/or gas temperature variations of approximately ± 28 °C (± 50 °F). (Note: You should be aware that these variations can cause errors in the cyclone cut diameters and the isokinetic sampling velocities.)

* * * * *

8.7.2.2 Probe blockage factor. You must use Equation 26 to calculate an average probe blockage correction factor (b_f) if the diameter of your stack or duct is between 25.7 and 36.4 inches for the combined $PM_{2.5}/PM_{10}$ sampling head and pitot and between 18.8 and 26.5 inches for the $PM_{2.5}$ cyclone and pitot. A probe blockage factor is calculated because of the flow blockage caused by the relatively large cross-sectional area of the cyclone sampling head, as discussed in Section 8.3.2.2 and illustrated in Figures 8 and 9 of Section 17. You must determine the cross-sectional area of the cyclone head you use and determine its stack blockage factor. (Note: Commercially-available sampling heads (including the PM_{10} cyclone, $PM_{2.5}$ cyclone, pitot and filter holder) have a projected area of approximately 31.2 square inches when oriented into the gas stream.) As the probe is moved from the outermost to the innermost point, the amount of blockage that actually occurs ranges from approximately 13 square inches to the full 31.2 square inches plus the blockage caused by the probe extension. The average cross-sectional area blocked is 22 square inches.

* * * * *

8.7.5.5 * * *

(a) Container #1, Less than or equal to $PM_{2.5}$ micrometer filterable particulate. Use tweezers and/or clean disposable surgical gloves to remove the filter from the filter holder. Place the filter in the Petri dish that you labeled with the test identification and Container #1. Using a dry brush and/or a sharp-edged blade, carefully transfer any PM and/or filter fibers that adhere to the filter holder gasket or filter support screen to the Petri dish. Seal the container. This container holds particles less than or equal to 2.5 micrometers that are caught on the in-stack filter. (Note: If the test is conducted for PM_{10} only, then Container #1 would be for less than or equal to PM_{10} micrometer filterable particulate.)

* * * * *

10.1 Gas Flow Velocities. You must use an S-type pitot tube that meets the required EPA specifications (EPA Publication 600/4–77–0217b) during these velocity measurements. (Note: If, as specified in Section 8.7.2.3, testing is performed in stacks less than 26.5 inches in diameter, testers may use a standard pitot tube according to the requirements in Method 1 or 2 of appendix A–3 to part 60 of this chapter.) You must also complete the following:

* * * * *

11.2.1 Container #1, Less than or Equal to $PM_{2.5}$ Micrometer Filterable Particulate. Transfer the filter and any loose particulate from the sample container to a tared weighing dish or pan that is inert to solvent or mineral acids. Desiccate for 24 hours in a dessicator containing anhydrous calcium sulfate. Weigh to a constant weight and report the results to the nearest 0.1 mg. (See Section 3.0 for a definition of Constant weight.) If constant weight requirements cannot be met, the filter must be treated as described in Section 11.2.1 of Method 202 of appendix M to this part. Note: The nozzle and front half wash and filter collected at or below 30 °C (85 °F) may not be heated and must be maintained at or below 30 °C (85 °F).

* * * * *

12.5 * * *

For N_{re} Less than 3,162:

$$Q_{IV} = 0.0060639 \left[\frac{\mu}{C^{0.4242}}\right] \left[\frac{P_S M_W}{T_s}\right]^{-0.5759} \left[\frac{1}{D_{50}}\right]^{0.8481} \quad \text{(Eq. 8)}$$

For N_{re} greater than or equal to 3,162:

$$Q_{IV} = 0.07657 \left[\frac{\mu}{C^{0.6205}}\right] \left[\frac{P_S M_W}{T_s}\right]^{-0.3795} \left[\frac{1}{D_{50}}\right]^{1.241} \quad \text{(Eq. 9)}$$

* * * * *

Method 202—Dry Impinger Method for Determining Condensable Particulate Emissions From Stationary Sources

* * * * *

7.2.1 Acetone. Use acetone that is stored in a glass bottle. Do not use acetone from a metal container because it normally produces a high residual mass in the laboratory and field reagent blanks. You must use acetone that has a blank value less than 1.0 ppmw (0.1 mg/100 g) residue.

7.2.2 Hexane, American Chemical Society grade. You must use hexane that has a blank residual mass value less than 1.0 ppmw (0.1 mg/100 g) residue.

* * * * *

8.5.1 Impinger and CPM Filter Assembly.

8.5.1.1 Monitor the moisture condensation in the knockout and backup impingers. If the accumulated water from moisture condensation overwhelms the knockout impinger, i.e., the water level is more than approximately one-half the capacity of the knockout impinger, or if water accumulates in the backup impinger sufficient to cover the impinger insert tip, then you may interrupt the sampling run, recover and weigh the moisture accumulated in the knockout and backup impinger, reassemble and leak check the sampling train, and resume the sampling run. You must purge the water collected during the test interruption as soon as practical following the procedures in Section 8.5.3.

8.5.1.2 You must include the weight or volume of the moisture in your moisture calculation and you must combine the recovered water with the appropriate sample fraction for subsequent CPM analysis.

8.5.1.3 Use the field data sheet for the filterable particulate method to record the CPM filter temperature readings at the beginning of each sample time increment and when sampling is halted. Maintain the CPM filter greater than 20 °C (greater than 65 °F) but less than or equal to 30 °C (less than or equal to 85 °F) during sample collection. (Note: Maintain the temperature of the CPM filter assembly as close to 30 °C (85 °F) as feasible.)

* * * * *

8.5.3.1 If you choose to conduct a pressurized nitrogen purge at the completion of CPM sample collection, you may purge the entire CPM sample collection train from the condenser inlet to the CPM filter holder outlet or you may quantitatively transfer the water collected in the condenser and the water dropout impinger to the backup impinger and purge only the backup impinger and the CPM filter. You must measure the water in the knockout and backup impingers and record the volume or weight as part of the moisture collected during sampling as specified in Section 8.5.3.4.

8.5.3.1.1 If you choose to conduct a purge of the entire CPM sampling train, you must replace the short stem impinger insert in the knock out impinger with a standard modified Greenburg Smith impinger insert.

8.5.3.1.2 If you choose to combine the knockout and backup impinger catch prior to purge, you must purge the backup impinger and CPM filter holder.

8.5.3.1.3 If the tip of the impinger insert does not extend below the water level (including the water transferred from the first impinger if this option was chosen), you must add a measured amount of degassed, deionized ultra-filtered water that contains 1 ppmw (1 mg/L) residual mass or less until the impinger tip is at least 1 centimeter below the surface of the water. You must record the amount of water added to the water dropout impinger (Vp)(see Figure 4 of Section 18) to correct the moisture content of the effluent gas. (Note: Prior to use, water must be degassed using a nitrogen purge bubbled through the water for at least 15 minutes to remove dissolved oxygen).

8.5.3.1.4 To perform the nitrogen purge using positive pressure nitrogen flow, you must start with no flow of gas through the clean purge line and fittings. Connect the filter outlet to the input of the impinger train and disconnect the vacuum line from the exit of the silica moisture collection impinger (see Figure 3 of Section 18). You may purge only the CPM train by disconnecting the moisture train components if you measure moisture in the field prior to the nitrogen purge. You must increase the nitrogen flow gradually to avoid over-pressurizing the impinger array. You must purge the CPM train at a minimum of 14 liters per minute for at least one hour. At the conclusion of the purge, turn off the nitrogen delivery system.

* * * * *

11.2.1 Container #3, CPM Filter Sample. If the sample was collected by Method 17 or Method 201A with a stack temperature below 30 °C (85 °F), transfer the filter and any loose PM from the sample container to a tared glass weighing dish. (See Section 3.0 for a definition of constant weight.) Desiccate the sample 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. [Note: In-stack filter samples collected at 30 °C (85 °F) may include both filterable insoluble particulate and condensable particulate. The nozzle and front half wash and filter collected at or below 30 °C (85 °F) may not be heated and must be maintained at or below 30 °C (85 °F).]

11.2.2 CPM Container #1, Aqueous Liquid Impinger Contents. Analyze the water soluble CPM in Container #1 as described in this section. Place the contents of Container #1 into a separatory funnel. Add approximately 30 ml of hexane to the funnel, mix well, and pour off the upper organic phase. Repeat this procedure twice with 30 ml of hexane each time combining the organic phase from each extraction. Each time, leave a small amount of the organic/hexane phase in the separatory funnel, ensuring that no water is collected in the organic phase. This extraction should yield about 90 ml of organic extract. Combine the organic extract from Container #1 with the organic train rinse in Container #2.

* * * * *

18.0 * * *

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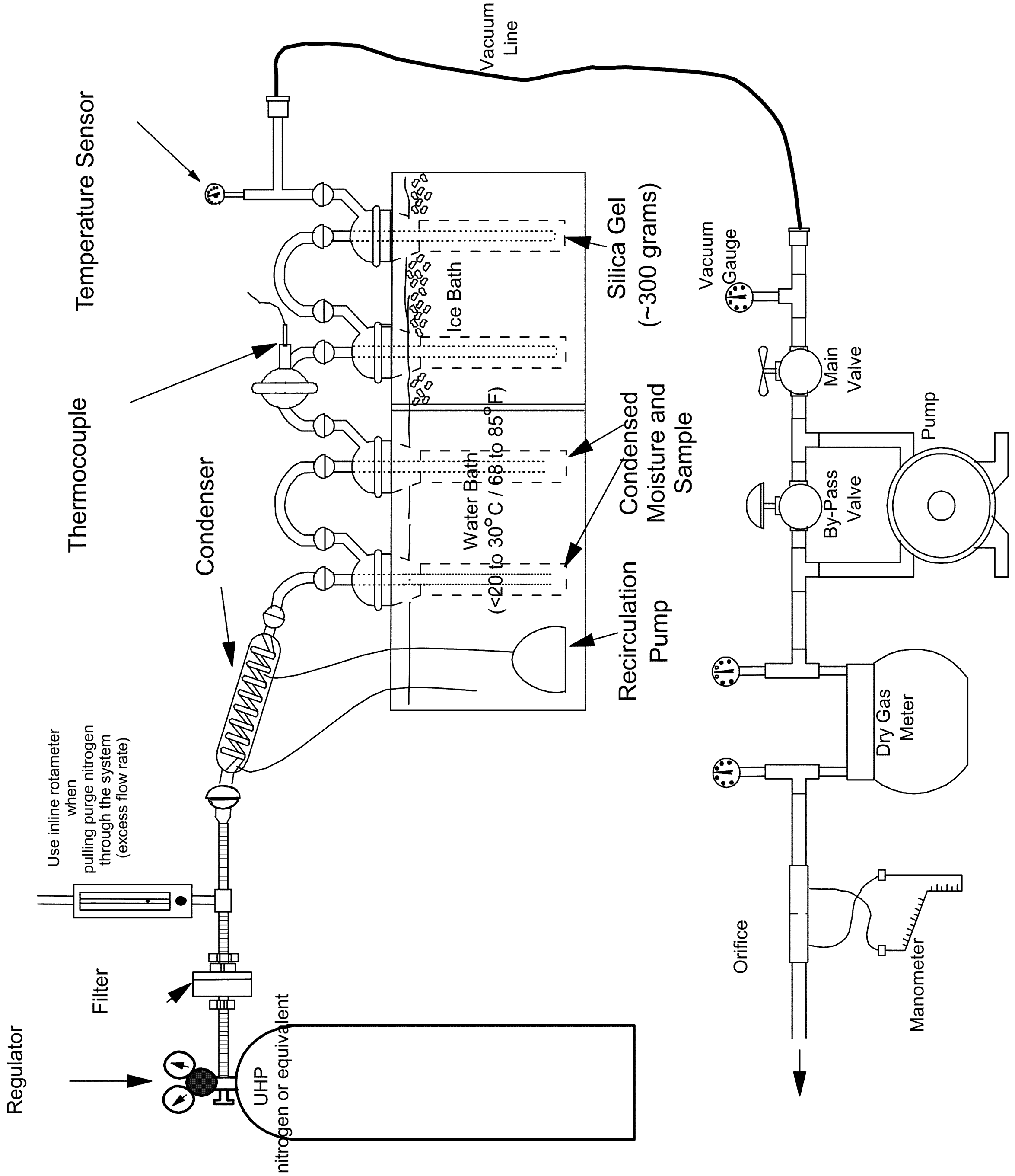


Figure 2. Nitrogen Purge Train Configuration (Vacuum Purge)

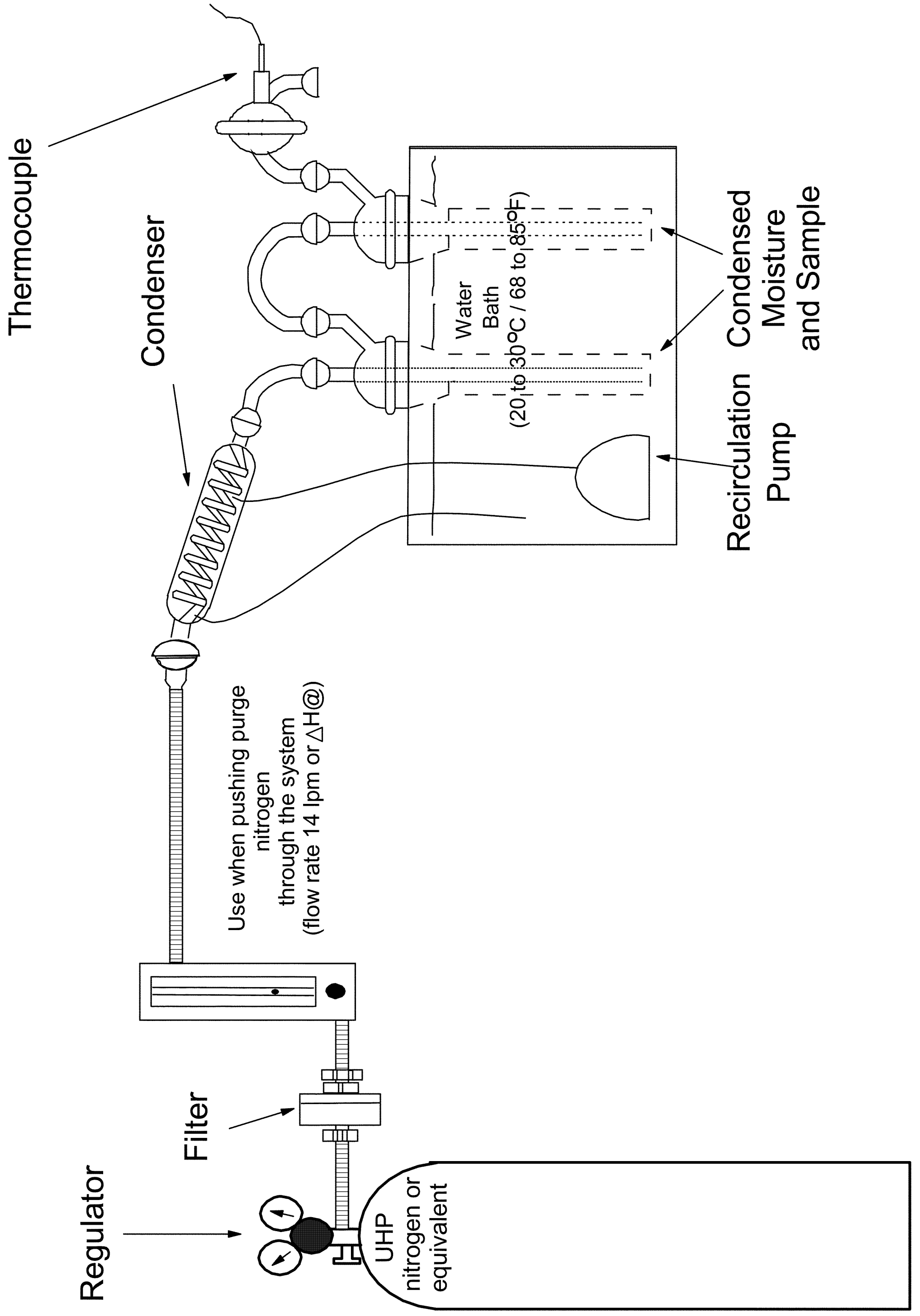


Figure 3. Nitrogen Purge Train Configuration (Pressure Purge)

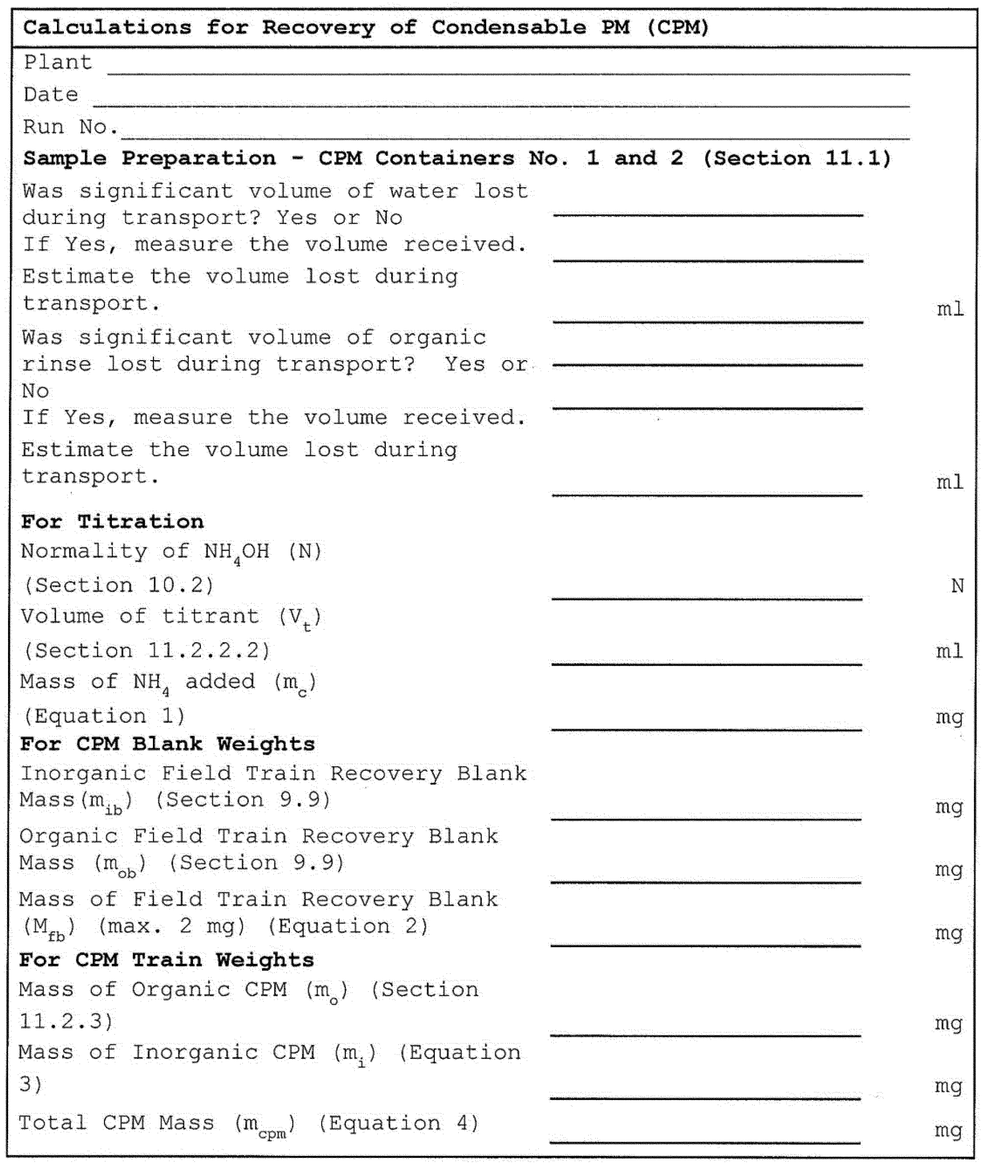
Field Train Recovery Blank Condensable Particulate Calculations	
Plant	
Date	
Blank No.	
CPM Filter No.	
Water volume added to purge train (V_p)	ml
Field Reagent Blank Mass[a]	
Water (Section 11.2.7)	mg
Acetone (Section 11.2.6)	mg
Hexane (Section 11.2.8)	mg
Field Train Recovery Blank Mass	
Mass of Organic CPM (m_{ob}) (Section 11.2.3)	mg
Mass of Inorganic CPM (m_{ib}) (Equation 3)	mg
Mass of the Field Train Recovery Blank (not to exceed 2.0 mg) (Equation 2)	mg

[a] Field reagent blanks are optional and intended to provide the testing contractor with information they can use to implement corrective actions, if necessary, to reduce the residual mass contribution from reagents used in the field. Field reagent blanks are not used to correct the CPM measurement results.

Figure 4. Field Train Recovery Blank Condensable Particulate Calculations

Other Field Train Sample Condensable Particulate Data	
Plant	
Date	
Run No.	
CPM Filter No.	
Water volume added to purge train (max 50 ml) (V_p)	ml
Date	
Run No.	
CPM Filter No.	
Water volume added to purge train (max 50 ml) (V_p)	ml
Date	
Run No.	
CPM Filter No.	
Water volume added to purge train (max 50 ml) (V_p)	ml

Figure 5. Other Field Train Sample Condensable Particulate Data



Calculations for Recovery of Condensable PM (CPM)

Plant ________________

Date ________________

Run No. ________________

Sample Preparation - CPM Containers No. 1 and 2 (Section 11.1)

Was significant volume of water lost during transport? Yes or No ________________

If Yes, measure the volume received. ________________

Estimate the volume lost during transport. ________________ ml

Was significant volume of organic rinse lost during transport? Yes or No ________________

If Yes, measure the volume received. ________________

Estimate the volume lost during transport. ________________ ml

For Titration

Normality of NH_4OH (N) (Section 10.2) ________________ N

Volume of titrant (V_t) (Section 11.2.2.2) ________________ ml

Mass of NH_4 added (m_c) (Equation 1) ________________ mg

For CPM Blank Weights

Inorganic Field Train Recovery Blank Mass(m_{ib}) (Section 9.9) ________________ mg

Organic Field Train Recovery Blank Mass (m_{ob}) (Section 9.9) ________________ mg

Mass of Field Train Recovery Blank (M_{fb}) (max. 2 mg) (Equation 2) ________________ mg

For CPM Train Weights

Mass of Organic CPM (m_o) (Section 11.2.3) ________________ mg

Mass of Inorganic CPM (m_i) (Equation 3) ________________ mg

Total CPM Mass (m_{cpm}) (Equation 4) ________________ mg

Figure 6. CPM Work Table

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* * * * *

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

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

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

Subpart A—[Amended]

■ 4. Amend § 60.8 by revising paragraph (g)(1) and adding new paragraphs (h) and (i) to read as follows:

§ 60.8 Performance tests.

* * * * *

(g) * * *

(1) The source owner, operator, or representative of the tested facility shall obtain an audit sample, if commercially available, from an AASP for each test method used for regulatory compliance purposes. No audit samples are required for the following test methods: Methods 3A and 3C of appendix A–3 of part 60, Methods 6C, 7E, 9, and 10 of appendix A–4 of part 60, Methods 18 and 19 of appendix A–6 of part 60, Methods 20, 22, and 25A of appendix A–7 of part 60, Methods 30A and 30B of appendix A–8 of part 60, and Methods 303, 318, 320, and 321 of appendix A of part 63 of this chapter. If multiple sources at a single facility are tested during a compliance test event, only one audit sample is required for each method used during a compliance test. The compliance authority responsible for the compliance test may waive the requirement to include an audit sample if they believe that an audit sample is not necessary. ''Commercially available'' means that two or more independent AASPs have blind audit samples available for purchase. If the source owner, operator, or representative cannot find an audit sample for a specific method, the owner, operator, or representative shall consult the EPA Web site at the following URL, *www.epa.gov/ttn/emc,* to confirm whether there is a source that can supply an audit sample for that method. If the EPA Web site does not list an available audit sample at least 60 days prior to the beginning of the compliance test, the source owner, operator, or representative shall not be required to

include an audit sample as part of the quality assurance program for the compliance test. When ordering an audit sample, the source owner, operator, or representative shall give the sample provider an estimate for the concentration of each pollutant that is emitted by the source or the estimated concentration of each pollutant based on the permitted level and the name, address, and phone number of the compliance authority. The source owner, operator, or representative shall report the results for the audit sample along with a summary of the emission test results for the audited pollutant to the compliance authority and shall report the results of the audit sample to the AASP. The source owner, operator, or representative shall make both reports at the same time and in the same manner or shall report to the compliance authority first and then report to the AASP. If the method being audited is a method that allows the samples to be analyzed in the field and the tester plans to analyze the samples in the field, the tester may analyze the audit samples prior to collecting the emission samples provided a representative of the compliance authority is present at the testing site. The tester may request and the compliance authority may grant a waiver to the requirement that a representative of the compliance authority must be present at the testing site during the field analysis of an audit sample. The source owner, operator, or representative may report the results of the audit sample to the compliance authority and report the results of the audit sample to the AASP prior to collecting any emission samples. The test protocol and final test report shall document whether an audit sample was ordered and utilized and the pass/fail results as applicable.

* * * * *

(h) Unless otherwise specified in the applicable subpart, each test location must be verified to be free of cyclonic flow and evaluated for the existence of emission gas stratification and the required number of sampling traverse points. If other procedures are not specified in the applicable subpart to the regulations, use the appropriate procedures in Method 1 to check for cyclonic flow and Method 7E to evaluate emission gas stratification and selection of sampling points.

(i) Whenever the use of multiple calibration gases is required by a test method, performance specification, or quality assurance procedure in a part 60 standard or appendix, Method 205 of 40 CFR part 51, appendix M of this chapter, ''Verification of Gas Dilution Systems for Field Instrument Calibrations,'' may be used.

■ 5. Amend § 60.13 by revising paragraph (d)(1) to read as follows:

§ 60.13 Monitoring requirements.

* * * * *

(d)(1) Owners and operators of a CEMS installed in accordance with the provisions of this part, must check the zero (or low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once each operating day in accordance with a written procedure. The zero and span must, at a minimum, be adjusted whenever either the 24-hour zero drift or the 24-hour span drift exceeds two times the limit of the applicable performance specification in appendix B of this part. The system must allow the amount of the excess zero and span drift to be recorded and quantified whenever specified. Owners and operators of a COMS installed in accordance with the provisions of this part must check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is defined in the applicable version of PS–1 in appendix B of this part. For a COMS, the optical surfaces, exposed to the effluent gases, must be cleaned before performing the zero and upscale drift adjustments, except for systems using automatic zero adjustments. The optical surfaces must be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity.

* * * * *

■ 6. Revise § 60.17 to read as follows:

§ 60.17 Incorporations by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the EPA must publish notice of change in the **Federal Register** and the material must be available to the public. All approved material is available for inspection at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M St. SW., Washington, DC, telephone number 202–566, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741–6030 or go to *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(b) American Gas Association, available through ILI Infodisk, 610 Winters Avenue, Paramus, New Jersey 07652:

(1) American Gas Association Report No. 3: Orifice Metering for Natural Gas and Other Related Hydrocarbon Fluids, Part 1: General Equations and Uncertainty Guidelines (1990), IBR approved for § 60.107a(d).

(2) American Gas Association Report No. 3: Orifice Metering for Natural Gas and Other Related Hydrocarbon Fluids, Part 2: Specification and Installation Requirements (2000), IBR approved for § 60.107a(d).

(3) American Gas Association Report No. 11: Measurement of Natural Gas by Coriolis Meter (2003), IBR approved for § 60.107a(d).

(4) American Gas Association Transmission Measurement Committee Report No. 7: Measurement of Gas by Turbine Meters (Revised February 2006), IBR approved for § 60.107a(d).

(c) American Hospital Association (AHA) Service, Inc., Post Office Box 92683, Chicago, Illinois 60675–2683. You may inspect a copy at the EPA's Air and Radiation Docket and Information Center (Docket A–91–61, Item IV–J–124), Room M–1500, 1200 Pennsylvania Ave. NW., Washington, DC 20460.

(1) An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities. American Society for Health Care Environmental Services of the American Hospital Association. Chicago, Illinois. 1993. AHA Catalog No. 057007. ISBN 0–87258–673–5. IBR approved for §§ 60.35e and 60.55c.

(2) [Reserved]

(d) American Petroleum Institute (API), 1220 L Street NW., Washington, DC 20005.

(1) API Publication 2517, Evaporation Loss from External Floating Roof Tanks, Second Edition, February 1980, IBR approved for §§ 60.111(i), 60.111a(f), and 60.116b(e).

(2) API Manual of Petroleum Measurement Standards, Chapter 22—Testing Protocol, Section 2—Differential Pressure Flow Measurement Devices, First Edition, August 2005, IBR approved for § 60.107a(d).

(e) American Public Health Association, 1015 18th Street NW., Washington, DC 20036.

(1) ''Standard Methods for the Examination of Water and Wastewater,'' 16th edition, 1985. Method 303F: ''Determination of Mercury by the Cold Vapor Technique.'' Incorporated by reference for appendix A–8 to part 60, Method 29, §§ 9.2.3, 10.3, and 11.1.3.

(2) 2540 G. Total, Fixed, and Volatile Solids in Solid and Semisolid Samples, in Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, IBR approved for § 60.154(b).

(f) American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990, Telephone (800) 843–2763, *http://www.asme.org.*

(1) ASME Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th Edition (1971), IBR approved for §§ 60.58a(h), 60.58b(i), 60.1320(a), and 60.1810(a).

(2) ASME MFC–3M–2004, Measurement of Fluid Flow in Pipes Using Orifice, Nozzle, and Venturi, IBR approved for § 60.107a(d).

(3) ASME/ANSI MFC–4M–1986 (Reaffirmed 2008), Measurement of Gas Flow by Turbine Meters, IBR approved for § 60.107a(d).

(4) ASME/ANSI MFC–5M–1985 (Reaffirmed 2006), Measurement of Liquid Flow in Closed Conduits Using Transit-Time Ultrasonic Flowmeters, IBR approved for § 60.107a(d).

(5) ASME MFC–6M–1998 (Reaffirmed 2005), Measurement of Fluid Flow in Pipes Using Vortex Flowmeters, IBR approved for § 60.107a(d).

(6) ASME/ANSI MFC–7M–1987 (Reaffirmed 2006), Measurement of Gas Flow by Means of Critical Flow Venturi Nozzles, IBR approved for § 60.107a(d).

(7) ASME/ANSI MFC–9M–1988 (Reaffirmed 2006), Measurement of Liquid Flow in Closed Conduits by Weighing Method, IBR approved for § 60.107a(d).

(8) ASME MFC–11M–2006, Measurement of Fluid Flow by Means of Coriolis Mass Flowmeters, IBR approved for § 60.107a(d).

(9) ASME MFC–14M–2003, Measurement of Fluid Flow Using Small Bore Precision Orifice Meters, IBR approved for § 60.107a(d).

(10) ASME MFC–16–2007, Measurement of Liquid Flow in Closed Conduits with Electromagnetic Flowmeters, IBR approved for § 60.107a(d).

(11) ASME MFC–18M–2001, Measurement of Fluid Flow Using Variable Area Meters, IBR approved for § 60.107a(d).

(12) ASME MFC–22–2007, Measurement of Liquid by Turbine Flowmeters, IBR approved for § 60.107a(d).

(13) ASME PTC 4.1–1964 (Reaffirmed 1991), Power Test Codes: Test Code for Steam Generating Units (with 1968 and 1969 Addenda), IBR approved for §§ 60.46b, 60.58a(h), 60.58b(i), 60.1320(a), and 60.1810(a).

(14) ASME/ANSI PTC 19.10–1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], (Issued August 31, 1981), IBR approved for §§ 60.56c(b), 60.63(f), 60.106(e), 60.104a(d), (h), (i), and (j), 60.105a(d), (f), and (g), § 60.106a(a), § 60.107a(a), (c), and (d), tables 1 and 3 to subpart EEEE, tables 2 and 4 to subpart FFFF, table 2 to subpart JJJJ, §§ 60.4415(a), 60.2145(s) and (t), 60.2710(s), (t), and (w), 60.2730(q), 60.4900(b), 60.5220(b), tables 1 and 2 to subpart LLLL, tables 2 and 3 to subpart MMMM, §§ 60.5406(c) and 60.5413(b).

(15) ASME QRO–1–1994, Standard for the Qualification and Certification of Resource Recovery Facility Operators, IBR approved for §§ 60.54b(a) and (b), 60.56a, 60.1185(a) and (c), and 60.1675(a) and (c).

(g) American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428–2959; also available through ProQuest, 300 North Zeeb Road, Ann Arbor, MI 48106.

(1) ASTM A99–76, Standard Specification for Ferromanganese, IBR approved for § 60.261.

(2) ASTM A99–82 (Reapproved 1987), Standard Specification for Ferromanganese, IBR approved for § 60.261.

(3) ASTM A100–69, Standard Specification for Ferrosilicon, IBR approved for § 60.261.

(4) ASTM A100–74, Standard Specification for Ferrosilicon, IBR approved for § 60.261.

(5) ASTM A100–93, Standard Specification for Ferrosilicon, IBR approved for § 60.261.

(6) ASTM A101–73, Standard Specification for Ferrochromium, IBR approved for § 60.261.

(7) ASTM A101–93, Standard Specification for Ferrochromium, IBR approved for § 60.261.

(8) ASTM A482–76, Standard Specification for Ferrochromesilicon, IBR approved for § 60.261.

(9) ASTM A482–93, Standard Specification for Ferrochromesilicon, IBR approved for § 60.261.

(10) ASTM A483–64, Standard Specification for Silicomanganese, IBR approved for § 60.261.

(11) ASTM A483–74 (Reapproved 1988), Standard Specification for Silicomanganese, IBR approved for § 60.261.

(12) ASTM A495–76, Standard Specification for Calcium-Silicon and Calcium Manganese-Silicon, IBR approved for § 60.261.

(13) ASTM A495–94, Standard Specification for Calcium-Silicon and Calcium Manganese-Silicon, IBR approved for § 60.261.

(14) ASTM D86–78, Distillation of Petroleum Products, IBR approved for §§ 60.562–2(d), 60.593(d), 60.593a(d), 60.633(h).

(15) ASTM D86–82, Distillation of Petroleum Products, IBR approved for §§ 60.562–2(d), 60.593(d), 60.593a(d), 60.633(h).

(16) ASTM D86–90, Distillation of Petroleum Products, IBR approved for §§ 60.562–2(d), 60.593(d), 60.593a(d), 60.633(h).

(17) ASTM D86–93, Distillation of Petroleum Products, IBR approved for §§ 60.562–2(d), 60.593(d), 60.593a(d), 60.633(h).

(18) ASTM D86–95, Distillation of Petroleum Products, IBR approved for §§ 60.562–2(d), 60.593(d), 60.593a(d), 60.633(h).

(19) ASTM D86–96, Distillation of Petroleum Products, (Approved April 10, 1996), IBR approved for §§ 60.562–2(d), 60.593(d), 60.593a(d), 60.633(h), and 60.5401(f).

(20) ASTM D129–64, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for §§ 60.106(j) and appendix A–7 to part 60: Method 19, Section 12.5.2.2.3.

(21) ASTM D129–78, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for §§ 60.106(j) and appendix A–7 to part 60: Method 19, Section 12.5.2.2.3.

(22) ASTM D129–95, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for §§ 60.106(j) and appendix A–7 to part 60: Method 19, Section 12.5.2.2.3.

(23) ASTM D129–00, Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for § 60.335(b).

(24) ASTM D129–00 (Reapproved 2005), Standard Test Method for Sulfur in Petroleum Products (General Bomb Method), IBR approved for § 60.4415(a).

(25) ASTM D240–76, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, IBR approved for §§ 60.46(c), 60.296(b), and appendix A–7 to part 60: Method 19, Section 12.5.2.2.3.

(26) ASTM D240–92, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, IBR approved for §§ 60.46(c), 60.296(b), and appendix A–7: Method 19, Section 12.5.2.2.3.

(27) ASTM D240–02 (Reapproved 2007), Standard Test Method for Heat of Combustion of Liquid Hydrocarbon

Fuels by Bomb Calorimeter, (Approved May 1, 2007), IBR approved for § 60.107a(d).

(28) ASTM D270–65, Standard Method of Sampling Petroleum and Petroleum Products, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.2.1.

(29) ASTM D270–75, Standard Method of Sampling Petroleum and Petroleum Products, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.2.1.

(30) ASTM D323–82, Test Method for Vapor Pressure of Petroleum Products (Reid Method), IBR approved for §§ 60.111(l), 60.111a(g), 60.111b, and 60.116b(f).

(31) ASTM D323–94, Test Method for Vapor Pressure of Petroleum Products (Reid Method), IBR approved for §§ 60.111(l), 60.111a(g), 60.111b, and 60.116b(f).

(32) ASTM D388–77, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(33) ASTM D388–90, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(34) ASTM D388–91, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(35) ASTM D388–95, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(36) ASTM D388–98a, Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(37) ASTM D388–99 (Reapproved 2004) ε,^{1} Standard Specification for Classification of Coals by Rank, IBR approved for §§ 60.41, 60.45(f), 60.41Da, 60.41b, 60.41c, and 60.251.

(38) ASTM D396–78, Standard Specification for Fuel Oils, IBR approved for §§ 60.41b, 60.41c, 60.111(b), and 60.111a(b).

(39) ASTM D396–89, Standard Specification for Fuel Oils, IBR approved for §§ 60.41b, 60.41c, 60.111(b), and 60.111a(b).

(40) ASTM D396–90, Standard Specification for Fuel Oils, IBR approved for §§ 60.41b, 60.41c, 60.111(b), and 60.111a(b).

(41) ASTM D396–92, Standard Specification for Fuel Oils, IBR approved for §§ 60.41b, 60.41c, 60.111(b), and 60.111a(b).

(42) ASTM D396–98, Standard Specification for Fuel Oils, IBR approved for §§ 60.41b, 60.41c, 60.111(b), and 60.111a(b).

(43) ASTM D975–78, Standard Specification for Diesel Fuel Oils, IBR approved for §§ 60.111(b) and 60.111a(b).

(44) ASTM D975–96, Standard Specification for Diesel Fuel Oils, IBR approved for §§ 60.111(b) and 60.111a(b).

(45) ASTM D975–98a, Standard Specification for Diesel Fuel Oils, IBR approved for §§ 60.111(b) and 60.111a(b).

(46) ASTM D975–08a, Standard Specification for Diesel Fuel Oils, IBR approved for §§ 60.41b and 60.41c.

(47) ASTM D1072–80, Standard Test Method for Total Sulfur in Fuel Gases, IBR approved for § 60.335(b).

(48) ASTM D1072–90 (Reapproved 1994), Standard Test Method for Total Sulfur in Fuel Gases, IBR approved for § 60.335(b).

(49) ASTM D1072–90 (Reapproved 1999), Standard Test Method for Total Sulfur in Fuel Gases, IBR approved for § 60.4415(a).

(50) ASTM D1137–53, Standard Method for Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer, IBR approved for § 60.45(f).

(51) ASTM D1137–75, Standard Method for Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer, IBR approved for § 60.45(f).

(52) ASTM D1193–77, Standard Specification for Reagent Water, IBR approved for appendix A–3 to part 60: Method 5, Section 7.1.3; Method 5E, Section 7.2.1; Method 5F, Section 7.2.1; appendix A–4 to part 60: Method 6, Section 7.1.1; Method 7, Section 7.1.1; Method 7C, Section 7.1.1; Method 7D, Section 7.1.1; Method 10A, Section 7.1.1; appendix A–5 to part 60: Method 11, Section 7.1.3; Method 12, Section 7.1.3; Method 13A, Section 7.1.2; appendix A–8 to part 60: Method 26, Section 7.1.2; Method 26A, Section 7.1.2; and Method 29, Section 7.2.2.

(53) ASTM D1193–91, Standard Specification for Reagent Water, IBR approved for appendix A–3 to part 60: Method 5, Section 7.1.3; Method 5E, Section 7.2.1; Method 5F, Section 7.2.1; appendix A–4 to part 60: Method 6, Section 7.1.1; Method 7, Section 7.1.1; Method 7C, Section 7.1.1; Method 7D, Section 7.1.1; Method 10A, Section 7.1.1; appendix A–5 to part 60: Method 11, Section 7.1.3; Method 12, Section 7.1.3; Method 13A, Section 7.1.2; appendix A–8 to part 60: Method 26, Section 7.1.2; Method 26A, Section 7.1.2; and Method 29, Section 7.2.2.

(54) ASTM D1266–87, Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for §§ 60.106(j) and 60.335(b).

(55) ASTM D1266–91, Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for §§ 60.106(j) and 60.335(b).

(56) ASTM D1266–98, Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for §§ 60.106(j) and 60.335(b).

(57) ASTM D1266–98 (Reapproved 2003) ε,^{1} Standard Test Method for Sulfur in Petroleum Products (Lamp Method), IBR approved for § 60.4415(a).

(58) ASTM D1475–60 (Reapproved 1980), Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products, IBR approved for § 60.435(d), appendix A–8 to part 60: Method 24, Section 6.1; and Method 24A, Sections 6.5 and 7.1.

(59) ASTM D1475–90, Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products, IBR approved for § 60.435(d), appendix A–8 to part 60: Method 24, Section 6.1; and Method 24A, §§ 6.5 and 7.1.

(60) ASTM D1552–83, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for §§ 60.106(j), 60.335(b), and appendix A–7 to part 60: Method 19, Section 12.5.2.2.3.

(61) ASTM D1552–95, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for §§ 60.106(j), 60.335(b), and appendix A–7 to part 60: Method 19, Section 12.5.2.2.3.

(62) ASTM D1552–01, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for §§ 60.106(j), 60.335(b), and appendix A–7 to part 60: Method 19, Section 12.5.2.2.3.

(63) ASTM D1552–03, Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method), IBR approved for § 60.4415(a).

(64) ASTM D1826–77, Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter, IBR approved for §§ 60.45(f), 60.46(c), 60.296(b), and appendix A–7 to part 60: Method 19, Section 12.3.2.4.

(65) ASTM D1826–94, Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter, IBR approved for §§ 60.45(f), 60.46(c), 60.296(b), and appendix A–7 to part 60: Method 19, Section 12.3.2.4.

(66) ASTM D1826–94 (Reapproved 2003), Standard Test Method for

Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter, (Approved May 10, 2003), IBR approved for § 60.107a(d).

(67) ASTM D1835–87, Standard Specification for Liquefied Petroleum (LP) Gases, IBR approved for §§ 60.41Da, 60.41b, and 60.41c.

(68) ASTM D1835–91, Standard Specification for Liquefied Petroleum (LP) Gases, IBR approved for §§ 60.41Da, 60.41b, and 60.41c.

(69) ASTM D1835–97, Standard Specification for Liquefied Petroleum (LP) Gases, IBR approved for §§ 60.41Da, 60.41b, and 60.41c.

(70) ASTM D1835–03a, Standard Specification for Liquefied Petroleum (LP) Gases, IBR approved for §§ 60.41Da, 60.41b, and 60.41c.

(71) ASTM D1945–64, Standard Method for Analysis of Natural Gas by Gas Chromatography, IBR approved for § 60.45(f).

(72) ASTM D1945–76, Standard Method for Analysis of Natural Gas by Gas Chromatography, IBR approved for § 60.45(f).

(73) ASTM D1945–91, Standard Method for Analysis of Natural Gas by Gas Chromatography, IBR approved for § 60.45(f).

(74) ASTM D1945–96, Standard Method for Analysis of Natural Gas by Gas Chromatography, IBR approved for § 60.45(f).

(75) ASTM D1945–03 (Reapproved 2010), Standard Method for Analysis of Natural Gas by Gas Chromatography, (Approved January 1, 2010), IBR approved for §§ 60.107a(d) and 60.5413(d).

(76) ASTM D1946–77, Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §§ 60.18(f), 60.45(f), 60.564(f), 60.614(e), 60.664(e), and 60.704(d).

(77) ASTM D1946–90 (Reapproved 1994), Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §§ 60.18(f), 60.45(f), 60.564(f), 60.614(e), 60.664(e), and 60.704(d).

(78) ASTM D1946–90 (Reapproved 2006), Standard Method for Analysis of Reformed Gas by Gas Chromatography, (Approved June 1, 2006), IBR approved for § 60.107a(d).

(79) ASTM D2013–72, Standard Method of Preparing Coal Samples for Analysis, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(80) ASTM D2013–86, Standard Method of Preparing Coal Samples for Analysis, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(81) ASTM D2015–77 (Reapproved 1978), Standard Test Method for Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter, IBR approved for §§ 60.45(f), 60.46(c), and appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(82) ASTM D2015–96, Standard Test Method for Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter, IBR approved for §§ 60.45(f), 60.46(c), and appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(83) ASTM D2016–74, Standard Test Methods for Moisture Content of Wood, IBR approved for appendix A–8 to part 60: Method 28, Section 16.1.1.

(84) ASTM D2016–83, Standard Test Methods for Moisture Content of Wood, IBR approved for appendix A–8 to part 60: Method 28, Section 16.1.1.

(85) ASTM D2234–76, Standard Methods for Collection of a Gross Sample of Coal, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.1.

(86) ASTM D2234–96, Standard Methods for Collection of a Gross Sample of Coal, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.1.

(87) ASTM D2234–97b, Standard Methods for Collection of a Gross Sample of Coal, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.1.

(88) ASTM D2234–98, Standard Methods for Collection of a Gross Sample of Coal, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.1.

(89) ASTM D2369–81, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A–8 to part 60: Method 24, Section 6.2.

(90) ASTM D2369–87, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A–8 to part 60: Method 24, Section 6.2.

(91) ASTM D2369–90, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A–8 to part 60: Method 24, Section 6.2.

(92) ASTM D2369–92, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A–8 to part 60: Method 24, Section 6.2.

(93) ASTM D2369–93, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A–8 to part 60: Method 24, Section 6.2.

(94) ASTM D2369–95, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A–8 to part 60: Method 24, Section 6.2.

(95) ASTM D2382–76, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §§ 60.18(f), 60.485(g), 60.485a(g), 60.564(f), 60.614(e), 60.664(e), and 60.704(d).

(96) ASTM D2382–88, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §§ 60.18(f), 60.485(g), 60.485a(g), 60.564(f), 60.614(e), 60.664(e), and 60.704(d).

(97) ASTM D2504–67, Noncondensable Gases in C3 and Lighter Hydrocarbon Products by Gas Chromatography, IBR approved for §§ 60.485(g) and 60.485a(g).

(98) ASTM D2504–77, Noncondensable Gases in C3 and Lighter Hydrocarbon Products by Gas Chromatography, IBR approved for §§ 60.485(g) and 60.485a(g).

(99) ASTM D2504–88 (Reapproved 1993), Noncondensable Gases in C3 and Lighter Hydrocarbon Products by Gas Chromatography, IBR approved for §§ 60.485(g) and 60.485a(g).

(100) ASTM D2584–68(Reapproved 1985), Standard Test Method for Ignition Loss of Cured Reinforced Resins, IBR approved for § 60.685(c).

(101) ASTM D2584–94, Standard Test Method for Ignition Loss of Cured Reinforced Resins, IBR approved for § 60.685(c).

(102) ASTM D2597–94 (Reapproved 1999), Standard Test Method for Analysis of Demethanized Hydrocarbon Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography, IBR approved for § 60.335(b).

(103) ASTM D2622–87, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §§ 60.106(j) and 60.335(b).

(104) ASTM D2622–94, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §§ 60.106(j) and 60.335(b).

(105) ASTM D2622–98, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for §§ 60.106(j) and 60.335(b).

(106) ASTM D2622–05, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry, IBR approved for § 60.4415(a).

(107) ASTM D2879–83Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, IBR approved for §§ 60.111b(f)(3), 60.116b(e), 60.116b(f), 60.485(e), and 60.485a(e).

(108) ASTM D2879–96, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition

Temperature of Liquids by Isoteniscope, IBR approved for §§ 60.111b(f)(3), 60.116b(e), 60.116b(f), 60.485(e), and 60.485a(e).

(109) ASTM D2879–97, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, IBR approved for §§ 60.111b(f)(3), 60.116b(e), 60.116b(f), 60.485(e), and 60.485a(e).

(110) ASTM D2880–78, Standard Specification for Gas Turbine Fuel Oils, IBR approved for §§ 60.111(b), 60.111a(b), and 60.335(d).

(111) ASTM D2880–96, Standard Specification for Gas Turbine Fuel Oils, IBR approved for §§ 60.111(b), 60.111a(b), and 60.335(d).

(112) ASTM D2908–74, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, IBR approved for § 60.564(j).

(113) ASTM D2908–91, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, IBR approved for § 60.564(j).

(114) ASTM D2986–71, Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test, IBR approved for appendix A–3 to part 60: Method 5, Section 7.1.1; appendix A–5 to part 60: Method 12, Section 7.1.1; and Method 13A, Section 7.1.1.2.

(115) ASTM D2986–78, Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test, IBR approved for appendix A–3 to part 60: Method 5, Section 7.1.1; appendix A–5 to part 60: Method 12, Section 7.1.1; and Method 13A, Section 7.1.1.2.

(116) ASTM D2986–95a, Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test, IBR approved for appendix A–3 to part 60: Method 5, Section 7.1.1; appendix A–5 to part 60: Method 12, Section 7.1.1; and Method 13A, Section 7.1.1.2.

(117) ASTM D3173–73, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(118) ASTM D3173–87, Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(119) ASTM D3176–74, Standard Method for Ultimate Analysis of Coal and Coke, IBR approved for § 60.45(f)(5)(i) and appendix A–7 to part 60: Method 19, Section 12.3.2.3.

(120) ASTM D3176–89, Standard Method for Ultimate Analysis of Coal and Coke, IBR approved for § 60.45(f)(5)(i) and appendix A–7 to part 60: Method 19, Section 12.3.2.3.

(121) ASTM D3177–75, Standard Test Method for Total Sulfur in the Analysis Sample of Coal and Coke, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(122) ASTM D3177–89, Standard Test Method for Total Sulfur in the Analysis Sample of Coal and Coke, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(123) ASTM D3178–73 (Reapproved 1979), Standard Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke, IBR approved for § 60.45(f).

(124) ASTM D3178–89, Standard Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke, IBR approved for § 60.45(f).

(125) ASTM D3246–81, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry, IBR approved for § 60.335(b).

(126) ASTM D3246–92, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry, IBR approved for § 60.335(b).

(127) ASTM D3246–96, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry, IBR approved for § 60.335(b).

(128) ASTM D3246–05, Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry, IBR approved for § 60.4415(a)(1).

(129) ASTM D3270–73T, Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method), IBR approved for appendix A–5 to part 60: Method 13A, Section 16.1.

(130) ASTM D3270–80, Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method), IBR approved for appendix A–5 to part 60: Method 13A, Section 16.1.

(131) ASTM D3270–91, Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method), IBR approved for appendix A–5 to part 60: Method 13A, Section 16.1.

(132) ASTM D3270–95, Standard Test Methods for Analysis for Fluoride Content of the Atmosphere and Plant Tissues (Semiautomated Method), IBR approved for appendix A–5 to part 60: Method 13A, Section 16.1.

(133) ASTM D3286–85, Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(134) ASTM D3286–96, Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(135) ASTM D3370–76, Standard Practices for Sampling Water, IBR approved for § 60.564(j).

(136) ASTM D3370–95a, Standard Practices for Sampling Water, IBR approved for § 60.564(j).

(137) ASTM D3588–98 (Reapproved 2003), Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels, (Approved May 10, 2003), IBR approved for §§ 60.107a(d) and 60.5413(d).

(138) ASTM D3699–08, Standard Specification for Kerosine, including Appendix X1, (Approved September 1, 2008), IBR approved for §§ 60.41b and 60.41c.

(139) ASTM D3792–79, Standard Test Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, IBR approved for appendix A–7 to part 60: Method 24, Section 6.3.

(140) ASTM D3792–91, Standard Test Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, IBR approved for appendix A–7 to part 60: Method 24, Section 6.3.

(141) ASTM D4017–81, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A–7 to part 60: Method 24, Section 6.4.

(142) ASTM D4017–90, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A–7 to part 60: Method 24, Section 6.4.

(143) ASTM D4017–96a, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A–7 to part 60: Method 24, Section 6.4.

(144) ASTM D4057–81, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.2.3.

(145) ASTM D4057–95, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.2.3.

(146) ASTM D4057–95 (Reapproved 2000), Standard Practice for Manual Sampling of Petroleum and Petroleum Products, IBR approved for § 60.4415(a).

(147) ASTM D4084–82, Standard Test Method for Analysis of Hydrogen

Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), IBR approved for § 60.334(h).

(148) ASTM D4084–94, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), IBR approved for § 60.334(h).

(149) ASTM D4084–05, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), IBR approved for §§ 60.4360 and 60.4415(a).

(150) ASTM D4177–95, Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.2.1.

(151) ASTM D4177–95 (Reapproved 2000), Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, IBR approved for § 60.4415(a).

(152) ASTM D4239–85, Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(153) ASTM D4239–94, Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(154) ASTM D4239–97, Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods, IBR approved for appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(155) ASTM D4294–02, Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry, IBR approved for § 60.335(b).

(156) ASTM D4294–03, Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry, IBR approved for § 60.4415(a).

(157) ASTM D4442–84, Standard Test Methods for Direct Moisture Content Measurement in Wood and Wood-base Materials, IBR approved for appendix A–8 to part 60: Method 28, Section 16.1.1.

(158) ASTM D4442–92, Standard Test Methods for Direct Moisture Content Measurement in Wood and Wood-base Materials, IBR approved for appendix A–8 to part 60: Method 28, Section 16.1.1.

(159) ASTM D4444–92, Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters, IBR approved for appendix A–8 to part 60: Method 28, Section 16.1.1.

(160) ASTM D4457–85 (Reapproved 1991), Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph, IBR approved for appendix A–7 to part 60: Method 24, Section 6.5.

(161) ASTM D4468–85 (Reapproved 2000), Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry, IBR approved for §§ 60.335(b) and 60.4415(a).

(162) ASTM D4468–85 (Reapproved 2006), Standard Test Method for Total Sulfur in Gaseous Fuels by Hydrogenolysis and Rateometric Colorimetry, (Approved June 1, 2006), IBR approved for § 60.107a(e).

(163) ASTM D4629–02, Standard Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection, IBR approved for §§ 60.49b(e) and 60.335(b).

(164) ASTM D4809–95, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), IBR approved for §§ 60.18(f), 60.485(g), 60.485a(g), 60.564(f), 60.614(d), 60.664(e), and 60.704(d).

(165) ASTM D4809–06, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), (Approved December 1, 2006), IBR approved for § 60.107a(d).

(166) ASTM D4810–88 (Reapproved 1999), Standard Test Method for Hydrogen Sulfide in Natural Gas Using Length of Stain Detector Tubes, IBR approved for §§ 60.4360 and 60.4415(a).

(167) ASTM D4891–89 (Reapproved 2006) Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion, (Approved June 1, 2006), IBR approved for §§ 60.107a(d) and 60.5413(d).

(168) ASTM D5287–97 (Reapproved 2002), Standard Practice for Automatic Sampling of Gaseous Fuels, IBR approved for § 60.4415(a).

(169) ASTM D5403–93, Standard Test Methods for Volatile Content of Radiation Curable Materials, IBR approved for appendix A–7 to part 60: Method 24, Section 6.6.

(170) ASTM D5453–00, Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence, IBR approved for § 60.335(b).

(171) ASTM D5453–05, Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence, IBR approved for § 60.4415(a).

(172) ASTM D5504–01, Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence, IBR approved for §§ 60.334(h) and 60.4360.

(173) ASTM D5504–08, Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence, (Approved June 15, 2008), IBR approved for §§ 60.107a(e) and 60.5413(d).

(174) ASTM D5762–02, Standard Test Method for Nitrogen in Petroleum and Petroleum Products by Boat-Inlet Chemiluminescence, IBR approved for § 60.335(b).

(175) ASTM D5865–98, Standard Test Method for Gross Calorific Value of Coal and Coke, IBR approved for §§ 60.45(f) and 60.46(c), and appendix A–7 to part 60: Method 19, Section 12.5.2.1.3.

(176) ASTM D5865–10, Standard Test Method for Gross Calorific Value of Coal and Coke, (Approved January 1, 2010), IBR approved for §§ 60.45(f), 60.46(c), and appendix A–7 to part 60: Method 19, section 12.5.2.1.3.

(177) ASTM D6216–98, Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications, IBR approved for appendix B to part 60: Performance Specification 1.

(178) ASTM D6228–98, Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection, IBR approved for § 60.334(h).

(179) ASTM D6228–98 (Reapproved 2003), Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection, IBR approved for §§ 60.4360 and 60.4415.

(180) ASTM D6348–03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, (Approved October 1, 2003), IBR approved for § 60.73a(b), table 7 to subpart IIII, and table 2 to subpart JJJJ.

(181) ASTM D6366–99, Standard Test Method for Total Trace Nitrogen and Its Derivatives in Liquid Aromatic Hydrocarbons by Oxidative Combustion and Electrochemical Detection, IBR approved for § 60.335(b)(9).

(182) ASTM D6420–99 (Reapproved 2004), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, (Approved October 1, 2004), IBR approved for § 60.107a(d) and table 2 to subpart JJJJ.

(183) ASTM D6522–00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, IBR approved for § 60.335(a).

(184) ASTM D6522–00 (Reapproved 2005), Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, (Approved October 1, 2005), IBR approved for table 2 to subpart JJJJ, and §§ 60.5413(b) and (d).

(185) ASTM D6667–01, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence, IBR approved for § 60.335(b).

(186) ASTM D6667–04, Standard Test Method for Determination of Total Volatile Sulfur in Gaseous Hydrocarbons and Liquefied Petroleum Gases by Ultraviolet Fluorescence, IBR approved for § 60.4415(a).

(187) ASTM D6751–11b, Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels, including Appendices X1 through X3, (Approved July 15, 2011), IBR approved for §§ 60.41b and 60.41c.

(188) ASTM D6784–02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), IBR approved for § 60.56c(b) and appendix B to part 60: Performance Specification 12A, Section 8.6.2.

(189) ASTM D6784–02 (Reapproved 2008) Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), (Approved April 1, 2008), IBR approved for §§ 60.2165(j) and 60.2730(j), tables 1, 5, 6 and 8 to subpart CCCC, and tables 2, 6, 7, and 9 to subpart DDDD, §§ 60.4900(b), 60.5220(b), tables 1 and 2 to subpart LLLL, and tables 2 and 3 to subpart MMMM.

(190) ASTM D7467–10, Standard Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to B20), including Appendices X1 through X3, (Approved August 1, 2010), IBR approved for §§ 60.41b and 60.41c.

(191) ASTM E168–67, General Techniques of Infrared Quantitative Analysis, IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f).

(192) ASTM E168–77, General Techniques of Infrared Quantitative Analysis, IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f).

(193) ASTM E168–92, General Techniques of Infrared Quantitative Analysis, IBR approved for §§ 60.485a(d)(1), 60.593(b)(2), 60.593a(b)(2), 60.632(f), and 60.5400.

(194) ASTM E169–63, General Techniques of Ultraviolet Quantitative Analysis, IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f) .

(195) ASTM E169–77, General Techniques of Ultraviolet Quantitative Analysis, IBR approved for §§ 60.485a(d), 60.593(b), and 60.593a(b), 60.632(f).

(196) ASTM E169–93, General Techniques of Ultraviolet Quantitative Analysis, (Approved May 15, 1993), IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), 60.632(f), and 60.5400(f).

(197) ASTM E260–73, General Gas Chromatography Procedures, IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f).

(198) ASTM E260–91, General Gas Chromatography Procedures, (IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), and 60.632(f).

(199) ASTM E260–96, General Gas Chromatography Procedures, (Approved April 10, 1996), IBR approved for §§ 60.485a(d), 60.593(b), 60.593a(b), 60.632(f), 60.5400(f), and 60.5406(b).

(200) ASTM E1584–11, Standard Test Method for Assay of Nitric Acid, (Approved August 1, 2011), IBR approved for § 60.73a(c).

(201) ASTM UOP539–97, Refinery Gas Analysis by Gas Chromatography, (Copyright 1997), IBR approved for § 60.107a(d).

(h) Association of Official Analytical Chemists, 1111 North 19th Street, Suite 210, Arlington, VA 22209.

(1) AOAC Method 9, Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), 11th edition, 1970, pp. 11–12, IBR approved for §§ 60.204(b), 60.214(b), 60.224(b), and 60.234(b).

(2) [Reserved]

(i) U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW., Washington, DC 20460, (202) 272–0167, *http://www.epa.gov*.

(1) EPA–454/R–98–015, Office of Air Quality Planning and Standards (OAQPS) Fabric Filter Bag Leak Detection Guidance, September 1997, IBR approved for §§ 60.2145(r), 60.2710(r), 60.4905(b), and 60.5225(b).

(2) [Reserved]

(j) The Gas Processors Association, 6526 East 60th Street, Tulsa, OK 74145; also available through Information Handling Services, 15 Inverness Way East, PO Box 1154, Englewood, CO 80150–1154. You may inspect a copy at the EPA's Air and Radiation Docket and Information Center, Room 3334, 1301 Constitution Ave. NW., Washington, DC 20460.

(1) Gas Processors Association Standard 2172–09, Calculation of Gross Heating Value, Relative Density, Compressibility and Theoretical Hydrocarbon Liquid Content for Natural Gas Mixtures for Custody Transfer (2009), IBR approved for § 60.107a(d).

(2) Gas Processors Association Standard 2261–00, Analysis for Natural Gas and Similar Gaseous Mixtures by Gas Chromatography (2000), IBR approved for § 60.107a(d).

(3) Gas Processors Association Standard 2377–86, Test for Hydrogen Sulfide and Carbon Dioxide in Natural Gas Using Length of Stain Tubes, 1986 Revision, IBR approved for §§ 60.105(b), 60.107a(b), 60.334(h), 60.4360, and 60.4415(a).

(k) International Organization for Standardization (ISO) available through IHS Inc., 15 Inverness Way East, Englewood, CO 80112.

(1) ISO 8178–4: 1996(E), Reciprocating Internal Combustion Engines—Exhaust Emission Measurement—part 4: Test Cycles for Different Engine Applications, IBR approved for § 60.4241(b).

(2) [Reserved]

(l) International Organization for Standardization (ISO), 1, ch. de la Voie-Creuse, Case postale 56, CH–1211 Geneva 20, Switzerland, +41 22 749 01 11, *http://www.iso.org/iso/home.htm*.

(1) ISO 8316: Measurement of Liquid Flow in Closed Conduits—Method by Collection of the Liquid in a Volumetric Tank (1987–10–01)—First Edition, IBR approved for § 60.107a(d).

(2) [Reserved]

(m) This material is available for purchase from the National Technical Information Services (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161. You may inspect a copy at the EPA's Air and Radiation Docket and Information Center (Docket A–91–61, Item IV–J–125), Room M–1500, 1200 Pennsylvania Ave. NW., Washington, DC 20460.

(1) OMB Bulletin No. 93–17: Revised Statistical Definitions for Metropolitan Areas. Office of Management and

Budget, June 30, 1993. NTIS No. PB 93–192–664. IBR approved for § 60.31e.

(2) [Reserved]

(n) North American Electric Reliability Corporation, 1325 G Street NW., Suite 600, Washington, DC 20005–3801, *http://www.nerc.com*.

(1) North American Electric Reliability Corporation Reliability Standard EOP–002–3, Capacity and Energy Emergencies, updated November 19, 2012, IBR approved for §§ 60.4211(f) and 60.4243(d). Also available online: *http://www.nerc.com/files/EOP-002-3_1.pdf*.

(2) [Reserved]

(o) Technical Association of the Pulp and Paper Industry (TAPPI), Dunwoody Park, Atlanta, GA 30341.

(1) TAPPI Method T624 os–68, IBR approved for § 60.285(d).

(2) [Reserved]

(p) Underwriter's Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062.

(1) UL 103, Sixth Edition revised as of September 3, 1986, Standard for Chimneys, Factory-built, Residential Type and Building Heating Appliance, IBR approved for Appendix A–8 to part 60.

(2) [Reserved]

(q) Water Pollution Control Federation (WPCF), 2626 Pennsylvania Avenue NW., Washington, DC 20037.

(1) Method 209A, Total Residue Dried at 103–105 °C, in Standard Methods for the Examination of Water and Wastewater, 15th Edition, 1980, IBR approved for § 60.683(b).

(2) [Reserved]

(r) West Coast Lumber Inspection Bureau, 6980 SW. Barnes Road, Portland, OR 97223.

(1) West Coast Lumber Standard Grading Rules No. 16, pages 5–21, 90 and 91, September 3, 1970, revised 1984, IBR approved for Appendix A–8 to part 60.

(2) [Reserved]

Subpart Db—[Amended]

■ 7. Amend § 60.46b by revising paragraphs (f)(1)(ii) and (h)(1) and (h)(2) to read as follows:

§ 60.46b Compliance and performance test methods and procedures for particulate matter and nitrogen oxides.

* * * * *

(f) * * *

(1) * * *

(ii) Method 7E of appendix A of this part or Method 320 of appendix A of part 63 shall be used to determine the NO_X concentrations. Method 3A or 3B of appendix A of this part shall be used to determine O_2 concentration.

* * * * *

(h) * * *

(1) Conduct an initial performance test as required under § 60.8 over a minimum of 24 consecutive steam generating unit operating hours at maximum heat input capacity to demonstrate compliance with the NO_X emission standards under § 60.44b using Method 7, 7A, or 7E of appendix A of this part, Method 320 of appendix A of part 63 of this chapter, or other approved reference methods; and

(2) Conduct subsequent performance tests once per calendar year or every 400 hours of operation (whichever comes first) to demonstrate compliance with the NO_X emission standards under § 60.44b over a minimum of 3 consecutive steam generating unit operating hours at maximum heat input capacity using Method 7, 7A, or 7E of appendix A of this part, Method 320 of appendix A of part 63, or other approved reference methods.

* * * * *

■ 8. Amend § 60.47b by revising paragraph (b)(2) to read as follows:

§ 60.47b Emission monitoring for sulfur dioxide.

* * * * *

(b) * * *

(2) Measuring SO_2 according to Method 6B of appendix A of this part at the inlet or outlet to the SO_2 control system. An initial stratification test is required to verify the adequacy of the sampling location for Method 6B of appendix A of this part. The stratification test shall consist of three paired runs of a suitable SO_2 and CO_2 measurement train operated at the candidate location and a second similar train operated according to the procedures in Section 3.2 and the applicable procedures in Section 7 of Performance Specification 2. Method 6B of appendix A of this part, Method 6A of appendix A of this part, or a combination of Methods 6 and 3 or 3B of appendix A of this part or Methods 6C or Method 320 of appendix A of part 63 of this chapter and 3A of appendix A of this part are suitable measurement techniques. If Method 6B of appendix A of this part is used for the second train, sampling time and timer operation may be adjusted for the stratification test as long as an adequate sample volume is collected; however, both sampling trains are to be operated similarly. For the location to be adequate for Method 6B of appendix A of this part, 24-hour tests, the mean of the absolute difference between the three paired runs must be less than 10 percent.

* * * * *

Subpart Ec—[Amended]

■ 9. Amend § 60.51c by revising the definition of ''Medical/infectious waste'' to read as follows:

§ 60.51c Definitions.

* * * * *

Medical/infectious waste means any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals that are listed in paragraphs (1) through (7) of this definition. The definition of medical/infectious waste does not include hazardous waste identified or listed under the regulations in part 261 of this chapter; household waste, as defined in § 261.4(b)(1) of this chapter; ash from incineration of medical/infectious waste, once the incineration process has been completed; human corpses, remains, and anatomical parts that are intended for interment or cremation; and domestic sewage materials identified in § 261.4(a)(1) of this chapter.

(1) Cultures and stocks of infectious agents and associated biologicals, including: Cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures.

(2) Human pathological waste, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers.

(3) Human blood and blood products including:

(i) Liquid waste human blood;

(ii) Products of blood;

(iii) Items saturated and/or dripping with human blood; or

(iv) Items that were saturated and/or dripping with human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis or the development of pharmaceuticals. Intravenous bags are also included in this category.

(4) Sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and

culture dishes (regardless of presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips.

(5) Animal waste including contaminated animal carcasses, body parts, and bedding of animals that were known to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals or testing of pharmaceuticals.

(6) Isolation wastes including biological waste and discarded materials contaminated with blood, excretions, exudates, or secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.

(7) Unused sharps including the following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

* * * * *

Subpart H—[Amended]

■ 10. Amend § 60.84 by revising the equation in paragraph (d) to read as follows:

§ 60.84 Emission monitoring.

* * * * *

(d) * * *

$E_s = (C_s\ S)/[0.265 - (0.0126\ \%O_2) - (A\ \%CO_2)]$

* * * * *

Subpart O—[Amended]

■ 11. Amend § 60.154 by revising the introductory text to paragraph (b)(5) to read as follows:

§ 60.154 Test methods and procedures.

* * * * *

(b) * * *

(5) Samples of the sludge charged to the incinerator shall be collected in nonporous jars at the beginning of each run and at approximately 1-hour intervals thereafter until the test ends; and ''2540 G. Total, Fixed, and Volatile Solids in Solid and Semisolid Samples, in Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998'' (incorporated by reference—see § 60.17) shall be used to determine dry sludge content of each sample (total solids residue), except that:

* * * * *

Subpart BB—[Amended]

■ 12. Amend § 60.284 by revising the equation in paragraph (c)(3) to read as follows:

§ 60.284 Monitoring of emissions and operations.

* * * * *

(c) * * *

(3) * * *

$C_{corr} = C_{meas} \times (21 - X)/(21 - Y)$

* * *

* * * * *

Subpart GG—[Amended]

■ 13. Amend § 60.335 by revising the terms P_r and P_o for the equation in paragraph (b)(1) to read as follows:

§ 60.335 Test methods and procedures.

* * * * *

(b) * * *

(1) * * *

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure. Alternatively, you may use 760 mm Hg (29.92 in Hg),

P_o = observed combustor inlet absolute pressure at test, mm Hg. Alternatively, you may use the barometric pressure for the date of the test,

* * * * *

Subpart KK—[Amended]

■ 14. Amend § 60.374 by revising paragraphs (b)(1), (b)(2), and (c)(2) to read as follows:

§ 60.374 Test methods and procedures.

* * * * *

(b) * * *

(1) Method 12 or Method 29 shall be used to determine the lead concentration (C_{Pb}) and, if applicable, the volumetric flow rate (Q_{sda}) of the effluent gas. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf).

(2) When different operations in a three-process operation facility are ducted to separate control devices, the lead emission concentration (C) from the facility shall be determined as follows:

$$C = \left[\sum_{a=1}^{n}\left(C_a Q_{sda}\right)\right] / \sum_{a=1}^{n} Q_{sda}$$

Where:

C = concentration of lead emissions for the entire facility, mg/dscm (gr/dscf).

C_a = concentration of lead emissions from facility ''a'', mg/dscm (gr/dscf).

Q_{sda} = volumetric flow rate of effluent gas from facility ''a'', dscm/hr (dscf/hr).

N = total number of control devices to which separate operations in the facility are ducted.

* * * * *

(c) * * *

(2) Method 12 or Method 29 shall be used to determine the lead concentration (C_{Pb}) and the volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf).

* * * * *

Subpart LL—[Amended]

■ 15. Amend § 60.382 by revising paragraph (a)(1) to read as follows:

§ 60.382 Standard for particulate matter.

(a) * * *

(1) Contain particulate matter in excess of 0.05 grams per dry standard cubic meter (0.05 g/dscm).

* * * * *

■ 16. Amend § 60.386 by revising paragraph (b)(2) to read as follows:

§ 60.386 Test methods and procedures.

* * * * *

(b) * * *

(2) Method 9 and the procedures in § 60.11 shall be used to determine opacity from stack emissions and process fugitive emissions. The observer shall read opacity only when emissions are clearly identified as emanating solely from the affected facility being observed. A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval. This option is subject to the following limitations:

(i) No more than three emission points are read concurrently;

(ii) All three emission points must be within a 70° viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points; and

(iii) If an opacity reading for any one of the three emission points is within 5 percent opacity of the application standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

* * * * *

Subpart UU—[Amended]

■ 17. Amend § 60.472 by revising paragraph (a)(1)(ii) to read as follows:

§ 60.472 Standards for particulate matter.

(a) * * *

(1) * * *

(ii) 0.4 kg/Mg (0.8 lb/ton) of saturated felt or smooth-surfaced roll roofing produced;

* * * * *

Subpart NNN—[Amended]

■ 18. Amend § 60.660 by revising paragraph (c)(4) to read as follows:

§ 60.660 Applicability and designation of affected facility.

* * * * *

(c) * * *

(4) Each affected facility that has a total resource effectiveness (TRE) index value greater than 8.0 is exempt from all provisions of this subpart except for §§ 60.662; 60.664 (e), (f), and (g); and 60.665 (h) and (l).

* * * * *

■ 19. Amend § 60.665 by revising paragraphs (h)(2) and (h)(3) to read as follows:

§ 60.665 Reporting and recordkeeping requirements.

* * * * *

(h) * * *

(2) Any recalculation of the TRE index value performed pursuant to § 60.664(g); and

(3) The results of any performance test performed pursuant to the methods and procedures required by § 60.664(e).

* * * * *

Subpart IIII—[Amended]

■ 20. Revise Table 7 to Subpart IIII of part 60 to read as follows:

As stated in § 60.4213, you must comply with the following requirements for performance tests for stationary CI ICE with a displacement of ≥30 liters per cylinder:

TABLE 7 TO SUBPART IIII OF PART 60—REQUIREMENTS FOR PERFORMANCE TESTS FOR STATIONARY CI ICE WITH A DISPLACEMENT OF ≥30 LITERS PER CYLINDER

Each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary CI internal combustion engine with a displacement of ≥ 30 liters per cylinder	a. Reduce NO_X emissions by 90 percent or more;	i. Select the sampling port location and number/location of traverse points at the inlet and outlet of the control device;		(a) For NO_X, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A–1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A–4.
		ii. Measure O_2 at the inlet and outlet of the control device;	(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A–2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for NO_X concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(2) Method 4 of 40 CFR part 60, appendix A–3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 (incorporated by reference, see § 60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurements for NO_X concentration.
		iv. Measure NO_X at the inlet and outlet of the control device.	(3) Method 7E of 40 CFR part 60, appendix A–4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 (incorporated by reference, see § 60.17)	(d) NO_X concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

TABLE 7 TO SUBPART IIII OF PART 60—REQUIREMENTS FOR PERFORMANCE TESTS FOR STATIONARY CI ICE WITH A DISPLACEMENT OF ≥30 LITERS PER CYLINDER—Continued

Each	Complying with the requirement to	You must	Using	According to the following requirements
	b. Limit the concentration of NO_X in the stationary CI internal combustion engine exhaust.	i. Select the sampling port location and number/location of traverse points at the exhaust of the stationary internal combustion engine;		(a) For NO_X, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A–1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A–4.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A–2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurement for NO_X concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(2) Method 4 of 40 CFR part 60, appendix A–3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 (incorporated by reference, see § 60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurement for NO_X concentration.
		iv. Measure NO_X at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	(3) Method 7E of 40 CFR part 60, Appendix A–4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 (incorporated by reference, see § 60.17)	(d) NO_X concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	c. Reduce PM emissions by 60 percent or more	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A–1	(a) Sampling sites must be located at the inlet and outlet of the control device.
		ii. Measure O_2 at the inlet and outlet of the control device;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A–2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(3) Method 4 of 40 CFR part 60, appendix A–3	(c) Measurements to determine and moisture content must be made at the same time as the measurements for PM concentration.

TABLE 7 TO SUBPART IIII OF PART 60—REQUIREMENTS FOR PERFORMANCE TESTS FOR STATIONARY CI ICE WITH A DISPLACEMENT OF ≥30 LITERS PER CYLINDER—Continued

Each	Complying with the requirement to	You must	Using	According to the following requirements
		iv. Measure PM at the inlet and outlet of the control device.	(4) Method 5 of 40 CFR part 60, appendix A–3	(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	d. Limit the concentration of PM in the stationary CI internal combustion engine exhaust	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A–1	(a) If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A–2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(3) Method 4 of 40 CFR part 60, appendix A–3	(c) Measurements to determine moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the exhaust of the stationary internal combustion engine.	(4) Method 5 of 40 CFR part 60, appendix A–3.	(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

Subpart JJJJ—[Amended]

■ 21. Revise Table 2 to Subpart JJJJ of part 60 to read as follows:

As stated in § 60.4244, you must comply with the following requirements for performance tests within 10 percent of 100 percent peak (or the highest achievable) load:

TABLE 2 TO SUBPART JJJJ OF PART 60—REQUIREMENTS FOR PERFORMANCE TESTS

For each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary SI internal combustion engine demonstrating compliance according to § 60.4244.	a. limit the concentration of NO_X in the stationary SI internal combustion engine exhaust.	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary internal combustion engine;	(1) Method 1 or 1A of 40 CFR part 60, appendix A–1, if measuring flow rate.	(a) Alternatively, for NO_X, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, Appendix A, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, Appendix A.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR part 60, appendix A–2 or ASTM Method D6522–00 (Reapproved 2005)[a][e].	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for NO_X concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 2C of 40 CFR part 60, appendix A–1 or Method 19 of 40 CFR part 60, appendix A–7.	
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A–3, Method 320 of 40 CFR part 63, appendix A, or ASTM Method D 6348–03[e].	(c) Measurements to determine moisture must be made at the same time as the measurement for NO_X concentration.
		v. Measure NO_X at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	(5) Method 7E of 40 CFR part 60, appendix A–4, ASTM Method D6522–00 (Reapproved 2005)[a][e], Method 320 of 40 CFR part 63, appendix A, or ASTM Method D 6348–03[e].	(d) Results of this test consist of the average of the three 1-hour or longer runs.

TABLE 2 TO SUBPART JJJJ OF PART 60—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For each	Complying with the requirement to	You must	Using	According to the following requirements
	b. limit the concentration of CO in the stationary SI internal combustion engine exhaust.	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary internal combustion engine;	(1) Method 1 or 1A of 40 CFR part 60, appendix A–1, if measuring flow rate.	(a) Alternatively, for CO, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, Appendix A, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, Appendix A.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B [b] of 40 CFR part 60, appendix A–2 or ASTM Method D6522–00 (Reapproved 2005) [a] [e].	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for CO concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 2C of 40 CFR part 60, appendix A–1 or Method 19 of 40 CFR part 60, appendix A–7.	
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A–3, Method 320 of 40 CFR part 63, appendix A, or ASTM Method D 6348–03 [e].	(c) Measurements to determine moisture must be made at the same time as the measurement for CO concentration.
		v. Measure CO at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	(5) Method 10 of 40 CFR part 60, appendix A4, ASTM Method D6522–00 (Reapproved 2005) [a] [e], Method 320 of 40 CFR part 63, appendix A, or ASTM Method D 6348–03 [e].	(d) Results of this test consist of the average of the three 1-hour or longer runs.

TABLE 2 TO SUBPART JJJJ OF PART 60—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For each	Complying with the requirement to	You must	Using	According to the following requirements
	c. limit the concentration of VOC in the stationary SI internal combustion engine exhaust	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary internal combustion engine;	(1) Method 1 or 1A of 40 CFR part 60, appendix A–1, if measuring flow rate.	(a) Alternatively, for VOC, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter and the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, Appendix A, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, Appendix A.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR part 60, appendix A–2 or ASTM Method D6522–00 (Reapproved 2005)[a e].	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for VOC concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 2C of 40 CFR part 60, appendix A–1 or Method 19 of 40 CFR part 60, appendix A–7.	
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A–3, Method 320 of 40 CFR part 63, appendix A, or ASTM Method D 6348–03[e].	(c) Measurements to determine moisture must be made at the same time as the measurement for VOC concentration.
		v. Measure VOC at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	(5) Methods 25A and 18 of 40 CFR part 60, appendices A–6 and A–7, Method 25A with the use of a methane cutter as described in 40 CFR 1065.265, Method 18 of 40 CFR part 60, appendix A–6[c d], Method 320 of 40 CFR part 63, appendix A, or ASTM Method D 6348–03[e].	(d) Results of this test consist of the average of the three 1-hour or longer runs.

---

[a] Also, you may petition the Administrator for approval to use alternative methods for portable analyzer.

[b] You may use ASME PTC 19.10–1981, Flue and Exhaust Gas Analyses, for measuring the O_2 content of the exhaust gas as an alternative to EPA Method 3B. AMSE PTC 19.10–1981 incorporated by reference, see 40 CFR 60.17

[c] You may use EPA Method 18 of 40 CFR part 60, appendix A–6, provided that you conduct an adequate pre-survey test prior to the emissions test, such as the one described in OTM 11 on EPA's Web site (*http://www.epa.gov/ttn/emc/prelim/otm11.pdf*).

[d] You may use ASTM D6420–99 (2004), Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography/Mass Spectrometry as an alternative to EPA Method 18 for measuring total nonmethane organic. ASTM D6420–99(2004) incorporated by reference; see 40 CFR 60.17.

[e] Incorporated by reference; see 40 CFR 60.17.

■ 22. Amend appendix A–1 to part 60 as follows:

■ a. By amending Method 1 as follows:

■ i. By revising Figure 1–1 in section 17.

■ ii. By adding Figure 1–2 to section 17.

■ b. By amending Method 2 as follows:

■ i. By revising section 8.1, the note at the end of 10.1.1, and sections 10.4, 12.6, and 12.7.

■ ii. By removing the definition for Ts(abs) in section 12.1.

■ iii. By adding a definition for Ts(abavg) in alphabetical order to section 12.1.

■ c. By revising Method 2A, sections 10.3 and 12.2.

■ d. By revising Method 2B, section 12.1.

■ e. By revising Method 2D, section 10.4.

Appendix A–1 to Part 60—Test Methods 1 Through 2F

* * * * *

Method 1—Sample and Velocity Traverses From Stationary Sources

* * * * *

17.0 * * *

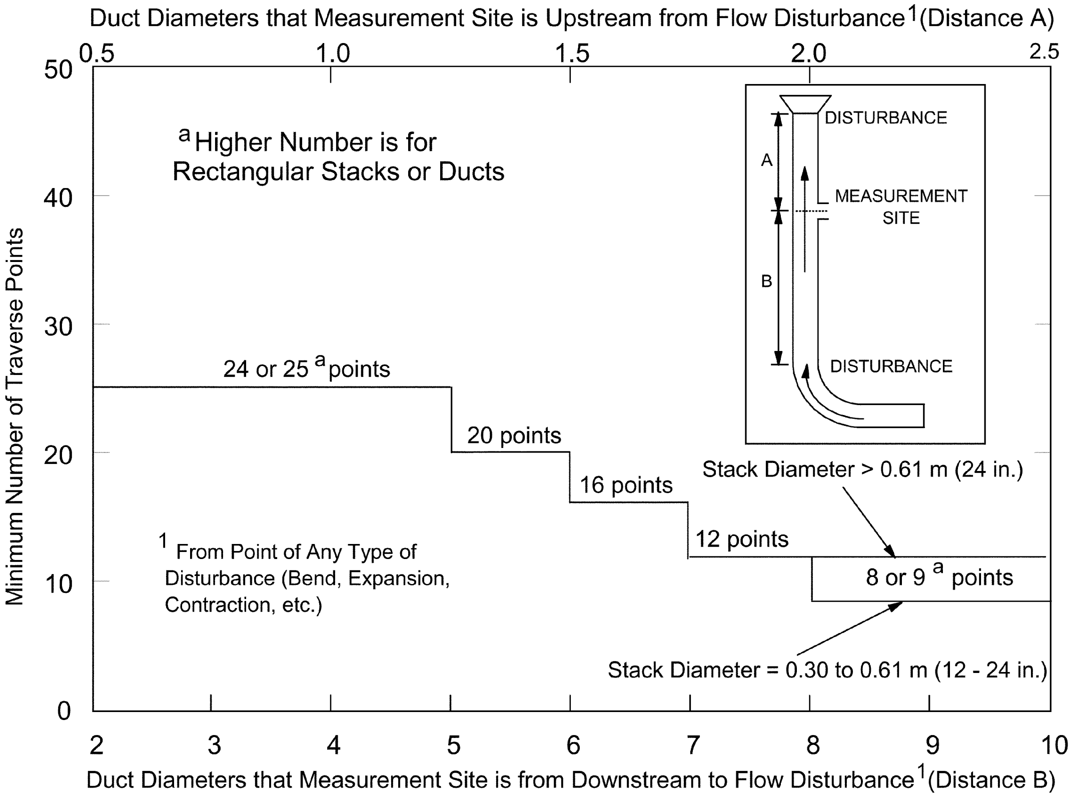

Figure 1-1. Minimum number of traverse points for particulate traverses

* * * * *

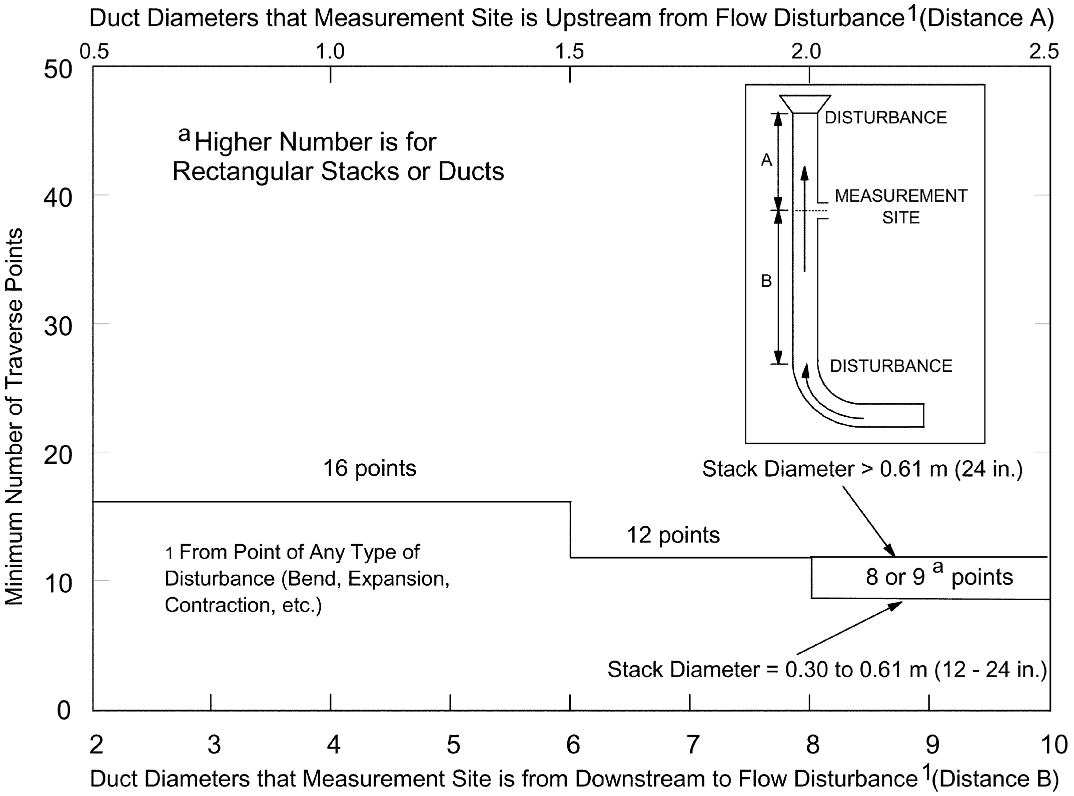

Figure 1-2. Minimum number of traverse points for velocity (nonparticulate) traverses

* * * * *

Method 2—Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)

* * * * *

8.1 Set up the apparatus as shown in Figure 2–1. Capillary tubing or surge tanks installed between the manometer and pitot tube may be used to dampen ΔP fluctuations. It is recommended, but not required, that a pretest leak-check be conducted as follows: (1) blow through the pitot impact opening until at least 7.6 cm (3.0 in.) H_2O velocity head registers on the manometer; then, close off the impact opening. The pressure shall remain stable (±2.5 mm H_2O, ±0.10 in. H_2O) for at least 15 seconds; (2) do the same for the static pressure side, except using suction to obtain the minimum of 7.6 cm (3.0 in.) H_2O. Other leak-check procedures, subject to the approval of the Administrator, may be used.

* * * * *

10.1.1 * * *

Note: Do not use a Type S pitot tube assembly that is constructed such that the impact pressure opening plane of the pitot tube is below the entry plane of the nozzle (see Figure 2–7B).

* * * * *

10.4 Barometer. Calibrate the barometer used against a mercury barometer or NIST-traceable barometer prior to each field test.

* * * * *

12.1 Nomenclature

* * * * *

$T_{s(abavg)}$ = Average absolute stack temperature, °K (°R).
= 273 + T_s for metric units,
= 460 + T_s for English units.

* * * * *

12.6 Average Stack Gas Velocity.

$$V_s = K_p\, C_p \left[\frac{\sum_{i=1}^{n}\sqrt{\Delta p_i}}{n}\right]\sqrt{\frac{T_{s(abavg)}}{P_s\, M_s}} \qquad \text{Eq. 2-7}$$

Where:

$$K_p = 34.97\,\frac{m}{\sec}\left[\frac{(g/g-mole)(mm\ Hg)}{(^{o}K)(mm\ H_2O)}\right]^{1/2} \qquad Metric$$

$$= 85.49\,\frac{ft}{\sec}\left[\frac{(lb/lb-mole)(in.\ Hg)}{(^{o}R)(in.\ H_2O)}\right]^{1/2} \qquad English$$

12.7 Average Stack Gas Dry Volumetric Flow Rate.

$$Q = 3600(1 - B_{ws})v_s A\left[\frac{T_{std}P_s}{T_{s(abavg)}P_{std}}\right] \qquad Eq.2-8$$

* * * * *

Method 2A—Direct Measurement of Gas Volume Through Pipes and Small Ducts

* * * * *

10.3 Barometer. Calibrate the barometer used against a mercury barometer or NIST-traceable barometer prior to the field test.

* * * * *

12.2 Test Meter Calibration Coefficient.

$$Y_m = \frac{\left(V_{rf} - V_{ri}\right)P_b\, T_{m(abs)}}{\left(V_{mf} - V_{mi}\right)\left(P_b + P_g\right)T_{r(abs)}} \qquad \text{Eq. 2A-1}$$

* * * * *

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

* * * * *

12.1 Nomenclature.

CO_e = Mean carbon monoxide concentration in system exhaust, ppm.

$(CO_2)_a$ = Ambient carbon dioxide concentration, ppm (if not measured during the test period, may be assumed to equal 380 ppm).

$(CO_2)_e$ = Mean carbon dioxide concentration in system exhaust, ppm.

HC_e = Mean organic concentration in system exhaust as defined by the calibration gas, ppm.

Hc_i = Mean organic concentration in system inlet as defined by the calibration gas, ppm.

K_e = Hydrocarbon calibration gas factor for the exhaust hydrocarbon analyzer, unitless [equal to the number of carbon atoms per molecule of the gas used to calibrate the analyzer (2 for ethane, 3 for propane, etc.)].

K_i = Hydrocarbon calibration gas factor for the inlet hydrocarbon analyzer, unitless.

V_{es} = Exhaust gas volume, m^3.

V_{is} = Inlet gas volume, m^3.

Q_{es} = Exhaust gas volume flow rate, m^3/min.

Q_{is} = Inlet gas volume flow rate, m^3/min.

θ = Sample run time, min.

S = Standard conditions: 20° C, 760 mm Hg.

* * * * *

Method 2D—Measurement of Gas Volume Flow Rates in Small Pipes and Ducts

* * * * *

10.4 Barometer. Calibrate the barometer used against a mercury barometer or NIST-traceable barometer prior to the field test.

* * * * *

■ 23. Amend appendix A–2 to part 60 as follows:

■ a. By revising Method 3A, section 7.1.

■ b. By amending Method 3C as follows:

■ i. By revising section 7.1.

■ ii. By adding section 7.3.

Appendix A–2 to Part 60—Test Methods 2G Through 3C

* * * * *

Method 3A—Determination of Oxygen and Carbon Dioxide Concentrations in Emissions From Stationary Sources (Instrumental Analyzer Procedure)

* * * * *

7.1 Calibration Gas. *What calibration gases do I need?* Refer to Section 7.1 of Method 7E for the calibration gas requirements. Example calibration gas mixtures are listed below. Pre-cleaned or scrubbed air may be used for the O_2 high-calibration gas provided it does not contain other gases that interfere with the O_2 measurement.

(a) CO_2 in Nitrogen (N_2).
(b) CO_2/SO_2 gas mixture in N_2.
(c) O_2/SO_2 gas mixture in N_2.
(d) $O_2/CO_2/SO_2$ gas mixture in N_2.
(e) CO_2/NO_X gas mixture in N_2.
(f) $CO_2/SO_2/NO_X$ gas mixture in N_2.

The tests for analyzer calibration error and system bias require high-, mid-, and low-level gases.

* * * * *

Method 3C—Determination of Carbon Dioxide, Methane, Nitrogen, and Oxygen from Stationary Sources

* * * * *

7.1 Nomenclature.

B_w = Moisture content in the sample, fraction.
C_{N2} = Measured N_2 concentration (by Method 3C), fraction.
C_{N2Corr} = Measured N_2 concentration corrected only for dilution, fraction.
C_t = Calculated NMOC concentration, ppmv C equivalent.
C_{tm} = Measured NMOC concentration, ppmv C equivalent.
P_b = Barometric pressure, mm Hg.
P_t = Gas sample tank pressure after sampling, but before pressurizing, mm Hg absolute.
P_{tf} = Final gas sample tank pressure after pressurizing, mm Hg absolute.
P_{ti} = Gas sample tank pressure after evacuation, mm Hg absolute.
P_w = Vapor pressure of H_2O (from Table 25C–1), mm Hg.
r = Total number of analyzer injections of sample tank during analysis (where j = injection number, 1 . . . r).
R = Mean calibration response factor for specific sample component, area/ppm.
T_t = Sample tank temperature at completion of sampling, °K.
T_{ti} = Sample tank temperature before sampling, °K.
T_{tf} = Sample tank temperature after pressurizing, °K.

* * * * *

7.3 Measured N_2 Concentration Correction. Calculate the reported N_2 correction for Method 25–C using Eq. 3C–4. If oxygen is determined in place of N_2, substitute the oxygen concentration for the nitrogen concentration in the equation.

$$C_{N_2 Corr} = \frac{\frac{P_{tf}}{T_{tf}}}{\frac{P_t}{T_t} - \frac{P_{ti}}{T_{ti}}} (C_{N_2}) \qquad Eq.\ 3C-4$$

* * * * *

■ 24. Amend appendix A–3 to part 60 as follows:

■ a. By revising Method 4, sections 9.1 and 16.0.

■ b. Amend Method 5 as follows:

■ i. By revising sections 6.1.1.5, 6.1.1.6, 6.1.1.7, 6.1.1.9, 7.1.3, 8.1, 8.3.4, 8.5, 8.5.6, 8.7.3, 8.7.5, 10.3.3, 10.5, 10.6.

■ ii. By removing section 7.1.5.

■ iii. By revising Equation 5–13 in section 16.2.3.3.

■ iv. By adding section 16.3.

■ v. By adding reference 13 to section 17.0.

■ c. By revising Method 5A, section 8.1.

■ d. By amending Method 5E as follows:

■ i. By redesignating sections 16.0 and 17.0 as sections 17.0 and 18.0, respectively.

■ ii. By adding a new section 16.0.

■ e. By amending Method 5H as follows:

■ i. By revising section 12.1.

■ ii. By adding section 12.15.

■ iii. By redesignating sections 16.0 and 17.0 as sections 17.0 and 18.0, respectively.

■ iv. By adding a new section 16.

Appendix A–3 to Part 60—Test Methods 4 Through 5I

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Method 4—Determination of Moisture Content in Stack Gases

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9.1 Miscellaneous Quality Control Measures.

Section	Quality control measure	Effect
Section 8.1.1.4	Leak rate of the sampling system cannot exceed four percent of the average sampling rate or 0.00057 m^3/min (0.020 cfm).	Ensures the accuracy of the volume of gas sampled. (Reference Method).
Section 8.2.1	Leak rate of the sampling system cannot exceed two percent of the average sampling rate.	Ensures the accuracy of the volume of gas sampled. (Approximation Method).

* * * * *

16.0 Alternative Procedures

16.1 The procedure described in Method 5 for determining moisture content is an acceptable alternative to Method 4.

16.2 The procedures in Method 6A for determining moisture is an acceptable alternative to Method 4.

16.3 Method 320 is an acceptable alternative to Method 4 for determining moisture.

16.4 Using F-factors to determine moisture is an acceptable alternative to Method 4 for a combustion stack not using a scrubber. If this option is selected, calculate the moisture content as follows:

$B_{WS} - B_H + B_A + B_F$

Where:

B_A = Mole fraction of moisture in the ambient air.

$$= \frac{\%RH}{100\, P_{bar}\left[10^{\left[6.6912-\left(\frac{3144}{T+390.86}\right)\right]}\right]}$$

B_F = Mole fraction of moisture from free water in the fuel.

$$B_F = \left[\frac{0.0036\, W^2 + 0.075\, W}{100}\right]\left[\frac{20.9 - O_2}{20.9}\right]$$

B_H = Mole fraction of moisture from the hydrogen in the fuel.

$$B_H = \left(1 - \frac{F_d}{F_w}\right)\frac{(20.9 - O_2)}{20.9}$$

B_{ws} = Mole fraction of moisture in the stack gas.

F_d = Volume of dry combustion components per unit of heat content at 0 percent oxygen, dscf/10^6 Btu (scm/J). See Table 19–2 in Method 19.

F_W = Volume of wet combustion components per unit of heat content at 0 percent oxygen, wet scf/10^6 Btu (scm/J). See Table 19–2 in Method 19.

%RH = Percent relative humidity (calibrated hydrometer acceptable), percent.

P_{Bar} = Barometric pressure, in. Hg.

T = Ambient temperature, °F.

W = Percent free water by weight, percent.

O_2 = Percent oxygen in stack gas, dry basis, percent.

* * * * *

Method 5—Determination of Particulate Matter Emissions From Stationary Sources

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6.1.1.5 Filter Holder. Borosilicate glass, with a glass or Teflon frit filter support and a silicone rubber gasket. Other materials of construction (e.g., stainless steel 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 holder shall be attached immediately at the outlet of the probe (or cyclone, if used).

6.1.1.6 Filter Heating System. Any heating system capable of monitoring and maintaining temperature around the filter shall be used to ensure the sample gas temperature exiting the filter of 120 ± 14 °C (248 ± 25 °F) during sampling or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator for a particular application. The monitoring and regulation of the temperature around the filter may be done with the filter temperature sensor or another temperature sensor.

6.1.1.7 Filter Temperature Sensor. A temperature sensor capable of measuring temperature to within ±3 °C (5.4 °F) shall be installed so that the sensing tip of the temperature sensor is in direct contact with the sample gas exiting the filter. The sensing tip of the sensor may be encased in glass, Teflon, or metal and must protrude at least ½ in. into the sample gas exiting the filter. The filter temperature sensor must be monitored and recorded during sampling to ensure a sample gas temperature exiting the filter of 120 ± 14 °C (248 ± 25 °F), or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator for a particular application.

* * * * *

6.1.1.9 Metering System. Vacuum gauge, leak-free pump, calibrated temperature sensors (rechecked at at least one point after each test), dry gas meter (DGM) capable of measuring volume to within 2 percent, and related equipment, as shown in Figure 5–1. Alternatively, an Isostack metering system may be used if all Method 5 calibrations are performed, with the exception of those related to ΔH@ in Section 9.2.1, wherein the sample flow rate system shall be calibrated in lieu of ΔH@ and shall not deviate by more than 5 percent. 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.

* * * * *

7.1.3 Water. When analysis of the material caught in the impingers is required, deionized distilled water [to conform to ASTM D1193–77 or 91 Type 3 (incorporated by reference—see § 60.17)] with at least <0.001 percent residue shall be used or as specified in the applicable method requiring analysis of the water. Run reagent blanks prior to field use to eliminate a high blank on test samples.

* * * * *

8.1 Pretest Preparation. It is suggested that sampling equipment be maintained according to the procedures described in APTD–0576. Alternative mercury-free thermometers may be used if the thermometers are at a minimum equivalent in terms of performance or suitably effective for the specific temperature measurement application.

* * * * *

8.3.4 Set up the train as shown in Figure 5–1 ensuring that the connections are leak-tight. Subject to the approval of the Administrator, a glass cyclone may be used between the probe and filter holder when the total particulate catch is expected to exceed 100 mg or when water droplets are present in the stack gas.

* * * * *

8.5 Sampling Train Operation. During the sampling run, maintain an isokinetic sampling rate (within 10 percent of true isokinetic unless otherwise specified by the Administrator) and a sample gas temperature through the filter of 120 ± 14 °C (248 ± 25 °F) or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator.

* * * * *

8.5.6 During the test run, make periodic adjustments to keep the temperature around the filter holder at the proper level to maintain the sample gas temperature exiting the filter; add more ice and, if necessary, salt to maintain a temperature of less than 20 °C (68 °F) at the condenser/silica gel outlet. Also, periodically check the level and zero of the manometer.

* * * * *

8.7.3 Before moving the sample train to the cleanup site, remove the probe from the sample train and cap the open outlet of the probe. Be careful not to lose any condensate that might be present. Cap the filter inlet where the probe was fastened. Remove the umbilical cord from the last impinger, and cap the impinger. If a flexible line is used between the first impinger or condenser and the filter holder, disconnect the line at the filter holder, and let any condensed water or liquid drain into the impingers or condenser. Cap off the filter holder outlet and impinger inlet. Either ground-glass stoppers, plastic caps, or serum caps may be used to close these openings.

* * * * *

8.7.5 Save a portion of the acetone used for cleanup as a blank. From each storage container of acetone used for cleanup, save 200 ml and place in a glass sample container labeled ''acetone blank.'' To minimize any particulate contamination, rinse the wash bottle prior to filling from the tested container.

* * * * *

10.3.3 Acceptable Variation in Calibration Check. If the DGM coefficient values obtained before and after a test series differ by more than 5 percent, the test series shall either be voided, or calculations for the test series shall be performed using whichever meter coefficient value (*i.e.*, before or after) gives the lower value of total sample volume.

* * * * *

10.5 Temperature Sensors. Use the procedure in Section 10.3 of Method 2 to calibrate in-stack temperature sensors. Dial thermometers, such as are used for the DGM and condenser outlet, shall be calibrated against mercury-in-glass thermometers. An alternative mercury-free NIST-traceable thermometer may be used if the thermometer is, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application. As an alternative, the following single-point calibration procedure may be used. After each test run series, check the accuracy (and, hence, the calibration) of each thermocouple system at ambient temperature, or any other temperature, within the range specified by the manufacturer, using a reference thermometer (either ASTM reference thermometer or a thermometer that has been calibrated against an ASTM reference thermometer). The temperatures of the thermocouple and reference thermometers shall agree to within ±2 °F.

10.6 Barometer. Calibrate against a mercury barometer or NIST-traceable barometer prior to the field test. Alternatively, barometric pressure may be obtained from a weather report that has been adjusted for the test point (on the stack) elevation.

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16.2.3.3 * * *

$$V_{cr(std)} = K' \frac{P_{bar}\theta}{\sqrt{T_{amb}}} \qquad \text{Eq. 5-13}$$

* * * * *

16.3 Alternative Post-Test Metering System Calibration. The following procedure may be used as an alternative to the post-test calibration described in Section 10.3.2. This alternative procedure does not detect leakages between the inlet of the metering system and the dry gas meter. Therefore, two steps must be included to make it an equivalent alternative:

(1) The metering system must pass the post-test leak-check from either the inlet of the sampling train or the inlet of the metering system. Therefore, if the train fails the former leak-check, another leak-check from the inlet of the metering system must be conducted;

(2) The metering system must pass the leak-check of that portion of the train from the pump to the orifice meter as described in Section 8.4.1.

16.3.1 After each test run, do the following:

16.3.1.1 Ensure that the metering system has passed the post-test leak-check. If not, conduct a leak-check of the metering system from its inlet.

16.3.1.2 Conduct the leak-check of that portion of the train from the pump to the orifice meter as described in Section 10.3.1.1.

16.3.1.3 Calculate Y_{qa} for each test run using the following equation:

$$Y_{qa} = \frac{\theta}{V_m} \sqrt{\frac{0.0319 T_m}{\Delta H@\left(P_{bar} + \frac{\Delta H_{avg}}{13.6}\right)} \left(\frac{29}{M_d}\right)} \left(\sqrt{\Delta H}\right)_{avg} \qquad \text{Eq. 5-15}$$

Where:

Y_{qa} = Dry gas meter calibration check value, dimensionless.

0.0319 = (29.92/528) $(0.75)^2$ (in. Hg/°R) cfm^2.

$\Delta H@$ = Orifice meter calibration coefficient, in. H_2O.

M_d = Dry molecular weight of stack gas, lb/lb-mole.

29 = Dry molecular weight of air, lb/lb-mole.

16.3.2 After each test run series, do the following:

16.3.2.1 Average the three or more Y_{qa}'s obtained from the test run series and compare this average Y_{qa} with the dry gas meter calibration factor Y. The average Y_{qa} must be within 5 percent of Y.

16.3.2.2 If the average Y_{qa} does not meet the 5 percent criterion, recalibrate the meter over the full range of orifice settings as detailed in Section 10.3.1. Then follow the procedure in Section 10.3.3.

17.0 * * *

13. Shigehara, Roger T., P.G. Royals, and E.W. Steward. ''Alternative Method 5 Post-Test Calibration.'' Entropy Incorporated, Research Triangle Park, NC 27709.

* * * * *

Method 5A—Determination of Particulate Matter Emissions From the Asphalt Processing and Asphalt Roofing Industry

* * * * *

8.1 Pretest Preparation. Unless otherwise specified, maintain and calibrate all components according to the procedure described in APTD–0576, ''Maintenance, Calibration, and Operation of Isokinetic Source-Sampling Equipment'' (Reference 3 in Method 5, Section 17.0). Alternative mercury-free thermometers may be used if the thermometers are, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

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Method 5E—Determination of Particulate Matter Emissions From the Wool Fiberglass Insulation Manufacturing Industry

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16.0 Alternative Procedures

16.1 Total Organic Carbon Analyzer. Tekmar-Dohrmann analyzers using the single injection technique may be used as an alternative to Rosemount Model 2100A analyzers.

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Method 5H—Determination of Particulate Matter Emissions From Wood Heaters From a Stack Location

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12.1 Nomenclature.

A = Sample flow rate adjustment factor.
BR = Dry wood burn rate, kg/hr (lb/hr), from Method 28, Section 8.3.
B_{ws} = Water vapor in the gas stream, proportion by volume.
C_i = Tracer gas concentration at inlet, ppmv.
C_o = Tracer gas concentration at outlet, ppmv.
C_s = Concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, g/dscm (g/dscf).
E = Particulate emission rate, g/hr (lb/hr).
ΔH = Average pressure differential across the orifice meter (see Figure 5H–1), mm H_2O (in. H_2O).
L_a = Maximum acceptable leakage rate for either a post-test leak-check or for a leak-check following a component change; equal to 0.00057 cmm (0.020 cfm) or 4 percent of the average sampling rate, whichever is less.
L_1 = Individual leakage rate observed during the leak-check conducted before a component change, cmm (cfm).
L_p = Leakage rate observed during the post-test leak-check, cmm (cfm).
m_n = Total amount of particulate matter collected, mg.
M_a = Mass of residue of solvent after evaporation, mg.
N_C = Grams of carbon/gram of dry fuel (lb/lb), equal to 0.0425.
N_T = Total dry moles of exhaust gas/kg of dry wood burned, g-moles/kg (lb-moles/lb).
PR = Percent of proportional sampling rate.
P_{bar} = Barometric pressure at the sampling site, mm Hg (in.Hg).
P_{std} = Standard absolute pressure, 760 mm Hg (29.92 in.Hg).
Q_i = Gas volumetric flow rate at inlet, cfm (l/min).
Q_o = Gas volumetric flow rate at outlet, cfm (l/min).

* * * * *

12.15 Alternative Tracer Gas Flow Rate Determination.

$$Q_o = \frac{Q_i \times C_i}{C_o} \qquad Eq. 5H-10$$

Note: This gives Q for a single instance only. Repeated multiple determinations are needed to track temporal variations. Very small variations in Q_i, C_i, or C_o may give very large variations in Q_o.

* * * * *

16.0 Alternative Procedures

16.1 Alternative Stack Gas Volumetric Flow Rate Determination (Tracer Gas).

16.1.1 Apparatus.

16.1.1.1 Tracer Gas Injector System. This is to inject a known concentration of tracer gas into the stack. This system consists of a cylinder of tracer gas, a gas cylinder regulator, a stainless steel needle valve or a flow controller, a nonreactive (stainless steel or glass) rotameter, and an injection loop to disperse the tracer gas evenly in the stack.

16.1.1.2 Tracer Gas Probe. A glass or stainless steel sampling probe.

16.1.1.3 Gas Conditioning System. A gas conditioning system is suitable for delivering a cleaned sample to the analyzer consisting of a filter to remove particulate and a condenser capable of lowering the dew point of the sample gas to less than 5 °C (40 °F). A desiccant such as anhydrous calcium sulfate may be used to dry the sample gas. Desiccants which react or absorb tracer gas or stack gas may not be used, e.g. silica gel absorbs CO_2.

16.1.1.4. Pump. An inert (i.e., stainless steel or Teflon head) pump to deliver more than the total sample required by the manufacturer's specifications for the analyzer used to measure the downstream tracer gas concentration.

16.1.1.5 Gas Analyzer. A gas analyzer is any analyzer capable of measuring the tracer gas concentration in the range necessary at least every 10 minutes. A means of controlling the analyzer flow rate and a device for determining proper sample flow rate shall be provided unless data is provided to show that the analyzer is insensitive to flow variations over the range encountered during the test. The gas analyzer needs to meet or exceed the following performance specifications:

Linearity	±1 percent of full scale.
Calibration Error.	≤2 percent of span.
Response Time	≤10 seconds.
Zero Drift (24 hour).	≤2 percent of full scale.
Span Drift (24 hour).	≤2 percent of full scale.
Resolution	≤0.5 percent of span.

16.1.1.6 Recorder (optional). To provide a permanent record of the analyzer output.

16.1.2 Reagents.

16.1.2.1 Tracer Gas. The tracer gas is sulfur hexafluoride in an appropriate concentration for accurate analyzer measurement or pure sulfur dioxide. The gas used must be nonreactive with the stack effluent and give minimal (<3 percent) interference to measurement by the gas analyzer.

16.1.3 Procedure. Select upstream and downstream locations in the stack or duct for introducing the tracer gas and delivering the sampled gas to the analyzer. The inlet location should be 8 or more duct diameters beyond any upstream flow disturbance. The outlet should be 8 or more undisturbed duct diameters from the inlet and 2 or more duct diameters from the duct exit. After installing the apparatus, meter a known concentration of the tracer gas into the stack at the inlet location. Use the gas sample probe and analyzer to show that no stratification of the tracer gas is found in the stack at the measurement locations. Monitor the tracer gas concentration from the outlet location and record the concentration at 10-minute intervals or more often at the option of the tester. A minimum of three measured intervals is recommended to determine the stack gas volumetric flow rate. Other statistical procedures may be applied for complete flow characterization and additional QA/QC.

* * * * *

■ 25. Amend appendix A–4 to part 60 as follows:

■ a. By revising Method 6, sections 10.2 and 10.4.

■ b. By revising Method 6C, sections 4.0 and 8.3.

■ c. By revising Method 7, sections 4.0, 10.2, and 10.3.

■ d. By revising Method 7A, sections 4.0 and 10.4.

■ e. By revising Method 7E, sections 6.1, 7.1.1, the introductory text in section 8.2.5, the introductory text in section 8.2.7, and the introductory text in section 16.2.2.

■ f. By revising Method 8, the definition for V_{soln} in section 12.1, and Figure 8–1 in section 17.0.

■ g. By revising Method 10, sections 6.2.5 and 8.4.2.

■ h. By revising Method 10A, sections 2.0, 8.2.1, 8.2.3, 11.1, 11.2, the introductory text in section 12.3, and 13.5.

■ i. By revising Method 10B, section 2.1, 6.2.3, the introductory text in section 12.2.

Appendix A–4 to Part 60—Test Methods 6 Through 10B

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Method 6—Determination of Sulfur Dioxide Emissions From Stationary Sources

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10.2 Temperature Sensors. Calibrate against mercury-in-glass thermometers. An alternative mercury-free thermometer may be used if the thermometer is, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

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10.4 Barometer. Calibrate against a mercury barometer or NIST-traceable barometer prior to the field test.

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Method 6C—Determination of Sulfur Dioxide Emissions From Stationary Sources (Instrumental Analyzer Procedure)

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4.0 Interferences

Refer to Section 4.0 of Method 7E.

* * * * *

8.3 *Interference Check.* You must follow the procedures of Section 8.2.7 of Method 7E to conduct an interference check, substituting SO_2 for NO_X as the method pollutant. For dilution-type measurement systems, you must use the alternative interference check procedure in Section 16 and a co-located, unmodified Method 6 sampling train. Quenching in fluorescence analyzers must be evaluated and remedied unless a dilution system and ambient-level analyzer is used. This may be done by preparing the calibration gas to contain within 1 percent of the absolute oxygen and carbon dioxide content of the measured gas, preparing the calibration gas in air and using vendor nomographs, or by other acceptable means.

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Method 7—Determination of Nitrogen Oxide Emissions From Stationary Sources

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4.0 Interferences

Biased results have been observed when sampling under conditions of high sulfur dioxide concentrations. At or above 2100 ppm SO_2, use five times the H_2O_2 concentration of the Method 7 absorbing solution. Laboratory tests have shown that high concentrations of SO_2 (about 2100 ppm) cause low results in Method 7 and 7A. Increasing the H_2O_2 concentration to five times the original concentration eliminates this bias. However, when no SO_2 is present, increasing the concentration by five times results in a low bias.

* * * * *

10.2 Barometer. Calibrate against a mercury barometer or NIST-traceable barometer prior to the field test.

10.3 Temperature Gauge. Calibrate dial thermometers against mercury-in-glass thermometers. An alternative mercury-free thermometer may be used if the thermometer is, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

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Method 7A—Determination of Nitrogen Oxide Emissions From Stationary Sources (Ion Chromatographic Method)

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4.0 Interferences

Biased results have been observed when sampling under conditions of high sulfur dioxide concentrations. At or above 2100 ppm SO_2, use five times the H_2O_2 concentration of the Method 7 absorbing solution. Laboratory tests have shown that high concentrations of SO_2 (about 2100 ppm) cause low results in Method 7 and 7A. Increasing the H_2O_2 concentration to five times the original concentration eliminates this bias. However, when no SO_2 is present, increasing the concentration by five times results in a low bias.

* * * * *

10.4 Temperature Gauge. Calibrate dial thermometers against mercury-in-glass thermometers. An alternative mercury-free thermometer may be used if the thermometer is, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

* * * * *

Method 7E—Determination of Nitrogen Oxides Emissions From Stationary Sources (Instrumental Analyzer Procedure)

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6.1 What do I need for the measurement system? You may use any equipment and supplies meeting the following specifications:

(1) Sampling system components that are not evaluated in the system bias or system calibration error test must be glass, Teflon, or stainless steel. Other materials are potentially acceptable, subject to approval by the Administrator.

(2) The interference, calibration error, and system bias criteria must be met.

(3) Sample flow rate must be maintained within 10 percent of the flow rate at which the system response time was measured.

(4) All system components (excluding sample conditioning components, if used) must maintain the sample temperature above the moisture dew point. Ensure minimal contact between any condensate and the sample gas. Section 6.2 provides example equipment specifications for a NO_X measurement system. Figure 7E–1 is a diagram of an example dry-basis measurement system that is likely to meet the method requirements and is provided as guidance. For wet-basis systems, you may use alternative equipment and supplies as needed (some of which are described in Section 6.2), provided that the measurement system meets the applicable performance specifications of this method.

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7.1.1 High-Level Gas. This concentration is chosen to set the calibration span as defined in Section 3.4.

* * * * *

8.2.5 Initial System Bias and System Calibration Error Checks. Before sampling begins, determine whether the high-level or mid-level calibration gas best approximates the emissions and use it as the upscale gas. Introduce the upscale gas at the probe upstream of all sample conditioning components in system calibration mode. Record the time it takes for the measured concentration to increase to a value that is at least 95 percent or within 0.5 ppm (whichever is less restrictive) of a stable response for both the low-level and upscale gases. Continue to observe the gas concentration reading until it has reached a final, stable value. Record this value on a form similar to Table 7E–2.

* * * * *

8.2.7 Interference Check. Conduct an interference response test of the gas analyzer prior to its initial use in the field. If you have multiple analyzers of the same make and model, you need only perform this alternative interference check on one analyzer. You may also meet the interference check requirement if the instrument manufacturer performs this or a similar check on an analyzer of the same make and model of analyzer that you use and provides you with documented results. Analytical quenching must be evaluated and remedied unless a dilution system and ambient-level analyzer are used. The analyzer must be checked for quenching at concentrations of approximately 4 and 12 percent CO_2 at a mid-range concentration for each analyzer range which is commonly used. The analyzer must be rechecked after it has been repaired or modified or on another periodic basis.
* * *

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16.2.2 Bag Procedure. Perform the analyzer calibration error test to document the calibration (both NO and NO_X modes, as applicable). Fill a Tedlar or equivalent bag approximately half full with either ambient air, pure oxygen, or an oxygen standard gas with at least 19.5 percent by volume oxygen content. Fill the remainder of the bag with mid- to high-level NO in N_2 (or other appropriate concentration) calibration gas. (Note that the concentration of the NO standard should be sufficiently high enough for the diluted concentration to be easily and accurately measured on the scale used. The size of the bag should be large enough to accommodate the procedure and time required. Verify through the manufacturer that the Tedlar alternative is suitable for NO and make this verifed information available for inspection.)

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Method 8—Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions From Stationary Sources

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12.1 * * *

V_{soln} = Total volume of solution in which the sample is contained, 1000 ml for the SO_2 sample and 250 ml for the H_2SO_4 sample.

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17.0 Tables, Diagrams, Flowcharts, and Validation Data

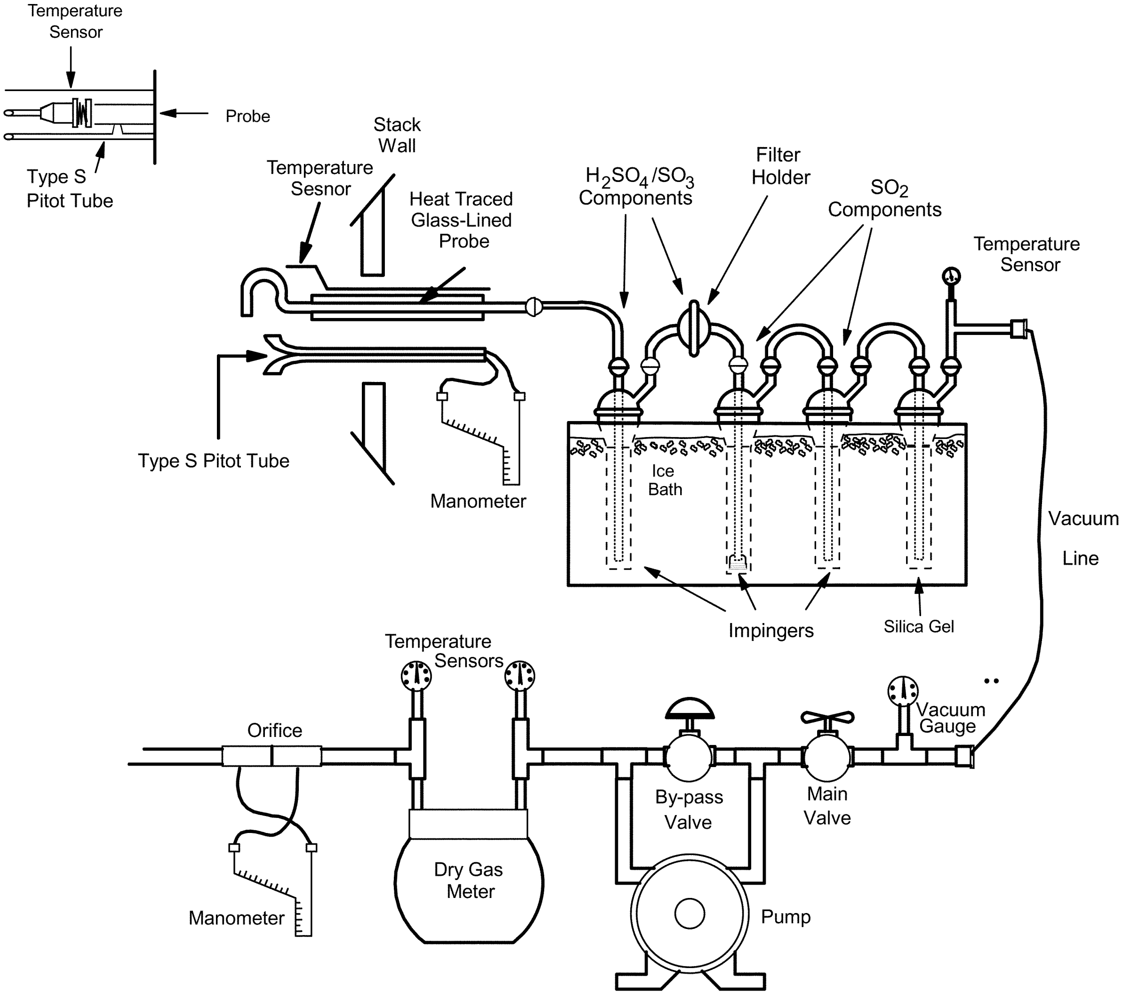

Figure 8-1. Sulfuric Acid Sampling Train

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Method 10—Determination of Carbon Monoxide Emissions From Stationary Sources

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6.2.5 Flexible Bag. Tedlar, or equivalent, with a capacity of 60 to 90 liters (2 to 3 ft^3). (Verify through the manufacturer that the Tedlar alternative is suitable for CO and make this verified information available for inspection.) Leak-test the bag in the laboratory before using by evacuating with a pump followed by a dry gas meter. When the evacuation is complete, there should be no flow through the meter. Gas tanks may be used in place of bags if the samples are analyzed within one week.

* * * * *

8.4.2 Integrated Sampling. Evacuate the flexible bag. Set up the equipment as shown in Figure 10–1 with the bag disconnected. Place the probe in the stack and purge the sampling line. Connect the bag, making sure that all connections are leak-free. Sample at a rate proportional to the stack velocity. If needed, the CO_2 content of the gas may be determined by using the Method 3 integrated sample procedures, or by weighing an ascarite CO_2 removal tube used and computing CO_2 concentration from the gas volume sampled and the weight gain of the tube. Data may be recorded on a form similar to Table 10–1. If a tank is used for sample collection, follow procedures similar to those in Sections 8.1.2, 8.2.3, 8.3, and 12.4 of Method 25 as appropriate to prepare the tank, conduct the sampling, and correct the measured sample concentration.

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Method 10A—Determination of Carbon Monoxide Emissions in Certifying Continuous Emission Monitoring Systems at Petroleum Refineries

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2.0 Summary of Method

An integrated gas sample is extracted from the stack, passed through an alkaline permanganate solution to remove sulfur oxides and nitrogen oxides, and collected in a Tedlar or equivalent bag. (Verify through the manufacturer that the Tedlar alternative is suitable for NO and make this verified information available for inspection.) The CO concentration in the sample is measured spectrophotometrically using the reaction of CO with *p*-sulfaminobenzoic acid.

* * * * *

8.2.1 Evacuate the bag completely using a vacuum pump. Assemble the apparatus as shown in Figure 10A–1. Loosely pack glass wool in the tip of the probe. Place 400 ml of alkaline permanganate solution in the first two impingers and 250 ml in the third. Connect the pump to the third impinger, and follow this with the surge tank, rate meter, and 3-way valve. Do not connect the bag to the system at this time.

* * * * *

8.2.3 Purge the system with sample gas by inserting the probe into the stack and drawing the sample gas through the system at 300 ml/min ±10 percent for 5 minutes. Connect the evacuated bag to the system, record the starting time, and sample at a rate of 300 ml/min for 30 minutes, or until the bag is nearly full. Record the sampling time, the barometric pressure, and the ambient temperature. Purge the system as described above immediately before each sample.

* * * * *

11.1 Assemble the system shown in Figure 10A–3, and record the information required in Table 10A–1 as it is obtained. Pipet 10.0 ml of the colorimetric reagent into each gas reaction bulb, and attach the bulbs to the system. Open the stopcocks to the reaction bulbs, but leave the valve to the bag closed. Turn on the pump, fully open the coarse-adjust flow valve, and slowly open the fine-adjust valve until the pressure is reduced to at least 40 mm Hg. Now close the coarse adjust valve, and observe the manometer to be certain that the system is leak-free. Wait a minimum of 2 minutes. If the pressure has increased less than 1 mm Hg, proceed as described below. If a leak is present, find and correct it before proceeding further.

11.2 Record the vacuum pressure (P_v) to the nearest 1 mm Hg, and close the reaction bulb stopcocks. Open the bag valve, and allow the system to come to atmospheric pressure. Close the bag valve, open the pump coarse adjust valve, and evacuate the system again. Repeat this fill/evacuation procedure at least twice to flush the manifold completely. Close the pump coarse adjust valve, open the bag valve, and let the system fill to atmospheric pressure. Open the stopcocks to the reaction bulbs, and let the entire system come to atmospheric pressure. Close the bulb stopcocks, remove the bulbs, record the room temperature and barometric pressure (P_{bar}, to nearest mm Hg), and place the bulbs on the shaker table with their main axis either parallel to or perpendicular to the plane of the table top. Purge the bulb-filling system with ambient air for several minutes between samples. Shake the samples for exactly 2 hours.

* * * * *

12.3 CO Concentration in the Bag. Calculate C_b using Equations 10A–2 and 10A–3. If condensate is visible in the bag, calculate B_w using Table 10A–2 and the temperature and barometric pressure in the analysis room. If condensate is not visible, calculate B_w using the temperature and barometric pressure at the sampling site.
* * *

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13.5 Stability. The individual components of the colorimetric reagent are stable for at least one month. The colorimetric reagent must be used within two days after preparation to avoid excessive blank correction. The samples in the bag should be stable for at least one week if the bags are leak-free.

* * * * *

Method 10B—Determination of Carbon Monoxide Emissions From Stationary Sources

* * * * *

2.1 An integrated gas sample is extracted from the sampling point, passed through a conditioning system to remove interferences, and collected in a Tedlar or equivalent bag. (Verify through the manufacturer that the Tedlar alternative is suitable for NO and make this verifying information available for inspection.) The CO is separated from the sample by gas chromatography (GC) and catalytically reduced to methane (CH_4) which is determined by flame ionization detection (FID). The analytical portion of this method is identical to applicable sections in Method 25 detailing CO measurement.

* * * * *

6.2.3 Sample Injection System. Same as in Method 25, Section 6.3.1.4, equipped to accept a sample line from the bag.

* * * * *

12.2 CO Concentration in the Bag. Calculate C_b using Equations 10B–1 and 10B–2. If condensate is visible in the bag, calculate B_w using Table 10A–2 of Method 10A and the temperature and barometric pressure in the analysis room. If condensate is not visible, calculate B_w using the temperature and barometric pressure at the sampling site.

* * * * *

■ 26. Amend appendix A–5 to part 60 as follows:

■ a. By revising Method 11, sections 8.5 and 10.1.2.

■ b. Amend Method 12 as follows:

■ i. By revising section 16.1.

■ ii. By adding sections 16.4, 16.5, and 16.6.

■ c. By adding a sentence to the end of Method 14A, section 10.1.1.

Appendix A–5 to Part 60—Test Methods 11 Through 15A

* * * * *

Method 11—Determination of Hydrogen Sulfide Content of Fuel Gas Streams in Petroleum Refineries

* * * * *

8.5 Sample for at least 10 minutes. At the end of the sampling time, close the sampling valve, and record the final volume and temperature readings. Conduct a leak-check as described in Section 8.2. A yellow color in the final cadmium sulfate impinger indicates depletion of the absorbing solution. An additional cadmium sulfate impinger should be added for subsequent samples and the sample with yellow color in the final impinger should be voided.

* * * * *

10.1.2 Temperature Sensors. Calibrate against mercury-in-glass thermometers. An alternative mercury-free thermometer may be used if the thermometer is at a minimum equivalent in terms of performance or suitably effective for the specific temperature measurement application.

* * * * *

Method 12—Determination of Inorganic Lead Emissions From Stationary Sources

* * * * *

16.1 Simultaneous Determination of Particulate Matter and Lead Emissions. Method 12 may be used to simultaneously determine Pb provided:

(1) Acetone is used to remove particulate from the probe and inside of the filter holder as specified by Method 5,

(2) 0.1 N HNO_3 is used in the impingers,

(3) A glass fiber filter with a low Pb background is used, and

(4) The entire train contents, including the impingers, are treated and analyzed for Pb as described in Sections 8.0 and 11.0 of this method.

* * * * *

16.4 Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP–AES) Analysis. ICP–AES may be used as an alternative to atomic absorption analysis provided the following conditions are met:

16.4.1 Sample collection, sample preparation, and analytical preparation procedures are as defined in the method except as necessary for the ICP–AES application.

16.4.2 The limit of quantitation for the ICP–AES must be demonstrated, and the sample concentrations reported should be no less than two times the limit of quantitation. The limit of quantitation is defined as ten times the standard deviation of the blank value. The standard deviation of the blank value is determined from the analysis of seven blanks. It has been reported that for mercury and those elements that form hydrides, a continuous-flow generator coupled to an ICP–AES offers detection limits comparable to cold vapor atomic absorption.

16.5 Inductively Coupled Plasma-Mass Spectrometry (ICP–MS) Analysis. ICP–MS may be used as an alternative to atomic absorption analysis.

16.6 Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) Analysis. CVAFS may be used as an alternative to atomic absorption analysis.

* * * * *

Method 14A—Determination of Total Fluoride Emissions From Selected Sources at Primary Aluminum Production Facilities

* * * * *

10.1.1 * * * Allowable tolerances for Y and $\Delta H_@$ are given in Figure 5–5 of Method 5 of this appendix.

* * * * *

■ 27. Amend appendix A–6 to part 60 as follows:

■ a. By revising Method 16A, section 1.2.

■ b. By revising Method 16C, sections 12.1 and 12.5.

■ c. By revising Method 18, sections 8.2.1.1.2, 8.2.1.4, 8.2.1.4.2, 16.1.1.12, 16.1.3.2, and the headings of figures 18–3 and 18–10.

■ d. By redesignating section 8.2.1.5.2.3 as section 8.2.1.5.2.2.

■ e. By adding a new section 8.2.1.5.2.3.

Appendix A–6 to Part 60—Test Methods 16 Through 18

* * * * *

Method 16A—Determination of Total Reduced Sulfur Emissions From Stationary Sources (Impinger Technique)

* * * * *

1.2 Applicability. This method is applicable for the determination of TRS emissions from recovery boilers, lime kilns, and smelt dissolving tanks at kraft pulp mills, reduced sulfur compounds (H_2S, carbonyl sulfide, and carbon disulfide) from sulfur recovery units at onshore natural gas processing facilities, and from other sources when specified in an applicable subpart of the regulations. The flue gas must contain at least 1 percent oxygen for complete oxidation of all TRS to SO_2. Note: If sources other than kraft pulp mills experience low oxygen levels in the emissions, the method results may be biased low.

* * * * *

Method 16C—Determination of Total Reduced Sulfur Emissions From Stationary Sources

* * * * *

12.1 Nomenclature.

ACE = Analyzer calibration error, percent of calibration span.
CD = Calibration drift, percent.
C_{Dir} = Measured concentration of a calibration gas (low, mid, or high) when introduced in direct calibration mode, ppmv.
C_{H2S} = Concentration of the system performance check gas, ppmv H_2S.
C_S = Measured concentration of the system performance gas when introduced in system calibration mode, ppmv H_2S.
C_V = Manufacturer certified concentration of a calibration gas (low, mid, or high), ppmv SO_2.
C_{SO2} = Unadjusted sample SO_2 concentration, ppmv.
C_{TRS} = Total reduced sulfur concentration corrected for system performance, ppmv.
DF = Dilution system (if used) dilution factor, dimensionless.
SP = System performance, percent.

* * * * *

12.5 TRS Concentration as SO_2. For each sample or test run, calculate the arithmetic average of SO_2 concentration values (e.g., 1-minute averages). Then calculate the sample TRS concentration by adjusting the average value of C_{SO2} for system performance using Equation 16C–4.

$$C_{TRS} = \frac{\overline{C_{SO2}}}{1 - \left|\overline{SP}\right|} \qquad \text{Eq. 16C-4}$$

* * * * *

Method 18—Measurement of Gaseous Organic Compound Emissions by Gas Chromatography

* * * * *

8.2.1.1.2 Sampling Procedure. To obtain a sample, assemble the sample train as shown in Figure 18–9. Leak-check both the bag and the container. Connect the vacuum line from the needle valve to the Teflon sample line from the probe. Place the end of the probe at the centroid of the stack or at a point no closer to the walls than 1 in., and start the pump. Set the flow rate so that the final volume of the sample is approximately 80 percent of the bag capacity. After allowing sufficient time to purge the line several times, connect the vacuum line to the bag, and evacuate until the rotameter indicates no flow. Then position the sample and vacuum lines for sampling, and begin the actual sampling, keeping the rate proportional to the stack velocity. As a precaution, direct the gas exiting the rotameter away from sampling personnel. At the end of the sample period, shut off the pump, disconnect the sample line from the bag, and disconnect the vacuum line from the bag container. Record the source temperature, barometric pressure, ambient temperature, sampling flow rate, and initial and final sampling time on the data sheet shown in Figure 18–10. Protect the bag and its container from sunlight. Record the time lapsed between sample collection and analysis, and then conduct the recovery procedure in Section 8.4.2.

* * * * *

8.2.1.4 Other Modified Bag Sampling Procedures. In the event that condensation is observed in the bag while collecting the sample and a direct interface system cannot be used, heat the bag during collection and maintain it at a suitably elevated temperature during all subsequent operations. (Note: Take care to leak-check the system prior to the dilutions so as not to create a potentially explosive atmosphere.) As an alternative, collect the sample gas, and simultaneously dilute it in the bag.

* * * * *

8.2.1.4.2 Second Alternative Procedure. Prefill the bag with a known quantity of inert gas. Meter the inert gas into the bag according to the procedure for the preparation of gas concentration standards of volatile liquid materials (Section 10.1.2.2), but eliminate the midget impinger section. Take the partly filled bag to the source, and meter the source gas into the bag through heated sampling lines and a heated flowmeter, or Teflon positive displacement pump. Verify the dilution factors before sampling each bag through dilution and analysis of gases of known concentration.

* * * * *

8.2.1.5.2.3 Analyze the two field audit samples as described in Section 9.2 by connecting each bag containing an audit gas mixture to the sampling valve. Calculate the results; record and report the data to the audit supervisor.

* * * * *

16.1.1.12 Flexible Bags. Tedlar or equivalent, 10- and 50-liter capacity, for preparation of standards. (Verify through the manufacturer that the Tedlar alternative is suitable for the compound of interest and make this verifying information available for inspection.)

* * * * *

16.1.3.2 Flexible Bag Procedure. Any leak-free plastic (e.g., Tedlar, Mylar, Teflon) or plastic-coated aluminum (e.g., aluminized Mylar) bag, or equivalent, can be used to obtain the pre-survey sample. Use new bags, and leak-check them before field use. In addition, check the bag before use for contamination by filling it with nitrogen or air and analyzing the gas by GC at high sensitivity. Experience indicates that it is desirable to allow the inert gas to remain in the bag about 24 hours or longer to check for desorption of organics from the bag. Follow the leak-check and sample collection procedures given in Section 8.2.1.

* * * * *

18.0 * * *

Figure 18–3. Preparation of Standards in Tedlar or Tedlar-Equivalent Bags and Calibration Curve

* * * * *

Figure 18–10. Field Sample Data Sheet—Tedlar or Tedlar-Equivalent Bag Collection Method

* * * * *

■ 28. Amend appendix A–7 to part 60 as follows:
■ a. By amending Method 23 as follows:
■ i. By revising sections 2.2.7, 4.1.1.3, and 4.2.7.
■ ii. By adding and reserving section 8.0.
■ b. By revising Method 24, section 11.2.2.
■ c. By revising Method 25, section 7.1.3.
■ d. Amend Method 25C as follows:
■ i. By revising sections 6.1 and 12.1.
■ ii. By adding a new section 8.2.3.
■ e. By revising Method 25D, the first sentence in section 9.1.

Appendix A–7 to Part 60—Test Methods 19 Through 25E

* * * * *

Method 23—Determination of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans From Stationary Sources

* * * * *

2.2.7 Storage Container. Air-tight container to store silica gel.

* * * * *

4.1.1.3 Sample Train. It is suggested that all components be maintained according to the procedure described in APTD–0576. Alternative mercury-free thermometers may be used if the thermometers are, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

* * * * *

4.2.7 Silica Gel. Note the color of the indicating silica gel to determine if it has been completely spent and make a mention of its condition. Transfer the silica gel from the fifth impinger to its original container and seal. If a moisture determination is made, follow the applicable procedures in sections 8.7.6.3 and 11.2.3 of Method 5 to handle and weigh the silica gel. If moisture is not measured, the silica gel may be disposed.

* * * * *

8.0 [Reserved]

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Method 24—Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings

* * * * *

11.2.2 Volatile Content. To determine total volatile content, use the apparatus and reagents described in ASTM D2369 (incorporated by reference; see § 60.17 for the approved versions of the standard), respectively, and use the following procedures:

* * * * *

Method 25—Determination of Total Gaseous Nonmethane Organic Emissions as Carbon

* * * * *

7.1.3 Filters. Glass fiber filters, without organic binder, exhibiting at least 99.95 percent efficiency (<0.05 percent penetration) on 0.3 micron dioctyl phthalate smoke particles. The filter efficiency test shall be conducted in accordance with ASTM Method D2986–71, 78, or 95a (incorporated by reference—see § 60.17). Test data from the supplier's quality control program are sufficient for this purpose.

* * * * *

Method 25C—Determination of Nonmethane Organic Compounds (NMOC) in MSW Landfill Gases

* * * * *

6.1 Sample Probe. Stainless steel, with the bottom third perforated. Teflon probe liners and sampling lines are also allowed. Non-perforated probes are allowed as long as they are withdrawn to create a gap equivalent to having the bottom third perforated. The sample probe must be capped at the bottom and must have a threaded cap with a sampling attachment at the top. The sample probe must be long enough to go through and extend no less than 0.9 m (3 ft) below the landfill cover. If the sample probe is to be driven into the landfill, the bottom cap should be designed to facilitate driving the probe into the landfill.

* * * * *

8.2.3 Driven Probes. Closed-point probes may be driven directly into the landfill in a single step. This method may not require backfilling if the probe is adequately sealed by its insertion. Unperforated probes that are inserted in this manner and withdrawn at a distance from a detachable tip to create an open space are also acceptable.

* * * * *

12.1 Nomenclature.

B_w = Moisture content in the sample, fraction.
C_{N2} = Reported N_2 concentration (C_{N2Corr} by Method 3C), fraction.
C_t = Calculated NMOC concentration, ppmv C equivalent.
C_{tm} = Measured NMOC concentration, ppmv C equivalent.
P_b = Barometric pressure, mm Hg.
P_t = Gas sample tank pressure after sampling, but before pressurizing, mm Hg absolute.
P_{tf} = Final gas sample tank pressure after pressurizing, mm Hg absolute.
P_{ti} = Gas sample tank pressure after evacuation, mm Hg absolute.
P_w = Vapor pressure of H_2O (from Table 25C–1), mm Hg.
r = Total number of analyzer injections of sample tank during analysis (where j=injection number, 1 . . . r).
T_t = Sample tank temperature at completion of sampling, °K.
T_{ti} = Sample tank temperature before sampling, °K.
T_{tf} = Sample tank temperature after pressurizing, °K.

* * * * *

Method 25D—Determination of the Volatile Organic Concentration of Waste Samples

* * * * *

9.1 Quality Control Samples. If audit samples are not available, prepare and analyze the two types of quality control samples (QCS) listed in Sections 9.1.1 and 9.1.2. * * *

* * * * *

■ 29. Amend appendix A–8 to part 60 as follows:
■ a. By amending Method 26 as follows:
■ i. By revising sections 6.1.1, 6.1.5, and 8.1.2.
■ ii. By redesignating sections 16.0 and 17.0 as sections 17.0 and 18.0, respectively.
■ iii. By adding a new section 16.0.
■ b. By revising Method 26A, sections 6.1.7, 8.1.5, and 8.1.6.
■ c. By amending Method 29 as follows:
■ i. By redesignating sections 16.0 and 17.0 as sections 17.0 and 18.0, respectively.
■ ii. By adding a new section 16.0.
■ d. By revising Method 30B, the introductory text to section 8.2.2.1, the note to section 8.2.4, the note to section 8.2.6.2, and sections 9.0, 10.3, 10.4, 11.3.

Appendix A–8 to Part 60—Text Methods 26 Through 30B

* * * * *

Method 26—Determination of Hydrogen Halide and Halogen Emissions From Stationary Sources Non-Isokinetic Method

* * * * *

6.1.1 Probe. Borosilicate glass, approximately 3/8-in. (9-mm) I.D. with a heating system capable of maintaining a probe gas temperature during sampling between 120 and 134 °C (248 and 273 °F) to prevent moisture condensation; or Teflon where stack probes are below 210 °C. If HF is a target analyte, then preconditioning of new teflon components by heating should be considered to prevent potential HF outgassing. A Teflon-glass filter in a mat configuration should be installed to remove particulate matter from the gas stream.

* * * * *

6.1.5 Heating System. Any heating system capable of maintaining a temperature around the probe and filter holder between 120 and 134 °C (248 and 273 °F) during sampling, or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator for a particular application.

* * * * *

8.1.2 Adjust the probe temperature and the temperature of the filter and the stopcock (i.e., the heated area in Figure 26–1) to a temperature sufficient to prevent water condensation. This temperature must be maintained between 120 and 134 °C (248 and 273 °F). The temperature should be monitored throughout a sampling run to ensure that the desired temperature is maintained. It is important to maintain a temperature around the probe and filter in this range since it is extremely difficult to purge acid gases off these components. (These components are not quantitatively recovered and, hence, any collection of acid gases on these components would result in potential undereporting of these emissions. The applicable subparts may specify alternative higher temperatures.)

* * * * *

16.0 Alternative Procedures

Method 26A. Method 26A, which uses isokinetic sampling equipment, is an acceptable alternative to Method 26.

* * * * *

Method 26A—Determination of Hydrogen Halide and Halogen Emissions From Stationary Sources—Isokinetic Method

* * * * *

6.1.7 Heating System. Any heating system capable of maintaining a temperature around the probe and filter holder between 120 and 134 °C (248 to 273 °F) during sampling, or such other temperature as specified by an applicable subpart of the standards or approved by the Administrator for a particular application.

* * * * *

8.1.5 Sampling Train Operation. Follow the general procedure given in Method 5, Section 8.5. It is important to maintain a temperature around the probe, filter (and cyclone, if used) between 120 and 134 °C (248 and 273 °F) since it is extremely difficult to purge acid gases off these components. (These components are not quantitatively recovered and hence any collection of acid gases on these components would result in potential undereporting these emissions. The applicable subparts may specify alternative higher temperatures.) For each run, record the data required on a data sheet such as the one shown in Method 5, Figure 5–3. If the condensate impinger becomes too full, it may be emptied, recharged with 50 ml of 0.1 N H2SO4, and replaced during the sample run. The condensate emptied must be saved and included in the measurement of the volume of moisture collected and included in the sample for analysis. The additional 50 ml of absorbing reagent must also be considered in calculating the moisture. Before the sampling train integrity is compromised by removing the impinger, conduct a leak-check as described in Method 5, Section 8.4.2.

8.1.6 Post-Test Moisture Removal (Optional). When the optional cyclone is included in the sampling train or when liquid is visible on the filter at the end of a sample run even in the absence of a cyclone, perform the following procedure. Upon completion of the test run, connect the ambient air conditioning tube at the probe inlet and operate the train with the filter heating system between 120 and 134 °C (248 and 275 °F) at a low flow rate (e.g., $\Delta H = 1$ in. H_2O) to vaporize any liquid and hydrogen halides in the cyclone or on the filter and pull them through the train into the impingers. After 30 minutes, turn off the flow, remove the conditioning tube, and examine the cyclone and filter for any visible liquid. If liquid is visible, repeat this step for 15 minutes and observe again. Keep repeating until the cyclone is dry.

* * * * *

Method 29—Determination of Metals Emissions From Stationary Sources

* * * * *

16.0 Alternative Procedures

16.1 Alternative Analyzer. Samples may also be analyzed by cold vapor atomic fluorescence spectrometry.

16.2 [Reserved].

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Method 30B—Determination of Total Vapor Phase Mercury Emissions From Coal-Fired Combustion Sources Using Carbon Sorbent Traps

* * * * *

8.2.2.1 Determination of Minimum Calibration Concentration or Mass. Based on your instrument's sensitivity and linearity, determine the calibration concentrations or masses that make up a representative low level calibration range. Verify that you are able to meet the multipoint calibration performance criteria in section 11.0 of this method. Select a calibration concentration or mass that is no less than 2 times the lowest concentration or mass in your calibration curve. The lowest point in your calibration curve must be at least 5, and preferably 10, times the Method Detection Limit (MDL), which is the minimum amount of the analyte that can be detected and reported. The MDL must be determined at least once for the analytical system using an MDL study such as that found in section 15.0 to Method 301 of appendix A to part 63 of this chapter.

* * * * *

8.2.4 * * *

Note to Section 8.2.4: For the purposes of relative accuracy testing of Hg monitoring systems under subpart UUUUU of part 63 of this chapter and Performance Specifications 12A and 12B in appendix B to this part, when the stack gas Hg concentration is expected to be very low (<0.5 µg/dscm), you may estimate the Hg concentration at 0.5 µg/dscm.

* * * * *

8.2.6.2 * * *

Note to Section 8.2.6.2: It is acceptable to perform the field recovery test concurrent with actual test runs (e.g., through the use of a quad probe). It is also acceptable to use the field recovery test runs as test runs for emissions testing or for the RATA of a Hg monitoring system under subpart UUUUU of part 63 of this chapter and Performance Specifications 12A and 12B in appendix B to this part, if certain conditions are met. To determine whether a particular field recovery test run may be used as a RATA run, subtract the mass of the Hg^0 spike from the total Hg mass collected in sections 1 and 2 of the spiked trap. The difference represents the mass of Hg in the stack gas sample. Divide this mass by the sample volume to obtain the Hg concentration in the effluent gas stream, as measured with the spiked trap. Compare this concentration to the corresponding Hg concentration measured with the unspiked trap. If the paired trains meet the relative deviation and other applicable data validation criteria in Table 9–1, then the average of the two Hg concentrations may be used as an emissions test run value or as the reference method value for a RATA run.

* * * * *

9.0 Quality Assurance and Quality Control

Table 9–1 summarizes the QA/QC performance criteria that are used to validate the Hg emissions data from Method 30B sorbent trap measurement systems.

TABLE 9–1—QUALITY ASSURANCE/QUALITY CONTROL CRITERIA FOR METHOD 30B

QA/QC test or specification	Acceptance criteria	Frequency	Consequences if not met
Gas flow meter calibration (At 3 settings or points).	Calibration factor (Y_i) at each flow rate must be within ±2% of the average value (Y).	Prior to initial use and when post-test check is not within ±5% of Y.	Recalibrate at 3 points until the acceptance criteria are met.
Gas flow meter post-test calibration check (Single-point).	Calibration factor (Y_i) must be within ±5% of the Y value from the most recent 3-point calibration.	After each field test. For mass flow meters, must be done on-site, using stack gas.	Recalibrate gas flow meter at 3 points to determine a new value of Y. For mass flow meters, must be done on-site, using stack gas. Apply the new Y value to the field test data.
Temperature sensor calibration	Absolute temperature measures by sensor within ±1.5% of a reference sensor.	Prior to initial use and before each test thereafter.	Recalibrate; sensor may not be used until specification is met.
Barometer calibration	Absolute pressure measured by instrument within ±10 mm Hg of reading with a mercury barometer or NIST traceable barometer.	Prior to initial use and before each test thereafter.	Recalibrate; instrument may not be used until specification is met.
Pre-test leak check	≤4% of target sampling rate	Prior to sampling	Sampling shall not commence until the leak check is passed.
Post-test leak check	≤4% of average sampling rate	After sampling	Sample invalidated.*
Analytical matrix interference test (wet chemical analysis, only).	Establish minimum dilution (if any) needed to eliminate sorbent matrix interferences.	Prior to analyzing any field samples; repeat for each type of sorbent used.	Field sample results not validated.
Analytical bias test	Average recovery between 90% and 110% for Hg^0 and $HgCl_2$ at each of the 2 spike concentration levels.	Prior to analyzing field samples and prior to use of new sorbent media.	Field samples shall not be analyzed until the percent recovery criteria has been met.
Multipoint analyzer calibration	Each analyzer reading within ±10% of true value *and* $r^2 \geq 0.99$.	On the day of analysis, before analyzing any samples.	Recalibrate until successful.
Analysis of independent calibration standard.	Within ±10% of true value	Following daily calibration, prior to analyzing field samples.	Recalibrate and repeat independent standard analysis until successful.

TABLE 9–1—QUALITY ASSURANCE/QUALITY CONTROL CRITERIA FOR METHOD 30B—Continued

QA/QC test or specification	Acceptance criteria	Frequency	Consequences if not met
Analysis of continuing calibration verification standard (CCVS).	Within ±10% of true value	Following daily calibration, after analyzing ≤10 field samples, and at end of each set of analyses.	Recalibrate and repeat independent standard analysis, reanalyze samples until successful, if possible; for destructive techniques, samples invalidated.
Test run total sample volume	Within ±20% of total volume sampled during field recovery test.	Each individual sample	Sample invalidated.
Sorbent trap section 2 breakthrough.	For compliance/emissions testing: ≤10% of section 1 Hg mass for Hg concentrations >1 µg/dscm; ≤20% of section 1 Hg mass for Hg concentrations ≤1 µg/dscm. ≤50% of section 1 Hg mass if the stack Hg concentration is ≤30% of the Hg concentration that is equivalent to the applicable emission limit. For relative accuracy testing: ≤10% of section 1 Hg mass for Hg concentrations >1 µg/dscm; ≤20% of section 1 Hg mass for Hg concentrations ≤1 µg/dscm and >0.5 µg/dscm; ≤50% of section 1 Hg mass for Hg concentrations ≤0.5 µg/dscm >0.1 µg/dscm; no criterion for Hg concentrations ≤0.1 µg/dscm (must meet all other QA/QC specifications).	Every sample	Sample invalidated.*
Paired sorbent trap agreement	≤10% Relative Deviation (RD) mass for Hg concentrations >1 µg/dscm; ≤20% RD or ≤0.2 µg/dscm absolute difference for Hg concentrations ≤1 µg/dscm.	Every run	Run invalidated.*
Sample analysis	Within valid calibration range (within calibration curve).	All Section 1 samples where stack Hg concentration is ≥0.02 µg/dscm except in case where stack Hg concentration is ≤30% of the applicable emission limit.	Reanalyze at more concentrated level if possible, samples invalidated if not within calibrated range.
Sample analysis	Within bounds of Hg^0 and $HgCl_2$ Analytical Bias Test.	All Section 1 samples where stack Hg concentration is ≥0.5 µg/dscm.	Expand bounds of Hg^0 and $HgCl_2$ Analytical Bias Test; if not successful, samples invalidated.
Field recovery test	Average recovery between 85% and 115% for Hg^0.	Once per field test	Field sample runs not validated without successful field recovery test.

* And data from the pair of sorbent traps are also invalidated.

* * * * *

10.3 Thermocouples and Other Temperature Sensors. Use the procedures and criteria in Section 10.3 of Method 2 in appendix A–1 to this part to calibrate in-stack temperature sensors and thermocouples. Dial thermometers shall be calibrated against mercury-in-glass thermometers or equivalent. Calibrations must be performed prior to initial use and before each field test thereafter. At each calibration point, the absolute temperature measured by the temperature sensor must agree to within ±1.5 percent of the temperature measured with the reference sensor, otherwise the sensor may not continue to be used.

10.4 Barometer. Calibrate against a mercury barometer or other NIST-traceable barometer as per Section 10.6 of Method 5 in appendix A–3 to this part. Calibration must be performed prior to initial use and before each test program, and the absolute pressure measured by the barometer must agree to within ±10 mm Hg of the pressure measured by the mercury or other NIST-traceable barometer, otherwise the barometer may not continue to be used.

* * * * *

11.3 Field Sample Analyses. Analyze the sorbent trap samples following the same procedures that were used for conducting the Hg^0 and $HgCl_2$ analytical bias tests. The individual sections of the sorbent trap and their respective components must be analyzed separately (i.e., section 1 and its components, then section 2 and its components). All sorbent trap section 1 sample analyses must be within the calibrated range of the analytical system as specified in Table 9–1. For wet analyses, the sample can simply be diluted to fall within the calibrated range. However, for the destructive thermal analyses, samples that are not within the calibrated range cannot be re-analyzed. As a result, the sample cannot be validated, and another sample must be collected. It is strongly suggested that the analytical system be calibrated over multiple ranges so that thermally analyzed samples fall within the calibrated range. The total mass of Hg measured in each sorbent trap section 1 must also fall within the lower and upper mass limits established during the initial Hg^0 and $HgCl_2$ analytical bias test. If a sample is analyzed and found to fall outside of these limits, it is acceptable for an additional Hg^0 and $HgCl_2$ analytical bias test to be performed that now includes this level. However, some samples (e.g., the mass collected in trap section 2), may have Hg levels so low that it may not be possible to quantify them in the analytical system's calibrated range. Because a reliable estimate of these low-level Hg measurements is necessary to fully validate the emissions data, the MDL (see section 8.2.2.1 of this method) is used to establish the minimum amount that can be detected and reported. If the measured mass or concentration is below the lowest point in the calibration curve and above the MDL, the analyst must estimate the mass or concentration of the sample based on the analytical instrument response relative to an additional calibration standard at a concentration or mass between the MDL and the lowest point in the calibration curve. This is accomplished by establishing a response factor (e.g., area counts per Hg mass or concentration) and estimating the amount of Hg present in the sample based on the analytical response and this response factor.

Example: The analysis of a particular sample results in a measured mass above the MDL, but below the lowest point in the calibration curve which is 10 ng. An MDL of 1.3 ng Hg has been established by the MDL study. A calibration standard containing 5 ng of Hg is analyzed and gives an analytical response of 6,170 area counts, which equates to a response factor of 1,234 area counts/ng Hg. The analytical response for the sample is 4,840 area counts. Dividing the analytical response for the sample (4,840 area counts) by the response factor gives 3.9 ng Hg, which is the estimated mass of Hg in the sample.

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■ 30. Amend appendix B to part 60 as follows:

■ a. By revising Performance Specification 3, section 13.2.

■ b. By revising Performance Specification 4, section 8.2.

■ c. By revising Performance Specification 4B, section 7.1.1.

■ d. By amending Performance Specification 7 as follows:

■ i. By revising section 8.4.

■ ii. By adding reference 5. to section 16.0.

■ e. By revising Performance Specification 11, sections 12.1(1) and (2).

■ f. By revising Performance Specification 12B, table 12B–1 in section 9.0 and section 12.8.3.

■ g. By revising Performance Specification 15, sections 11.1.1.4.2 and 11.1.1.4.3.

■ h. By revising Performance Specification 16, sections 6.1.7, 8.2.1, 9.1, 9.3, 9.4, 12.4, and 13.5.

Appendix B to Part 60—Performance Specifications

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Performance Specification 3—Specifications and Test Procedures for O_2 and CO_2 Continuous Emission Monitoring Systems in Stationary Sources

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13.2 CEMS Relative Accuracy Performance Specification. The RA of the CEMS must be no greater than 20 percent of the mean value of the reference method (RM) data. The results are also acceptable if the absolute value of the difference between the mean RM value and the mean CEMS value is less than or equal to 1.0 percent O_2 (or CO_2).

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Performance Specification 4—Specifications and Test Procedures for Carbon Monoxide Continuous Emission Monitoring Systems in Stationary Sources

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8.2 Reference Methods. Unless otherwise specified in an applicable subpart of the regulation, Method 10, 10A, 10B or other approved alternative are the RM for this PS.

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Performance Specification 4B—Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources

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7.1.1 *Calculations.* Summarize the results on a data sheet. Average the differences between the instrument response and the certified cylinder gas value for each gas. Calculate the CE results for the CO monitor according to:

$$CE = | d/FS | \times 100 \quad (1)$$

Where d is the mean difference between the CEMS response and the known reference concentration, and FS is the span value. The CE for the O_2 monitor is the average percent O_2 difference between the O_2 monitor and the certified cylinder gas value for each gas.

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Performance Specification 7—Specifications and Test Procedures for Hydrogen Sulfide Continuous Emission Monitoring Systems in Stationary Sources

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8.4 Relative Accuracy Test Procedure.

8.4.1 Sampling Strategy for RM Tests, Number of RM Tests, Correlation of RM and CEMS Data, and Calculations. These are the same as that in PS–2, Sections 8.4.3 (except as specified below), 8.4.4, 8.4.5, and 8.4.6, respectively.

8.4.2 Reference Methods. Unless otherwise specified in an applicable subpart of the regulation, Methods 11, 15, and 16 may be used for the RM for this PS.

8.4.2.1 Sampling Time Per Run—Method 11. A sampling run, when Method 11 (integrated sampling) is used, shall consist of a single measurement for at least 10 minutes and 0.010 dscm (0.35 dscf). Each sample shall be taken at approximately 30-minute intervals.

8.4.2.2 Sampling Time Per Run—Methods 15 and 16. The sampling run shall consist of two injections equally spaced over a 30-minute period following the procedures described in the particular method. **Note:** Caution! Heater or non-approved electrical probes should not be used around explosive or flammable sources.

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16.0 * * *

5. Letter to RAMCON Environmental Corp. from Robert Kellam, December 27, 1992.

* * * * *

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

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12.1 * * *

(1) Calculate the upscale drift (UD) using Equation 11–1:

$$UD = \frac{|R_{CEM} - R_U|}{FS} \times 100 \qquad \text{(Eq. 11-1)}$$

Where:

UD = The upscale (high-level) drift of your PM CEMS in percent,

R_{CEM} = The measured PM CEMS response to the upscale reference standard, and

R_U = The pre-established numerical value of the upscale reference standard.

FS= Full-scale value.

(2) Calculate the zero drift (ZD) using Equation 11–2:

$$ZD = \frac{|R_{CEM} - R_L|}{FS} \times 100 \qquad \text{(Eq. 11-2)}$$

Where:

ZD = The zero (low-level) drift of your PM CEMS in percent,

R_{CEM} = The measured PM CEMS response to the zero reference standard,

R_L = The pre-established numerical value of the zero reference standard, and

FS = Full-scale value.

* * * * *

Performance Specification 12B—Specifications and Test Procedures for Monitoring Total Vapor Phase Mercury Emissions from Stationary Sources Using a Sorbent Trap Monitoring System

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9.0 * * *

TABLE 12B–1—QA/QC CRITERIA FOR SORBENT TRAP MONITORING SYSTEMS

QA/QC test or specification	Acceptance criteria	Frequency	Consequences if not met
Pre-test leak check	≤4% of target sampling rate	Prior to monitoring	Monitoring must not commence until the leak check is passed.
Post-test leak check	≤4% of average sampling rate	After monitoring	Invalidate the data from the paired traps or, if certain conditions are met, report adjusted data from a single trap (see Section 12.8.3).
Ratio of stack gas flow rate to sample flow rate.	No more than 5% of the hourly ratios or 5 hourly ratios (whichever is less restrictive) may deviate from the reference ratio by more than ±25%.	Every hour throughout monitoring period.	Invalidate the data from the paired traps or, if certain conditions are met, report adjusted data from a single trap (see Section 12.8.3).
Sorbent trap section 2 breakthrough.	≤5% of Section 1 Hg mass ≤10% of Section 1 Hg mass if average Hg concentration is ≤0.5 µg/scm. No criterion when Hg concentration for trap less than 10% of the applicable emission limit (must meet all other QA/QC specifications).	Every sample	Invalidate the data from the paired traps or, if certain conditions are met, report adjusted data from a single trap (see Section 12.8.3).
Paired sorbent trap agreement	≤10% Relative Deviation (RD) if the average concentration is > 1.0 µg/m³. ≤20% RD if the average concentration is ≤1.0 µg/m³. Results also acceptable if absolute difference between concentrations from paired traps is ≤ 0.03 µg/m³.	Every sample	Either invalidate the data from the paired traps or report the results from the trap with the higher Hg concentration.
Spike Recovery Study	Average recovery between 85% and 115% for each of the 3 spike concentration levels.	Prior to analyzing field samples and prior to use of new sorbent media.	Field samples must not be analyzed until the percent recovery criteria have been met.
Multipoint analyzer calibration	Each analyzer reading within ± 10% of true value and $r^2 \geq 0.99$.	On the day of analysis, before analyzing any samples.	Recalibrate until successful.
Analysis of independent calibration standard.	Within ± 10% of true value	Following daily calibration, prior to analyzing field samples.	Recalibrate and repeat independent standard analysis until successful.
Spike recovery from section 3 of both sorbent traps.	75–125% of spike amount	Every sample	Invalidate the data from the paired traps or, if certain conditions are met, report adjusted data from a single trap (see Section 12.8.3).
Relative Accuracy	RA ≤ 20.0% of RM mean value; or if RM mean value ≤5.0 µg/scm, absolute difference between RM and sorbent trap monitoring system mean values ≤1.0 µg/scm.	RA specification must be met for initial certification.	Data from the system are invalid until a RA test is passed.

TABLE 12B–1—QA/QC CRITERIA FOR SORBENT TRAP MONITORING SYSTEMS—Continued

QA/QC test or specification	Acceptance criteria	Frequency	Consequences if not met
Gas flow meter calibration	An initial calibration factor (Y) has been determined at 3 settings; for mass flow meters, initial calibration with stack gas has been performed. For subsequent calibrations, Y within ±5% of average value from the most recent 3-point calibration.	At 3 settings prior to initial use and at least quarterly at one setting thereafter.	Recalibrate meter at 3 settings to determine a new value of Y.
Temperature sensor calibration	Absolute temperature measured by sensor within ± 1.5% of a reference sensor.	Prior to initial use and at least quarterly thereafter.	Recalibrate; sensor may not be used until specification is met.
Barometer calibration	Absolute pressure measured by instrument within ± 10 mm Hg of reading with a NIST-traceable barometer.	Prior to initial use and at least quarterly thereafter.	Recalibrate; instrument may not be used until specification is met.

* * * * *

12.8.3 For the routine, day-to-day operation of the monitoring system, when one of the two sorbent trap samples or sampling systems either: (a) Fails the post-monitoring leak check; or (b) has excessive section 2 breakthrough; or (c) fails to maintain the proper stack flow-to-sample flow ratio; or (d) fails to achieve the required section 3 spike recovery; or (e) is lost, broken, or damaged, provided that the other trap meets the acceptance criteria for all four of these QC specifications, the Hg concentration measured by the valid trap may be multiplied by a factor of 1.111 and then used for reporting purposes. Further, if both traps meet the acceptance criteria for all four of these QC specifications, but the acceptance criterion for paired trap agreement is not met, the owner or operator may report the higher of the two Hg concentrations measured by the traps, in lieu of invalidating the data from the paired traps.

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Performance Specification 15—Performance Specification for Extractive FTIR Continuous Emission Monitoring Systems in Stationary Sources

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11.1.1.4.2 RMs Using a Grab Sampling Technique. Synchronize the RM and FTIR CEM measurements as closely as possible. For a grab sampling RM, record the volume collected and the exact sampling period for each sample. Synchronize the FTIR CEM so that the FTIR measures a spectrum of a similar cell volume at the same time as the RM grab sample was collected. Measure at least five independent samples with both the FTIR CEM and the RM for each of the minimum nine runs. Compare the run concentration averages by using the relative accuracy analysis procedure in Performance Specification 2 of appendix B of 40 CFR part 60.

11.1.1.4.3 Continuous Emission Monitors as RMs. If the RM is a CEM, synchronize the sampling flow rates of the RM and the FTIR CEM. Each run is at least 1 hour long and consists of at least 10 FTIR CEM measurements and the corresponding 10 RM measurements (or averages). For the statistical comparison, use the relative accuracy analysis procedure in Performance Specification 2 of appendix B of 40 CFR part 60. If the RM time constant is < ½ the FTIR CEM time constant, brief fluctuations in analyte concentrations that are not adequately measured with the slower FTIR CEM time constant can be excluded from the run average along with the corresponding RM measurements. However, the FTIR CEM run average must still include at least 10 measurements over a 1-hour period.

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Performance Specification 16—Specifications and Test Procedures for Predictive Emission Monitoring Systems in Stationary Sources

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6.1.7 Sensor Location and Repair. We recommend you install sensors in an accessible location in order to perform repairs and replacements. Permanently-installed platforms or ladders may not be needed. If you install sensors in an area that is not accessible, you may be required to shut down the emissions unit to repair or replace a sensor. Conduct a new RATA after replacing a sensor that supplies a critical PEMS parameter if the new sensor provides a different output or scaling or changes the historical training dataset of the PEMS. Replacement of a non-critical sensor that does not cause an impact in the accuracy of the PEMS does not trigger a RATA. All sensors must be calibrated as often as needed but at least as often as recommended by the manufacturers.

* * * * *

8.2.1 Reference Methods. Unless otherwise specified in the applicable regulations, you must use the test methods in appendix A of this part for the RM test. Conduct the RM tests at three operating levels. The RM tests shall be performed at a low-load (or production) level between the minimum safe, stable load and 50 percent of the maximum level load, at the mid-load level (an intermediary level between the low and high levels), and at a high-load level between 80 percent and the maximum load. Alternatively, if practicable, you may test at three levels of the key operating parameter (e.g. selected based on a covariance analysis between each parameter and the PEMS output) equally spaced within the normal range of the parameter.

* * * * *

9.1 QA/QC Summary. Conduct the applicable ongoing tests listed below.

ONGOING QUALITY ASSURANCE TESTS

Test	PEMS regulatory purpose	Acceptability	Frequency
Sensor Evaluation	All		Daily.
RAA	Compliance	3-test avg ≤10% of simultaneous analyzer or RM average.	Each quarter except quarter when RATA performed.
RATA	All	Same as for RA in Sec. 13.1	Yearly in quarter when RAA not performed.
Bias Correction	All	If $d_{avg} \leq \|cc\|$	Bias test passed (no correction factor needed).
PEMS Training	All	If $F_{critical} \geq F$ $r \geq 0.8$	Optional after initial and subsequent RATAs.

ONGOING QUALITY ASSURANCE TESTS—Continued

Test	PEMS regulatory purpose	Acceptability	Frequency
Sensor Evaluation Alert Test (optional).	All	See Section 6.1.8	After each PEMS training.

* * * * *

9.3 Quarterly Relative Accuracy Audits. In the first year of operation after the initial certification, perform a RAA consisting of at least three 30-minute portable analyzer or RM determinations each quarter a RATA is not performed. To conduct a RAA, follow the procedures in Section 8.2 for the relative accuracy test, except that only three sets of measurement data are required, and the statistical tests are not required. The average of the three or more portable analyzer or RM determinations must not exceed the limits given in Section 13.5. Report the data from all sets of measurement data. If a PEMS passes all quarterly RAAs in the first year and also passes the subsequent yearly RATA in the second year, you may elect to perform a single mid-year RAA in the second year in place of the quarterly RAAs. This option may be repeated, but only until the PEMS fails either a mid-year RAA or a yearly RATA. When such a failure occurs, you must resume quarterly RAAs in the quarter following the failure and continue conducting quarterly RAAs until the PEMS successfully passes both a year of quarterly RAAs and a subsequent RATA.

9.4 Yearly Relative Accuracy Test. Perform a minimum 9-run RATA at the normal operating level on a yearly basis in the quarter that the RAA is not performed. The statistical tests in Section 8.3 are not required for the yearly RATA.

* * * * *

12.4 Relative Accuracy Audit. Calculate the quarterly RAA using Equation 16–9.

$$RAA = \frac{\overline{PEMS} - \overline{RM}}{\overline{RM}} x\,100 \qquad \text{Eq. 16-9}$$

* * * * *

13.5 Relative Accuracy Audits. The average of the three portable analyzer or RM determinations must not differ from the simultaneous PEMS average value by more than 10 percent of the analyzer or RM for concentrations greater than 100 ppm or 20 percent for concentrations between 100 and 20 ppm, or the test is failed. For measurements at 20 ppm or less, this difference must not exceed 2 ppm for a pollutant PEMS and 1 percent absolute for a diluents PEMS.

* * * * *

■ 31. Amend appendix F to Part 60 as follows:

■ a. By revising Procedure 1, section 6.2.

■ b. By revising Procedure 2, paragraphs (3) and (4) of section 12.0.

■ c. By redesignating the second listing of section 6.2.6 as section 6.2.7 in Procedure 5.

Appendix F to Part 60—Quality Assurance Procedures

* * * * *

Procedure 1—Quality Assurance Requirements for Gas Continuous Emission Monitoring Systems Used for Compliance Determination

* * * * *

6.2 RAA Accuracy Calculation. Use the calculation procedure in the relevant performance specification to calculate the accuracy for the RAA. The RAA must be calculated in the units of the applicable emission standard.

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Procedure 2—Quality Assurance Requirements for Particulate Matter Continuous Emission Monitoring Systems at Stationary Sources

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12.0 What calculations and data analysis must I perform for my PM CEMS?

* * * * *

(3) How do I calculate daily upscale and zero drift? You must calculate the upscale drift using Equation 2–2 and the zero drift using Equation 2–3:

$$\mathbf{UD} = \frac{|\mathbf{R_{CEM}} - \mathbf{R_U}|}{\mathbf{FS}} \times 100 \qquad \text{(Eq. 2-2)}$$

Where:

UD = The upscale drift of your PM CEMS, in percent,

R_{CEM} = Your PM CEMS response to the upscale check value, and

R_U = The upscale check value.

FS = Full-scale value.

$$\mathbf{ZD} = \frac{|\mathbf{R_{CEM}} - \mathbf{R_L}|}{\mathbf{FS}} \times 100 \qquad \text{(Eq. 2-3)}$$

Where:

ZD = The zero (low-level) drift of your PM CEMS, in percent,

R_{CEM} = Your PM CEMS response of the zero check value,

R_L = The zero check value.

(4) How do I calculate SVA accuracy? You must use Equation 2–4 to calculate the accuracy, in percent, for each of the three SVA tests or the daily sample volume check:

$$\mathbf{Accuracy} = \frac{(\mathbf{V_R} - \mathbf{V_M})}{\mathbf{V_R}} \times 100 \qquad \text{(Eq. 2-4)}$$

Where:

V_M = Sample gas volume determined/reported by your PM CEMS (e.g., dscm),

V_R = Sample gas volume measured by the independent calibrated reference device (e.g., dscm) for the SVA or the reference value for the daily sample volume check.

Note: Before calculating SVA accuracy, you must correct the sample gas volumes measured by your PM CEMS and the independent calibrated reference device to the same basis of temperature, pressure, and moisture content. You must document all data and calculations.

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PART 61—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

■ 32. The authority citation for part 61 continues to read as follows:

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

Subpart A—[Amended]

■ 33. Amend § 61.13 by revising paragraph (e)(1)(i) to read as follows:

§ 61.13 Emission tests and waiver of emission tests.

* * * * *

(e) * * *

(1) * * *

(i) The source owner, operator, or representative of the tested facility shall obtain an audit sample, if commercially available, from an AASP for each test method used for regulatory compliance purposes. No audit samples are required for the following test methods: Methods 3A and 3C of appendix A–3 of part 60; Methods 6C, 7E, 9, and 10 of appendix A–4 of part 60; Method 18 and 19 of appendix A–6 of part 60; Methods 20, 22, and 25A of appendix A–7 of part 60; and Methods 303, 318, 320, and 321 of appendix A of part 63. If multiple sources at a single facility are tested during a compliance test event, only one audit sample is required for each method used during a compliance test. The compliance authority responsible for the compliance test may waive the requirement to include an audit sample if they believe that an audit sample is not necessary. ‘‘Commercially available’’ means that two or more independent AASPs have blind audit samples available for purchase. If the source owner, operator, or representative cannot find an audit sample for a specific method, the owner, operator, or representative shall consult the EPA Web site at the following URL, *www.epa.gov/ttn/emc,* to confirm whether there is a source that can supply an audit sample for that method. If the EPA Web site does not list an available audit sample at least 60 days prior to the beginning of the compliance test, the source owner, operator, or representative shall not be required to include an audit sample as part of the quality assurance program for the compliance test. When ordering an audit sample, the source owner, operator, or representative shall give the sample provider an estimate for the concentration of each pollutant that is emitted by the source or the estimated concentration of each pollutant based on the permitted level and the name, address, and phone number of the compliance authority. The source owner, operator, or representative shall report the results for the audit sample along with a summary of the emission test results for the audited pollutant to the compliance authority and shall report the results of the audit sample to the AASP. The source owner, operator, or representative shall make both reports at the same time and in the same manner or shall report to the compliance authority first and report to the AASP. If the method being audited is a method that allows the samples to be analyzed in the field and the tester plans to analyze the samples in the field, the tester may analyze the audit samples prior to collecting the emission samples provided a representative of the compliance authority is present at the testing site. The tester may request, and the compliance authority may grant, a waiver to the requirement that a representative of the compliance authority must be present at the testing site during the field analysis of an audit sample. The source owner, operator, or representative may report the results of the audit sample to the compliance authority and then report the results of the audit sample to the AASP prior to collecting any emission samples. The test protocol and final test report shall document whether an audit sample was ordered and utilized and the pass/fail results as applicable.

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Subpart C—[Amended]

■ 34. Amend § 61.33 by revising paragraph (a) to read as follows:

§ 61.33 Stack sampling.

(a) Unless a waiver of emission testing is obtained under § 61.13, each owner or operator required to comply with § 61.32(a) shall test emissions from the source according to Method 104 of appendix B to this part or according to Method 29 of appendix A to part 60. Method 103 of appendix B to this part is approved by the Administrator as an alternative method for sources subject to § 61.32(a). The emission test shall be performed:

(1) By May 28, 2014 in the case of an existing source or a new source which has an initial startup date preceding February 27, 2014; or

(2) Within 90 days of startup in the case of a new source which did not have an initial startup date preceding February 27, 2014.

* * * * *

Subpart D—[Amended]

■ 35. Amend § 61.42 by revising paragraph (a) to read as follows:

§ 61.42 Emission standard.

(a) Emissions to the atmosphere from rocket-motor test sites shall not cause time-weighted atmospheric concentrations of beryllium to exceed 75 microgram minutes per cubic meter (μg-min/m^3)(4.68 x 10^{-9} pound minutes per cubic foot (lb-min/ft^3)) of air within the limits of 10 to 60 minutes, accumulated during any 2 consecutive weeks, in any area in which an adverse effect to public health could occur.

* * * * *

Subpart E—[Amended]

■ 36. Amend § 61.53 by revising paragraph (d)(2) to read as follows:

§ 61.53 Stack sampling.

* * * * *

(d) * * *

(2) Method 101A in appendix B or Method 29 in appendix A to part 60 shall be used to test emissions as follows:

(i) The test shall be performed by May 28, 2014 in the case of an existing source or a new source which has an initial startup date preceding February 27, 2014.

(ii) The test shall be performed within 90 days of startup in the case of a new source which did not have an initial startup date preceding February 27, 2014.

* * * * *

Subpart N—[Amended]

■ 37. Amend § 61.164 as follows:

■ a. By revising paragraph (d)(2)(i).

■ b. By revising paragraph (e)(1)(i).

■ c. By revising paragraph (e)(2) to read as follows:

§ 61.164 Test methods and procedures.

* * * * *

(d) * * *

(2) * * *

(i) Use Method 108 in appendix B to this part or Method 29 in appendix A to part 60 for determining the arsenic emission rate, g/hr (lb/hr). The emission rate shall equal the arithmetic mean of the results of three 60-minute test runs.

* * * * *

(e) * * *

(1) * * *

(i) Use Method 108 in appendix B to this part or Method 29 in appendix A to part 60 to determine the concentration of arsenic in the gas streams entering and exiting the control device. Conduct three 60-minute test runs, each consisting of simultaneous testing of the inlet and outlet gas streams. The gas streams shall contain all the gas exhausted from the glass melting furnace.

* * * * *

(2) Calculate the percent emission reduction for each run as follows:

$$D = \frac{(C_b - C_a)\ x\ 100}{C_b}$$

Where:

D = the percent emission reduction.
C_b = the arsenic concentration of the stack gas entering the control device, as measured by Method 108 or Method 29.
C_a = the arsenic concentration of the stack gas exiting the control device, as measured by Method 108 or Method 29.

* * * * *

■ 38. Amend appendix B to part 61 to read as follows:

■ a. By amending Method 101 by redesignating sections 16.0 and 17.0 as sections 17.0 and 18.0, respectively, and by adding a new section 16.0.

■ b. By amending Method 101A by redesignating sections 16.0 and 17.0 as sections 17.0 and 18.0, respectively, and by adding a new section 16.0.

■ c. By revising Method 102, section 8.1.1.1.

■ d. By amending Method 104 as follows:

■ i. By revising sections 4.1 and 11.5.3.

■ ii. By redesignating sections 16.0 and 17.0 as sections 17.0 and 18.0, respectively.

■ iii. By adding a new section 16.0.

■ e. By amending Method 108 by redesignating sections 16.0 and 17.0 as sections 17.0 and 18.0, respectively, and by adding a new section 16.0.

■ f. By amending Method 108A by redesignating sections 16.0 and 17.0 as sections 17.0 and 18.0 respectively, and by adding a new section 16.0.

Appendix B to Part 61—Test Methods

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Method 101—Determination of Particulate and Gaseous Mercury Emissions From Chlor-Alkali Plants (Air Streams)

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16.0 Alternative Procedures

16.1 Alternative Analyzer. Samples may also be analyzed by cold vapor atomic fluorescence spectrometry.

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Method 101A—Determination of Particulate and Gaseous Mercury Emissions From Sewage Sludge Incinerators

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16.0 Alternative Procedures

16.1 Alternative Analyzers.

16.1.1 Inductively coupled plasma-atomic emission spectrometry (ICP–AES) may be used as an alternative to atomic absorption analysis provided the following conditions are met:

16.1.1.1 Sample collection, sample preparation, and analytical preparation procedures are as defined in the method except as necessary for the ICP–AES application.

16.1.1.2 The quality control procedures are conducted as prescribed.

16.1.1.3 The limit of quantitation for the ICP–AES must be demonstrated and the sample concentrations reported should be no less than two times the limit of quantitation. The limit of quantitation is defined as ten times the standard deviation of the blank value. The standard deviation of the blank value is determined from the analysis of seven blanks. It has been reported that for mercury and those elements that form hydrides, a continuous-flow generator coupled to an ICP–AES offers detection limits comparable to cold vapor atomic absorption.

16.1.2 Samples may also be analyzed by cold vapor atomic fluorescence spectrometry.

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Method 102—Determination of Particulate and Gaseous Mercury Emissions From Chlor-Alkali Plants (Hydrogen Streams)

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8.1.1.1 Calibrate the meter box orifice. Use the techniques described in APTD–0576 (see Reference 9 in Section 17.0 of Method 5 of appendix A to part 60). Calibration of the orifice meter at flow conditions that simulate the conditions at the source is suggested. Calibration should either be done with hydrogen or with some other gas having a similar Reynolds Number so that there is similarity between the Reynolds Numbers during calibration and during sampling. Alternative mercury-free thermometers may be used if the thermometers are, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

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Method 104—Determination of Beryllium Emissions From Stationary Sources

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4.1 Matrix Effects. Analysis for Be by flame atomic absorption spectrophotometry is sensitive to the chemical composition and to the physical properties (*e.g.*, viscosity, pH) of the sample. Aluminum and silicon, in particular, are known to interfere when present in appreciable quantities. The analytical procedure includes (optionally) the use of the Method of Standard Additions to check for these matrix effects, and sample analysis using the Method of Standard Additions if significant matrix effects are found to be present (see Reference 2 in Section 17.0).

* * * * *

11.5.3 Check for Matrix Effects (optional). Use the Method of Standard Additions (see Reference 2 in Section 17.0) to check at least one sample from each source for matrix effects on the Be results. If the results of the Method of Standard Additions procedure used on the single source sample do not agree to within 5 percent of the value obtained by the routine atomic absorption analysis, then reanalyze all samples from the source using the Method of Standard Additions procedure.

* * * * *

16.0 Alternative Procedures

16.1 Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP–AES) Analysis. ICP–AES may be used as an alternative to atomic absorption analysis provided the following conditions are met:

16.1.1 Sample collection, sample preparation, and analytical preparation procedures are as defined in the method except as necessary for the ICP–AES application.

16.1.2 Quality Assurance/Quality Control procedures, including audit material analysis, are conducted as prescribed in the method. The QA acceptance conditions must be met.

16.1.3 The limit of quantitation for the ICP–AES must be demonstrated and the sample concentrations reported should be no less than two times the limit of quantitation. The limit of quantitation is defined as ten times the standard deviation of the blank value. The standard deviation of the blank value is determined from the analysis of seven blanks. It has been reported that for mercury and those elements that form hydrides, a continuous-flow generator coupled to an ICP–AES offers detection limits comparable to cold vapor atomic absorption.

16.2 Inductively Coupled Plasma-Mass Spectrometry (ICP–MS) Analysis. ICP–MS may be used as an alternative to atomic absorption analysis.

16.3 Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) Analysis. CVAFS may be used as an alternative to atomic absorption analysis.

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Method 108—Determination of Particulate and Gaseous Arsenic Emissions

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16.0 Alternative Procedures

16.1 Inductively coupled plasma-atomic emission spectrometry (ICP–AES) Analysis. ICP–AES may be used as an alternative to atomic absorption analysis provided the following conditions are met:

16.1.1 Sample collection, sample preparation, and analytical preparation procedures are as defined in the method except as necessary for the ICP–AES application.

16.1.2 Quality Assurance/Quality Control procedures, including audit material analysis, are conducted as prescribed in the method. The QA acceptance conditions must be met.

16.1.3 The limit of quantitation for the ICP–AES must be demonstrated and the sample concentrations reported should be no less than two times the limit of quantitation. The limit of quantitation is defined as ten times the standard deviation of the blank value. The standard deviation of the blank value is determined from the analysis of seven blanks. It has been reported that for mercury and those elements that form hydrides, a continuous-flow generator coupled to an ICP–AES offers detection limits comparable to cold vapor atomic absorption.

16.2 Inductively Coupled Plasma-Mass Spectrometry (ICP–MS) Analysis. ICP–MS may be used as an alternative to atomic absorption analysis.

16.3 Cold Vapor Atomic Fluorescence Spectrometry (CVAFS) Analysis. CVAFS may be used as an alternative to atomic absorption analysis.

* * * * *

Method 108A—Determination of Arsenic Content in Ore Samples From Nonferrous Smelters

* * * * *

16.0 Alternative Procedures

16.1 Alternative Analyzer. Inductively coupled plasma-atomic emission spectrometry (ICP–AES) may be used as an alternative to atomic absorption analysis provided the following conditions are met:

16.1.1 Sample collection, sample preparation, and analytical preparation procedures are as defined in the method except as necessary for the ICP–AES application.

16.1.2 Quality Assurance/Quality Control procedures, including audit material analysis, are conducted as prescribed in the method. The QA acceptance conditions must be met.

16.1.3 The limit of quantitation for the ICP–AES must be demonstrated and the sample concentrations reported should be no less than two times the limit of quantitation. The limit of quantitation is defined as ten times the standard deviation of the blank value. The standard deviation of the blank value is determined from the analysis of seven blanks. It has been reported that for mercury and those elements that form hydrides, a continuous-flow generator coupled to an ICP–AES offers detection limits comparable to cold vapor atomic absorption.

* * * * *

PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

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

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

Subpart A—[Amended]

■ 40. Amend § 63.7 by revising paragraph (c)(2)(iii)(A) to read as follows:

§ 63.7 Performance testing requirements.

* * * * *

(c) * * *

(2) * * *

(iii) * * *

(A) The source owner, operator, or representative of the tested facility shall obtain an audit sample, if commercially available, from an AASP for each test method used for regulatory compliance purposes. No audit samples are required for the following test methods: Methods 3A and 3C of appendix A–3 of part 60; Methods 6C, 7E, 9, and 10 of appendix A–4 of part 60; Methods 18 and 19 of appendix A–6 of part 60; Methods 20, 22, and 25A of appendix A–7 of part 60; and Methods 303, 318, 320, and 321 of appendix A of part 63. If multiple sources at a single facility are tested during a compliance test event, only one audit sample is required for each method used during a compliance test. The compliance authority responsible for the compliance test may waive the requirement to include an audit sample if they believe that an audit sample is not necessary. ''Commercially available'' means that two or more independent AASPs have blind audit samples available for purchase. If the source owner, operator, or representative cannot find an audit sample for a specific method, the owner, operator, or representative shall consult the EPA Web site at the following URL, *www.epa.gov/ttn/emc*, to confirm whether there is a source that can supply an audit sample for that method. If the EPA Web site does not list an available audit sample at least 60 days prior to the beginning of the compliance test, the source owner, operator, or representative shall not be required to include an audit sample as part of the quality assurance program for the compliance test. When ordering an audit sample, the source owner, operator, or representative shall give the sample provider an estimate for the concentration of each pollutant that is emitted by the source or the estimated concentration of each pollutant based on the permitted level and the name, address, and phone number of the compliance authority. The source owner, operator, or representative shall report the results for the audit sample along with a summary of the emission test results for the audited pollutant to the compliance authority and shall report the results of the audit sample to the AASP. The source owner, operator, or representative shall make both reports at the same time and in the same manner or shall report to the compliance authority first and report to the AASP. If the method being audited is a method that allows the samples to be analyzed in the field and the tester plans to analyze the samples in the field, the tester may analyze the audit samples prior to collecting the emission samples provided a representative of the compliance authority is present at the testing site. The tester may request, and the compliance authority may grant, a waiver to the requirement that a representative of the compliance authority must be present at the testing site during the field analysis of an audit sample. The source owner, operator, or representative may report the results of the audit sample to the compliance authority and then report the results of the audit sample to the AASP prior to collecting any emission samples. The test protocol and final test report shall document whether an audit sample was ordered and utilized and the pass/fail results as applicable.

* * * * *

■ 41. Amend § 63.8 by adding a sentence to the end of paragraph (f)(6)(iii) to read as follows:

§ 63.8 Monitoring requirements.

* * * * *

(f) * * *

(6) * * *

(iii) * * * The Administrator will review the notification and may rescind permission to use an alternative and require the owner or operator to conduct a relative accuracy test of the CEMS as specified in section 8.4 of Performance Specification 2.

* * * * *

■ 42. Revise § 63.14 to read as follows:

§ 63.14 Incorporations by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the **Federal Register** under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the EPA must publish notice of change in the **Federal Register** and the material must be available to the public. All approved material is available for inspection at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M St. SW., Washington, DC, telephone number 202–566, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030 or go to *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(b) The Association of Florida Phosphate Chemists, P.O. Box 1645, Bartow, Florida 33830.

(1) Book of Methods Used and Adopted By The Association of Florida Phosphate Chemists, Seventh Edition 1991:

(i) Section IX, Methods of Analysis for Phosphate Rock, No. 1 Preparation of Sample, IBR approved for §§ 63.606(c) and 63.626(c).

(ii) Section IX, Methods of Analysis for Phosphate Rock, No. 3 Phosphorus—P_2O_5 or $Ca_3(PO_4)_2$, Method A—Volumetric Method, IBR approved for §§ 63.606(c) and 63.626(c).

(iii) Section IX, Methods of Analysis for Phosphate Rock, No. 3 Phosphorus-P_2O_5 or $Ca_3(PO_4)_2$, Method B—Gravimetric Quimociac Method, IBR approved for §§ 63.606(c) and 63.626(c).

(iv) Section IX, Methods of Analysis For Phosphate Rock, No. 3 Phosphorus—P_2O_5 or $Ca_3(PO_4)_2$, Method C—Spectrophotometric Method, IBR approved for §§ 63.606(c) and 63.626(c).

(v) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus—P_2O_5, Method A—Volumetric Method, IBR approved for §§ 63.606(c) and 63.626(c) and (d).

(vi) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus—P_2O_5, Method B—Gravimetric Quimociac Method, IBR approved for §§ 63.606(c) and 63.626(c) and (d).

(vii) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus—P_2O_5, Method C—Spectrophotometric Method, IBR approved for §§ 63.606(c) and 63.626(c) and (d).

(2) [Reserved]

(c) Association of Official Analytical Chemists (AOAC) International, Customer Services, Suite 400, 2200 Wilson Boulevard, Arlington, Virginia 22201–3301, Telephone (703) 522–3032, Fax (703) 522–5468.

(1) AOAC Official Method 929.01 Sampling of Solid Fertilizers, Sixteenth edition, 1995, IBR approved for § 63.626(d).

(2) AOAC Official Method 929.02 Preparation of Fertilizer Sample, Sixteenth edition, 1995, IBR approved for § 63.626(d).

(3) AOAC Official Method 957.02 Phosphorus (Total) in Fertilizers, Preparation of Sample Solution, Sixteenth edition, 1995, IBR approved for § 63.626(d).

(4) AOAC Official Method 958.01 Phosphorus (Total) in Fertilizers, Spectrophotometric Molybdovanadophosphate Method, Sixteenth edition, 1995, IBR approved for § 63.626(d).

(5) AOAC Official Method 962.02 Phosphorus (Total) in Fertilizers, Gravimetric Quinolinium Molybdophosphate Method, Sixteenth edition, 1995, IBR approved for § 63.626(d).

(6) AOAC Official Method 969.02 Phosphorus (Total) in Fertilizers, Alkalimetric Quinolinium Molybdophosphate Method, Sixteenth edition, 1995, IBR approved for § 63.626(d).

(7) AOAC Official Method 978.01 Phosphorus (Total) in Fertilizers, Automated Method, Sixteenth edition, 1995, IBR approved for § 63.626(d).

(d) American Petroleum Institute (API), 1220 L Street NW., Washington, DC 20005.

(1) API Publication 2517, Evaporative Loss from External Floating-Roof Tanks, Third Edition, February 1989, IBR approved for §§ 63.111 and 63.2406.

(2) API Publication 2518, Evaporative Loss from Fixed-roof Tanks, Second Edition, October 1991, IBR approved for § 63.150(g).

(3) API Manual of Petroleum Measurement Specifications (MPMS) Chapter 19.2 (API MPMS 19.2), Evaporative Loss From Floating-Roof Tanks, First Edition, April 1997, IBR approved for §§ 63.1251 and 63.12005.

(e) American Society of Heating, Refrigerating, and Air-Conditioning Engineers at 1791 Tullie Circle, NE., Atlanta, GA 30329 *orders@ashrae.org.*

(1) American Society of Heating, Refrigerating, and Air Conditioning Engineers Method 52.1, ''Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter, June 4, 1992,'' IBR approved for §§ 63.11173(e) and 63.11516(d).

(2) [Reserved]

(f) American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990, Telephone (800) 843–2763, *http://www.asme.org;* also available from HIS, Incorporated, 15 Inverness Way East, Englewood, CO 80112, Telephone (877) 413–5184, *http://global.ihs.com.*

(1) ANSI/ASME PTC 19.10–1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for §§ 63.309(k), 63.457(k), 63.772(e) and (h), 63.865(b), 63.1282(d) and (g), 63.3166(a), 63.3360(e), 63.3545(a), 63.3555(a), 63.4166(a), 63.4362(a), 63.4766(a), 63.4965(a), 63.5160(d), table 4 to subpart UUUU, 63.9307(c), 63.9323(a), 63.11148(e), 63.11155(e), 63.11162(f), 63.11163(g), 63.11410(j), 63.11551(a), 63.11646(a), and 63.11945, table 5 to subpart DDDDD, table 4 to subpart JJJJJ, tables 4 and 5 of subpart UUUUU, and table 1 to subpart ZZZZZ.

(2) [Reserved]

(g) American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428–2959, Telephone (610) 832–9585, *http://www.astm.org;* also available from ProQuest, 789 East Eisenhower Parkway, Ann Arbor, MI 48106–1346, Telephone (734) 761–4700, *http://www.proquest.com.*

(1) ASTM D95–05 (Reapproved 2010), Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation, approved May 1, 2010, IBR approved for § 63.10005(i) and table 6 to subpart DDDDD.

(2) ASTM D240–09 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, approved July 1, 2009, IBR approved for table 6 to subpart DDDDD.

(3) ASTM Method D388–05, Standard Classification of Coals by Rank, approved September 15, 2005, IBR approved for §§ 63.7575, 63.10042, and 63.11237.

(4) ASTM Method D396–10, Standard Specification for Fuel Oils, including Appendix X1, approved October 1, 2010, IBR approved for § 63.10042.

(5) ASTM D396–10, Standard Specification for Fuel Oils, approved October 1, 2010, IBR approved for §§ 63.7575 and 63.11237.

(6) ASTM D523–89, Standard Test Method for Specular Gloss, IBR approved for § 63.782.

(7) ASTM D975–11b, Standard Specification for Diesel Fuel Oils, approved December 1, 2011, IBR approved for § 63.7575.

(8) ASTM D1193–77, Standard Specification for Reagent Water, IBR approved for appendix A to part 63: Method 306, Sections 7.1.1 and 7.4.2.

(9) ASTM D1193–91, Standard Specification for Reagent Water, IBR approved for appendix A to part 63: Method 306, Sections 7.1.1 and 7.4.2.

(10) ASTM D1331–89, Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents, IBR approved for appendix A to part 63: Method 306B, Sections 6.2, 11.1, and 12.2.2.

(11) ASTM D1475–90, Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products, IBR approved for appendix A to subpart II.

(12) ASTM D1475–98 (Reapproved 2003), ''Standard Test Method for Density of Liquid Coatings, Inks, and Related Products,'' IBR approved for §§ 63.3151(b), 63.3941(b) and (c), 63.3951(c), 63.4141(b) and (c), and 63.4551(c).

(13) ASTM Method D1835–05, Standard Specification for Liquefied Petroleum (LP) Gases, approved April 1, 2005, IBR approved for §§ 63.7575 and 63.11237.

(14) ASTM D1945–03 (Reapproved 2010), Standard Test Method for Analysis of Natural Gas by Gas Chromatography, (Approved January 1, 2010), IBR approved for §§ 63.772(h), and 63.1282(g).

(15) ASTM D1946–77, Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for § 63.11(b).

(16) ASTM D1946–90 (Reapproved 1994), Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for § 63.11(b).

(17) ASTM D2013/D2013M–09, Standard Practice for Preparing Coal Samples for Analysis, (Approved November 1, 2009), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(18) ASTM D2099–00, Standard Test Method for Dynamic Water Resistance of Shoe Upper Leather by the Maeser Water Penetration Tester, IBR approved for § 63.5350.

(19) ASTM D2216–05, Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass, IBR approved for the definition of ''Free organic liquids'' in § 63.10692.

(20) ASTM D2234/D2234M–10, Standard Practice for Collection of a Gross Sample of Coal, approved January 1, 2010, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ .

(21) ASTM D2369–93, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A to subpart II.

(22) ASTM D2369–95, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A to subpart II.

(23) ASTM D2382–76, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for § 63.11(b).

(24) ASTM D2382–88, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for § 63.11(b).

(25) ASTM D2697–86 (Reapproved 1998), Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings, IBR approved for §§ 63.3161(f), 63.3521(b), 63.3941(b), 63.4141(b), 63.4741(b), 63.4941(b), and 63.5160(c).

(26) ASTM D2879–83, Standard Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, IBR approved for §§ 63.111, 63.2406, and 63.12005.

(27) ASTM D2879–96, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, (Approved 1996), IBR approved for §§ 63.111, 63.2406, and 63.12005.

(28) ASTM D3173–03 (Reapproved 2008), Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, (Approved February 1, 2008), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(29) ASTM D3257–93, Standard Test Methods for Aromatics in Mineral Spirits by Gas Chromatography, IBR approved for § 63.786(b).

(30) ASTM D3588–98 (Reapproved 2003), Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels, (Approved May 10, 2003), IBR approved for §§ 63.772(h) and 63.1282(g).

(31) ASTM D3695–88, Standard Test Method for Volatile Alcohols in Water by Direct Aqueous-Injection Gas Chromatography, IBR approved for § 63.365(e).

(32) ASTM D3792–91, Standard Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, IBR approved for appendix A to subpart II.

(33) ASTM D3912–80, Standard Test Method for Chemical Resistance of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for § 63.782.

(34) ASTM D4006–11, Standard Test Method for Water in Crude Oil by Distillation, including Annex A1 and Appendix X1, (Approved June 1, 2011), IBR approved for § 63.10005(i) and table 6 to subpart DDDDD.

(35) ASTM D4017–81, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A to subpart II.

(36) ASTM D4017–90, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A to subpart II.

(37) ASTM D4017–96a, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A to subpart II.

(38) ASTM D4057–06 (Reapproved 2011), Standard Practice for Manual Sampling of Petroleum and Petroleum Products, including Annex A1, (Approved June 1, 2011), IBR approved for § 63.10005(i) and table 6 to subpart DDDDD.

(39) ASTM D4082–89, Standard Test Method for Effects of Gamma Radiation on Coatings for Use in Light-Water Nuclear Power Plants, IBR approved for § 63.782.

(40) ASTM D4084–07, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), (Approved June 1, 2007), IBR approved for table 6 to subpart DDDDD.

(41) ASTM D4177–95 (Reapproved 2010), Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, including Annexes A1 through A6 and Appendices X1 and X2, (Approved May 1, 2010), IBR approved for § 63.10005(i) and table 6 to subpart DDDDD.

(42) ASTM D4208–02 (Reapproved 2007), Standard Test Method for Total Chlorine in Coal by the Oxygen Bomb Combustion/Ion Selective Electrode Method, approved May 1, 2007, IBR approved for table 6 to subpart DDDDD.

(43) ASTM D4256–89, Standard Test Method for Determination of the Decontaminability of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for § 63.782.

(44) ASTM D4256–89 (Reapproved 94), Standard Test Method for Determination of the Decontaminability of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for § 63.782.

(45) ASTM D4606–03 (Reapproved 2007), Standard Test Method for Determination of Arsenic and Selenium in Coal by the Hydride Generation/Atomic Absorption Method, (Approved October 1, 2007), IBR approved for table 6 to subpart DDDDD.

(46) ASTM D4809–95, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), IBR approved for § 63.11(b).

(47) ASTM D4891–89 (Reapproved 2006), Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion, (Approved June 1, 2006), IBR approved for §§ 63.772(h) and 63.1282(g).

(48) ASTM D5066–91 (Reapproved 2001), Standard Test Method for Determination of the Transfer Efficiency Under Production Conditions for Spray Application of Automotive Paints-

Weight Basis, IBR approved for § 63.3161(g).

(49) ASTM D5087–02, Standard Test Method for Determining Amount of Volatile Organic Compound (VOC) Released from Solventborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement), IBR approved for § 63.3165(e) and appendix A to subpart IIII.

(50) ASTM D5192–09, Standard Practice for Collection of Coal Samples from Core, (Approved June 1, 2009), IBR approved for table 6 to subpart DDDDD.

(51) ASTM D5198–09, Standard Practice for Nitric Acid Digestion of Solid Waste, (Approved February 1, 2009), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(52) ASTM D5228–92, Standard Test Method for Determination of Butane Working Capacity of Activated Carbon, (Reapproved 2005), IBR approved for § 63.11092(b).

(53) ASTM D5291–02, Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants, IBR approved for appendix A to subpart MMMM.

(54) ASTM D5790–95, Standard Test Method for Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry, IBR approved for Table 4 to subpart UUUU.

(55) ASTM D5864–11, Standard Test Method for Determining Aerobic Aquatic Biodegradation of Lubricants or Their Components, (Approved March 1, 2011), IBR approved for table 6 to subpart DDDDD.

(56) ASTM D5865–10a, Standard Test Method for Gross Calorific Value of Coal and Coke, (Approved May 1, 2010), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(57) ASTM D5954–98 (Reapproved 2006), Test Method for Mercury Sampling and Measurement in Natural Gas by Atomic Absorption Spectroscopy, (Approved December 1, 2006), IBR approved for table 6 to subpart DDDDD.

(58) ASTM D5965–02, Standard Test Methods for Specific Gravity of Coating Powders, IBR approved for §§ 63.3151(b) and 63.3951(c).

(59) ASTM D6053–00, Standard Test Method for Determination of Volatile Organic Compound (VOC) Content of Electrical Insulating Varnishes, IBR approved for appendix A to subpart MMMM.

(60) ASTM D6093–97 (Reapproved 2003), Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer, IBR approved for §§ 63.3161, 63.3521, 63.3941, 63.4141, 63.4741(b), 63.4941(b), and 63.5160(c).

(61) ASTM D6266–00a, Test Method for Determining the Amount of Volatile Organic Compound (VOC) Released from Waterborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement), IBR approved for § 63.3165(e).

(62) ASTM D6323–98 (Reapproved 2003), Standard Guide for Laboratory Subsampling of Media Related to Waste Management Activities, (Approved August 10, 2003), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(63) ASTM D6348–03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, IBR approved for §§ 63.457(b) and 63.1349, table 4 to subpart DDDD, table 4 to subpart ZZZZ, and table 8 to subpart HHHHHHH.

(64) ASTM D6348–03 (Reapproved 2010), Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, including Annexes A1 through A8, (Approved October 1, 2010), IBR approved for tables 1, 2, and 5 to subpart UUUUU and appendix B to subpart UUUUU.

(65) ASTM D6350–98 (Reapproved 2003), Standard Test Method for Mercury Sampling and Analysis in Natural Gas by Atomic Fluorescence Spectroscopy, (Approved May 10, 2003), IBR approved for table 6 to subpart DDDDD.

(66) ASTM D6357–11, Test Methods for Determination of Trace Elements in Coal, Coke, and Combustion Residues from Coal Utilization Processes by Inductively Coupled Plasma Atomic Emission Spectrometry, (Approved April 1, 2011), IBR approved for table 6 to subpart DDDDD.

(67) ASTM D6420–99, Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, IBR approved for §§ 63.5799, 63.5850, and Table 4 of Subpart UUUU.

(68) ASTM D6420–99 (Reapproved 2004), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, (Approved October 1, 2004), IBR approved for §§ 63.457(b), 63.485(g), 60.485a(g), 63.772(a), 63.772(e), 63.1282(a) and (d), 63.2351(b), and 63.2354(b), and table 8 to subpart HHHHHHH.

(69) ASTM D6522–00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, IBR approved for § 63.9307(c).

(70) ASTM D6522–00 (Reapproved 2005), Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, (Approved October 1, 2005), IBR approved for table 4 to subpart ZZZZ, table 5 to subpart DDDDDD, table 4 to subpart JJJJJJ, and §§ 63.772(e) and (h)) and 63.1282(d) and (g).

(71) ASTM D6721–01 (Reapproved 2006), Standard Test Method for Determination of Chlorine in Coal by Oxidative Hydrolysis Microcoulometry, (Approved April 1, 2006), IBR approved for table 6 to subpart DDDDD.

(72) ASTM D6722–01 (Reapproved 2006), Standard Test Method for Total Mercury in Coal and Coal Combustion Residues by the Direct Combustion Analysis, (Approved April 1, 2006), IBR approved for Table 6 to subpart DDDDD and Table 5 to subpart JJJJJJ.

(73) ASTM D6751–11b, Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels, (Approved July 15, 2011), IBR approved for §§ 63.7575 and 63.11237.

(74) ASTM D6784–02 (Reapproved 2008), Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), (Approved April 1, 2008), IBR approved for §§ 63.11646(a), 63.11647(a) and (d), tables 1, 2, 5, 11, 12t, and 13 to subpart DDDDD, table 4 to subpart JJJJJJ, table 5 to subpart UUUUU, and appendix A to subpart UUUUU.

(75) ASTM D6883–04, Standard Practice for Manual Sampling of Stationary Coal from Railroad Cars, Barges, Trucks, or Stockpiles, (Approved June 1, 2004), IBR approved for table 6 to subpart DDDDD.

(76) ASTM D7430–11ae1, Standard Practice for Mechanical Sampling of Coal, (Approved October 1, 2011), IBR approved for table 6 to subpart DDDDD.

(77) ASTM E145–94 (Reapproved 2001), Standard Specification for Gravity-Convection and Forced-Ventilation Ovens, IBR approved for appendix A to subpart PPPP.

(78) ASTM E180–93, Standard Practice for Determining the Precision of

ASTM Methods for Analysis and Testing of Industrial Chemicals, IBR approved for § 63.786(b).

(79) ASTM E260–91, General Practice for Packed Column Gas Chromatography, IBR approved for §§ 63.750(b) and 63.786(b).

(80) ASTM E260–96, General Practice for Packed Column Gas Chromatography, IBR approved for §§ 63.750(b) and 63.786(b).

(81) ASTM E515–95 (Reapproved 2000), Standard Test Method for Leaks Using Bubble Emission Techniques, IBR approved for § 63.425(i).

(82) ASTM E711–87 (Reapproved 2004), Standard Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter, (Approved August 28, 1987), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(83) ASTM E776–87 (Reapproved 2009), Standard Test Method for Forms of Chlorine in Refuse-Derived Fuel, (Approved July 1, 2009), IBR approved for table 6 to subpart DDDDD.

(84) ASTM E871–82 (Reapproved 2006), Standard Test Method for Moisture Analysis of Particulate Wood Fuels, (Approved November 1, 2006), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(h) Bay Area Air Quality Management District (BAAQMD), 939 Ellis Street, San Francisco, California 94109, *http://www.arb.ca.gov/DRDB/BA/CURHTML/ST/st30.pdf.*

(1) ''BAAQMD Source Test Procedure ST–30—Static Pressure Integrity Test, Underground Storage Tanks,'' adopted November 30, 1983, and amended December 21, 1994, IBR approved for § 63.11120(a).

(2) [Reserved]

(i) British Standards Institute, 389 Chiswick High Road, London W4 4AL, United Kingdom.

(1) BS EN 1593:1999, Non-destructive Testing: Leak Testing—Bubble Emission Techniques, IBR approved for § 63.425(i).

(2) [Reserved]

(j) California Air Resources Board (CARB), Engineering and Certification Branch, 1001 I Street, P.O. Box 2815, Sacramento, CA 95812–2815, Telephone (916) 327–0900, *http://www.arb.ca.gov/vapor/vapor.htm.*

(1) California Air Resources Board Vapor Recovery Test Procedure TP–201.1—''Volumetric Efficiency for Phase I Vapor Recovery Systems,'' adopted April 12, 1996, and amended February 1, 2001 and October 8, 2003, IBR approved for § 63.11120(b).

(2) California Air Resources Board Vapor Recovery Test Procedure TP–201.1E—''Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves,'' adopted October 8, 2003, IBR approved for § 63.11120(a).

(3) California Air Resources Board Vapor Recovery Test Procedure TP–201.3—''Determination of 2-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities,'' adopted April 12, 1996 and amended March 17, 1999, IBR approved for § 63.11120(a).

(k) Environmental Protection Agency. Air and Radiation Docket and Information Center, 1200 Pennsylvania Avenue NW., Washington, DC 20460, telephone number (202) 566–1745.

(1) *California Regulatory Requirements Applicable to the Air Toxics Program,* November 16, 2010, IBR approved for § 63.99(a).

(2) New Jersey's *Toxic Catastrophe Prevention Act Program,* (July 20, 1998), IBR approved for § 63.99(a).

(3) Delaware Department of Natural Resources and Environmental Control, Division of Air and Waste Management, Accidental Release Prevention Regulation, sections 1 through 5 and sections 7 through 14, effective January 11, 1999, IBR approved for § 63.99(a).

(4) State of Delaware Regulations Governing the Control of Air Pollution (October 2000), IBR approved for § 63.99(a).

(5) Massachusetts Department of Environmental Protection regulations at 310 CMR 7.26(10)–(16), Air Pollution Control, effective as of September 5, 2008, corrected March 6, 2009, and 310 CMR 70.00, Environmental Results Program Certification, effective as of December 28, 2007. IBR approved for § 63.99(a).

(6)(i) New Hampshire Regulations Applicable to Hazardous Air Pollutants, March, 2003. IBR approved for § 63.99(a).

(ii) New Hampshire Regulations Applicable to Hazardous Air Pollutants, September 2006. IBR approved for § 63.99(a).

(7) Maine Department of Environmental Protection regulations at Chapter 125, Perchloroethylene Dry Cleaner Regulation, effective as of June 2, 1991, last amended on June 24, 2009. IBR approved for § 63.99(a).

(8) California South Coast Air Quality Management District's ''Spray Equipment Transfer Efficiency Test Procedure for Equipment User, May 24, 1989,'' IBR approved for §§ 63.11173(e) and 63.11516(d).

(9) California South Coast Air Quality Management District's ''Guidelines for Demonstrating Equivalency with District Approved Transfer Efficient Spray Guns, September 26, 2002,'' Revision 0, IBR approved for §§ 63.11173(e) and 63.11516(d).

(10) Rhode Island Department of Environmental Management regulations at Air Pollution Control Regulation No. 36, Control of Emissions from Organic Solvent Cleaning, effective April 8, 1996, last amended October 9, 2008, IBR approved for § 63.99(a).

(11) Rhode Island Air Pollution Control, General Definitions Regulation, effective July 19, 2007, last amended October 9, 2008. IBR approved for § 63.99(a).

(12) Alaska Statute 42.45.045. Renewable energy grant fund and recommendation program, available at *http://www.legis.state.ak.us/basis/folio.asp*, IBR approved for § 63.6675.

(l) U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW., Washington, DC 20460, (202) 272–0167, *http://www.epa.gov.*

(1) EPA–453/R–01–005, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Plants—Background Information for Proposed Standards, Final Report, January 2001, IBR approved for § 63.7491(g).

(2) EPA–454/R–98–015, Office Of Air Quality Planning And Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997, IBR approved for §§ 63.548(e), 63.7525(j), and 63.11224(f).

(3) SW–846–3020A, Acid Digestion of Aqueous Samples And Extracts For Total Metals For Analysis By GFAA Spectroscopy, Revision 1, July 1992, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(4) SW–846–3050B, Acid Digestion of Sediments, Sludges, and Soils, Revision 2, December 1996, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(5) SW–846–7470A, Mercury In Liquid Waste (Manual Cold-Vapor Technique), Revision 1, September 1994, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(6) SW–846–7471B, Mercury In Solid Or Semisolid Waste (Manual Cold-Vapor Technique), Revision 2, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,

Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(7) SW–846–8015C, Nonhalogenated Organics by Gas Chromatography, Revision 3, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.11960, 63.11980, and table 10 to subpart HHHHHHH.

(8) SW–846–8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 2, December 1996, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.11960, 63.11980, and table 10 to subpart HHHHHHH.

(9) SW–846–8270D, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 4, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.11960, 63.11980, and table 10 to subpart HHHHHHH.

(10) SW–846–8315A, Determination of Carbonyl Compounds by High Performance Liquid Chromatography (HPLC), Revision 1, December 1996, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§ 63.11960 and 63.11980, and table 10 to subpart HHHHHHH.

(11) SW–846–5050, Bomb Preparation Method for Solid Waste, Revision 0, September 1994, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition IBR approved for table 6 to subpart DDDDD.

(12) SW–846–6010C, Inductively Coupled Plasma-Atomic Emission Spectrometry, Revision 3, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(13) SW–846–6020A, Inductively Coupled Plasma-Mass Spectrometry, Revision 1, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(14) SW–846–7060A, Arsenic (Atomic Absorption, Furnace Technique), Revision 1, September 1994, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(15) SW–846–7740, Selenium (Atomic Absorption, Furnace Technique), Revision 0, September 1986, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(16) SW–846–9056, Determination of Inorganic Anions by Ion Chromatography, Revision 1, February 2007, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(17) SW–846–9076, Test Method for Total Chlorine in New and Used Petroleum Products by Oxidative Combustion and Microcoulometry, Revision 0, September 1994, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(18) SW–846–9250, Chloride (Colorimetric, Automated Ferricyanide AAI), Revision 0, September 1986, in EPA Publication No. SW–846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(19) Method 200.8, Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma—Mass Spectrometry, Revision 5.4, 1994, IBR approved for table 6 to subpart DDDDD.

(20) Method 1631 Revision E, Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Absorption Fluorescence Spectrometry, Revision E, EPA–821–R–02–019, August 2002, IBR approved for table 6 to subpart DDDDD.

(m) International Standards Organization (ISO), 1, ch. de la Voie-Creuse, Case postale 56, CH–1211 Geneva 20, Switzerland, +41 22 749 01 11, *http://www.iso.org/iso/home.htm.*

(1) ISO 6978–1:2003(E), Natural Gas—Determination of Mercury—Part 1: Sampling of Mercury by Chemisorption on Iodine, First edition, October 15, 2003, IBR approved for table 6 to subpart DDDDD.

(2) ISO 6978–2:2003(E), Natural gas—Determination of Mercury—Part 2: Sampling of Mercury by Amalgamation on Gold/Platinum Alloy, First edition, October 15, 2003, IBR approved for table 6 to subpart DDDDD.

(n) National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI), P.O. Box 133318, Research Triangle Park, NC 27709–3318 or at *http://www.ncasi.org.*

(1) NCASI Method DI/MEOH–94.03, Methanol in Process Liquids and Wastewaters by GC/FID, Issued May 2000, IBR approved for §§ 63.457 and 63.459.

(2) NCASI Method CI/WP–98.01, Chilled Impinger Method For Use At Wood Products Mills to Measure Formaldehyde, Methanol, and Phenol, 1998, Methods Manual, IBR approved for table 4 to subpart DDDD.

(3) NCASI Method DI/HAPS–99.01, Selected HAPs In Condensates by GC/FID, Issued February 2000, IBR approved for § 63.459(b).

(4) NCASI Method IM/CAN/WP–99.02, Impinger/Canister Source Sampling Method for Selected HAPs and Other Compounds at Wood Products Facilities, January 2004, Methods Manual, IBR approved for table 4 to subpart DDDD.

(5) NCASI Method ISS/FP A105.01, Impinger Source Sampling Method for Selected Aldehydes, Ketones, and Polar Compounds, December 2005, Methods Manual, IBR approved for table 4 to subpart DDDD.

(o) National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 605–6000 or (800) 553–6847; or for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512–1800.

(1) Handbook 44, Specificiations, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices 1998, IBR approved for § 63.1303(e).

(2) ''Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,'' EPA Publication SW–846, Third Edition. (A suffix of ''A'' in the method number indicates revision one (the method has been revised once). A suffix of ''B'' in the method number indicates revision two (the method has been revised twice).

(i) Method 0023A, ''Sampling Method for Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofuran Emissions from Stationary Sources,'' dated December 1996, IBR approved for § 63.1208(b).

(ii) Method 9071B, ''n-Hexane Extractable Material (HEM) for Sludge, Sediment, and Solid Samples,'' dated April 1998, IBR approved for § 63.7824(e).

(iii) Method 9095A, ''Paint Filter Liquids Test,'' dated December 1996, IBR approved for §§ 63.7700(b) and 63.7765.

(iv) Method 9095B, ''Paint Filter Liquids Test,'' (revision 2), dated November 2004, IBR approved for the definition of ''Free organic liquids'' in §§ 63.10692, 63.10885(a), and the definition of ''Free liquids'' in § 63.10906.

(v) SW–846 74741B, Revision 2, ‘‘Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique),’’ February 2007, IBR approved for § 63.11647(f).

(3) National Institute of Occupational Safety and Health (NIOSH) test method compendium, ‘‘NIOSH Manual of Analytical Methods,’’ NIOSH publication no. 94–113, Fourth Edition, August 15, 1994.

(i) NIOSH Method 2010, ‘‘Amines, Aliphatic,’’ Issue 2, August 15, 1994, IBR approved for § 63.7732(g).

(ii) [Reserved]

(p) North American Electric Reliability Corporation, 1325 G Street, NW., Suite 600, Washington, DC 20005–3801, *http://www.nerc.com, http://www.nerc.com/files/EOP0002-3_1.pdf.*

(1) North American Electric Reliability Corporation Reliability Standard EOP–002–3, Capacity and Energy Emergencies, adopted August 5, 2010, IBR approved for § 63.6640(f).

(2)[Reserved]

(q) Technical Association of the Pulp and Paper Industry (TAPPI), 15 Technology Parkway South, Norcross, GA 30092, (800) 332–8686, *http://www.tappi.org.*

(1) TAPPI T 266, Determination of Sodium, Calcium, Copper, Iron, and Manganese in Pulp and Paper by Atomic Absorption Spectroscopy (Reaffirmation of T 266 om-02), Draft No. 2, July 2006, IBR approved for table 6 to subpart DDDDD.

(2) [Reserved]

(r) Texas Commission on Environmental Quality (TCEQ) Library, Post Office Box 13087, Austin, Texas 78711–3087, telephone number (512) 239–0028, *http://www.tceq.state.tx.us/assets/public/implementation/air/sip/sipdocs/2002-12-HGB/02046sipapp_ado.pdf.*

(1) ‘‘Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound Emissions from Water Sources,’’ Revision Number One, dated January 2003, Sampling Procedures Manual, Appendix P: Cooling Tower Monitoring, January 31, 2003, IBR approved for §§ 63.654 and 63.11920.

(2) [Reserved]

Subpart G—[Amended]

■ 43. Amend § 63.144 by adding paragraphs (b)(5)(i)(G) and (H) to read as follows:

§ 63.144 Process wastewater provisions—test methods and procedures for determining applicability and Group 1/Group 2 determinations (determining which wastewater streams require control).

* * * * *

(b) * * *

(5) * * *

(i) * * *

(G) *Method 8260B.* Use procedures specified in Method 8260B in the SW–846 Compendium of Methods.

(H) *Method 316.* Use Method 316 to determine formaldehyde concentration.

* * * * *

Subpart N—[Amended]

■ 44. Amend § 63.344 by adding paragraph (c)(5) to read as follows:

§ 63.344 Performance test requirements and test methods.

* * * * *

(c) * * *

(5) The South Coast Air Quality Management District (SCAQMD) Method 205.1 (which is available by contacting the South Coast AQMD, 21865 Copley Dr, Diamond Bar, CA 91765) may be used to determine the total chromium concentration from hard and decorative chromium electroplating tanks and chromium anodizing tanks.

* * * * *

Subpart O—[Amended]

■ 45. Amend § 63.364 by revising paragraph (e) to read as follows:

§ 63.364 Monitoring requirements.

* * * * *

(e) Measure and record once per hour the ethylene oxide concentration at the outlet to the atmosphere after any control device according to the procedures specified in § 63.365(c)(1). The owner or operator shall compute and record a 24-hour average daily. The owner or operator will install, calibrate, operate, and maintain a monitor consistent with the requirements of performance specification (PS) 8 or 9 in 40 CFR part 60, appendix B, to measure ethylene oxide. The daily calibration requirements of section 7.2 of PS–9 or Section 13.1 of PS–8 are required only on days when ethylene oxide emissions are vented to the control device.

* * * * *

■ 46. Amend § 63.365 by revising the introductory text of paragraph (b) to read as follows:

§ 63.365 Test methods and procedures.

* * * * *

(b) *Efficiency at the sterilization chamber vent.* California Air Resources Board (CARB) Method 431 or the following procedures shall be used to determine the efficiency of all types of control devices used to comply with § 63.362(c), sterilization chamber vent standard.

* * * * *

Subpart Y—[Amended]

■ 47. Amend § 63.565 by revising paragraphs (d)(5), (8), and (10) and (g) to read as follows:

§ 63.565 Test methods and procedures.

* * * * *

(d) * * *

(5) *Recovery devices.* The average VOC concentration in the vent upstream and downstream of the control device shall be determined using Method 25A or 25B of appendix A–7 to part 60 of this chapter for recovery devices. The average VOC concentration shall correspond to the volume measurement by taking into account the sampling system response time.

* * * * *

(8) Where Method 25, 25A, or 25B is used to measure the percent reduction in VOC, the percent reduction across the combustion or recovery device shall be calculated as follows:

$$R = \frac{E_i - E_o}{E_i} (100\%)$$

Where:

R = control efficiency of control device, percent.

E_i = mass flow rate of VOC at the inlet to the combustion or recovery device as calculated under paragraph (c)(7) of this section, kg/hr.

E_o = mass flow rate of VOC at the outlet of the combustion or recovery device, as calculated under paragraph (c)(7) of this section, kg/hr.

* * * * *

(10) Use of methods other than Method 25, 25A, or 25B shall be validated pursuant to Method 301 of appendix A to part 63 of this chapter.

* * * * *

(g) *Baseline outlet VOC concentration.* The procedures in this paragraph shall be used to determine the outlet VOC concentration required in § 63.563(b)(4), (6), (7), and (8) for combustion devices except flare, carbon adsorbers, condenser/refrigeration units, and absorbers, respectively, and to monitor the VOC concentration as required in § 63.564(e), (g), (h), and (i). The owner or operator shall use the procedures outlined in Method 25A or 25B. For the baseline VOC concentration, the arithmetic average of the outlet VOC concentration from three test runs from paragraph (d) of this section shall be calculated for the control device. The VOC concentration shall be measured at least every 15 minutes. Compliance testing of VOC CEMS shall be performed using PS 8.

* * * * *

Subpart GG—[Amended]

■ 48. Amend § 63.750 by revising paragraph (o) to read as follows:

§ 63.750 Test methods and procedures.

* * * * *

(o) *Inorganic HAP emissions—dry particulate filter certification requirements.* Dry particulate filters used to comply with § 63.745(g)(2) or § 63.746(b)(4) must be certified by the filter manufacturer or distributor, paint/depainting booth supplier, and/or the facility owner or operator using method 319 in appendix A of this part, to meet or exceed the efficiency data points found in Tables 1 and 2, or 3 and 4 of § 63.745 for existing or new sources respectively.

Subpart GGG—[Amended]

■ 49. Amend § 63.1251 by revising the definition of ''Process vent'' to read as follows:

§ 63.1251 Definitions.

* * * * *

Process vent means a vent from a unit operation or vents from multiple unit operations within a process that are manifolded together into a common header, through which a HAP-containing gas stream is, or has the potential to be, released to the atmosphere. Examples of process vents include, but are not limited to, vents on condensers used for product recovery, bottom receivers, surge control vessels, reactors, filters, centrifuges, and process tanks. Emission streams that are undiluted and uncontrolled containing less than 50 ppmv HAP, as determined through process knowledge that no HAP are present in the emission stream or using an engineering assessment as discussed in § 63.1257(d)(2)(ii); test data using Method 18 of 40 CFR part 60, appendix A–6; Method 320 of 40 CFR part 63; or any other test method that has been validated according to the procedures in Method 301 of appendix A of this part, are not considered process vents. Process vents do not include vents on storage tanks regulated under § 63.1253, vents on wastewater emission sources regulated under § 63.1256, or pieces of equipment regulated under § 63.1255.

* * * * *

Subpart RRR—[Amended]

■ 50. Amend § 63.1511 by revising paragraph (c)(9) as to read follows:

§ 63.1511 Performance test/compliance demonstration general requirements.

* * * * *

(c) * * *

(9) Method 26A for the concentration of HCl. Where a lime-injected fabric filter is used as the control device to comply with the 90 percent reduction standard, the owner or operator must measure the fabric filter inlet concentration of HCl at a point before lime is introduced to the system. Method 26 may be used in place of Method 26A where it can be demonstrated that there are no water droplets in the emission stream. This can be demonstrated by showing that the vapor pressure of water in the emission stream that you are testing is less than the equilibrium vapor pressure of water at the emission stream temperature, and by certifying that the emission stream is not controlled by a wet scrubber.

* * * * *

Subpart CCCC—[Amended]

■ 51. Revise Table 2 to subpart CCCC to read as follows:

As stated in § 63.2161, if you demonstrate compliance by monitoring brew ethanol, you must comply with the requirements for performance tests in the following table:

TABLE 2 TO SUBPART CCCC OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS

[Brew Ethanol Monitoring Only]

For each fed-batch fermenter for which compliance is determined by monitoring brew ethanol concentration and calculating VOC concentration in the fermenter exhaust according to the procedures in § 63.2161, you must . . .	Using . . .	According to the following requirements . . .
1. Measure VOC as propane	Method 25A*, or an alternative validated by EPA Method 301* and approved by the Administrator.	You must measure the VOC concentration in the fermenter exhaust at any point prior to the dilution of the exhaust stream.

* EPA Test Methods found in Appendix A of 40 CFR part 60.

Subpart UUUU—[Amended]

■ 52. Revise Table 4 to subpart UUUU to read as follows:

As required in §§ 63.5530(b) and 63.5535(a), (b), (g)(1), and (h)(1), you must conduct performance tests, other initial compliance demonstrations, and CEMS performance evaluations and establish operating limits according to the requirements in the following table:

TABLE 4 TO SUBPART UUUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
1. the sum of all process vents.	a. each existing or new affected source.	i. select sampling port's location and the number of traverse points;	EPA Method 1 or 1A in appendix A to 40 CFR § 63.7(d)(1)(i);	sampling sites must be located at the inlet and outlet to each control device;
		ii. determine velocity and volumetric flow rate;	EPA Method 2, 2A, 2C, 2D, 2F, or 2G in appendices A–1 and A–2 to part 60 of this chapter;	you may use EPA Method 2A, 2C, 2D, 2F, or 2G as an alternative to using EPA Method 2, as appropriate;

TABLE 4 TO SUBPART UUUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
		iii. conduct gas analysis; and,	(1) EPA Method 3, 3A, or 3B in appendix A–2 to part 60 of this chapter; or,	you may use EPA Method 3A or 3B as an alternative to using EPA Method 3; or,
			(2) ASME PTC 19.10–1981—Part 10; and,	you may use ASME PTC 19.10–1981—Part 10 (available for purchase from Three Park Avenue, New York, NY 10016–5990) as an alternative to using EPA Method 3B.
		iv. measure moisture content of the stack gas.	EPA Method 4 in appendix A–3 to part 60 of this chapter.	
2. the sum of all viscose process vents.	a. each existing or new viscose process source.	i. measure total sulfide emissions.	(1) EPA Method 15 in appendix A–5 to part 60 of this chapter; or	(a) you must conduct testing of emissions at the inlet and outlet of each control device;
				(b) you must conduct testing of emissions from continuous viscose process vents and combinations of batch and continuous viscose process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535;
				(c) you must conduct testing of emissions from batch viscose process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and
				(d) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the period of the initial compliance demonstration; or
			(2) carbon disulfide and/or hydrogen sulfide CEMS, as applicable;	(a) you must measure emissions at the inlet and outlet of each control device using CEMS;
				(b) you must install, operate, and maintain the CEMS according to the applicable performance specification (PS–7, PS–8, PS–9, or PS–15) of 40 CFR part 60, appendix B; and
				(c) you must collect CEMS emissions data at the inlet and outlet of each control device during the period of the initial compliance demonstration and determine the CEMS operating limit during the period of the initial compliance demonstration.
3. the sum of all solvent coating process vents.	a. each existing or new cellophane operation.	i. measure toluene emissions.	(1) EPA Method 18 in appendix A–6 to part 60 of this chapter, or Method 320 in appendix A to part 63, or	(a) you must conduct testing of emissions at the inlet and outlet of each control device;
				(b) you may use EPA Method 18 or 320 to determine the control efficiency of any control device for organic compounds; for a combustion device, you must use only HAP that are present in the inlet to the control device to characterize the percent reduction across the combustion device;
				(c) you must conduct testing of emissions from continuous solvent coating process vents and combinations of batch and continuous solvent coating process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535;

TABLE 4 TO SUBPART UUUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(d) you must conduct testing of emissions from batch solvent coating process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the initial compliance demonstration; or
			(2) ASTM D6420–99 ..	(a) you must conduct testing of emissions at the inlet and outlet of each control device; (b) you may use ASTM D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106) as an alternative to EPA Method 18 only where: the target compound(s) are those listed in Section 1.1 of ASTM D6420–99; and the target concentration is between 150 parts per billion by volume (ppbv) and 100 ppmv; for target compound(s) not listed in Section 1.1 of ASTM D6420–99, but potentially detected by mass spectrometry, the additional system continuing calibration check after each run, as detailed in Section 10.5.3 of the ASTM method, must be followed, met, documented, and submitted with the data report even if there is no moisture condenser used or the compound is not considered water soluble; and for target compound(s) not listed in Section 1.1 of ASTM D6420–99 and not amenable to detection by mass spectrometry, ASTM D6420–99 does not apply; (c) you must conduct testing of emissions from continuous solvent coating process vents and combinations of batch and continuous solvent coating process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535; (d) you must conduct testing of emissions from batch solvent coating process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and, (e) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the period of the initial compliance demonstration.
4. the sum of all cellulose ether process vents.	a. each existing or new cellulose ether operation.	i. measure total organic HAP emissions.	(1) EPA Method 18 in appendix A–6 to part 60 of this chapter or Method 320 in appendix A to part 63, or	(a) you must conduct testing of emissions at the inlet and outlet of each control device; (b) you may use EPA Method 18 or 320 to determine the control efficiency of any control device for organic compounds; for a combustion device, you must use only HAP that are present in the inlet to the control device to characterize the percent reduction across the combustion device;

TABLE 4 TO SUBPART UUUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(c) you must conduct testing of emissions from continuous cellulose ether process vents and combinations of batch and continuous cellulose ether process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535; (d) you must conduct testing of emissions from batch cellulose ether process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial performance test and determine the CPMS operating limit during the period of the initial performance test;
			(2) ASTM D6420–99 ..	(a) you must conduct testing of emissions at the inlet and outlet of each control device; (b) you may use ASTM D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106) as an alternative to EPA Method 18 only where: the target compound(s) are those listed in Section 1.1 of ASTM D6420–99; and the target concentration is between 150 ppbv and 100 ppmv; for target compound(s) not listed in Section 1.1 of ASTM D6420–99, but potentially detected by mass spectrometry, the additional system continuing calibration check after each run, as detailed in Section 10.5.3 of the ASTM method, must be followed, met, documented, and submitted with the data report even if there is no moisture condenser used or the compound is not considered water soluble; and for target compound(s) not listed in Section 1.1 of ASTM D6420–99 and not amenable to detection by mass spectrometry, ASTM D6420–99 does not apply; target concentration is between 150 ppbv and 100 ppmv for target compound(s). (c) you must conduct testing of emissions from continuous cellulose ether process vents and combinations of batch and continuous cellulose ether process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535; (d) you must conduct testing of emissions from batch cellulose ether process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial performance test and determine the CPMS operating limit during the period of the initial performance test.
			(3) EPA Method 25 in appendix A–7 to part 60 of this chapter; or	(a) you must conduct testing of emissions at the inlet and outlet of each control device;

TABLE 4 TO SUBPART UUUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(b) you may use EPA Method 25 to determine the control efficiency of combustion devices for organic compounds; you may not use EPA Method 25 to determine the control efficiency of noncombustion control devices; (c) you must conduct testing of emissions from continuous cellulose ether process vents and combinations of batch and continuous cellulose ether process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535; (d) you must conduct testing of emissions from batch cellulose ether process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and (e) you must collect CPMS data during the period of the initial performance test and determine the CPMS operating limit during the period of the initial performance test; or
			(4) EPA Method 25A in appendix A–7 to part 60 of this chapter	(a) you must conduct testing of emissions at the inlet and outlet of each control device;
				(b) you may use EPA Method 25A if: an exhaust gas volatile organic matter concentration of 50 ppmv or less is required in order to comply with the emission limit; the volatile organic matter concentration at the inlet to the control device and the required level of control are such as to result in exhaust volatile organic matter concentrations of 50 ppmv or less; or because of the high control efficiency of the control device, the anticipated volatile organic matter concentration at the control device exhaust is 50 ppmv or less, regardless of the inlet concentration; (c) you must conduct testing of emissions from continuous cellulose ether process vents and combinations of batch and continuous cellulose ether process vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535; (d) you must conduct testing of emissions from batch cellulose ether process vents as specified in § 63.490(c), except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and, (e) you must collect CPMS data during the period of the initial performance test and determine the CPMS operating limit during the period of the initial performance test.
5. each toluene storage vessel.	a. each existing or new cellophane operation.	i. measure toluene emissions.	(1) EPA Method 18 in appendix A–6 to part 60 of this chapter or Method 320 in appendix A to part 63; or	(a) if venting to a control device to reduce emissions, you must conduct testing of emissions at the inlet and outlet of each control device;

TABLE 4 TO SUBPART UUUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(b) you may use EPA Method 18 or 320 to determine the control efficiency of any control device for organic compounds; for a combustion device, you must use only HAP that are present in the inlet to the control device to characterize the percent reduction across the combustion device; (c) you must conduct testing of emissions from continuous storage vessel vents and combinations of batch and continuous storage vessel vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535 for continuous process vents; (d) you must conduct testing of emissions from batch storage vessel vents as specified in § 63.490(c) for batch process vents, except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and, (e) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the period of the initial compliance demonstration; or
			(2) ASTM D6420–99 ..	(a) if venting to a control device to reduce emissions, you must conduct testing of emissions at the inlet and outlet of each control device; (b) you may use ASTM D6420–99 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106) as an alternative to EPA Method 18 only where: the target compound(s) are those listed in Section 1.1 of ASTM D6420–99, and the target concentration is between 150 ppbv and 100 ppmv; for target compound(s) not listed in Section 1.1 of ASTM D6420–99, but potentially detected by mass spectrometry, the additional system continuing calibration check after each run, as detailed in Section 10.5.3 of the ASTM method, must be followed, met, documented, and submitted with the data report even if there is no moisture condenser used or the compound is not considered water soluble; and for target compound(s) not listed in Section 1.1 of ASTM D6420–99 and not amenable to detection by mass spectrometry, ASTM D6420–99 does not apply; (c) you must conduct testing of emissions from continuous storage vessel vents and combinations of batch and continuous storage vessel vents at normal operating conditions, as specified in §§ 63.7(e)(1) and 63.5535 for continuous process vents; (d) you must conduct testing of emissions from batch storage vessel vents as specified in § 63.490(c) for batch process vents, except that the emission reductions required for process vents under this subpart supersede the emission reductions required for process vents under subpart U of this part; and,

TABLE 4 TO SUBPART UUUU OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For . . .	at . . .	you must . . .	using . . .	according to the following requirements . . .
				(e) you must collect CPMS data during the period of the initial compliance demonstration and determine the CPMS operating limit during the period of the initial compliance demonstration.
6. the sum of all process vents controlled using a flare.	a. each existing or new affected source.	i. measure visible emissions.	(1) EPA Method 22 in appendix A–7 to part 60 of this chapter.	(a) you must conduct the flare visible emissions test according to § 63.11(b).
7. equipment leaks	a. each existing or new cellulose ether operation.	i. measure leak rate ...	(1) applicable equipment leak test methods in § 63.180; or	(a) you must follow all requirements for the applicable equipment leak test methods in § 63.180; or
			(2) applicable equipment leak test methods in § 63.1023	(a) you must follow all requirements for the applicable equipment leak test methods in § 63.1023.
8. all sources of wastewater emissions.	a. each existing or new cellulose ether operation.	i. measure wastewater HAP emissions.	(1) applicable wastewater test methods and procedures in §§ 63.144 and 63.145; or	(a) You must follow all requirements for the applicable wastewater test methods and procedures in §§ 63.144 and 63.145; or
			(2) applicable wastewater test methods and procedures in §§ 63.144 and 63.145, using ASTM D5790–95 as an alternative to EPA Method 624 in appendix A to part 163 of this chapter.	(a) you must follow all requirements for the applicable waste water test methods and procedures in §§ 63.144 and 63.145, except that you may use ASTM D5790–95 (available for purchase from at least one of the following addresses: 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959; or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106) as an alternative to EPA Method 624, under the condition that this ASTM method be used with the sampling procedures of EPA Method 25D or an equivalent method.
9. any emission point	a. each existing or new affected source using a CEMS to demonstrate compliance.	i. conduct a CEMS performance evaluation.	(1) applicable requirements in § 63.8 and applicable performance specification (PS–7, PS–8, PS–9, or PS–15) in appendix B to part 60 of this chapter.	(a) you must conduct the CEMS performance evaluation during the period of the initial compliance demonstration according to the applicable requirements in § 63.8 and the applicable performance specification (PS–7, PS–8, PS–9, or PS–15) of 40 CFR part 60, appendix B; (b) you must install, operate, and maintain the CEMS according to the applicable performance specification (PS–7, PS–8, PS–9, or PS–15) of 40 CFR part 60, appendix B; and (c) you must collect CEMS emissions data at the inlet and outlet of each control device during the period of the initial compliance demonstration and determine the CEMS operating limit during the period of the initial compliance demonstration.

Subpart ZZZZ—[Amended]

■ 53. Revise Table 4 to subpart ZZZZ to read as follows:

As stated in §§ 63.6610, 63.6611, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

TABLE 4 TO SUBPART ZZZZ OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
1. 2SLB, 4SLB, and CI stationary RICE.	a. reduce CO emissions.	i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the control device; and	....	(a) For CO and O_2 measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A–1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A–4.
		ii. Measure the O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A–2, or ASTM Method D6522–00 (Reapproved 2005)[a,c] (heated probe not necessary).	(b) Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.
		iii. Measure the CO at the inlet and the outlet of the control device.	(1) ASTM D6522–00 (Reapproved 2005)[a,b,c] (heated probe not necessary) or Method 10 of 40 CFR part 60, appendix A–4.	(c) The CO concentration must be at 15 percent O_2, dry basis.
2. 4SRB stationary RICE.	a. reduce formaldehyde emissions.	i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the control device; and	....	(a) For formaldehyde, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A.
		ii. Measure O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A–2, or ASTM Method D6522–00 (Reapproved 2005)[a] (heated probe not necessary).	(a) Measurements to determine O_2 concentration must be made at the same time as the measurements for formaldehyde or THC concentration.
		iii. Measure moisture content at the inlet and outlet of the control device; and	(1) Method 4 of 40 CFR part 60, appendix A–3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03[a].	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or THC concentration.

TABLE 4 TO SUBPART ZZZZ OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		iv. If demonstrating compliance with the formaldehyde percent reduction requirement, measure formalde-hyde at the inlet and the outlet of the control device.	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348–03 [a], provided in ASTM D6348–03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130.	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. If demonstrating compliance with the THC percent reduction requirement, measure THC at the inlet and the outlet of the control device.	(1) Method 25A, reported as propane, of 40 CFR part 60, appendix A–7.	(a) THC concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
3. Stationary RICE	a. limit the concentration of formaldehyde or CO in the stationary RICE exhaust.	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary RICE; and	....	(a) For formaldehyde, CO, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A. If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary RICE exhaust at the sampling port location; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A–2, or ASTM Method D6522–00 (Reapproved 2005) [a] (heated probe not necessary).	(a) Measurements to determine O_2 concentration must be made at the same time and location as the measurements for formaldehyde or CO concentration.
		iii. Measure moisture content of the sta-tion-ary RICE exhaust at the sampling port location; and	(1) Method 4 of 40 CFR part 60, appendix A–3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03 [a].	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or CO concentration.
		iv. Measure formaldehyde at the exhaust of the station-ary RICE; or	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348–03 [a], provided in ASTM D6348–03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130.	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

TABLE 4 TO SUBPART ZZZZ OF PART 63—REQUIREMENTS FOR PERFORMANCE TESTS—Continued

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		v. measure CO at the exhaust of the sta-tion-ary RICE.	(1) Method 10 of 40 CFR part 60, appendix A–4, ASTM Method D6522–00 (2005)[a,c], Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03[a].	(a) CO concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

[a] You may also use Methods 3A and 10 as options to ASTM–D6522–00 (2005). You may obtain a copy of ASTM–D6522–00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[b] You may obtain a copy of ASTM–D6348–03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

■ 54. Amend appendix A to part 63 to read as follows:

■ a. By revising Method 306, sections 2.2.1 and 6.1.4, and the Note to section 8.0.

■ b. By revising Method 306A, section 8.2.

■ c. By revising Method 308, section 10.1.3.

■ d. By amending Method 315 as follows:

■ i. By revising section 6.1.1.

■ ii. By redesignating section 8.11 as section 8.1.

■ iii. By revising newly designated section 8.1.

■ iv. By revising section 10.5.

■ e. By revising Method 316, section 10.5.

■ f. By revising Method 321, the definition for the term ''Df'' in section 9.3.1.

Appendix A to Part 63—Test Methods Pollutant Measurement Methods From Various Waste Media

* * * * *

Method 306—Determination of Chromium Emissions From Decorative and Hard Chromium Electroplating and Chromium Anodizing Operations—Isokinetic Method

* * * * *

2.2.1 Total chromium samples with high chromium concentrations (≥35 µg/L) may be analyzed using inductively coupled plasma emission spectrometry (ICP) at 267.72 nm. Note: The ICP analysis is applicable for this method only when the solution analyzed has a Cr concentration greater than or equal to 35 µg/L or five times the method detection limit as determined according to appendix B in 40 CFR part 136. Similarly, inductively coupled plasma-mass spectroscopy (ICP–MS) may be used for total chromium analysis provided the procedures for ICP–MS analysis described in Method 6020 or 6020A (EPA Office of Solid Waste, publication SW–846) are followed.

* * * * *

6.1.4 Operating and maintenance procedures for the sampling train are described in APTD–0576 of Method 5. Users should read the APTD–0576 document and adopt the outlined procedures. Alternative mercury-free thermometers may be used if the thermometers are, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

* * * * *

8.0 Sample Collection, Preservation, Holding Times, Storage, and Transport

Note: Prior to sample collection, consideration should be given to the type of analysis (Cr^{+6} or total Cr) that will be performed. Which analysis option(s) will be performed will determine which sample recovery and storage procedures will be required to process the sample.

* * * * *

Method 306A—Determination of Chromium Emissions From Decorative and Hard Chromium Electroplating and Chromium Anodizing Operations

* * * * *

8.2 Sample Recovery. After the train has been transferred to the sample recovery area, disconnect the tubing that connects the jar/impingers. The tester shall select either the total Cr or Cr^{+6} sample recovery option. Samples to be analyzed for both total Cr and Cr^{+6} shall be recovered using the Cr^{+6} sample option (Section 8.2.2). Note: Collect a reagent blank sample for each of the total Cr or the Cr^{+6} analytical options. If both analyses (Cr and Cr^{+6}) are to be conducted on the samples, collect separate reagent blanks for each analysis. Also, since particulate matter is not usually present at chromium electroplating and/or chromium anodizing operations, it is not necessary to filter the Cr^{+6} samples unless there is observed sediment in the collected solutions. If it is necessary to filter the Cr^{+6} solutions, please refer to Method 0061, Determination of Hexavalent Chromium Emissions from Stationary Sources, Section 7.4, Sample Preparation in SW–846 (see Reference 1).

* * * * *

Method 308—Procedure for Determination of Methanol Emission From Stationary Sources

* * * * *

10.1.3 Temperature Sensors. Calibrate against mercury-in-glass thermometers. An alternative mercury-free thermometer may be used if the thermometer is, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

* * * * *

Method 315—Determination of Particulate and Methylene Chloride Extractable Matter (MCEM) From Selected Sources at Primary Aluminum Production Facilities

* * * * *

6.1.1 Sampling train. A schematic of the sampling train used in this method is shown in Figure 5–1, Method 5, 40 CFR part 60, appendix A–3. Complete construction details are given in APTD–0581 (Reference 2 in section 17.0 of this method); commercial models of this train are also available. For changes from APTD–0581 and for allowable modifications of the train shown in Figure 5–1, Method 5, 40 CFR part 60, appendix A–3, see the following subsections. Note: The operating and maintenance procedures for the sampling train are described in APTD–0576 (Reference 3 in section 17.0 of this method). Since correct usage is important in obtaining valid results, all users should read APTD–0576 and adopt the operating and maintenance procedures outlined in it, unless otherwise specified herein. Alternative mercury-free thermometers may be used if the thermometers are, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application. The use of grease for sealing sampling train components is not recommended because many greases are soluble in methylene chloride. The sampling train consists of the following components:

* * * * *

8.1 Pretest preparation. It is suggested that sampling equipment be maintained according to the procedures described in APTD–0576. Alternative mercury-free thermometers may be used if the thermometers are at a minimum equivalent in terms of performance or suitably effective for the specific temperature measurement application.

* * * * *

10.5 Temperature sensors. Use the procedure in Section 10.3 of Method 2, 40 CFR part 60, appendix A–1 to calibrate in-stack temperature sensors. Dial thermometers, such as are used for the DGM and condenser outlet, shall be calibrated against mercury-in-glass thermometers. An alternative mercury-free thermometer may be used if the thermometer is, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

* * * * *

Method 316—Sampling and Analysis for Formaldehyde Emissions From Stationary Sources in the Mineral Wool and Wool Fiberglass Industries

* * * * *

10.5 Temperature gauges: Use the procedure in Section 4.3 of EPA Method 2 to calibrate in-stack temperature gauges. Dial thermometers, such as are used for the dry gas meter and condenser outlet, shall be calibrated against mercury-in-glass thermometers. An alternative mercury-free thermometer may be used if the thermometer is, at a minimum, equivalent in terms of performance or suitably effective for the specific temperature measurement application.

* * * * *

Test Method 321—Measurement of Gaseous Hydrogen Chloride Emissions at Portland Cement Kilns by Fourier Transform Infrared (FTIR) Spectroscopy

* * * * *

9.3.1 * * *

DF = Dilution Factor (Total flow/Spike flow). Total flow = spike flow plus effluent flow.

* * * * *

[FR Doc. 2014–02704 Filed 2–26–14; 8:45 am]

BILLING CODE 6560–50–P